İÇİNDEKİLER / CONTENTS

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi / International Journal of Curriculum and Instructional Studies Cilt/Volume: 13 Sayı (Issue): 1

EPÖDER EĞİTİM PROGRAMLARI VE ÖĞRETİM DERNEĞİ
TURKISH CURRICULUM AND INSTRUCTION ASSOCIATION

ULUSLARARASI EĞİTİM PROGRAMLARI VE ÖĞRETİM ÇALIŞMALARI DERGİSİ

International Journal of Curriculum and Instructional Studies

CİLT/*VOLUME*: 13 SAYI/*ISSUE*: 1 HAZİRAN/JUNE 2023 ISSN: 2146-3638

EPÖDER EĞİTİM PROGRAMLARI VE ÖĞRETİM DERNEĞİ
TURKISH CURRICULUM AND INSTRUCTION ASSOCIATION

ULUSLARARASI EĞİTİM PROGRAMLARI VE ÖĞRETİM ÇALIŞMALARI DERGİSİ

International Journal of Curriculum and Instructional Studies

CİLT/VOLUME: 13 SAYI/ISSUE: 1 HAZİRAN/JUNE 2023 ISSN: 2146-3638

CİLT / VOLUME: 13 - SAYI / ISSUE: 1 HAZİRAN / JUNE 2023

INTERNATIONAL JOURNAL OF CURRICULUM AND INSTRUCTIONAL STUDIES (IJOCIS)
[ULUSLARARASI EĞİİTİM PROGRAMLARI VE ÖĞRETİM ÇALIŞMALARI DERGİSİ]

Cover Design

Pegem Academy

Kapak Tasarımı

Pegem Akademi

Publication/Basım

Ay-bay Kırtasiye İnşaat Gıda Pazarlama ve

Ticaret Limited Şirketi

Çetin Emeç Bulvarı 1314. Cadde No:37A-B

Ankara

Indexing

This journal is indexed by ERIC, ULAKBIM TR Dizin, ERIHPLUS, EBSCO Central & Eastern European Academic Source, Akademia Sosyal Bilimleri Index (ASOS), Idealonline and Scientific Indexing Services (SIS).

Taranılan Veritabanları

Bu dergi ERIC, ULAKBIM TR Dizin, ERIHPLUS, EBSCO Central & Eastern European Academic Source, Akademia Sosyal Bilimleri Index (ASOS), Idealonline ve Scientific Indexing Services (SIS) tarafından dizinlenmektedir.

Address

Kocatepe Mah. Hatay Sok. 6/12 Kızılay Çankaya/Ankara

+90 532 412 2452

+90 312 431 3738

http://www.ijocis.com

Contact

ijocisjournal@gmail.com

ISSN: 2146-3638; E-ISSN: 2619-9068

INTERNATIONAL JOURNAL OF CURRICULUM AND INSTRUCTIONAL STUDIES (IJOCIS)

[ULUSLARARASI EĞİTİM PROGRAMLARI VE ÖĞRETİM ÇALIŞMALARI DERGİSİ]

List of Reviewers for 13(1)

[13. Cilt 1. Sayı için Hakem Listesi]

Title	Name-Surname	University
Prof. Dr.	Berna Aslan	Ankara University
Prof. Dr.	Fatma Mızıkacı	Ankara University
Prof. Dr.	İlke Evin Gencel	İzmir Democracy University
Prof. Dr.	Nadir Çeliköz	Yıldız Technical University
Assoc. Prof. Dr.	Ali Yakar	Muğla Sıtkı Koçman University
Assoc. Prof. Dr.	Bilge Aslan Altan	Muğla Sıtkı Koçman University
Assoc. Prof. Dr.	Bünyamin Yurdakul	Ege University
Assoc. Prof. Dr.	Filiz Çetin	Gazi University
Assoc. Prof. Dr.	Gülçin Zeybek	Karamanoğlu Mehmet Bey University
Assoc. Prof. Dr.	İlknur Reisoğlu	Recep Tayyip Erdoğan University
Assoc. Prof. Dr.	İshak Kozikoğlu	Van Yüzüncü Yıl University
Assoc. Prof. Dr.	Osman Yılmaz Kartal	Çanakkale Onsekiz Mart University
Assoc. Prof. Dr.	Recep Kahramanoğlu	Gaziantep University
Assoc. Prof. Dr.	Sedat Kanadlı	Mersin University
Assoc. Prof. Dr.	Serhat Arslan	Necmettin Erbakan University
Assist. Prof. Dr.	Aydan Esmerligil Kaplan	Gazi University
Assist. Prof. Dr.	Ayşin Üstün	Sinop University
Assist. Prof. Dr.	Esra Çakar Özkan	Burdur Mehmet Akif Ersoy University
Assist. Prof. Dr.	Nurtaç Üstündağ Kocakuşak	Aydın Adnan Menderes University
Assist. Prof. Dr.	Taner Arabacıoğlu	Aydın Adnan Menderes University
Dr.	Yasin Ay	Ege University

CONTENTS / İÇİNDEKİLER	Pages

Baş Editörden

Eğitim Programları ve Öğretim alanının değerli okurları,

Konu itibariyle bakıldığında, Haziran 2023 sayımızda 'hizmet içi eğitim programı değerlendirme, öğretmenlerin zamanlarını geçirdikleri atmosfer, program okuryazarlığı, eğitimcilerin dijital yeterlikleri, öğretmen adaylarının sosyo-duygusal yetkinlikleri, yapılandırmacı program değişimine yönelik tutumlar, diyalojik öğretim ve öğrenme yaklaşımının boyutları, matematik programı değerlendirme, elektronik portfolyo hazırlama ve matematiksel iletişim becerisi kazanımları'nın incelendiği birbirinden nitelikli 10 çalışma yer almaktadır

Bu sayımıza katkıda bulunan tüm yazarlarımızı çalışmalarından dolayı tebrik ediyoruz ve başarılarının devamını diliyoruz. Ayrıca değerlendirme tekliflerimizi geri çevirmeyip, makaleleri titizlikle inceleyen alanlarında tüm akademisyenlerimize, yayın kuruluna ve editörler kuruluna dergimizin yayımlanması için yapmış oldukları özverili katkılarından dolayı çok teşekkür ederiz.

IJOCIS dergimizin daha üst veri tabanlarında dizinlenmesi için hiçbir karşılık beklemeden titizlik, ciddiyet ve tutarlılıkla çalışmaya devam ediyoruz. Ayrıca, süreçte ekibe yeni katılan ve makale metinlerini titizlikle kontrol eden arkadaşlarımıza katkılarından dolayı teşekkür ediyoruz.

2023 yılı itibariyle APA7 stiline dayalı bir anlayışı benimseyen ve başta ERIC, ULAKBIM TR Dizin olmak üzere birçok veritabanı tarafından dizinlenen IJOCIS, 2023 itibariyle ERIHPLUS (European Reference Index for the Humanities) tarafından da dizinlenmeye başlamıştır. Hedefimiz olan Clarivate veritabanında dizinlenebilmek için emin adımlarla ilerliyoruz.

Eğitim Programları ve Öğretim alanında çalışan eğitimciler başta olmak üzere tüm eğitimcileri dergi odağına uygun, bilimsel niteliği yüksek ve özgün çalışmalar göndermeleri için, her zaman olduğu gibi, çağrımızı yineliyoruz.

Esenlik dileklerimizle.

Prof. Dr. Kerim GÜNDOĞDU

From the Editor-in-Chief

Dear readers of Curriculum and Instruction,

In our June 2023 issue, there are 10 high-quality studies that investigate 'in-service training program evaluation, the atmosphere in which teachers spend their time, curriculum literacy, digital competencies of educators, socio-emotional competencies of pre-service teachers, attitudes towards constructivist curriculum change, dimensions of dialogic teaching and learning approach, mathematics curriculum evaluation, electronic portfolio preparation and mathematical communication skill outcomes'.

We congratulate all authors who contributed to the publication of this issue and wish them continued success in the future. In addition, we would like to thank all expert reviewers for taking the necessary time and effort to review the manuscript carefully and their devoted contributions to the journal.

We continue to work with diligence, seriousness, and consistency without expecting anything in return; thereby, IJOCIS may be indexed in larger, reputable, and global citation databases. In addition, we had new friends who joined the team to check the articles meticulously. We sincerely thank them for their contributions.

As of 2023, IJOCIS adopts an understanding based on APA7 style and is indexed in many databases, especially including ERIC and ULAKBIM TR Index. It has also started to be indexed by ERIHPLUS (European Reference Index for the Humanities) as of 2023. We are confidently moving forward to being indexed in the Clarivate database, which is our main goal.

As always, we invite all educators, especially educators working in the field of Curriculum and Instruction, to submit original and high-quality studies that align with the focus of the journal.

With our best regards.

Prof. Dr. Kerim GÜNDOĞDU

International Journal of Curriculum and Instructional Studies

13(*1*), 2023, 1-29

www.ijocis.com

An Evaluation of In-Service Training Curriculum for Practitioners of English for Academic Purposes

Derya Uysal, Alanya Alaaddin Keykubat University, derya.uysal@alanya.edu.tr
0000-0001-5393-5211

Sinem Çalışkan, Turkish Ministry of Education, sinemcaliskan91@gmail.com, ORCID: 0009-0003-6103-9048

Mustafa Polat, Karabük University, mustafapolat@karabuk.edu.tr
0000-0002-6905-0087

Mehmet Asmalı, Alanya Alaaddin Keykubat University, mehmet.asmali@alanya.edu.tr
0000-0002-4899-1179

Fidel Çakmak, Alanya Alaaddin Keykubat University, fidel.cakmak@alanya.edu.tr
0000-0002-3285-7661

Neşe Özkal, Alanya Alaaddin Keykubat University, nese.ozkal@alanya.edu.tr,
0000-0002-7854-5276

Meral Güven, Anadolu University, mguven@anadolu.edu.tr
0000- 0002-4139-729X

Keywords

Affective problems
EAP practitioners
In-service training
Curriculum evaluation

Article Info:

Received :08-02-2023
Accepted :11-04-2023
Published :24-06-2023

DOI: *1*0.31704/ijocis.2023.001

Abstract

This study evaluated a draft curriculum designed in a preliminary study to help practitioners of EAP (English for Academic Purposes) overcome affective problems in higher education language classes. Participatory evaluation model was used to evaluate the draft curriculum practiced with six EAP practitioners in a SFL (School of Foreign Languages) at a state university in Türkiye. A sequential explanatory mixed methods approach was employed. While quantitative data were gathered via a questionnaire, qualitative data were gathered via open ended question test, semi-structured interviews, in-field notes of the curriculum practitioner and the participant observer, and self-reflections of the participants. Findings presented in line with the strengths and weaknesses of the draft curriculum demonstrated that four components of the draft curriculum (objectives, learning experiences and materials, content and assessment and evaluation processes) functioned well. In addition, the weaknesses inspired the researchers to develop the draft curriculum. The current study contributes to institutional and national policies of in-service training for EAP practitioners. Developing a curriculum that targets a common problem represents an important innovation towards standardization in training EAP practitioners and fills in a crucial gap in the field of EAP.

To cite this article: Uysal, D., Çalışkan, S., Polat, M., Asmalı, M., Çakmak, F., Özkal, N., & Güven, M. (2023). An evaluation of the in-service training curriculum for practitioners of English for academic purposes. *International Journal of Curriculum and Instructional Studies, 13*(1), 1-29. https://doi.org/10.31704/ijocis.2023.001

Introduction

The increase in the number of English-medium programs in Turkish universities has been leading to a boost in learning English for academic purposes (EAP) for over two decades (Ergünay & Uysal, 2020). The departments of foreign languages (DFL) or schools of foreign languages (SFL) at Turkish universities are responsible for the organization and implementation of the EAP curriculum. DFLs or SFLs serve to improve the language proficiencies of freshmen so that they can achieve the essential foreign language skills to pursue the curriculum of their English-medium departments. Additionally, they teach foreign languages to students in Turkish medium departments at universities. Although there are differences in practices among institutions, students who will study in English-medium programs take the proficiency test at the beginning of a new academic year. Students who are successful in the exam start their studies directly at their faculties; however, unsuccessful students have to attend an intensive EAP program offered by SFLs or DFLs (YÖK, 2016). Depending on the conditions set by the universities, students have to be successful at least in the B1 level specified in the Common European Framework of Reference at the end of the program. Otherwise, they are forced to drop out or transfer to Turkish-medium universities (Ergünay & Uysal, 2020).

EAP context in Turkish universities can be challenging for EAP practitioners because their role is highly complex (Balbay et al., 2018; Ding et al., 2017). In addition to the role of language teaching, they need to take on some other tasks, such as raising institutional awareness, keeping their professional knowledge and skills up to date in line with the needs of the 21st century, having in-depth knowledge in the context of EAP, developing the specific teaching methods and principles they will need in this process, and even offering meaningful advice on test strategies for their students. Therefore, training EAP practitioners seems to be a challenging task and it is far from being straightforward (Sharpling, 2022). In the Turkish EAP context, universities have the core responsibility to train EAP practitioners and they benefit from the training offered by publishing houses or small-scale studies conducted by the units or offices. However, these training programs are not tailored to the needs of practitioners. Moreover, they are scarce in number and are not offered by trainers that are knowledgeable about the EAP context.

The challenges experienced by both learners and practitioners might lead to affective problems in language classes in the EAP context (Collins, 2010; Erdogan & Mede, 2021; Koçyiğit & Erdem, 2018). Learning a language is a complex and dynamic process and each learner's language learning process is unique. In other words, each learner goes through a process that consists of his or her unique failures and success while learning a language (Dörnyei, 2014). A number of socio-political, socio-cultural, and socio-psychological factors affect ultimate success of language learners. However, the most significant determinant of language learning is the feelings learners experience (Dörnyei, 2014; Dörnyei & Skehan, 2008) because feelings have an effect on how well a learner perceive and process the input presented (Williams & Burden, 1999). As suggested by Krashen in Affective Filter Hypothesis (1982), affective factors determine how well a learner learns a language. The learners that are not motivated or psychologically ready to learn a language are in search of less input and have difficulty in processing the input presented; they are very likely to build affective barriers in this process.

The concept of affective barriers in language learning was defined by few researchers in the related body of literature (Cohen & Norst, 1989; Mercer, 2008). First, Cohen and Norst (1989) defined affective barriers in language learning as the negative feelings (such as fears) aroused against a process that is unknown. Similarly, Mercer (2008) defined the concept as learners' self-perceived attack against the national identity. Besides, the researcher stated that affective barriers in language learning might cause the learner to refuse learning the target language, culture, or society. Last, Uysal (2019) benefitted from the following five criteria suggested by McCoach et al. (2013) and Anderson and Bourke (2000) to define the concept. According to the researchers, affective behaviors must involve emotions and feelings and be typical of a person's feelings and express emotions. Intensity is the third criterion and refers to the strength of the feelings. The feelings students have against language learning might be weak, moderate, tense, or strong. Fourth, direction is concerned with feelings being positive or negative. For example, while hatred is a negative feeling, joy is a positive one. Lastly, target refers to the object, person or ideas the feelings are directed at. Different students might be located along a continuum related to the intensity and direction of their feelings against language learning that is the target in this instance (Anderson & Bourke, 2000; McCoach et al., 2013). Direction (positive or negative) and intensity (strong, moderate, weak) of feelings and their interaction with one another determine the way feelings affect English learning process. In conclusion, the concept affective barriers in English language learning was defined as the combination and interaction of negative feelings that are directed at different components of EFL and acute enough to hinder the learning process (Uysal, 2019).

Research that investigated classroom environment (Fraser & Tobin, 1989; Fraser, 1982), interpersonal behaviors of teachers (Fraser & Walberg, 2005; Goh & Fraser, 1998; Saydam & Telli, 2011; Telli & Den Brok, 2012; Telli et al., 2007), and classroom management (Emmer & Stough, 2001; Terzi, 2002) evidences that failed teacher-student relationship is one of the factors that yields in affective barriers. McHugh et al. (2013) benefited from two hypotheses to explain the effect of teacher-student relationship on learning. First, Theory on Teachers' Interpersonal Communication (Fraser & Walberg, 2005; Goh & Fraser, 1998; Saydam & Telli, 2011; Telli & Brok, 2012; Telli et al., 2007) suggests that most teachers interact with students at the rate of success they expect from them, so the unsuccessful students are not provided with enough support in learning process and they get alienated from the course. Second, with reference to the Self-determination Theory (Ryan & Deci, 2019), fulfilment of the basic psychological need for relatedness is pivotal in terms of learners' developing autonomous motivation towards the course. Other two basic psychological needs are autonomy and competence. When these three needs are completely fulfilled in a learning environment, learners become autonomously motivated towards learning. Failed teacher-student relationship harms the feeling of relatedness, which prevents learners from improving autonomous motivation towards the course.

Affective problems have long been reported as one of the challenges faced by EAP practitioners in local studies (Aygün, 2017; Çağatay, 2015; Erdogan & Mede, 2021; Kızıltepe, 2000; Koçyiğit & Erdem, 2018; Öztürk & Gürbüz, 2014). In a study conducted in EAP context (Aygün, 2017), teacher behaviors leading to affective barriers were book-driven curriculum, disregarding students' interest and preferences, motonous regularity at lessons, complex instructions and instructional language, and non-use of technology during lessons (Aygün, 2017). Similarly, Uysal and Güven (2018) found out that affective barriers in language learning

in the EAP context resulted from problems that might be teacher-oriented, student-oriented, curriculum-oriented, and administration-oriented.

Despite the results of the studies (Aygün, 2017; Çağatay, 2015; Erdogan & Mede, 2021; Kızıltepe, 2000; Koçyiğit & Erdem, 2018; Öztürk & Gürbüz, 2014) that reported on the affective problems in language learning in the EAP context, a comprehensive literature review showed that neither a course in the faculties of education nor any training has been offered so far to prevent or solve the problems that practitioners may experience in this field. Besides, an in-service training curriculum has not been developed to assist EAP practitioners in coping with affective problems, either. As stated by researchers (Anderson & Bourke, 2000; McCoach et al., 2013), disregarding these affective problems might cause learners' negative feelings to become strong enough to erect affective barriers against different components of the target language. Therefore, a growing need for training to help practitioners overcome these problems appeared.

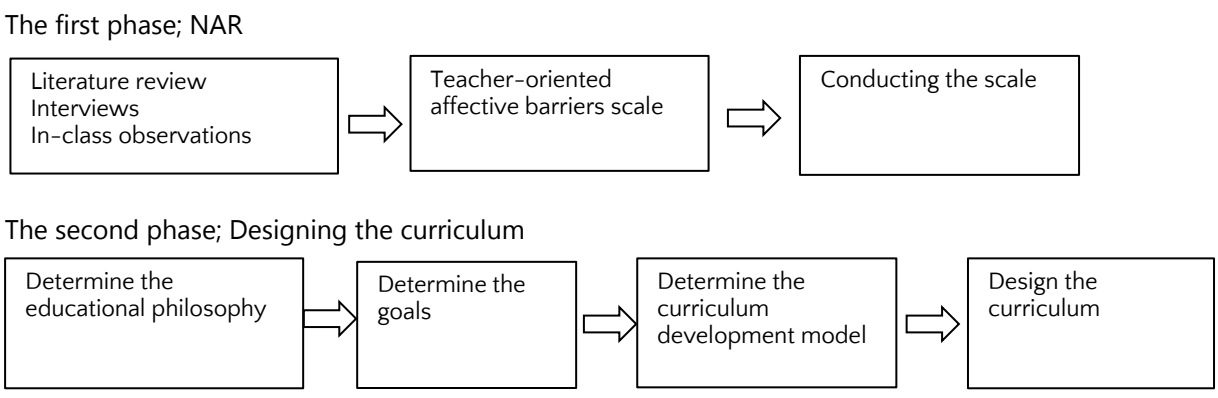
Based on the need for a training program mentioned above, Uysal (2019) designed an in-service training program for EAP practitioners that encounter affective problems in Turkish EAP context. The draft curriculum was developed based on the UbD (The Understanding by Design) framework following a comprehensive needs assessment research (NAR) conducted in a SFL in Eskişehir province. Following this curriculum development study, the current research aims to practice and evaluate the draft curriculum based on the participatory evaluation model. However, to better understand the overall study context, the design process of the draft curriculum is briefly presented in the following section.

Designing the Draft Curriculum

A two-phase process was followed in designing the draft Curriculum (Figure 1). First, needs-analysis research (NAR) was carried out in order to reveal the goals and objectives, content, instructional techniques and assessment procedures of the target curriculum.

Figure 1

Process of Designing the Draft Curriculum



As depicted in Figure 2, the NAR was carried out in three consecutive academic years, 2016-2017, 2017-2018, and 2018-2019 (fall term) to reveal sources of affective barriers frequently encountered in language classes. Exploratory sequential design (Creswell, 2014) was adopted and initially, qualitative data were obtained through semi-structured interviews, in-class observations, and an extensive literature review. A total of twenty EAP practitioners and thirty-

one undergraduate students participated in the semi-structured interviews and eight lessons were observed. Besides, a broad body of literature on the affective domain and language learning was explored. Qualitative data were utilized to develop a scale measuring the affective barriers in EAP context. The scale consisted of 35 items and five factors that are *negative teacher dispositions*, *teaching techniques teacher uses to deliver instruction*, *learning strategies*, *factors affecting students' learning during the lesson*, and *negative teacher-student relationship*. Besides, the reliability coefficient for the scale was found 0.917 (Uysal & Güven, 2019).

Quantitative data were used to extend the qualitative data and the scale was conducted on 512 undergraduate students in an EAP context. Results of the NAR revealed that proper teacher behaviors as eye-contacting and breaking the routine of the classroom via interesting materials yield such positive feelings as joy and satisfaction that have a productive effect on language learning process. However, improper teacher behaviors (such as overuse of course book, grammar-focused instruction, repeating the topic many times, nonuse of technology, ignoring preferences of students, losing temper during lessons, bringing personal problems to the lessons, being late to lessons and so on) lead to negative feelings such as boredom, demotivation, and high anxiety that inhibit the learning process. Although negative feelings of students result from four factors that are teacher, student, classroom, and system, teachers have the most significant role in minimizing or maximizing the barriers. Also, in line with the results, *negative teacher dispositions* are the most significant factor leading to affective barriers. Moreover, compared to the other four factors, *teaching techniques teacher uses to deliver instruction* is the least effective factor in building affective barriers in the language learning process (Uysal, 2019).

In line with the results of the NAR, a curriculum for EAP practitioners who experience affective problems in language classes was designed in cooperation with a group of 10 experts (three with a PhD degree in ELT, one with a PhD degree in assessment and evaluation, four with a PhD degree in curriculum and instruction, and two EAP practitioners in a school of Foreign Languages). The following steps were pursued while designing the draft curriculum (Uysal, 2019):

1. Objectives of the curriculum aimed to prevent, overcome, and gain awareness about the affective problems in language classes.

2. The in-service training curriculum for the EAP practitioners has been driven by the need to solve a problem, affective barriers, frequently observed in language classes. While designing the curriculum, the participant practitioners were expected to self-evaluate, self-criticize, self-reflect, and discuss to solve these problems. In other words, the draft curriculum had a student-centered approach and the practitioners were expected to be active during the training sessions. Additionally, they were allowed to construct their unique meanings using scientific learning approaches and techniques. Taken together, Educational Philosophy of Progressivism was adopted in the draft curriculum. Based on this philosophy, schools are not the places where learners get ready for the real life. Instead, they should be places where learners could discuss and find solutions to real-life problems (Orstein & Hunkins, 2016). While the primary target group of the curriculum was EAP instructors in SFLs or DFLs, the secondary target audience was the students learning a foreign language in an EAP context.

3. After the NAR, a big idea and three sub-ideas were determined. Sub-ideas were three different parameters emerged in relation to the big idea and they were found to have an impact on the big idea. Each sub-idea was designed as a module in the draft curriculum. While the big idea was determined as *teacher-oriented affective barriers of language learners*, the three sub-ideas were: instructional methods, teaching lesson, and teacher-student relationship. Module 1, instructional techniques, focused on the effects of both teacher-centered and student-centered approaches on feelings of language learners. Second module, teaching lesson, focused on the relationship between negative feelings and classroom management along with lesson design. Last module, teacher-student relationship was about the effects of teachers' disposition and behaviors on feelings of students.

4. The UbD curriculum development model was determined as a guideline for designing the draft curriculum, so the draft curriculum was designed following three steps; desired outcomes, acceptable evidence, and learning experiences (Wiggins et al., 2005). In the first step, objectives of the modules were determined and they were consistent with the objectives of the curriculum. In the second stage, assessment approach of the curriculum was determined. Afterwards, performance tasks and other evidence for units in three training modules were prepared. The following questions guided this stage of the study (Wiggins et al., 2005).

- ✓ What evidence can demonstrate that learners have attained the desired results?
- ✓ What assessment tasks and other evidence will anchor the curricular units, and thus guide the instruction?
- ✓ What should be looked for to determine the extent of students' understanding?

Effective assessment is more like a scrapbook of momentos and pictures than a single snapshot. Rather than using a one-type single-test at the end of teaching, lots of evidence should be gathered along the way by using a variety of methods and techniques (Wiggins et al., 2005). In line with what the UbD suggests, assessment-in-progress approach that involved formative, summative, and diagnostic techniques were adopted. Besides, assessment techniques required learners to interpret or self-assess, not just to recall knowledge because three facets that are interpretation, self-knowledge, and application guided the design of assessment tasks. Thus, authentic performance tasks were used in assessing learners' understanding. Last, consistent with assessment principles of the UbD, students were required to self-assess their past as well as their present learning through reflections they would have before, during, and after training sessions (Uysal, 2019).

In the last stage, after the learning principles of the curriculum were determined, unit plans were prepared in accordance with W.H.E.R.E.T.O principles the UbD suggests. An example unit plan could be found in the "Appendices" section (Appendix 1). Learning principles of curriculum are as follows:

Learning is a constructionist exercise accomplished by learners: With reference to the UbD model, the act of teaching in the sense of direct instruction is only one aspect of causing learning and learning is not guaranteed in this way. Achieving learning is the result of the learner successfully making sense of teaching. Thus, teaching must be described as causing understanding through words, activities, tools, guided reflection, learners' efforts, and feedback. It is not a one-way set of skills, but a complex interactive achievement. The goal of training should not be covering a number of topics, but to uncover understanding (Wiggins et

al., 2005). In line with the first principle, it seemed necessary to use student-centered instructional methods or techniques such as cooperative learning, problem-based learning, project-based learning, snowball technique, drama, brainstorming, discussion, researching, and ask-answer. Similarly, the role of a trainer could be described as a facilitator or coach who helps students develop competence in area of inquiry and learn to take control of their learning by defining learning goals and monitoring their progress in achieving them.

Direct instruction is not the only way of teaching: Instruction should be differentiated to accommodate various needs, learning styles, prior knowledge, and interests of students.

Learner should be encouraged to gain self-knowledge: Self-knowledge helps learners or trainees develop metacognitive awareness. They could perceive their personal style, projections, prejudges, and habits of mind that both impede or shape understanding, so they could reflect on their learning easily.

Student-centered learning environment: Learning environment should be arranged in the way that encourages student-student and teacher-student interaction. Thus, instead of church-like traditional seating arrangement, u-shape seating arrangement should be preferred.

Provide review and feedback: Trainer should provide trainees with feedback and review to check their understanding. Similarly, trainees could give feedback to one another throughout the training.

Flexibility: Trainer should have a chance to organize or vary activities considering his/her skills and qualities as well as students' needs and interests. Besides, training sessions could be designed in the way that allows constant movements back and forth considering the feedback of trainees.

After designing the draft curriculum, a group of five researchers collaborated on a curriculum evaluation project in which the draft curriculum was practiced and evaluated. The project was financed by The Scientific and Technological Research Council of Türkiye (Project number: 121K959). The overall goal in this project was to revise the draft curriculum in accordance with findings of the evaluation study. The present study sought to evaluate the draft curriculum designed in the aforementioned preliminary study to help EAP practitioners overcome affective problems encountered in language classes in higher education using the participatory evaluation model.

Method

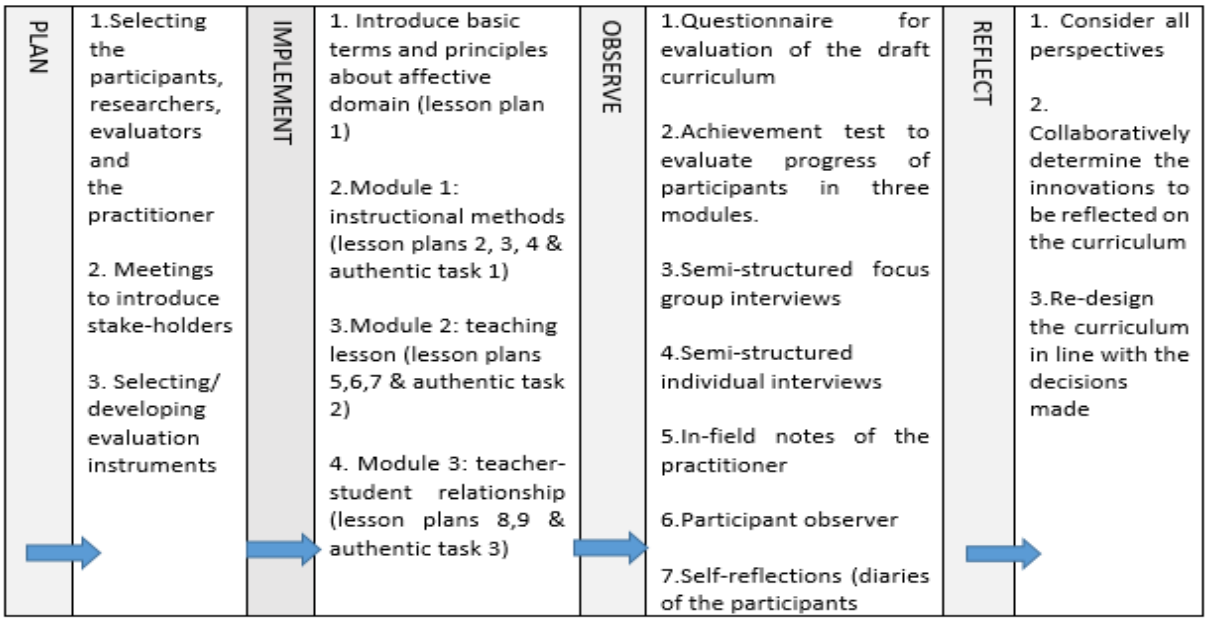
Recognizing the need to adopt a curriculum evaluation model sensitive to the local context, we decided to use the participatory model to evaluate the draft curriculum. This model is reported to be useful for fostering local practice and making explicit underlying assumptions about the practice (Cousins & Earl, 1992). Also, the researchers are suggested to obtain data from the primary users' perspectives and follow a collaborative approach while making decisions. Practitioners, evaluators, and primary users should contribute to decision-making process (Cousins & Whitmore, 1998). In our case, we aimed at fostering a local practice, a draft curriculum that targets EAP instructors in an SFL in Türkiye. The process involved primary users that are EAP practitioners and we went through a decision-making process that involved the

practitioner of the curriculum, one researcher in ELT, and three researchers in curriculum evaluation, and the primary users.

A sequential explanatory mixed methods approach was employed in this research. In studies that adopt a sequential explanatory design, first, quantitative data are gathered to see the big picture. Afterwards, qualitative data are used to deepen the data obtained from quantitative data and to explore cause-effect relationships (Creswell, 2014). In the current study, we collected the quantitative data through a questionnaire designed by the researchers to take a general picture of the evaluation. Then, qualitative data were used to deepen the results. In other words, all stakeholders' perspectives involved in the curriculum implementation and evaluation phases were taken into consideration via data triangulation. Dhungana et al. (2021) emphasized four essential steps in the participatory model of evaluation. Based on his model, the draft curriculum was practiced and evaluated. The general and secondary steps for the four-step framework are illustrated in Figure 2.

Figure 2

4-step Framework for Participatory Model of Valuation (Dhungana et al., 2021)



As depicted in Figure 2, we started the project by planning the process that involved determining the participants, organizing meetings to introduce stakeholders (participants and researchers), and selecting/determining evaluation instruments. After that, all three modules were practiced in the SFL at a state university in Türkiye. Nine lesson plans were practiced and three authentic tasks were given (24 training sessions) in this process. After that, data from a variety of bodies were used to evaluate and develop the draft curriculum.

Study Context and Participants

The training history of EAP practitioners who are the participants in our study context does not differ from the overall EAP context in Türkiye. Before practicing the draft curriculum, EAP practitioners had been offered several pieces of training by Oxford University Press and Cambridge University Press, and one practitioner was responsible for training activities in the SFL where the draft curriculum was practiced. The training offered to the practitioners was

scarce in number and the ones offered by publishing houses were not tailored to their needs. Previous training aimed at teaching basic teaching skills through practitioners required training that assisted them in developing within EAP context through self-reflection, self-evaluation, and sharing of experiences. EAP practitioners in the study context had considerable experience in language teaching; however, they had been experiencing affective problems such as low motivation, high speaking anxiety, low self-esteem, and low confidence or overconfidence in their classes. They needed training during which they would share the in-class applications helpful in overcoming these problems, self-reflect, and self-evaluate to discover reasons for affective problems and solutions to them.

As explained above, all modules were practiced in the SFL at a state university in Türkiye, where six EAP instructors volunteered to participate in the training. While two of them were females, four of them were males. Their ages changed from 25 to 45. The teaching experience of the practitioners changed from 2 to 22 years. Three participants had a PhD degree, and two of them had a Master's degree in language and literature. One participant had a PhD degree in ELT.

Data Gathering and Instruments

During the planning step, evaluation instruments were developed and selected collaboratively. The following instruments were used for evaluating the curriculum.

Questionnaire

A five-point Likert type questionnaire was developed by the research team. Additionally, an expert in assessment and evaluation and another expert in Turkish Language department edited the questionnaire that was prepared in five sections. The first section asked about demographic information. Questions in the second section were about the objectives of the curriculum and the third section was about the content of the curriculum. The questions in the fourth section explored participants' views on the assessment procedures of the curriculum. Finally, the last section of the curriculum involved questions that explored participants' views on the learning experiences of the curriculum. Questionnaires were delivered to the participants after practicing the curriculum and they were instructed to mark a number between 1 (not effective) and 5 (very effective) to respond to the items.

Open Ended Question Test

An open ended question test was prepared to compare the participants' progress before and after the training. Objectives of the modules were considered while preparing the questions. It was delivered as pre-test and post-test and the results were compared in order to see whether the objectives of the program were achieved. Five open-ended questions (20 points each) asked in the test were as follows:

1. Please, define the affective barriers in language learning.
2. Please, explain the relationship between affective barriers in language learning and instructional methods and techniques used during lessons.
3. Please, explain the relationship between affective barriers in language learning and instructional design.
4. Please, explain the relationship between affective barriers in language learning and teacher behaviors.

5. Please, explain the relationship between affective barriers in language learning and student-student and teacher-student interaction in the classroom.

Interviews

After practicing the draft curriculum, one focus group interview and one semi-structured individual interview were conducted. Five participants attended the focus group interview. One participant was not available during the focus group interview, so he was interviewed individually. The interview forms were prepared in the planning step. The participants were asked about the strengths and weaknesses of the curriculum (goals, content, learning activities, and assessment procedures). The total duration of the interviews was 130 minutes.

In-field Notes of the Practitioner

While practicing the curriculum, the practitioner noted the problems with the lesson plans implemented. In-field notes of the practitioner provided data about the pacing of the sessions and the activities that need revision.

In-field Notes of the Participant Observer

During the training, one of the participants agreed to take notes of his observations about the views of other participants. His notes provided data about the strengths and weaknesses of the activities, classroom climate, and performance of the participants and the practitioner during the training.

Self-reflections of the Participants

Before the training, all participants were delivered diaries and instructed to respond to the pre-session and post-session questions, so they found a chance to bring their background knowledge about the session's topic and self-reflect on in-class applications. After practicing the curriculum, all participants were instructed to examine their notes in the diaries and write a self-assessment postscript, so they could self-evaluate their individual performance during the training and report the points they want to change in their classrooms and their reasons if they think they are unable to change them.

Role of Researchers

The first researcher was a lecturer in the ELT department at a state university. Formerly, she worked as an EAP practitioner in a SFL at a state university for six years. She had a Ph.D. degree in curriculum and instruction and designed the draft curriculum used in this study as part of her PhD thesis, so she took on the role of practicing the draft curriculum. She was also responsible for developing the curriculum with other researchers after the curriculum evaluation process. The second researcher in curriculum and instruction had mentored the dissertation (Uysal, 2019), so she was knowledgeable about the entire process. Additionally, the third researcher in curriculum and instruction has been teaching in an EAP context for over 10 years. Last, one researcher in ELT and one more researcher in curriculum and instruction were in the project team and they were consulted throughout the project.

Data Analysis

Quantitative data of the study were gathered through a questionnaire. While analyzing the data from the questionnaire, the average mean of each item was calculated. Qualitative data

of the study was collected through answers given to pre- and post-open ended question tests, interviews, in-field notes of the practitioner and participant observer, and self-reflections of the participants. Regarding the open ended question test, both pre- and post-tests were graded by the practitioner and one of the researchers in curriculum and instruction. The answers in pre- and post-tests were analyzed qualitatively and they were compared with each other to see the progress. Also, thematic content analysis (Braun & Clarke, 2006) was conducted to analyze the qualitative data. It is defined as a technique to identify, analyze, and report the themes within qualitative data. Four components of curriculum including overall objectives, learning experiences and materials, content, and assessment procedures were used as pre-set categories to analyze the strengths that demonstrated the functionality of the curriculum. Seven weaknesses (authentic tasks, glossary, structuring the activities, anonymity, video-recorded lessons, informative guide, training the curriculum practitioner) were identified and they inspired the research team to develop some innovations in the draft curriculum. The views and opinions presented by the instructors were categorized under the categories first by three researchers. Then, a meeting was organized to consolidate the codes and the sub-themes coded by these three researchers. After analyzing the data set, another meeting was organized with all researchers to determine the innovations to be reflected on the curriculum. The weaknesses were useful in determining the innovations to be reflected on the revised curriculum.

Findings

Strengths of the Curriculum

Initially, findings on the curriculum's strengths gave evidence that the draft curriculum functioned well in terms of overall objectives, learning experiences and materials, content, and assessment procedures.

Attainable Goals

Both quantitative and qualitative data demonstrated that the curriculum was effective in attaining three overall goals that are "gain awareness about affective problems", "take precautions against affective problems", and "overcome affective problems". With regard to the results of the open ended question test, participants became familiar with the theoretical framework of affective problems. Comparing the answers to five questions in pre- and post-tests confirmed this result. Concerning the first question, three participants defined affective barriers as mental disorders or barriers to sense organs.

> Affective barriers are the problems learners with physical problems have. For example, the learners with sight problems will have difficulty in reading a text. (ZU)

> I am not sure, but they might be about the physical problems learners experience in hearing, seeing, or maybe touching. (GM)

> Affective problems are the mental problems students have and teachers should be more caring while approaching these students. (TŞ)

Two participants did not answer any questions, which proved that they were not knowledgeable about the theoretical body of affective problems. Regarding the second and third questions, they suggested that the instructional techniques and design of lessons should

match the disorders or inabilities of the students. Regarding the fourth and fifth questions, they stated the significance of positive student-teacher interaction to provide a non-threatening classroom environment in language classes with students with mental disorders and different inabilities. The instructor with a Ph.D. degree in ELT was knowledgeable about the related body of literature and he presented proper and precise answers. Compared to the answers in the pre-tests, the answers given to the same questions in the post-tests were precise and explanatory. Regarding the first question, the participants explained the meaning of the affective barriers in language learning in an appropriate way. In the post-tests, the participants defined the affective barriers in language learning as follows:

> Negative effect of students' negative feelings on language learning. (GM)
>
> Prejudices that impede the students' language learning: fear of being judged, thinking that she is already good at speaking language, fear of making mistakes and so on. (TŞ)
>
> Students' emotions that yield barriers in language learning: fear of making mistakes, anxiety level, excessive self-confidence… etc. (ZU)

Regarding the rest of the questions (2,3,4, and 5), the participants explained the relationship of affective barriers with instructional techniques, lesson design, and student-teacher interaction. They suggested displaying a student-centered approach in selecting instructional materials and lesson design as a solution to affective barriers in language learning. Also, they expressed that excessively close or distant student-teacher relationships will lead to affective barriers in language learning.

> Teacher behavior may be a significant determinant of affective barriers. The character of the student can also be a determinant, but even if the student has a negative attitude or has different affective barriers towards language learning, positive teacher behavior can eliminate these barriers. (GM)
>
> The positive relationship that students from all age groups establish with their teacher will contribute to their success. Positive emotions revealed by this positive relationship is a significant determinant of success. Similarly, positive communication between student-student is important for students to feel belonging and secure. The teacher is also effective in establishing positive student-student relationship in the classroom. The democratic classroom environment supports positive communication. (TŞ)
>
> There are many different teaching methods and techniques. The important thing is to know the students well and to choose the appropriate one. Especially in the speaking lesson, students may hesitate and be afraid to speak. They may be worried that I will say it wrong or say it incompletely. At this point, a positive classroom environment, not scoring, not interrupting the student are important measures. (DZ)
>
> Regarding the lesson design, the teacher should repeat the relevant subject at the beginning of the lesson and ample exercises should be used. At the end of the lesson, he/she should review the lesson and check learning during the lesson. Techniques that make students active should be preferred and the teacher should be a guide. (ZU)

Similarly, with respect to the results of the questionnaire, the rate of the item as to the first objective of the curriculum (gaining awareness about affective problems) was 4.85 out of 5, the second objective (taking precautions against affective problems) was 4.57, and the third

objective (overcoming affective problems) was 4.14, which guided the research team not to make any change in objectives of the curriculum.

In order to deepen the results as to overall objectives, qualitative data findings were utilized. Concerning the first objective, EAP practitioners stated that they gained awareness and a new perspective about the significance and sources of affective problems frequently encountered in language teaching and they became aware of their own prejudgments and got a chance to resolve them. They criticized their own in-class performances and applications, which was noteworthy in terms of becoming aware of their improper behaviors yielding affective problems (excessively close or distant teacher-student relationship, allowing students to violate the rules established, being excessively strict about following the syllabus, overuse of course book, and so on). Regarding the second objective, the practitioners stated that the solutions presented during the training were effective in taking precautions against the affective problems. Last, concerning the third objective, the practitioners stated that affective problems in language classes could be overcome as long as they could optimize the variables they could affect. These variables are instructional techniques and materials, the interaction between student and teacher, and seating arrangement. Also, displaying a student-centered approach was another solution to overcome affective problems in the view of the practitioners. In regard to the data obtained from self-assessment postscripts, the participant practitioners desired to make the following changes in their classes:

- ✓ Establishing rules in collaboration with students and being consistent about them
- ✓ Checking the clarity of the instructions during the lessons
- ✓ Getting students' ideas while designing lessons
- ✓ Reviewing instructional techniques used in lessons
- ✓ Allocating more time for checking learning and providing feedback

Also, the participants stated that they would be incapable of changing some points for some reasons, although they found them effective in overcoming affective problems. These points were as follows:

- ✓ Motivating reluctant students against learning a foreign language
- ✓ Displaying a student-centered approach in the preparatory program
- ✓ Allowing students to decide on their own homework or project
- ✓ Students getting involved in syllabus design

Informative Content about the Theoretical Frame of Affective Barriers

In accordance with the quantitative data, the content of the curriculum was consistent with skills and competencies (4.71 out of 5) as well as in-class applications of the practitioners (4.85 out of 5). The content supported the objectives of the curriculum (5 out of 5) and the main themes and sub-themes were consistent with each other (4.85 out of 5). The rate of the items from one to four was above 4 out of 5. The rate of the item 5 and 6 was lower (1,85 and 2,42), and these two items asked if practitioners wanted to add or remove a theme in the curriculum. Thus, in the light of the results, they did not find it necessary to add a new theme or remove the themes in the curriculum. The qualitative data obtained from interviews confirmed the results of the quantitative data because the training was effective in understanding the meaning of affective barriers for the practitioners. Also, the practitioners with a degree in

language and literature or translation stated that they became familiar with the terminology and the body of literature on affective problems.

Learning Experiences and Materials that Require Participants to Be Continuously Active

Both quantitative and qualitative data provided evidence that the learning experiences and materials of the curriculum were effective in achieving the objectives of the curriculum. In the questionnaire, 22 items asked about the effectiveness of learning experiences, learning atmosphere, teaching skills of the practitioner, instructional materials, and the match between activities, materials, and the objectives. In regard to the results, the rate of 21 items changed between 4.28 and 5 out of 5. The lowest rate (2.71) belonged to item 9 (Some more activities should be added to the curriculum), which means that the activities in the curriculum were effective enough to achieve the objectives and there is no need for further activities.

In order to deepen the results obtained from the questionnaire, qualitative data obtained from interviews, in-infield notes of the observer participant, and self-assessment postscripts were utilized. In compliance with the qualitative data analysis, the strengths of the learning experiences and materials of the curriculum are as follows.

- ✓ Finding an opportunity to share experiences, best practices and knowledge
- ✓ Group work based on sharing knowledge and experiences helped EAP practitioners with a degree in language and literature become familiar with the body of literature on the affective domain
- ✓ Finding an opportunity to criticize and self-reflect on in-class applications
- ✓ A high number of effective practices for language classes
- ✓ Sharing knowledge about the factors that prevent from displaying a student-centered approach in language classes
- ✓ Adopting an inductive approach during the training
- ✓ Interactive, supportive and positive learning atmosphere
- ✓ Active participation of the EAP practitioners
- ✓ Supportive manner of the curriculum practitioner
- ✓ U-type seating arrangement and traditional face-to-face learning environment

Last, data obtained from self-assessment postscripts demonstrated that they displayed active and effective performance during the training. The direct quotations from the post-training notes were presented below.

> I participated in the training with pleasure, more such training is necessary to keep up to date. (DZ)
>
> Although I am not normally an active participant, I was really active in this training. We had very enjoyable training sessions. (GM)
>
> I did the necessary homework and was active in the sessions. It was very enjoyable as it was based on experience sharing and reflections. (ZU)
>
> For the first time, I thought so much about affective barriers in a foreign language. I can say that I have become knowledgeable about affective barriers. (TŞ)

Process-based Assessment Procedures that Require Participants to Be Continuously Active

In the curriculum, diagnostic (pre-training reflective questions), formative (1- one-minute essay, 2- peer/group assessment, 3- oral presentations, 4-oral questionings and follow-up probes, 5-rubrics, 6- question box/board, 7- analogy prompt, 8- visual representations, and 9-index Card Summaries/Questions) and summative (authentic task and self-assessment postscript) assessment techniques were used for checking understanding. Results of the qualitative and quantitative data proved that the assessment techniques of the curriculum were highly effective in achieving the objectives of the curriculum. In the questionnaire, ten items were asked to question the effectiveness of the techniques used for checking understanding and the match between the objectives and the assessment techniques of the curriculum. The rate of the items changed between 4.85 and 5 out of 5. The qualitative data obtained from the interviews confirmed the results of the quantitative data. Diagnostic self-reflection techniques were found effective in terms of activating participants' background knowledge and providing readiness for the session's topic. Besides, the EAP practitioners stated that reflective diaries allowed them to evaluate the in class-applications. Last, formative assessment techniques were found effective in encouraging self-criticism and self-evaluation and inferring the causes and effects of affective problems.

Weaknesses and Innovations Reflected on the Draft Curriculum

Qualitative data, interviews, and in-field notes of the practitioner and participant observer shed light on the curriculum's weaknesses that inspired the research team to develop some innovations in the draft curriculum.

Authentic Tasks

Authentic tasks were given as homework at the end of each module and the EAP practitioners worked in pairs to complete the tasks. During the interviews, the EAP practitioners provided feedback on including the authentic tasks into the training sessions because they thought they would perform better in case the curriculum practitioner guided them. Additionally, the instructions for the authentic tasks were sometimes regarded as confusing, meaning further clarifications are needed. As a result, as some tasks required in-class application and cooperation with the students, the former feedback was disregarded. However, the instructions for the tasks were revised and clarified.

Glossary

The results revealed that EAP practitioners having a degree in language and literature were not familiar with the terminology of the affective domain. Besides, in-field notes of the curriculum practitioner demonstrated that the practitioners preferred applied knowledge to theoretical knowledge. As a result, instead of adding an extra module that introduces target terminology and theory, it was decided to create a glossary that includes definitions of the target terminology and target theory so that participants could look up the meaning of keywords, terms, and theories during the training sessions.

Structuring the Activities

In-field notes of the practitioner and participant observer demonstrated that some activities should be structured better because participants moved away from the topic and discussed unrelated topics during the discussions. Although some participants saw this as an opportunity

to learn something new or share ideas, the curriculum practitioner had difficulty in catching up with the syllabus and managing time and discussions during the sessions. Thus, it was decided to restructure some activities, add more guiding questions to the discussions, and review the time devoted to the activities.

Anonymity

In-field notes of the curriculum practitioner demonstrated that the EAP practitioners were reluctant to reveal themselves in front of the other practitioners, so there was a need to ensure anonymity while using some techniques. For example, participants were reluctant during an activity that required them to express their mistakes regarding the teacher-student relationship out loud in front of the other participants. Therefore, it was decided to allow them to express the mistakes in a written way, so the curriculum practitioner could collect these papers and share them with all participants without specifying the names.

Video-recorded Lessons

Prior to the training, four EFL lessons in the SFL at a state university in Türkiye were video-recorded and used to discuss the factors that lead to affective problems during the training. However, the EAP practitioners stated in the interviews that the number of videos used in the training should be increased and the lesson videos should exemplify both proper and improper lessons in terms of affective barriers. Therefore, it was decided to review video-recorded lessons and structure them via some questions. Also, it was decided to include lesson plans that exemplify proper and improper factors in terms of affective barriers. Last, it was decided to add an authentic task requiring participants to video-record a proper lesson or activity regarding affective barriers.

Informative Guide

Results of the interviews showed that the participant EAP practitioners needed a document explaining the aims, learning experiences, assessment procedures, and expected outcomes of the curriculum. Although they were orally informed before or during the sessions, these oral explanations were not effective, obviously. As a result, it was decided to prepare an informative guide that explains the objectives, procedures, and expected learning outputs of the curriculum and to deliver it to the participants before the training.

Training the Curriculum Practitioner

The interviews revealed that the curriculum practitioner's behaviors such as interrupting the participants, trying to direct the discussions in the desired direction, or starting a new activity without waiting for some participants to complete the former one were disturbing during the training. In order to train the experts to practice the curriculum, it was decided to prepare a guide for training the practitioners.

Discussion

This paper reports on the results of a curriculum evaluation study after practicing the draft curriculum. The draft curriculum was practiced in the SFL in a Turkish EAP setting and a number of changes were introduced in various curricular aspects that were highlighted in the findings section above. In this essence, the key strength of this study is its practical outcomes as to the

training process of the EAP practitioners. The present study makes several noteworthy contributions to national and institutional policies of EAP practitioners' in-service training. On the other hand, the evidence from the study also extends our theoretical and practical understanding of developing a curriculum for in-service training of EAP practitioners in the overall Turkish Context.

First of all, it is worth discussing a notable practical outcome in our institutional context. One of the most obvious strengths of the curriculum is the learning and assessment processes based on continuous self-reflection and self-evaluation, applied knowledge, as well as exchange of knowledge and experiences. EAP context requires the EAP practitioners to gain a large amount of knowledge that is not immediately available from training courses. The knowledge an EAP practitioner needs is characterized by the institutional context where the learning occurs. Therefore, it is not stable and predictable. It is not teachable, either (Sharpling, 2002). This explains why the former training was ineffective in addressing the affective problems encountered in EAP settings. Also, the participant trainers appreciated active participation, opportunities to share knowledge and experiences and apply knowledge, and self-reflection. Rather than adopting the Cartesian form, the context of EAP teaching necessitates Socratic form of truth. While the former form is the recognition of truth through conclusive proofs and demonstrations, the latter one is the recognition that truth is attained through intellectual enquiry (Sharpling, 2002). As a result, the need for a change in the in-service training policy of the institution is a remarkable practical outcome of the study.

The second practical outcome of the research is the need for EAP practitioners to be part of community discourse. EAP practitioners need to become involved with their peers and part of a community discourse. In this type of discourse, the communication occurs through meetings only occasionally at symposia or conferences, published texts, or online fora. It is typical of practitioners working in the expanding-circle countries to establish such a remote connection with the community discourse. However, a key element of connecting with the community discourse involves engagement with the literature of the field. This engagement is essential to consider relevant research and theory and practice-related questions and it provides the practitioner with a platform where they can contribute to their own innovations, ideas, and investigations (Ding & Bruce, 2017). In our context, the practitioners with a degree in language and literature and translation were not familiar with the key terminology, literature of the field, and relevant research and theory. Because in the Turkish context, not only graduates of ELT but also the graduates of such departments as language and literature and translation are allowed to work as EAP practitioners, training needs to help them become familiar with the literature of the ELT to let them become a part of community discourse.

Last but not least, the participatory approach adopted during curriculum development and evaluation is another strength of the curriculum, which ties well with the critical warning by Brown (2009). He states that teachers need to feel respected in curriculum development studies because ignoring them will result in failure. Also, as Balbay et al. (2018) state, there is a gap between the training programs and the contextual needs of the practitioners in Türkiye and trainers are outsiders who do not teach in actual classrooms. On the other hand, teachers tend to be more engaged in the process as they know their own needs, students' profile, curriculum, and objectives of the institution and departments better than the outsider experts. Besides, they can have the opportunity to learn from their colleagues, trace their own development,

and reflect on what they do. In our context, the first draft program was designed in line with the results of the needs analysis study carried out in a DFL at a Turkish university. After it was practiced in a SFL in Türkiye, a participatory approach was adopted in the evaluation study. To put it another way, the target audience of the curriculum was respected and they could contribute to their own innovations and ideas in both studies, which explains why the draft curriculum functioned well and the participant practitioners were eager to self-evaluate in-class applications and change them.

Conclusion and Implications

The next step of this research project is the dissemination of the curriculum for further data obtained from various EAP contexts across Türkiye. As an SFL or DFL is characterized by the institutional culture of the university, different results might be reached in case the curriculum is practiced in various SFLs or DFLs across Türkiye. In particular, different data can be obtained from the SFLs or DFLS in private and public universities. In a similar vein, results may differ in universities that accept students with higher and lower scores regarding the central university exam. Last, different results may be obtained in studies conducted in SFLs or DFLs in metropolitan or smaller cities.

Many EAP practitioners are known to move from neighboring professions, such as teaching general English to EAP and they encounter some specific challenges when working as an EAP practitioner and they need to obtain new educational or professional qualifications that would predictably prepare them for their professional practice (Fitzpatrick et al., 2022). Although Turkish context does not differ from overall context, EAP practitioners across Türkiye are not offered a standardized training as there is not a national institution that carries out their in-service training, so it remains unknown what kind of training and support they need to develop an expertise in teaching EAP. Additionally, all EAP practitioners work towards a common goal (preparing students for the exit level B1+ of the Common European Framework of Reference for Languages); however, they are not offered a standardized training. Therefore, the dissemination of this curriculum is significant in terms of providing standardization and sustainability in in-service training of EAP practitioners across Türkiye. As a result, the study proves a need for a change in national policy of in-service training for EAP practitioners.

As this study was initiated after noticing the growing need to develop a curriculum for in-service training of EAP practitioners that encounter affective problems in Turkish EAP context, it will address the needs of EAP practitioners experiencing similar problems at different universities across Türkiye. The affective problems have long been reported as one of the challenges faced by EAP practitioners in local studies (Çağatay, 2015; Koçyiğit & Erdem, 2018; Erdogan & Mede, 2021; Kızıltepe, 2000; Öztürk & Gürbüz, 2014) and in the studies carried out in other expanding circle countries (Andrade & Williams, 2009; Kaivanpanah et al., 2021; Salimi & Mirian, 2022), meaning that EAP practitioners in different EAP contexts experience similar problems. On the other hand, in Turkish context, there is not an attempt to provide the practitioners with an appropriate training. Developing a curriculum that targets a common problem represents an important innovation towards standardization in training EAP practitioners and fills in a crucial gap in the field.

Acknowledgement

The evaluation research has been supported within TUBITAK (The Scientific and Technological Research Council of Türkiye) 3501-Project 121K959.

Author Contributions

Deya UYSAL designed the draft curriculum used in this study as part of her Ph.D. thesis, so she practiced the draft curriculum. She was also responsible for designing the research and developing the research instruments. She analysed the data in cooperation with Sinem ÇALIŞKAN and Mustafa POLAT and wrote the first draft. Sinem ÇALIŞKAN contributed to the process of designing the research instruments and analyzing data. Mustafa POLAT analysed the data and revised this paper in cooperation with Derya UYSAL. Meral GÜVEN had mentored the dissertation (Uysal, 2019) and presented consultance on how to design the evaluation study and use the results of the data. Mehmet ASMALI assited Derya UYSAL to gather data and contributed to the process of designing the research instruments. Neşe ÖZKAL contributed to the process of designing the research instruments and presented consultance on how to use the results of the data. Fidel ÇAKMAK presented consultance on how to use the results of the data.

References

Anderson, L. W., & Bourke, S. F. (2000). *Assessing affective characteristics in the schools*. Lawrence Erlbaum Associates Inc Publishers.

Andrade, M., & Williams, K. (2009). Foreign language learning anxiety in Japanese EFL university classes: Physical, emotional, expressive, and verbal reactions. *Sophia Junior College Faculty Journal, 29,* 1–24. https://d1wqtxts1xzle7.cloudfront.net

Aygün, Ö. (2017). *A scale of Turkish preparatory school university students' demotivational factors towards learning English*. (Thesis no: 463471). [Master's Dissertation, Eskişehir Anadolu University]. Turkish Council of Higher Education Theses Center.

Balbay, S., Pamuk, İ. , Temir, T., & Doğan, C. (2018). Issues in pre-service and in-service teacher-training programs for university English instructors in Turkey. *Journal of Language and Linguistic Studies, 14*(2), 48-60. https://dergipark.org.tr/en/pub/jlls/issue/43364/527919

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Brown, J. D. (2009). Foreign and second language needs analysis. In M. H. Long, & C. J. Doughty (Eds.), *Handbook of language teaching* (pp. 269-293). Wiley Blackwell.

Çağatay, S. (2015). Examining EFL students' foreign language speaking anxiety: The case at a Turkish state university. *Procedia-Social and Behavioral Sciences*, *199*, 648-656. https://doi.org/10.1016/j.sbspro.2015.07.594

Cohen, Y., & Norst, M. J. (1989). Fear, dependence, and loss of self-esteem: Affective barriers in second language learning among adults. *RELC Journal*, *20*(2), 61-77. https://doi.org/10.1177/003368828902000206

Collins, B. A. (2010). English-medium higher education: Dilemma and problems. *Eurasian Journal of Educational Research, 39*, 97-110.

http://repository.bilkent.edu.tr/bitstream/handle/11693/48964/English_medium_higher_education_Dilemmas_and_problems.pdf?sequence=1.

Cousins, J. B., & Earl, L. M. (1992). The case for participatory evaluation. *Educational Evaluation and Policy Analysis*, *14*(4), 397-418. https://doi.org/10.3102/01623737014004397

Cousins, J. B., & Whitmore, E. (1998). Framing participatory evaluation. *New Directions for Evaluation*, *80*, 5-23. https://doi.org/10.1002/ev.1114

Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Sage Publishing.

Dhungana, P., Luitel, B. C., Gjøtterud, S., & Wagle, S. K. (2021). Context-responsive approaches of/for teachers' professional development: A participatory framework. *Journal of Participatory Research Methods*, *2*(1), 1-18. https://doi.org/10.35844/001c.18869

Ding, A., & Bruce, I. (2017). Entering the field of EAP. In A. Ding, & I. Bruce (Eds.), *The English for academic purposes practitioner* (pp. 93-115). Palgrave Macmillan. https://doi.org/10.1007/978-3-319-59737-9_4

Ding, A., Bruce, I., Ding, A., & Bruce, I. (2017). Overview of the book: The status of EAP and the identity of the practitioner. In A. Ding, & I. Bruce (Eds.), *The English for academic purposes practitioner* (pp. 1-12). Palgrave Macmillan.

Dörnyei, Z. (2005). *The psychology of the language learners.* Lawrence Erlbaum Associates Inc Publishers.

Dörnyei, Z., & Skehan, P. (2008). Individual differences in second language learning. In C. J. Doughty, & M. H. Long (Eds.), *Handbook of second language acquisition* (p.275-298). Blackwell Publishing.

Emmer, E. T., & Stough, L. M. (2001). Classroom management: A critical part of educational psychology with implications for teacher education. *Educational Psychologist, 36*(2), 103-112. https://doi.org/10.1207/S15326985EP3602_5

Erdogan, G., & Mede, E. (2021). The evaluation of an English preparatory program using CIPP Model and exploring A1 level students' motivational beliefs. *Journal of Education and Educational Development*, *8*(1), 53-76. https://doi.org/10.22555/joeed.v8i1.109

Ergünay, O., & Uysal, D. (2020). Towards a defensible tertiary-level EAP curriculum: A needs analysis study. *Journal of Theoretical Educational Science, 13*(2), 424-439. https://doi.org/10.30831/akukeg.629689

Fitzpatrick, D., Costley, T., & Tavakoli, P. (2022). Exploring EAP teachers' expertise: Reflections on practice, pedagogy and professional development. *Journal of English for Academic Purposes*, *59*, 101-140. https://doi.org/10.1016/j.jeap.2022.101140

Fraser, B. J. (1982). Assessment of learning environments: Manual for learning environment inventory (LEI) and my class inventory (MCI) (3rd ed.). *ERIC (Nonjournal).* https://files.eric.ed.gov/fulltext/ED223649.pdf

Fraser, B. J. (1998). Classroom environment instruments: Development, validity and applications. *Learning Environments Research*, *1*(1), 7-34. https://link.springer.com/article/10.1023/A:1009932514731

Fraser, B. J., & Tobin, K. (1989). Student perceptions of psycho-social environment in classrooms of exemplary science teachers. *International Journal of Science Education,11*(1), 19-34. https://doi.org/10.1080/0950069890110103

Fraser, B. J., & Walberg, H. J. (2005). Research on teacher–student relationships and learning environments: Context, retrospect and prospect. *International Journal of Educational Research*, *43*(1-2), 103-109. https://doi.org/10.1016/j.ijer.2006.03.001

Goh, S. C., & Fraser, B. J. (1998). Teacher interpersonal behaviour, classroom environment and student outcomes in primary mathematics in Singapore. *Learning Environments Research, 1*(2), 199-229. https://d1wqtxts1xzle7.cloudfront.net/51367579/

Kaivanpanah, S., Alavi, S. M., Bruce, I., & Yahya Hejazi, S. (2021). Iranian EAP practitioners' competences, practices, and professional development. *ESP Today, 9*(2), 272–296. https://doi.org/10.18485/esptoday.2021.9.2.5

Koçyiğit, M., & Erdem, C. (2018). A content analysis of graduate research on English preparatory programs at universities. *Journal of Human Sciences*, *15*(3), 1466–1480. https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/5414

Kızıltepe, Z. (2000). Attitudes and motivation of Turkish EFL students towards second language learning. *ITL-International Journal of Applied Linguistics*, *129*(1), 141-168. https://doi.org/10.1075/itl.129-130.01kiz

Krashen, S. (1982). *Principles and practice in second language acquisition.* Pergamon Press Inc.

McCoach, D. B., Gable, R. K., & Madura, J. P. (2013). *Instrument development in the affective domain.* Springer.

Mercer, S. (2008). Learner self-beliefs. *ELT Journal,* 62(2), 182-183. https://doi.org/10.1093/elt/ccn001

Ornstein, A. C., & Hunkins, F. P. (2009). *Curriculum: Foundations, Principles and Issues* (5th ed.). Pearson/Allyn and Bacon.

Öztürk, G., & Gürbüz, N. (2014). Speaking anxiety among Turkish EFL learners: The case at a state university. *Journal of Language and Linguistic Studies, 10*(1), 1–17. https://dergipark.org.tr/en/pub/jlls/issue/9938/122913

Ryan, R. M., & Deci, E. L. (2019). Brick by brick: The origins, development, and future of self-determination theory. In A. J. Elliot (Ed.), *Advances in Motivation Science* (pp. 111-156). https://doi.org/10.1016/bs.adms.2019.01.001

Salimi, E. A., & Mirian, E. S. (2022). Anxiety level of mastery avoidance-oriented and performance avoidance-oriented of eap learners: the effect of teacher supportive motivational discourse. *Language and Translation*, *12*(3), 129-143.

https://journals.iau.ir/article_692159_d6fd0675dab95a5d965619e9705a7618.pdf

Saydam, G., & Telli, S. (2011). Eğitimde bir araştırma alanı olarak sınıfta öğrenci-öğretmen kişilerarası iletişimi ve öğretmen etkileşim ölçeği (QTI). *Boğaziçi Üniversitesi Eğitim Dergisi, 28*(2), 23-45. https://dergipark.org.tr/en/pub/buje/issue/3834/51451

Sharpling, G. (2002). Learning to teach English for academic purposes: Some current training and development issues. *English Language Teacher Education and Development*, *6*, 82-94. http://www.elted.net/uploads/7/3/1/6/7316005/v6sharpling.pdf

Telli, S., Den Brok, P., & Cakiroglu, J. (2007). Students' perceptions of science teachers' interpersonal behaviour in secondary schools: Development of a Turkish version of the questionnaire on teacher interaction. *Learning Environments Research*, *10*(2), 115-129. https://link.springer.com/article/10.1007/s10984-007-9023-2

Telli, S., & Den Brok, P. (2012). Teacher-student interpersonal behaviour in the Turkish primary to higher education context. In B. Fraser, & J. Dorman (Eds), *Interpersonal Relationships in Education* (p. 187–206). SENSE publishers.

Terzi, A. R. (2002). Sınıf yönetimi açısından etkili öğretmen davranışları. *Milli Eğitim Dergisi*, *155*, 1-20. https://dhgm.meb.gov.tr/yayimlar/dergiler/Milli_Egitim_Dergisi/155-156/terzi.htm

Uysal, D. (2019). *Yükseköğretim öğrencilerinin İngilizce öğrenme sürecindeki duyuşsal engelleri ve öğretim elemanlarına yönelik hizmet-içi eğitim programı tasarısı (Affective barriers of university students learning EFL and a curriculum proposal for in-service training of EAP practitioners).* (Thesis No: 581560) [Doctoral Dissertation, Eskişehir Anadolu University]. Turkish Council of Higher Education Theses Center.

Uysal, D., & Guven, M. (2019). Development and validation of teacher oriented affective barriers scale for EFL Context*, International Online Journal of Educational Sciences, 11* (4), 1-15. https://web.archive.org/web/20200215112308id_/http://iojes.net/Makaleler/b476fa46-51c6-4955-a613-f2d2cd83800e.pdf

Uysal, D., & Güven, M. (2018). Negative feelings of Turkish students in EFL learning process. *European Journal of Foreign Language Teaching*, *3*(4), 120-139. http://dx.doi.org/10.46827/ejfl.v0i0.2029

Wiggins, G., Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. Pearson.

Williams, M., & Burden, R. (1999). Students' developing conceptions of themselves as language learners. *The Modern Language Journal, 83*(2), 193-201. https://doi.org/10.1111/0026-7902.00015

YÖK, (2016). *Yükseköğretim kurumlarinda yabanci dil öğretimi ve yabanci dille öğretim yapilmasinda uyulacak esaslara ilişkin yönetmelik.* T.C. Cumhurbaşkanlığı Mevzuat Bilgi Sistemi. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=21475&MevzuatTur=7&MevzuatTertip=5

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi

Cilt 13(*1*), 2023, 1-29

www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Akademik Amaçlı İngilizce Öğreten Öğretim Elemanlarına Yönelik Geliştirilmiş Bir Hizmet İçi Eğitim Programı Değerlendirme Çalışması

Giriş

Türk üniversitelerindeki İngilizce hazırlık programları, yabancı dil öğretimi yapan öğretim elemanları için zorlayıcı görünmektedir. Söz konusu bağlamda öğretim elemanlarının rolü oldukça karmaşıktır. Dil öğretim rolüne ek olarak kurumsal farkındalık ve uzmanlık alanlarına ilişkin bilgi aktarmak, test stratejileri gibi konularda tavsiye vermek bu öğretim elemanlarından beklenen diğer görevler arasındadır. Bu nedenle yabancı dil öğretim elemanlarının eğitimi karmaşık ve zorlayıcıdır (Sharpling, 2022). Türkiyede yabancı dil eğitimi veren öğretim görevlilerinin eğitimini organize eden ve yürüten ulusal bir kurum bulunmamaktadır. Hizmet içi eğitim faaliyetlerinden yabancı dil yüksekokullarındaki ofisler veya birimler sorumludur. Bu bağlamda öğretim elemanları, yayınevlerinin sunduğu eğitimlerden veya birim ve ofislerin yürüttüğü küçük ölçekli çalışmalardan yararlanmaktadır. Ancak bu eğitimler uygulayıcıların ihtiyaçlarına göre şekillendirilmemekle birlikte eğitim sayıları yetersiz kalmaktada ve yabancı diller yüksekokulları hakkında bilgi sahibi olan eğitmenler tarafından verilmemektedir.

Türk üniversitelerindeki yabancı dil yüksekokullarında yapılan çalışmalar; bu kurumlarda yabancı dil öğrenen öğrencilerin ve öğretim elemanlarının sıklıkla öğretmen odaklı, yönetim odaklı, program odaklı veya öğrenci odaklı duyuşsal sorunlar yaşadıklarını göstermektedir (Collins, 2010; Koçyiğit & Erdem, 2018; Erdoğan & Mede, 2021). Ancak kapsamlı bir literatür taraması uygulayıcıların bu alanda yaşayabilecekleri sorunları önlemek veya çözmek için bugüne kadar ne eğitim fakültelerinde bir dersin ne de herhangi bir eğitimin sunulmadığını göstermiştir. Ayrıca DAP uygulayıcılarının duyuşsal problemlerle başa çıkmalarına yardımcı olacak bir hizmet içi eğitim programı mevcut değildir. Bu nedenle uygulayıcıların bu problemlerin üstesinden gelmelerine yardımcı olacak eğitimlere artan bir ihtiyaç ortaya çıkmıştır. Uysal (2019), yukarıda belirtilen bir eğitim programına duyulan ihtiyaçtan yola çıkarak Türkiye yüksek öğretim düzeyi hazırlık programlarında çalışan ve duyuşsal sorunlarla karşılaşan yabancı dil öğretim elemanları için bir hizmet içi eğitim programı tasarlamıştır. Taslak program, Eskişehir'deki bir yabancıdiller yüksek okulunda gerçekleştirilen kapsamlı bir ihtiyaç değerlendirme araştırmasının (NAR) ardından UbD modeline dayalı olarak geliştirilmiştir. Bu program geliştirme çalışmasının ardından bu araştırma, taslak programın katılımcı değerlendirme modeline dayalı olarak uygulanmasını ve değerlendirilmesini amaçlamaktadır.

Yöntem

Bu çalışmada, yerel bağlama duyarlı bir değerlendirme modeli kullanılmak istendiğinden taslak programı değerlendirmek için katılımcı değerlendirme modeli (Cousins & Earl, 1992) kullanılmıştır. Bu modele göre program değerlendirme planlama, uygulama, gözlem ve yansıtma olmak üzere dört aşamada gerçekleştirilir. Planlama aşamasında katılımcılar gönüllülük esasına göre seçilmiştir. Ayrıca programı değerlendirmede kullanılacak ölçme değerlendirme araçları geliştirilmiştir. Ardından taslak program Antalya ilinde görev yapan altı yabancı dil öğretim elemanı ile uygulanmıştır. Taslak programın değerlendirilmesi için veriler şu ölçme araçları ile toplanmıştır: anket, açık uçlu sorulardan oluşan test, odak grup görüşmesi ve bireysel görüşme, katılımcı gözlemcinin alan notları, eğitimcinin alan notları ve katılımcıların yansıtma günlükleri. Nicel verilerin analizinde betimsel istatistikler kullanılırken nitel verilerin analizinde tematik içerik analizi (Braun & Clarke, 2006) kullanılmıştır. Elde edilen veriler programın güçlü ve geliştirilmesi gereken yönleri göz önüne alınarak analiz edilmiştir.

Bulgular

Programın Güçlü Yönleri

Ulaşılabilir Program Hedefleri

Hem nicel hem de nitel veriler programın öğretim görevlilerinin duyuşsal sorunlar hakkında farkındalık kazanmalarına, bunlara karşı önlem almalarına ve bunları aşmalarına yardımcı olduğunu göstermiştir.

İçerik

Dil ve edebiyat ya da tercümanlık diplomasına sahip öğretim elemanları, duyuşsal problemlerle ilgili terminolojiye ve literatüre aşina olduklarını belirtmişlerdir.

Öğrenme Deneyimleri ve Materyalleri

Hem nicel hem de nitel veriler, öğretim programındaki öğrenme deneyimlerinin ve materyallerinin programın amaçlarına ulaşmada etkili olduğuna dair kanıt sağlamıştır. Programın öğrenme yaşantıları ve materyallerinin güçlü yönleri aşağıdaki gibidir.

- ✓ Deneyimleri, en iyi uygulamaları ve bilgileri paylaşma fırsatı bulma
- ✓ Bilgi ve deneyim paylaşımına dayalı grup çalışmasının, dil ve edebiyat mezunu öğretim görevlilerinin duyuşsal alandaki literatüre aşina olmalarına yardımcı olması.
- ✓ Sınıf içi uygulamaları eleştirme ve yansıtma fırsatı bulma
- ✓ Dil sınıfları için çok sayıda etkili uygulama
- ✓ Dil derslerinde öğrenci merkezli bir yaklaşım sergilemeyi engelleyen faktörler hakkında bilgi paylaşımı
- ✓ Eğitim sırasında tümevarımcı bir yaklaşım benimsenmesi
- ✓ Etkileşimli, destekleyici ve pozitif öğrenme ortamı

Değerlendirme Süreçleri

Programın değerlendirme tekniklerinin programın amaçlarına ulaşmada oldukça etkili olduğunu kanıtlanmıştır. Tanılayıcı öz-yansıtma teknikleri, katılımcıların ön bilgilerini harekete geçirme ve oturum konusuna hazırlık sağlama açısından etkili bulunmuştur. Ayrıca öğretim

görevlileri yansıtıcı günlüklerin sınıf içi uygulamaları değerlendirmelerine olanak sağladığını belirtmişlerdir. Son olarak biçimlendirici değerlendirme teknikleri öz-eleştiriyi ve öz-değerlendirmeyi teşvik etmede ve duyuşsal problemlerin sebep ve sonuçlarını ortaya çıkarmada etkili bulunmuştur.

Programın Geliştirilmesi Gereken Yönleri

Otantik Görevler

Otantik görevlerin ödev olarak verilmesi yerine eğitim oturumlarına dahil edilmesi konusunda geri bildirimler alınmıştır.

Sözlük

Sonuçlar, dil ve edebiyat ve çeviri diplomasına sahip öğretim görevlilerinin duyuşsal alan terminolojisine aşina olmadıklarını ortaya koydu. Hedef terminoloji ve hedef teorinin tanımlarını içeren bir sözlük oluşturmaya karar verildi.

Faaliyetlerin Yapılandırılması

Eğitimcinin ve katılımcı gözlemcinin alan notları, bazı etkinliklerin daha iyi yapılandırılması gerektiğini gösterdi. Çünkü tartışmalar sırasında katılımcıların konudan uzaklaşıp ve ilgisiz konuları tartıştıkları görüldü.

Anonimlik

Eğitimcinin alan notları, katılımcıların diğer katılımcılar önünde kendilerini ifşa etme konusunda isteksiz olduklarını bu nedenle bazı teknikleri kullanırken anonimliğin sağlanmasına ihtiyaç duyulduğunu göstermiştir.

Video Kaydına Alınan Dersler

Katılımcılar, yapılan görüşmelerde eğitimde kullanılan videoların sayısının artırılması gerektiğini ve ders videolarının duyuşsal engeller açısından hem uygun hem de uygun olmayan dersleri örneklendirmesi gerektiğini belirtmişlerdir.

Bilgilendirici Rehber

Programın amaçlarını, prosedürlerini ve beklenen öğrenme çıktılarını açıklayan bilgilendirici bir rehber hazırlanmasına karar verilmiştir.

Eğitimcinin Eğitimi

Programı uygulayacak uzmanların yetiştirilmesi amacıyla uygulayıcıların yetiştirilmesine yönelik bir rehber hazırlanmasına karar verilmiştir.

Tartışma, Sonuç ve Öneriler

Çalışma sonucunda kurumsal bağlama ilişkin önemli bir pratik sonuca ulaşılmıştır. Programın en belirgin güçlü yönleri; sürekli öz-yansıtma ve öz-değerlendirmeye, uygulamalı bilgiye, bilgi ve deneyim alışverişine dayalı öğrenmeye ve değerlendirme süreçlerine dayanmasıdır. Yabancı dil yüksekokullarında görev yapan öğretim görevlileri, eğitim kurslarından kolaylıkla elde edilemeyen bilgiyi işe başladıktan kısa bir süre sonra edinmek durumunda kalmaktadırlar. İhtiyaç duyulan bilgi öğrenmenin gerçekleştiği işyerinde

oluşturulur. Bu nedenle istikrarlı ve öngörülebilir değildir. Öğretilebilir de değildir (Sharpling, 2002). Bu durum önceki eğitimlerin yabancı dil yüksekokullarında karşılaşılan duyuşsal sorunları ele almada neden etkisiz olduğunu açıklamaktadır. YDYO bağlamı ele alındığında, kesin kanıtlar ve ispatlar yoluyla gerçeğin tanınması yerine, gerçeğe entelektüel sorgulama yoluyla ulaşılması gerekmektedir. Sonuç olarak kurumun hizmet içi eğitim politikasında bir değişikliğe ihtiyaç duyulması çalışmanın önemli bir pratik sonucudur.

Appendix

Example Lesson Plan (Uysal, 2019)

COVER PAGE	
Name of the module	Instructional methods and techniques
Unit title	Instructional methods and techniques that cause affective barriers in EFL learning.
Target group	ELT Instructors that teach at tertiary level
Time frame	8 sessions (45*8)
Brief summary of unit	In this unit, trainees will learn about the relationship between instructional methods and techniques teacher uses and affective barriers students erect in EFL Learning process. The training will start with group discussions that aim to find out answers to the pre-training questions trainees have noted down in their reflection diaries. Also, trainees will go through a number of experiences to understand the topic throughout the sessions. Regarding the formative assessment, first, trainees will be expected to complete one-minute essays in order to respond to reflective questions of trainer. Also, trainees will be expected to write their unanswered questions on a small paper and stick them on the board so that the questions will be discussed at the end of the session (question board). At the conclusion of the training, trainees will be required to do an authentic performance task and write a self-assessment postscript. The task aims to reveal and assess trainees' understanding and the postscript aims to provide trainees with the chance to self-assess their progress.
Stage 1- Desired Results	
Established goals	Established goals: 1,2,3,5,6,8,9,16,17,19
What essential questions will be considered?	Essential questions: 1,2
What understandings are desired?	Understandings 1,2,3,4
What key knowledge will students acquire as a result of unit?	Key knowledge 1

What key skills will students acquire as a result of unit?	Key skills 1
Stage 2 –Acceptable Evidence	
Authentic performance task	-Imagine that you are a researcher who conducts a study to find out solutions to affective problems students develop in EFL learning process. **For details:** 2. Determine acceptable evidence, example authentic performance task for "module 1: instructional methods and techniques"
Other evidence to be gathered in the light of stage 1- desired results	Worksheet tables and oral presentations of trainees about the reading text
Student self-assessment and reflection	Pre-training reflection question (Write two questions about the relationship between instructional methods and techniques and affective barriers in EFL learning process.) Speak out activity One-minute essay question (Write two things you have learnt in this training session and you want to use in your classroom. Explain why?) self-assessment postscript **For details:** 2. Determine acceptable evidence, instructions for example self-assessment postscript for "module 1: instructional methods and techniques":
Stage 3- Plan Learning Experiences	
1.Inform students about established goals, requirements, assessment procedures of the unit (**W** = Inform students about **W**here the unit is going and **W**hat is expected?) 2.Work in groups of 4/5 to discuss and find out answers to pre-training reflective questions (**W** = Inform students about **W**here the unit is going and **W**hat is expected?) 3. Write "traditional language teaching" on the board and encourage trainees to brainstorm about it. Get the answers and make a mind map by using key words coming from the trainees. Then ask the essential question 2 (Which aspects of traditional and teacher-centered classes may be related to affective barriers students build in EFL learning process?) and encourage trainees to comment (**H** = **H**ook all students and **H**old their interest). 4. Deliver the reading text-1 and the worksheet. First, trainees do the activity individually, then in pairs and then in groups of 4 to share their ideas with one another (**E** = **E**quip students, help	

them **E**xperience the key ideas and **E**xplore the issues, **T =** Be **T**ailored (personalized) to the different needs, interests, and abilities of learners?).

5. The groups prepare 10-minute oral presentations and share their ideas with the whole class and trainer encourages whole-class discussion after presentations (**E =** Allow students to **E**valuate their work and its implications?).

6. Start a whole class discussion about the reasons of using traditional language teaching methods and techniques. Follow up probes to direct the discussions:

- ✓ Why is direct instruction method preferred at lessons?
- ✓ Wat are the reasons of overdependence on course book?
- ✓ What are the downsides of repetitive content?
- ✓ Why do teachers/instructors ignore student needs and interests at lessons?
- ✓ Why do they avoid communicative activities?
- ✓ Why would they rather grammar-focused lessons? (**R =** Provide opportunities to **R**ethink and **R**evise their understandings and work?)

7. Speak out activity. Give a change to each trainee to evaluate instructional techniques and methods he prefers considering affective barriers students build in EFL learning (**E =** Allow students to **E**valuate their work and its implications? **T =** Be **T**ailored (personalized) to the different needs, interests, and abilities of learners?).

8. Question board: trainees write their unanswered questions on a small paper and stick them on the board. After, the questions are discussed in groups of 4 (**E =** Allow students to **E**valuate their work and its implications? **T =** Be **T**ailored (personalized) to the different needs, interests, and abilities of learners?).

Reading Text-1 and worksheet

You will read dialogues EFL students have about instructional methods and techniques used at foreign languages department of a state university.
Please complete the chart after reading the dialogue.

**The dialogues were taken from interviews done with EFL students so they reflect their real ideas. Real names were not used in the dialogues, instead, nicknames were assigned.*

Case-1

Adam: In fact, Beril teacher makes effort to teach us something, I can't listen to her. Maybe, she can't adapt to new techniques and methods because she is too old and she thinks this is the best way to teach. She not students-centered enough. Although we give the correct answer she repeats it over and over, or she doesn't accept our answer.

Barny: ……

Adam:…….

Case-2

Adam: I was taught by three language teachers in primary school. The first one was a really good teacher and used stories to teach English. Recently, Cagan teacher came to the classroom. We watched a film and talked about it in English. It was really interesting……

Carlos: Most of teachers don't make enough effort to go beyond the course book. They want to instruct and go out ……

Case-3

Barny: In English lessons, teachers always focus on grammar. They teach us formulas and they don't focus on communication……

Dewey: I wonder how many words we can learn at a lesson. I must be max 10, 20 or 30. Our teachers try to teach 80 words at a time. It is…

Adam: There is a course book there and teacher has to complete it. The goal is to complete the book not to teach English…

* *Only some excerpts were quoted. The whole dialogue was not provided.*

Worksheet		
Case-1		
Negative feelings of students	Reasons of negative feelings	Results of negative feelings
Case-2		
Negative feelings of students	Reasons of negative feelings	Results of negative feelings
Case-3		
Negative feelings of students	Reasons of negative feelings	Results of negative feelings

International Journal of Curriculum and Instructional Studies

13*(1),* 2023, 30-46

www.ijocis.com

Examination of Pre-Service Teachers' Attitudes towards Teachers' Lounge

Filiz Çetin, Gazi University, ficetin@gazi.edu.tr, 0000-0002-6806-0160

Cennet Göloğlu Demir, Bandırma Onyedi Eylül University, gologlu.cennet@gmail.com, 0000-0002-8770-6107

Keywords

Congregational spaces
Lives of teachers
Hidden curriculum
Informal professional development

Article Info:

Received : 07-02-2023
Accepted : 11-04-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.002

Abstract

This study aims to determine the attitudes of pre-service teachers towards the teachers' lounge. Differences between the attitudes of pre-service teachers towards the teachers' lounge in terms of gender, program, perception of the teaching profession, and the time spent in the teachers' lounge during the internship were examined. The research has the characteristics of a descriptive research model and a survey research design. 634 pre-service teachers studying at the faculty of education and pedagogical formation program at a state university are the study group of this research. As a data collection tool in the research, the "Attitude Scale Towards the Teachers' Lounge" was used. The results of the research show that pre-service teachers' beliefs about the useful and versatile teachers' lounge and their beliefs about the relaxing aspect are at a moderate level, and their attitudes towards the are generally positive. Attitudes of female pre-service teachers towards the teachers' lounge are more positive than those of male teachers. Attitudes of the pre-service teachers studying in the pedagogical formation program towards the teachers' lounge are more positive than those of the pre-service teachers studying at the faculty of education. Attitudes of pre-service teachers who like the teaching profession towards the teachers' lounge are more positive than those of those who do not. The other results are that the attitudes of the teacher candidates who spend time in the teachers' lounge towards the teachers' lounge are more positive than the teacher candidates who do not spend time at all.

To cite this article: Çetin, F., & Göloğlu Demir, C. (2023). Examination of pre-service teachers' attitudes towards teachers' lounge. *International Journal of Curriculum and Instructional Studies, 13(1)*, 30-46. https://doi.org/10.31704/ijocis.2023.002

Introduction

The teachers' lounge is commonplace in the school where teachers rest mentally and physically outside of class hours, prepare for the lesson, socialize, meet with parents or students, and hold meetings. In short, it is common area that teachers use altogether for very different purposes. The idea that the teachers' lounge is a negative space has persisted for many years, but researchers have found strong connections between the teachers' lounge and the classroom (Mawhinney, 2010). The fact that the teachers' lounge is an informal space used for professional development is evaluated in the context of the interactions here. Keller (1999, 2000) classifies these interactions as "teacher lounge care" and "teacher lounge toxins". Teachers' lounge care states that interaction in the teachers' lounge occurs when it creates areas of improvement in teaching, compassion towards students, or other positive developments. Teacher lounge toxins, on the other hand, occur when comments that support derogatory views of students and other professionals, a general distaste for their profession, and a lack of interest in improving teaching performance occur.

Mawhinney (2010) states that teachers gain a natural professional development by learning something from each other through professional knowledge sharing, thanks to the informal interactions they carry out in the teachers' lounge, photocopy room, and other congregational spaces. "*The congregational spaces included places where teachers habitually gather in groups of two or more, such as classrooms, offices, libraries and other places where the teachers interacted when the space is not being used for other purposes" (*Mawhinney, 2007, p.54). Briefly, congregational spaces are places where a group of teachers are gathered together for teacher-to-teacher interaction (Mawhinney, 2008a, 2008b). Korkmaz and Yeşil (2012) found in their study of the agenda in the teachers' lounge that teachers often talk about the school environment and education-related issues, but sometimes they talk about social, economic, and political issues. Teachers stated that they mostly talked about education, the school environment, and academic development in the teachers' lounge. Pitt (2007) analyzes what teachers talk about in the teachers' lounge and states that most teacher discussions are based on professional communication that includes collaborative teacher dialogue.

In terms of pre-service teachers, the agenda of the teachers' lounge, especially regarding education and training, can be handled in terms of their informal professional development. Informal professional development is defined as teachers' interactions and discussions without a specified instructor, at unspecified times. Moreover, it takes teachers to reflect more on learning and collaborate with their colleagues (Darling-Hammond & McLaughlin, 2011; Jones & Dexter, 2014). Especially when it is considered in terms of social learning, the sharing of experienced teachers' knowledge about education and academic development constitutes a model for new teachers who are just starting their profession. According to Öntaş et al. (2017), pre-service teachers set a model for themselves by observing behaviors in schools that are appropriate or unsuitable for their teaching identity; they consider the time they spend at school and the social/professional relationships there as a professional experience, as well as the structure and culture of the places they will work in the future. They state that they acquire the kind of information that will create readiness about the subject. In addition, in the same study is stated that in some schools, the inability of pre-service teachers to enter the teachers' lounge or the absence of a teachers' lounge creates an obstacle for students to establish a

closer social-professional relationship with teachers. The role of the teachers' lounge in the professional development of teachers before and during the service period is undeniable.

Teachers' lounge is an informal learning environment with intensive professional development for both pre-service, novice, and experienced teachers (Nayır et al., 2016). In addition, the interactions of pre-service teachers in the teachers' lounge can be considered in the context of the hidden curriculum of the faculties of education. Teacher candidates can acquire knowledge, behaviors, and attitudes that are not included in the formal program of education faculties, from teachers and administrators in schools where they do their internships. How and what teachers talk about in the teachers' lounge, for what purpose they use it as well as their attitudes towards their profession, verbal and nonverbal communication their colleagues, and interactions with students, parents, and administrators in the teacher's lounge are all perceived and interpreted by the pre-service teachers. Therefore, everything that is perceived and interpreted by pre-service teachers leaves a permanent mark in their minds, and the messages given consciously or unconsciously are learned and constitute the hidden curriculum (Peker Ünal, 2017).

The attitudes that pre-service teachers will develop toward the teacher's lounge in the pre-service period will provide a prediction about how much time they will spend in these environments and what kind of gains they will make during their profession because attitudes, environmental factors, habits, and expectations appear as determinants of behavior (Kağıtçıbaşı, 1999). The fact that attitudes are formed by life and experiences (Allport, 1935, Thurstone, 1931 as cited in Tavşancıl, 2006) suggests that pre-service teachers will develop different attitudes towards the teachers' lounge in their school experiences. As a matter of fact, Smith's (2014) study in Canada reveals that less experienced teachers find staff rooms less important than more experienced teachers. In the study conducted by Timor (2017), it is stated that novice teachers experience alienation from the teachers' lounge because they cannot get professional support from their colleagues, and they experience a feeling of social exclusion. In the literature review conducted by lojdová et al. (2021), it is stated that teachers' lounge interactions are effective in the formation of the professional identity of teachers.

When the relevant studies are examined in Canada (Smith, 2014), the United States (Mawhinney, 2010), Israel (Ben-Peretz & Schonmann, 2000; Kainan, 2002); England (McGregor, 2003); South Africa (Abrahams, 1997), China (Paine et al., 2003); and Türkiye (Korkmaz & Yeşil, 2012; Turhan et al., 2015), it has been observed that scientific research has been conducted with teachers about the teachers' lounge. A limited number of studies have been conducted with pre-service teachers in the teachers' lounge (Nayır et al., 2016; Ünal et al., 2018). Nayır et al. (2016) aimed to reveal how the views of novice teachers about the teachers' lounge change depending on time and experience in the study conducted with university senior students enrolled in the pedagogical formation education certificate program. In this direction, the questionnaire consisting of open-ended questions was applied twice, before starting the teaching practice and seven weeks after the beginning of the pre-service teacher's teaching practice. When the views of the participants on how they perceive teachers' lounge are examined before the pre-service teacher starts teaching, it is mainly seen as a place of rest, eating, and drinking, as well as a secret and forbidden zone; it was revealed that after the pre-service teacher started teaching, they saw the teachers' lounge as a place of rest and preparation for the lesson and exams. Before the pre-service teacher starts teaching, they think

of the teachers' lounge as a place where gossip and individual issues are discussed. After the pre-service teachers started teaching, they realized that education-related issues were also discussed in the teachers' lounge. Another study conducted by Ünal et al. (2018) revealed that the pre-service teachers who took the course on school experience and teaching practice perceived the teachers' lounge as a student evaluation space, chat space, dining hall and informal space. They perceive it as a comfortable place, a place for gossip, a place segregated by gender, a place dominated by senior teachers, a grouping place, and a place without dialogue, as well.

As a result, it is important to determine the attitudes of pre-service teachers towards the teachers' lounge, which is thought to have a very positive effect on their professional lives. Based on these points, this study aims to determine the attitudes of pre-service teachers towards the teachers' lounge. For this purpose, answers to the following questions were sought:

1. What are the attitudes of pre-service teachers towards the teachers' lounge?
2. Do pre-service teachers' attitudes towards the teachers' lounge significantly differ by gender?
3. Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to the program they are studying?
4. Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to their perceptions of the teaching profession?
5. Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to the time spent in the teachers' lounge during their internship?

Method

This quantitative research, in which pre-service teachers' attitudes towards the teachers' lounge were determined, is in a descriptive survey model (Creswell, 2012). In descriptive research, questions such as "what? How much? How often? What kind" are used to obtain experience-based information about opinions, attitudes, and practices (Gall et al., 2003). Before starting the research, ethics committee approval was obtained with the decision numbered 2023-1 of Bandırma Onyedi Eylül University Social and Human Sciences Ethics Committee.

Study Group

The study group for the study consists of pre-service teachers in which studying at the faculty of education in their fourth year and the pedagogical formation program, at a state university. Participants were determined by a convenient sampling method (Emerson, 2021) due to time, place, participant convenience, and cost limitations. 634 pre-service teachers participated in the research. The personal characteristics of the participants are shown in Table 1.

Table 1 shows that the majority of the pre-service teachers (79.65%) participating in the study are female and in the pedagogical formation program (60.88%). Nearly half of the participating pre-service teachers said perceptions towards the teaching profession are "I like it so much" (46.85%), followed by "I like some" (40.54%) and "I don't like it all". (12.62%). When the Time Spending in the Teachers' lounge of pre-service teachers is examined, it is seen that nearly half of the pre-service teachers (47.63%) said "I sometimes spend time."

Table 1

Personal Characteristics of Pre-Service Teachers

Independent Variables		*f*	*%*
Gender	1. Female	505	79.65
	2. Male	129	20.35
Program	1. Faculty of Education	248	39.12
	2. Pedagogical Formation	386	60.88
Perception towards the Teaching Profession	1. I don't like it all.	80	12.62
	2. I like some.	257	40.54
	3. I like it so much.	297	46.85
Time Spending in the Teachers' lounge	1. I never spend time	200	31.55
	2. I sometimes spend time.	302	47.63
	3. I spend time whenever I have the opportunity.	132	20.82

Data Collection Instruments and Process

A questionnaire form was used as a data collection tool in the research. In the first part of the questionnaire, the information asked about gender, program, perception of the teaching profession, and time spent in the teachers' lounge during the internship were asked. The "Attitude Scale Towards the Teachers' Lounge" developed by Çetin and Göloğlu Demir (2022) with pre-service teachers, was used in the second part. Three-dimensional structure obtained which consists of 23 items in the scale. The first dimension was named "hesitation regarding the teachers' lounge" (Sample item: Being in the teachers' lounge annoys me), the second dimension was named "belief in the utility and versatility of the teachers' lounge" (Sample item: Teachers' lounge is a place where positive awareness is created in the name of teaching), and the third dimension was named "belief in the relaxing aspect of the teachers' lounge" (Sample item: The teachers' lounge is a great place to relax.) The items on the five-point Likert scale are scored from "1- I strongly disagree to 5- I completely agree." The scores are between 23 and 115. A high attitude score is interpreted as positive and a low attitude interpret as negative attitude.

While Çetin and Göloğlu Demir (2022) determined the Cronbach Alpha reliability coefficient value first sub-dimension as .94, for the second and third sub-dimensions it is .92 and .79, respectively. The reliability of the whole scale is .95. Similarly, also within the scope of this study, the Cronbach's Alpha coefficients for the scale sub-dimensions were found to be .95, .91, .79, and also the scale's overall reliability was .95. Reliability coefficients are .70 and higher, the measurements' reliability can be said to be adequate (Field, 2009).

Data from the participant was obtained through an online survey. Voluntary consent was obtained from prospective teachers before administering the questionnaire.

Data Analysis

Data were analyzed with SPSS 22 software package. Attitude levels of pre-service teachers towards the teachers' lounge were defined with descriptive statistics of minimum and maximum values, mean, and standard deviation. It was scored using the criteria established by Çetin and Göloğlu Demir (2022). Stem and leaf plot and histogram graphs and skewness and

kurtosis coefficients of the scores obtained from the overall scale and its sub-dimensions according to the variables of gender, program, perception towards the teaching profession, and spending time in the teachers' lounge during the internship and Kolmogorov-Smirnov test results were examined. As a result, it was determined that the data did not show a normal distribution. The Kolmogorov-Smirnov test results are shown in Table 2.

Table 2

Kolmogorov-Smirnov Test Results for Overall Scale and Sub-Dimensions

Scales	*Statistics*	*SD*	*p*
Hesitation regarding the teachers' lounge	.190	634	.000
Belief in the utility and versatility of the teachers' lounge	.058	634	.000
Belief in the relaxing aspect of the teachers' lounge	.077	634	.000
Scale total	.120	634	.000

According to the Kolmogorov-Smirmov test results in Table 2, it was determined that the distribution was not normal since $p<.05$ (Büyüköztürk, 2013). For this reason, non-parametric tests were used in the analyses. After the Kruskal-Wallis H test, the Mann-Whitney U test was used to determine significant differences, and a Bonferroni adjustment was made (Field, 2009, p. 565). The effect size for the Kruskal-Wallis test (Field, 2009, p. 570) and the effect size for the Mann-Whitney U test were calculated using the formula "$r=z/\sqrt{N}$" (Pallant, 2016, p. 252; Rosenthal, 1991, p. 19, as cited in Field, 2009). The r value found was interpreted as Cohen criteria, .1=small, .3=medium, .5=large (Field, 2009, p. 550; Pallant, 2016, p. 252). The $p<.05$ level was used to evaluate the analysis results.

Results

In this chapter, the findings obtained from the research will be presented in the order given by the sub-problems. In this context, the research question is, "What are the attitudes of pre-service teachers' towards the teachers' lounge?" Findings related to the first sub-problem of the study are presented in Table 3.

Table 3

Descriptive Statistics of Pre-Service Teachers' Attitude Scores Towards Teachers' Lounge

Scales	*N*	*Mean*	*SD*	*Median*	*Min*	*Max*
Hesitation regarding the teachers' lounge	634	29.17	8.59	31.00	8.00	40.00
Belief in the utility and versatility of the teachers' lounge	634	28.43	8.18	28.00	1.00	50.00
Belief in the relaxing aspect of the teachers' lounge	634	14.61	4.26	15.00	5.00	25.00
Scale total	634	72.23	19.02	74.00	2.00	115.00

When the average scores in Table 3 are classified on a five-point scale, the scores obtained from each dimension and the overall scale are classified on a five-point scale for dimension one "hesitation regarding the teachers' lounge", dimension two "belief in the utility and versatility of the teachers' lounge", and dimension three "teachers' belief in the relaxing aspect of the teachers' lounge", with the overall scale at the level of "moderately agree." The results

obtained show that the attitudes of pre-service teachers towards the teachers' lounge are positive.

The second sub-problem of the study is: "Do pre-service teachers' attitudes towards the teachers' lounge significantly differ by gender?" Findings related to the second sub-problem of the study are presented in Table 4.

Table 4

Pre-Service Teachers' Attitude Scores towards Teachers' Lounge by Gender

	Gender	*N*	*Mean Rank*	*Sum of Ranks*	*U*	*p*	*Effect size I*
Hesitation regarding the teachers' lounge	Female	505	329.07	166180.50	26729.500	.002	.12
	Male	129	272.21	35114.50			
Belief in the utility and versatility of the teachers' lounge	Female	505	325.91	16458.00	28326.000	.022	.09
	Male	129	284.58	3671.00			
Belief in the relaxing aspect of the teachers' lounge	Female	505	323.85	163542.00	29368.000	.083	-
	Male	129	292.66	37753.00			
Scale total	Female	505	327.62	165450.00	27460.000	.006	.10
	Male	129	277.87	35845.00			

The Mann-Whitney Test results in Table 4 shows that the attitudes of pre-service teachers towards the teachers' lounge are "Hesitation regarding the teachers' lounge" (U=26729.500, p=.002), "Belief in the utility and versatility of the teachers' lounge" (U=28326.000, p=.022), and across the scale (U= 27460.000, p=.006). There is a significant difference by gender. There is a significant difference in favor of female pre-service teachers for both dimensions and the overall scale. The size of the effect of this differentiation is small. In other words, female pre-service teachers believe more in the usefulness and versatility of the teachers' lounge than male pre-service teachers. Similarly, it is observed that female pre-service teachers have less reservations about the teachers' lounge. Finally, female pre-service teachers' attitudes towards the teachers' lounge are more positive than those of male pre-service teachers.

The third sub-problem of the study is: "Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to the program they are studying?" Findings related to the third sub-problem of the study are presented in Table 5.

Table 5

Pre-Service Teachers' Attitude Scores towards the Teachers' Lounge According to the Program

	Program	*N*	*Mean Rank*	*Sum of Ranks*	*U*	*p*	*Effect size I*
Hesitation regarding the teachers' lounge	Faculty of Education	248	294.94	73145.00	42269.000	.013	.09
	Pedagogical Formation	386	331.99	128150.00			
Belief in the utility and versatility of the teachers' lounge	Faculty of Education	248	290.38	72014.00	41138.000	.003	.11
	Pedagogical Formation	386	334.92	129281.00			
Belief in the relaxing aspect of the teachers' lounge	Faculty of Education	248	281.94	69922.00	39046.000	.000	.15
	Pedagogical Formation	386	340.34	131373.00			
Scale total	Faculty of Education	248	291.48	72288.00	41412.000	.004	.11
	Pedagogical Formation	386	334.22	129007.00			

The Mann-Whitney Test results in Table 5 shows that the attitudes of pre-service teachers towards the teachers' lounge are "Restraint towards the teachers' lounge" (U=42269.000, p=.013), "Belief in the utility and versatility of the teachers' lounge" (U= 41138.000, p=.003), "Belief in the relaxing aspect of the teachers' lounge" (U= 39046.000, p=.000) and across the scale (U= 41412.000, p=.004) differ significantly by program. There is a significant difference in favor of pre-service teachers studying in the pedagogical formation program in all three dimensions and scales. The effect sizes of these variations are small. In other words, in the pedagogical formation program, pre-service teachers believe more in the usefulness and versatility of the teachers' lounge and their beliefs about its relaxing aspect than do pre-service teachers studying at the faculty of education. Similarly, it is seen that in terms of pedagogical formation, pre-service teachers have fewer reservations about the teachers' lounge. Finally, the attitudes of the pre-service teachers studying in the pedagogical formation program towards the teachers' lounge are more positive than those of the pre-service teachers studying at the faculty of education.

The fourth sub-problem of the study is "Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to their perceptions of the teaching profession?" Findings related to the fourth sub-problem of the study are presented in Table 6.

Table 6

Pre-Service Teachers' Attitude Scores towards the Teachers' Lounge by Perceptions of the Teaching Profession

		N	*Mean Rank.*	X^2	*df*	*p*	*Effect size I*	*Difference Between Groups*
Hesitation regarding the teachers' lounge	1. I don't like it all.	80	174.88	64.270	2	.000	.34	1-2
	2. I like some.	257	313.69				.39	1-3
	3. I like it so much.	297	359.21				.13	2-3
Belief in the utility and versatility of the teachers' lounge	1. I don't like it all.	80	118.68	11.549	2	.000*	.51	1-2
	2. I like some.	257	326.75				.52	1-3
	3. I like it so much.	297	363.05				.10	2-3
Belief in the relaxing aspect of the teachers' lounge	1. I don't like it all.	80	131.98	104.298	2	.000	.45	1-2
	2. I like some.	257	318.27				.50	1-3
	3. I like it so much.	297	366.81				.13	2-3
Scale total	1. I don't like it all.	80	123.80	111.193	2	.000	.49	1-2
	2. I like some.	257	320.77				.51	1-3
	3. I like it so much.	297	366.84				.13	2-3

The Kruskal-Wallis Test results in Table 6 shows that the attitudes of the pre-service teachers towards the teachers' lounge "Hesitation regarding the teachers' lounge" (X^2=64.270, p=.000, r=.34 for Group $_{1-2}$, r=.39 for Group $_{1-3}$, r=.39 for Group $_{2-3}$) =.13), "Belief in the utility and versatility of the teachers' lounge" (X^2=113.549, p=.000, r=.51 for Group $_{1-2}$, r=.52 for Group $_{1-3}$, r=.10 for Group $_{2-3}$), "Belief in the relaxing aspect of the teachers' lounge" (X^2=104.298, p=.000, r=.45 for Group $_{1-2}$, r=.50 for Group $_{1-3}$, r=.13 for Group $_{2-3}$) and overall scale (X^2=111.193, p=.000, r=.40 for Group $_{1-2}$, r=.51 for Group $_{1-3}$, r=.13 for Group $_{2-3}$) show a significant difference according to their perceptions of the teaching profession. The findings are In favor of those who "stated that they love the teaching profession very much and that

they like it a little bit. Those who love the teaching profession very much are more likely to believe in the usefulness and versatility of the teachers' lounge and to hold beliefs about its relaxing aspect than pre-service teachers who love the teaching profession a little or not at all. It is seen that those who love the teaching profession very much have fewer reservations about the teachers' lounge than others. Those who like the teaching profession are slightly more likely to believe in the usefulness and versatility of the teachers' lounge and their beliefs about its relaxing aspect than the pre-service teachers who do not like it at all. It is seen that the pre-service teachers who like the teaching profession a little bit have fewer reservations about the teachers' lounge than those who do not like it at all. Finally, those who love the teaching profession very much have a more positive attitude towards the teachers' lounge than those who love it a little bit or not at all, and those who like it a little have more positive attitudes towards the teachers' lounge than those who do not like it at all.

The fifth sub-problem of the study is, "Do pre-service teachers' attitudes towards the teachers' lounge show a significant difference according to the time spent in the teachers' lounge during their internship? "Findings related to the fifth sub-problem of the study are presented in Table 7.

Table 7

Pre-Service Teachers' Attitude Scores towards the Teachers' Lounge by the Time Spent in the Teachers' Lounge

		N	*Mean Rank.*	X^2	*df*	*p*	*Effect size I*	*Difference Between Groups*
Hesitation regarding the teachers' lounge	1. I never spend time.	200	239.52	76.378	2	.000	.24	1-2
	2. I sometimes spend time.	302	325.48				.45	1-3
	3. I spend time whenever I have the opportunity.	132	417.39				.24	2-3
Belief in the utility and versatility of the teachers' lounge	1. I never spend time.	200	222.15	127.546	2	.000*	.28	1-2
	2. I sometimes spend time.	302	321.14				.56	1-3
	3. I spend time whenever I have the opportunity.	132	453.65				.36	2-3
Belief in the relaxing aspect of the teachers' lounge	1. I never spend time.	200	203.58	206.072	2	.000	.34	1-2
	2. I sometimes spend time.	302	314.34				.67	1-3
	3. I spend time whenever I have the opportunity.	132	497.33				.52	2-3
Scale total	1. I never spend time.	200	211.16	159.222	2	.000	.32	1-2
	2. I sometimes spend time.	302	321.25				.62	1-3
	3. I spend time whenever I have the opportunity.	132	470.04				.41	2-3

The Kruskal-Wallis Test results in Table 7 shows that the attitudes of the pre-service teachers towards the teachers' lounge "Hesitation regarding the teachers' lounge" (X^2=76.378, p=.000, r=.24 for $Group_{1-2}$, r=.45 for $Group_{1-3}$, r=.45 for $Group_{2-3}$ =.24), "Belief in the utility and versatility of the teachers' lounge" (X^2=127.546, p=.000, r=.28 for $Group_{1-2}$, r=.56 for $Group_{1-3}$, r=.30 for $Group_{2-3}$), "Belief in the relaxing aspect of the teachers' lounge" (X^2=206.072, p=.000, r=.34 for $Group_{1-2}$, r=.67 for $Group_{1-3}$, r=.52 for $Group_{2-3}$) and overall scale (X^2=159.222, p=.000, r=.32

for $Group_{1-2}$, r=.62 for $Group_{1-3}$, r=.41 for $Group_{2-3}$) show a significant difference according to the time sp"nt in the teachers' lounge. The findings are in favor of those who spend time in the teachers' lounge whenever they have the opportunity and occasionally. Pre-service teachers, who spend time in the teachers' lounge whenever they have the opportunity, have stronger belief in the usefulness and versatility of the teachers' lounge and their beliefs about its relaxing aspect than pre-service teachers, who spend time there only occasionally or not at all. Pre-service teachers who spend time in the teachers' lounge whenever they have the opportunity have fewer reservations about the teachers' lounge than the others. Those who spend time in the teachers' lounge occasionally have more positive beliefs about the usefulness and versatility of the teachers' lounge, as well as their beliefs about the relaxing aspect of the teacher's lounge than those who do not spend any time there at all. It is seen that the pre-service teachers who spend time in the teachers' lounge occasionally have fewer reservations about the lounge than those who do not spend any time there at all. Finally, the attitudes of the pre-service teachers who spend time in the teachers' lounge whenever they have the opportunity towards the teachers' lounge are more positive than those of the pre-service teachers who do not spend any time there at all. Similarly, the attitudes of pre-service teachers who spend time occasionally are more positive than those who do not spend time at all.

Discussion, Conclusion, and Implications

This study aims to determine the attitudes of pre-service teachers towards the teachers' lounge. The differences between the attitudes of pre-service teachers towards the teachers' lounge in terms of gender, program, perception of the teaching profession, and the time spent in the teachers' lounge during the internship were examined.

The findings obtained from the attitude scores of the pre-service teachers towards the teachers' lounge, their beliefs that the teachers' lounge is useful and versatile, and their beliefs about the relaxing aspect are moderate. However, they do not have major reservations about the teachers' lounge. In general, it can be asserted that the attitudes of pre-service teachers towards the teachers' lounge are positive. The interaction between colleagues in the teachers' lounge and the physical structure of the teachers' lounge may be effective in fostering a moderate level of pre-service teachers' belief in the usefulness and versatility of the teachers' lounge, as well as their belief in its relaxing aspect. When the relevant studies are examined, although the positive features of the teachers' lounge in terms of professional development are mentioned, gossip (Rosenholtz, 1989) and dissatisfied attitudes towards the profession are among these interactions. Briefly, the toxins in the teachers' lounge, as stated by Keller (1999, 2000), may have hindered the attitudes of pre-service teachers from being more positive. Ünal et al. (2018) revealed that the pre-service teachers perceive the teachers' lounge as a gossip place, a place separated by gender, a place dominated by senior teachers, a place for grouping, and a place without dialogue, which can be seen as dimensions that negatively affect the attitudes of pre-service teachers. In the research conducted by Smith (2014), only 29.7% of the teachers use the teachers' lounge for relaxation. Since the teachers' lounge is considered a resting area, the physical and spatial conditions are impressive. In the study conducted by Smith (2014), more than half of the teachers expressed negative opinions about the ambiance of the teachers' lounge (lighting, furniture, wall color, and people). Turhan et al. (2015) include the expectation of a comfortable environment among the teachers' views on physical

equipment expectations from the teachers' lounge. Teachers emphasize a comfortable environment, such as a relaxing environment, a spacious environment, a light-filled environment, and various pieces of furniture. As a matter of fact, Dinç and Onat (2002) suggest that the size of the teachers' lounge should be determined not only according to the needs but also according to the comfort conditions, as it includes resting and different working opportunities. Increasing the belief of prospective teachers in the relaxing aspect of the teachers' lounge can be associated with increased physical and spatial comfort.

Although the effect sizes were small in the study, female pre-service teachers' belief in the usefulness and versatility of the teachers' lounge was more positive than that of male pre-service teachers. Similarly, it is observed that female pre-service teachers have fewer reservations about the teachers' lounge. In general, female pre-service teachers' attitudes towards the teachers' lounge are more positive than those of male teachers. In the study conducted by Korkulutaş (2019), the fact that female teachers stated that the satisfaction level of teachers' lounges is higher than that of male teachers is in line with the results of the research. When the demographic data for teachers in Türkiye is examined, approximately 60% of the teachers are female (Ministry of National Education, 2022). In this case, the higher number of female teachers in the teachers' lounge, which has a common-use area, may have had a positive effect on the attitudes of female pre-service teachers.

In the study, the attitudes of the pre-service teachers studying in the pedagogical formation program towards the teachers' lounge were more positive than those of the pre-service teachers studying at the faculty of education. When examined according to the sub-dimensions, it was determined that the pedagogical formation pre-service teachers had fewer reservations about the teachers' lounge. However, in the pedagogical formation program, pre-service teachers' beliefs about the usefulness and versatility of the teachers' lounge and their beliefs about its relaxing aspect are more positive than those of pre-service teachers studying at the faculty of education. The research conducted by Nayır et al. (2016) determined that the students of the pedagogical formation certificate program primarily see the teachers' lounge as a resting place. There is a difference in the views of prospective teachers who receive pedagogical formation education (who are not graduates of education faculties) and those who study at the faculty of education. This difference shows that the expectations and perceptions of both student groups about the concept of teachers' lounge have changed. The results of the research show that as the love for the teaching profession increases, the beliefs about the benefit and versatility of the teachers' lounge and the beliefs about its relaxing aspect increase, while the reservations decrease. In general, the attitudes of pre-service teachers who like the teaching profession towards the teachers' lounge are more positive than those of those who do not.

As a result of the study, it is observed that the attitudes of the pre-service teachers who spend time in the teachers' lounge whenever they have the opportunity towards the teachers' lounge are more positive than the pre-service teachers who do not spend time at all. Similarly, the attitudes of pre-service teachers who spend time occasionally are more positive than those who do not spend time at all. As the time spent in the teachers' lounge increases, the reservations towards the teachers' lounge decrease. This result reveals the relationship between attitude and behavior. In Smith's (2014) study, it was revealed that teachers who use the teachers' lounge regularly find it more important than the teachers who rarely or never use

it, which supports the results of this study. The result obtained can be interpreted as pre-service teachers who have positive attitudes towards the teachers' lounge will spend more time in the teachers' lounge during the in-service period. In this way, it can create a positive effect in terms of benefiting from the experiences of colleagues and informal professional development, especially in the first years of the profession.

The findings obtained from this research study further revealed that it is necessary to carry out studies to increase the belief of pre-service teachers in the benefit and versatility of the teachers' lounge and their belief in its relaxing aspect. In this context, the negative interactions in the teachers' lounge and the improvement of the physical and spatial environment, which are revealed in the related literature, can positively affect the attitudes of the pre-service teachers. In addition, the schools to which pre-service teachers are sent for school experience can also be selected by considering the teachers' chamber. It is suggested that researchers determine the dimensions that negatively affect the attitudes of male pre-service teachers. Having positive attitudes towards the teachers' lounge means spending more time in the teachers' lounge. In this context, a conscious awareness can be created for pre-service teachers about how they can turn the time in the teachers' lounge into an opportunity for their professional development. Encourage prospective teachers to spend time in the teachers' lounge during their school experience to help them develop positive attitudes. In addition to these, what kind of teacher the pre-service teacher will be in the future is determined not only by the formal program of the education faculties but also by the hidden curriculum. The hidden curriculum emerges with the informal rules, the social structure of the faculty, the expectations of the students, the values and attitudes of the instructors (Ercan et al, 2009) as well as the experiences of the students in their internships. For this reason, in the context of the hidden curriculum, the effects of the experiences in the teachers' lounge on the pre-service teachers should be examined in depth.

Finally, since convenient sampling was used in this study, it is not possible to generalize the results (Emerson, 2021), and the dimensions that cause attitudes cannot be determined, which is the limitation of this research. It is recommended to investigate with qualitative studies on the expectations and perceptions of pedagogical formation and education faculty students from the teachers' lounge in terms of revealing the cognitive perceptions and experiences that are the source of their attitudes.

Author Contributions

All authors contributed to the writing of the manuscript. All authors read, edited and approved the manuscript.

References

Ben-Peretz, M., & Schonmann, S. (2000). *Behind closed doors: Teachers and the role of the teachers' room.* State University of New York Press.

Büyüköztürk, Ş. (2013). *Sosyal bilimler için veri analizi el kitabı*. Pegem Akademi.

Creswell J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson.

Çetin F., & Göloğlu Demir, C. (2022). Developing the attitude scale towards the teachers' lounge. *International Journal of Curriculum and Instruction,14*(3), 2270-2282. https://ijci.globets.org/index.php/IJCI/article/view/1087/536

Darling-Hammond, L., & McLaughlin, M. W. (2011). Policies that support professional development in an era of reform. *Phi Delta Kappan, 92*(6), 81–92. https://doi.org/10.1177/003172171109200622

Dinç, P., & Onat, E. (2013). Evaluating a primary school in contexts of building program and design. *Journal of the Faculty of Engineering and Architecture of Gazi University, 17*(3). https://dergipark.org.tr/tr/pub/gazimmfd/issue/6653/89019

Emerson, R. W. (2021). Convenience sampling revisited: embracing its limitations through thoughtful study design. *Journal of Visual Impairment & Blindness,115*(1), 76-77

Ercan, İ., Yüksel, S., Ocakoğlu, G., Yüksel, A., Uncu, Y., & Özkay, İ. E. G. (2009). Developing hidden curriculum scale of medical faculty. *Cerrahpaşa Medical Journal, 40*(3), 81-87. https://doi.org/10.2399/ctd.09.81

Field, A. (2009). *Discovering statistics using SPSS*. Sage Publication

Jones, W. M., & Dexter, S. (2014). How teachers learn: The roles of formal, informal, and independent learning. *Educational Technology Research and Development, 62*(3), 367–384. https://doi.org/10.1007/s11423-014-9337-6

Gall, M., Gall, J., & Borg, R. (2003). *Educational research: An introduction*. Allyn & Bacon,

Kainan, A. (2002). Analyzing teachers' stories. *International Journal of Qualitative Methods, 1*(3), 1-31.

Kağıtçıbaşı, Ç. (1999). *Yeni insan ve insanlar.* Evrim.

Keller, J. D. (1999). Deciphering teacher lounge talk. *Phi Delta Kappan, 81*(4), 328-329.

Keller, J. D. (2000). Caring in the teacher lounge: the teacher's TLC. *Education Digest*, *65*(6), 49-51.

Korkulutaş, Y. (2019). *Investigation of teacher's rooms social environment and communication, time spent in teacher's room and satisfaction level experienced in teacher's room in the context of teacher's opinions. (Thesis No: 54966)* [Master's thesis, Cumhuriyet University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/223367

Korkmaz, Ö. &, Yeşil, R. (2012). Agenda in the school staffroom. *Pamukkale University Journal of Education, 31* (31), 107-122. https://dergipark.org.tr/en/pub/pauefd/issue/11112/132855

Lojdová, K., Vlčková, K., & Nehyba, J. (2021). Stories of teachers' identity: between personal and professional experience. *Studia Paedagogica, 26*(2), 113-137. https://doi.org/10.5817/SP2021-2-6

McGregor, J. (2003). Making spaces: teacher workplace topologies. *Pedagogy, Culture, and Society, 11*(3), 353-377.

Mawhinney, L. (2007). *The social life of teachers: Exploring interactions and networks in congregational spaces* (Publication No:304828198) [Doctoral Dissertation, Temple University]. ProQuest Dissertations and Theses Global.

Mawhinney, L. (2008a.) Laugh so you don't cry: teachers combating isolation in schools through humour and social support, *Ethnography and Education, 3*(2), 195-209, https://doi.org/10.1080/17457820802062466

Mawhinney, L. (2008b). Coping with stress through validation: a tool of the teaching trade. *Journal of Ethnographic & Qualitative Research, 2*(4),246-254

Mawhinney, L. (2010). Let's lunch and learn: Professional knowledge sharing in teachers' lounges and other congregational spaces, *Teaching and Teacher Education, 26*(4), 972-978. https://doi.org/10.1016/j.tate.2009.10.039.

Nayır, K. F., Taneri, P. O., & Akgündüz, M. (2016). Kapalı kapılar ardında öğretmen adaylarına göre öğretmenler odası. In D. Özcan, & S. Dincer (Eds.), *Egitim bilimlerinde yenilik ve nitelik arayışı* (pp.791-808). Pegem Akademi. https://hdl.handle.net/11511/80463.

Ministry of National Education (2022). National Education Statistics Formal Education 2021/2022. https://sgb.meb.gov.tr/www/icerik_goruntule.php?KNO=460

Öntaş, T., Atmaca, T., & Kaya, B. (2017). Study of the experimentation of the primary school teacher candidate as professional socialization process. *Trakya University Journal of Education,* 7(2), 550-577. https://doi.org/10.24315/trkefd.308322

Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (6th ed.). Allen & Unwin.

Paine, L. W., Fang, Y., & Wilson, S. (2003). Entering a culture of teaching. In T. Britton, L. W. Paine, D. Pimm ve R. Senta (Eds.), *Comprehensive teacher induction: Systems for early career learning.* (pp. 20–82). Kluwer Academic Publishers.

Peker Ünal, D. (2017). Academician behaviours as an implicit element affecting the attitudes of teacher nominees towards their professions. *Journal of Higher Education and Science 7*(3), 430-440. https://dergipark.org.tr/en/pub/higheredusci/issue/61494/918168

Pitt, J. W. (2007). *What teachers say in the staffroom.* (Publication No: 304760788) [Doctoral Dissertation, Nipissing University]. ProQuest Dissertations and Theses Global.

Rosenholtz, S. J. (1989). *Teachers' workplace: The social organization of schools.* Teachers College Press.

Smith, D. C. (2014). *Secondary school staffrooms as perceived, conceived, and lived spaces: An investigation into their importance, decline, and ublation.* (Publication No: 1634881000) [Doctoral Dissertation, University of Toronto]. ProQuest Dissertations and Theses Global.

Tavşancıl, E. (2006). *Tutumların ölçülmesi ve SPSS ile veri analizi*. Nobel.

Timor, T. (2017). The journey of novice teachers: Perceptions of interns from a teacher training program for academics. *Journal of Multidisciplinary Research, 9*(2), 5-28. https://www.proquest.com/scholarly-journals/journey-novice-teachers-perceptions-interns/docview/2133362226/se-2

Turhan, B., Kaptan, A., & Kahveci, H. (2015). Views of primary and secondary school teachers about teachers' room. *Turkish Studies, 10*(3), 993-1008. http://dx.doi.org/10.7827/TurkishStudies.7794

Ünal, A., Sürücü, A., & Yıldırım, A. (2018, 28 April-01 May). *Teachers' lounge by the preservice teachers' point of view* [Paper presentation]. In *III. INES Education and Social Science Congress*, Alanya, Antalya.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13(1), 2023, 30-46
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmen Adaylarının Öğretmenler Odasına Yönelik Tutumlarının İncelenmesi

Giriş

Öğretmenler odası, okul içinde öğretmenlerin ders saatleri dışında zihinsel ve fiziksel olarak dinlendikleri, ders için hazırlık yaptıkları, sosyalleştikleri, yeterli fiziksel alanı bulunmayan okullarda veli ya da öğrenci görüşmeleri yaptıkları, toplantıların yapıldığı kısaca çok farklı amaçlar için öğretmenlerin birlikte kullandıkları ortak bir mekândır. Uzun yıllar öğretmenler odasının olumsuz bir alan olduğu fikri varlığını sürdürmüştür fakat araştırmacılar, öğretmenler odasından sınıfa güçlü bağlantılar bulmuşlardır (Mawhinney, 2010). Öğretmenlerin, öğretmenler odası, fotokopi odası ve diğer toplanma alanlarında gerçekleştirdikleri informal etkileşimler, mesleki bilgi paylaşımıyla birbirlerinden bir şeyler öğrenerek doğal bir mesleki gelişim kazandırmaktadır (Mawhinney, 2010). Öğretmenlerin öğretmenler odasında gerçekleştirdikleri öğretmen tartışmaları da işbirlikçi öğretmen diyaloğunu içeren profesyonel iletişime dayanmaktadır (Pitt, 2007).

Öğretmen adayları açısından öğretmenler odasının özellikle eğitim-öğretime ilişkin gündemi onların mesleki gelişimleri açısından ele alınabilir. Özellikle sosyal öğrenme açısından ele alındığında deneyimli öğretmenlerin eğitim-öğretim ve akademik gelişime ilişkin paylaşımları mesleğe yeni başlayacak öğretmenler için model teşkil etmektedir. Öğretmen adaylarının hizmet öncesi dönemde öğretmenler odasına yönelik geliştireceği tutumlar onların meslekleri süresince bu ortamlarda ne kadar zaman geçirecekleri ve ne tür kazanımlar saplayacakları konusunda bir öngörü sağlayacaktır. Bu doğrultuda öğretmenler odasının informal mesleki gelişim üzerindeki etkisinden yola çıkarak tasarlanan bu araştırmada öğretmen adaylarının öğretmenler odasına yönelik tutumlarının belirlenmesi amaçlanmıştır. Bu kapsamda öğretmen adaylarının cinsiyet, program, öğretmenlik mesleğine yönelik algı ve stajda öğretmenler odasında zaman geçirme durumu değişkenleri açısından öğretmenler odasına yönelik tutum puanları arasındaki farklılaşmalar incelenmiştir.

Yöntem

Öğretmen adaylarının öğretmenler odasına yönelik tutumlarının belirlendiği bu nicel araştırma betimsel tarama modelindedir (Creswell, 2012). Betimsel araştırmalarda görüşler, tutumlar ve uygulamalar hakkında deneyime dayalı bilgi elde etmek için "Ne? Ne kadar? Ne

sıklıkla? Ne tür" gibi sorular kullanılır (Gall vd., 2003). Araştırmaya başlamadan önce Bandırma Onyedi Eylül Üniversitesi Sosyal ve Beşeri Bilimler Etik Kurulu'nun 2023-1 sayılı kararı ile etik kurul onayı alınmıştır. Araştırmanın çalışma grubunu bir devlet üniversitesinde eğitim fakültesi dördüncü sınıf ve pedagojik formasyon programında öğrenim gören öğretmen adayları oluşturmaktadır. Zaman, yer, katılımcı uygunluğu ve maliyetle ilgili sınırlamalar nedeniyle uygun örnekleme yöntemi (Emerson, 2021) ile katılımcılar belirlenmiştir. Katılımcılardan veriler çevrimiçi anket yoluyla elde edilmiştir. Araştırmaya 634 öğretmen adayı katılmıştır.

Bulgular

Öğretmenler odasına yönelik tutum puanlarından elde edilen bulgular, öğretmen adaylarının, öğretmenler odasının yararlı ve çok yönlü olduğuna yönelik inançları ile dinlendirici yönüne yönelik inançlarının orta düzeyde olduğunu göstermektedir. Bununla birlikte öğretmenler odasına yönelik büyük ölçüde çekinceleri bulunmamaktadır. Genel olarak öğretmen adaylarının öğretmenler odasına yönelik tutumlarının olumlu olduğu söylenebilir. Kadın öğretmen adaylarının öğretmenler odasının yararına ve çok yönlülüğüne olan inançları erkek öğretmen adaylarından daha fazladır. Benzer şekilde kadın öğretmen adaylarının öğretmenler odasına yönelik çekincelerinin daha az olduğu görülmektedir. Genel olarak kadın öğretmen adaylarının öğretmenler odasına yönelik tutumları erkek öğretmenlere göre daha olumludur.

Araştırmada pedagojik formasyon programında öğrenim gören öğretmen adaylarının öğretmenler odasına yönelik tutumları eğitim fakültesinde öğrenim gören öğretmen adaylarına göre daha yüksektir. Alt faktörlere göre incelendiğinde ise pedagojik formasyon öğretmen adaylarının öğretmenler odasına yönelik çekincelerinin daha az olduğu tespit edilmiştir. Bununla birlikte pedagojik formasyon programı öğretmen adaylarının öğretmenler odasının yararına ve çok yönlülüğüne olan inançları ile dinlendirici yönüne ilişkin inançları eğitim fakültesinde öğrenim gören öğretmen adaylarından daha fazladır. Araştırma bulguları öğretmenlik mesleğine yönelik sevgi arttıkça öğretmenler odasının yararına ve çok yönlülüğüne olan inançlar ile dinlendirici yönüne ilişkin inançların arttığını, çekincelerin ise azaldığını göstermektedir. Genel olarak öğretmenlik mesleğini seven öğretmen adaylarının öğretmenler odasına yönelik tutumları sevmeyenlere göre daha olumludur. Son olarak fırsat bulduğu her an öğretmenler odasında zaman geçiren öğretmen adaylarının öğretmenler odasına yönelik tutumları ara sıra ve hiç zaman geçirmeyen öğretmen adaylarına göre daha olumlu olduğu görülmektedir. Benzer şekilde ara sıra zaman geçiren öğretmen adaylarının tutumları da hiç zaman geçirmeyenlerden daha olumludur. Öğretmenler odasında geçirilen zaman arttıkça öğretmenler odasına yönelik çekinceler de azalmaktadır.

Tartışma, Sonuç ve Öneriler

Öğretmen adaylarının öğretmenler odasının yararlı ve çok yönlülüğüne olan inançları ile dinlendirici yönüne olan inançlarının orta düzeyde olmasında öğretmenler odasındaki meslektaşlar arası etkileşimler ve öğretmenler odasının fiziki yapısı etkili olabilir. İlgili araştırmalar incelendiğinde her ne kadar öğretmenler odasının mesleki gelişim açısından olumlu özellikleri bahsedilse de, dedikodu (Rosenholtz, 1989), mesleğe yönelik hoşnutsuz tutumlar da bu etkileşimler arasındadır. Kısaca Keller'in (1999, 2000) belirtmiş olduğu öğretmenler odası toksinleri öğretmen adaylarının tutumlarının daha olumlu olmasına ket

vurmuş olabilir. Genel olarak kadın öğretmen adaylarının öğretmenler odasına yönelik tutumları erkek öğretmenlere göre daha yüksektir. Türkiye'de öğretmenlere yönelik demografik veriler incelendiğinde öğretmenlerin yaklaşık 60%'ı kadın öğretmenlerden oluşturmaktadır (Milli Eğitim Bakanlığı, 2022). Bu durumda ortak kullanım alanı olan öğretmenler odasında kadın öğretmenlerin daha fazla sayıda bulunması, kadın öğretmen adaylarının tutumları üzerinde olumlu etkisi olmuş olabilir. Araştırma sonucunda fırsat bulduğu her an öğretmenler odasında zaman geçiren öğretmen adaylarının öğretmenler odasına yönelik tutumları ara sıra ve hiç zaman geçirmeyen öğretmen adaylarına göre daha olumlu olduğu görülmesi, öğretmenler odasına yönelik olumlu tutumlara sahip olan öğretmen adaylarının hizmet içi dönemde öğretmenler odasında daha fazla zaman geçireceği şeklinde yorumlanabilir. Bu sayede özellikle mesleğin ilk yıllarında meslektaşlarının deneyimlerden faydalanma ve informal mesleki gelişim açısından olumlu bir etki oluşturabilir.

Araştırmadan elde edilen bulgular öğretmen adaylarının öğretmenler odasının yararına ve çok yönlülüğüne olan inançları ile dinlendirici yönüne olan inançlarının arttırılması için çalışmalar yapılması gerekliliğini ortaya koymuştur. Bu bağlamda ilgili alan yazında ortaya konulan öğretmenler odasındaki olumsuz etkileşimler ile fiziksel ve mekânsal ortamın iyileştirilmesi öğretmen adaylarının tutumlarını olumlu yönde etkileyebilir. Pedagojik formasyon ve eğitim fakültesi öğrencilerinin öğretmenler odasından beklentileri ve algılarına yönelik yapılacak nitel çalışmalar onların tutumlarına kaynaklık eden bilişsel algı ve deneyimlerin ortaya çıkarılması açısından önemlidir. Öğretmenler odasına yönelik olumlu tutumlara sahip olma öğretmenler odasında daha fazla zaman geçirilmesi anlamına gelmektedir. Bu bağlamda ele alındığında öğretmen adaylarına öğretmenler odasındaki zamanı mesleki gelişimleri açısından nasıl fırsata çevirebilecekleri konusunda bilinçli bir farkındalık oluşturulabilir. Akademisyenlerin okul deneyimleri süresince öğretmen adaylarını öğretmenler odasında zaman geçirmeleri konusunda teşvik etmeleri onların olumlu tutumlar geliştirmeleri yönünde destekleyici olabilir.

International Journal of Curriculum and Instructional Studies
12(1), 2023, 47-66
www.ijocis.com

Examining the Curriculum Literacy, Pedagogical Knowledge and Skill Levels of Preservice Teachers[1]

Çiğdem Dilek, Atatürk University, cigdemdilekpdr@gmail.com, 0000-0002-1374-6018
Adnan Taşgın, Atatürk University, atasgin@atauni.edu.tr, 0000-0002-3704-861X

Keywords
Curriculum
Curriculum literacy
Pedagogical knowledge and skill

Article Info:
Received : 31-12-2022
Accepted : 31-05-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.003

Abstract

Curriculum literacy includes the concepts of curriculum and literacy in one concept. Pedagogical knowledge is a classroom management competence and skill related to teaching and learning process. The aim of this study was to examine preservice teachers' curriculum literacy levels and their pedagogical knowledge and skills. This research sample, a correlational model, consists of 213 preservice teachers studying at a state university in the Eastern Anatolia Region. The Curriculum Literacy Scale and Pedagogical Knowledge and Skills Scale were used to collect the research data. Mann-Whitney U test and Kruskal-Wallis test were used to analyze the data. It was understood that preservice teachers had positive opinions on curriculum literacy and pedagogical knowledge and skills scales. There was no significant difference between preservice teachers' curriculum literacy levels related to gender variable. However, a significant difference was found in the reading sub-dimension of curriculum literacy with reference to the grade variable. Although there was no statistically significant difference between the pedagogical knowledge and skills of preservice teachers in relation to the grade variable, a significant difference was observed in all sub-dimensions of the grade variable. As a result, it was also found that there was a moderate positive correlation between preservice teachers' curriculum literacy levels and their pedagogical knowledge and skills levels.

To cite this article: Dilek, Ç., & Taşgın, A. (2023). Examining the curriculum literacy, pedagogical knowledge and skill levels of preservice teachers. *International Journal of Curriculum and Instructional Studies, 13(1*), 47-66. https://doi.org/10.31704/ijocis.2023.003

[1] This study based on Çiğdem Dilek's Master Thesis at Atatürk University Department of Educational Sciences, Curriculum & Instruction, under the supervision of Assoc. Prof. Dr. Adnan TAŞGIN.

Introduction

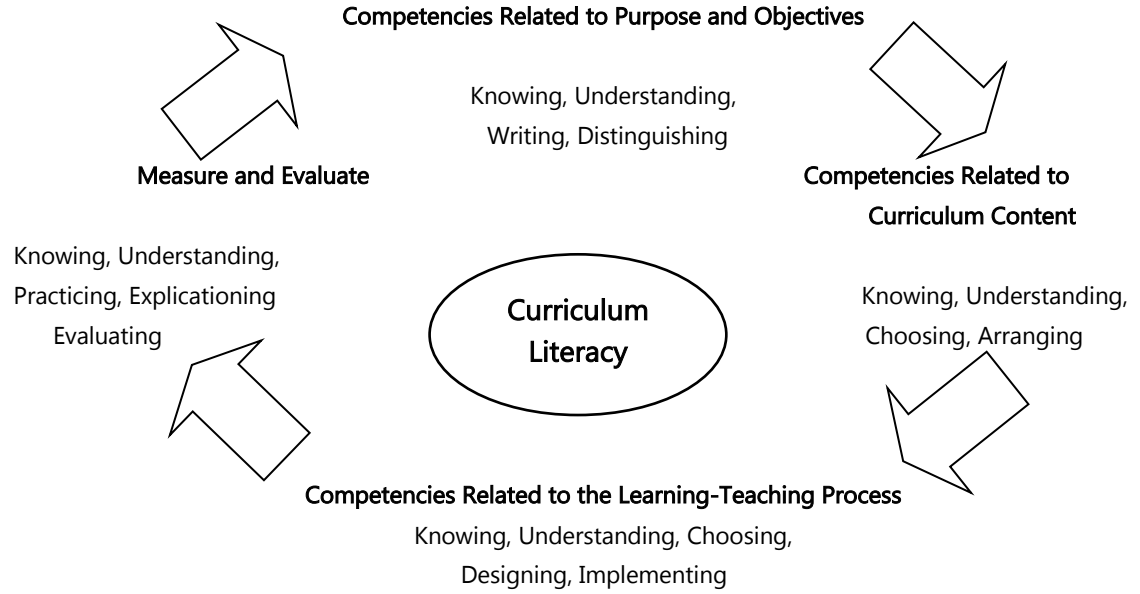
Today, competition between countries is increasing due to the effect of globalization and the more aware individuals. The essential requirement for the development and progress of the nations is education. The story of individuals and societies in economic, political, social, and legal fields is possible with education. In this direction, the most crucial investment of countries is their educational systems (Gencel, 2001). Rapid developments and changes in many fields led to new changes in the comprehension of learning and teaching (Arslan & Özpınar, 2008). Educators have remarkable responsibilities for countries to follow these changes to keep up with developed societies (Erdem, 2013). Teachers are the most important part of a country's education system. Teachers also have a significant role in providing people with knowledge and skills that societies need to raise new generations (Baysen et al., 2017; Çelikten et al., 2005).

Regardless of the stage of their life, people find the opportunity to get to know themselves and make sense of the society they live in, thanks to their education. The ability of individuals to discover their interests and skills, to know themselves, and to use their current potential for the society they live in, is related to the education they receive (Kozikoğlu & Uygun, 2018). For these reasons, teachers must be competent to fulfil their responsibilities in realizing the purpose of being an information society of nations (Erdem, 2013). The qualifications of the teachers and the qualifications of the students are closely related. The teacher is an artist and human architect who shapes the personalities of individuals (Çelikten et al., 2005). In this sense, teachers are expected to gain the knowledge and skills that students can acquire during the education-teaching process through the curriculum (Altıntaş et al., 2018). Teachers are the primary implementers of curriculum (Erden, 1998). All students can benefit from a curriculum aligned with their interests and needs with a teacher's guidance (Stabback, 2016). Practical implementation guidance and the success of the curriculum in practice will be achieved by effectively through using the knowledge and skills of the teachers and preservice teachers about the curriculum. In this regard, educators are expected that students will be able to interpret the curriculum, maintain the learning teaching process by the components of the applied curriculum, and use their literacy skills effectively (Karagülle et al., 2019). As a result, curriculum literacy is a skill that all teachers and preservice teachers should have (Erdem & Eğmir, 2018). Curriculum literacy is defined as interpreting and adapting the curriculum to the current conditions (Keskin & Korkmaz, 2021). Akyıldız (2020) explained curriculum literacy as the proficiency of curriculum knowledge, interpreting, designing, and evaluation skills. On the other hand, Mills and Unsworth (2015) explained curriculum literacy as symbols consisting of various practices that interact with the school's function and direction of activity. Literacy can be defined as teachers' awareness of the curriculum and ability to understand and implement the curriculum.

Curriculum literacy is a concept that comprises the "curriculum" and "literacy" concepts together. Curriculum literacy includes the skills related to the awareness of all activities in the meaning, implementation, and evaluation dimensions of the curriculum. The competence areas which a curriculum-literate teacher and preservice teachers is shown in Figure 1 (Akyıldız, 2020).

Figure 1

Competence Stages of Curriculum Literacy



An educator who is competent in the areas shown in Figure 1 can effectively complete the dimensions of designing and evaluating the curriculum (Akınoğlu & Doğan, 2012). Achieving the desired level of success from the curriculum depends on teachers' ability to interpret the content and structure of the curriculum (Karagülle et al., 2019). Therefore, teachers must plan the curriculum's objectives, content, educational situations, and evaluation dimensions (Ornstein & Hunkins, 1988/2016).

A teacher with curriculum literacy skills can make up-to-date and flexible planning by interpreting current conditions rather than applying a standard curriculum (Nsibande & Modiba, 2012). At the same time, being curriculum literate supports the development of preservice teachers' teaching skills and increases their level of readiness for the profession (Aygün, 2019). For this reason, preservice teachers should have curriculum literacy skills to fulfill the roles and responsibilities expected of them. Therefore, teacher training programs should be prepared in a way that supports the curriculum literacy skills of the preservice teachers (Bolat, 2017). Steiner (2018) states that curriculum literacy should be taken seriously by teacher training institutions. There are studies on curriculum and curriculum literacy in the literature (Akınoğlu & Doğan, 2012; Akyıldız, 2020; Aygün, 2019; Beck, 2013; Bolat, 2017; Erdem & Eğmir, 2018; Green, 1999; Kahramanoğlu, 2019; Karagülle et al., 2019; Karseth & Sivesind, 2018; Mills & Unsworth, 2015; Ornstein & Hunkins, 2016; Pinar et al., 1995; Shawer, 2010).

Today, there is a need for educators who have 21st-century skills that know the methods of accessing information and can use information by making use of technological opportunities. There is a need for a qualified workforce in the development of societies and in increasing the level of welfare. Therefore, teachers play an essential role in raising qualified individuals (Eskicumalı, 2005; Özer & Gelen, 2008). For teachers to fulfill this role, they need to have general culture, knowledge of the subject area, and the knowledge and skills of the teaching profession (Erden, 1998).

Pedagogical knowledge is a classroom management competence and skills related to education and training (Shulman, 1987). The knowledge model created by teachers in the process of scientific education in schools is designed as a combination of concepts, methods and the number of a model defined in the literature (Çiltaş & Akıllı, 2011). This was defined as pedagogical knowledge. One of the issues teachers constantly discuss is "how and how much the teacher should know his field." One of the most critical development in this field is the establishment of a national teaching commission by Lee Shulman and his friends in the United States in the 1980s, which is seen as an advance toward conceptualizing teacher knowledge (Öner, 2010). According to Shulman (1987), the categories that make up the teacher's expert knowledge are:

- Content knowledge: Knowledge of the structures that make up the field and the principles that organize it conceptually,
- Curriculum knowledge: Comprehending the materials and curriculum required for teaching,
- Pedagogical content knowledge: a mix of content and pedagogy that is only the teacher's expertise,
- General pedagogical knowledge: Beyond content knowledge, knowledge of general principles and strategies for classroom management and organization,
- Information about students and their characteristics,
- Knowledge of educational environments,
- It is the knowledge of educational values, goals, and desired results.

Teacher education has a great impact on raising the human profile of the current era, it also prepares students that can meet the needs of society, and adapt students to the community they live in. Therefore, teacher education should be emphasized to prepare preservice teachers for the profession (Gürşimşek, 1998; Özer & Gelen, 2008).

Shulman (1986, 1987), who mentioned the importance of the teacher's mastery of teaching methods and techniques, stated that to reach learning outcomes, teachers should first determine the content to be taught and the teaching purpose, make the content available to all students by using their pedagogical knowledge and skills and evaluate the learning-teaching process by making corrections. Afterward, it is necessary to complete the teaching process by eliminating the missing and faulty learnings. Within this context, pedagogical knowledge is a sum of skills that facilitate the understanding of information that students of different ages and education levels describe as easy or difficult (Shulman, 1986).

Shulman (1987) argues that for educators to convey a particular subject area in a way that students can understand, subject area knowledge and pedagogical knowledge skills of that subject area should be used together, and each educator can do this in different ways. The importance of preservice teachers and teachers having pedagogical content knowledge, which is a type of knowledge related to teaching the subject area, as well as leading professional knowledge and content knowledge, was emphasized by Shulman in 1986 for the first time. Shulman (1986) defined pedagogical content knowledge as ways to include analogies, pictures, drawings, examples, and explanations that can express the subject in teaching a subject, using the most valuable notations and organizing the subject content for a better understanding of the subject by the students. It refers to the mixture of pedagogical knowledge and content knowledge about how specific content is shown, conveyed, and applied to students with

different interests and abilities and how it is shared in the teaching process (Shulman, 1987). The essential components that Shulman (1986) advocated in pedagogical content knowledge are our knowledge of the elements representing the subject and understanding the students' learning difficulties. Teachers should know that these components are intertwined and flexible. The better the educators know their students with learning difficulties, the more notation they Use, and the more effectively they use their pedagogical content knowledge. Based on all these explanations, pedagogical content knowledge can be defined as the unique interpretation of teachers' subject area knowledge to facilitate the learning of all students with different characteristics (Van Driel et al., 1998).

Pedagogical knowledge means having a comprehensive understanding of learning and teaching methods. This information includes classroom management, student learning, lesson planning, assessment of students, and how students learn (Koehler & Mishra, 2005). Tamir (1988), on the other hand, discusses the types of knowledge teachers should have in three categories. These are pedagogical content knowledge, general pedagogical knowledge and subject area knowledge. Subject area knowledge is defined as having a command of the fundamental theories related to a particular discipline and being able to apply the skills required by the field. General pedagogical knowledge and pedagogical content knowledge consist of four dimensions: student, program, education, and evaluation. There are apparent differences between general pedagogical knowledge and subject area ability. This significant difference reveals the importance of teacher education because general pedagogical knowledge is handled by experts and facilitates the teaching of academic subjects.

On the other hand, subject-area knowledge should be acquired by people who are competent in pedagogy and who work with students in a specific subject area (Tamir, 1988). Pedagogical or field knowledge is not enough for teaching. More than knowledge of these two disciplines is required. Preservice teachers' ability consists mainly of specialized content and pedagogical knowledge. Therefore, preservice teachers should be given opportunities to gain special content knowledge and transform their basic discipline knowledge (Öner, 2010). In other words, teaching knowledge consists of a multidimensional structure consisting of general pedagogical knowledge, pedagogical knowledge and content knowledge (König et al., 2014).

In the literature, there is no research on curriculum literacy and pedagogical knowledge and skills together. This situation reveals the original aspect of the research. At the same time, it can be said that curriculum literacy and pedagogical knowledge and skills, which are stated to be interrelated, are also important in terms of revealing the current situation of preservice teachers. In addition, it is predicted that this research will raise awareness about the importance of curriculum literacy in preservice teachers who are curriculum implementers and will be a source of information for curriculum development experts. The research topic and findings will also contribute to researchers who will research similar topics. In this direction, this study aimed to examine preservice teachers' curriculum literacy and pedagogical knowledge and skill levels.

For this purpose, the problem statements of the research are as follows:

- What is the level of preservice teachers' curriculum literacy?
- Do preservice teachers' curriculum literacies differ in terms of gender variable?
- Do preservice teachers' curriculum literacies differ in terms of the grade variable?
- What is the level of pedagogical knowledge and skills of preservice teachers?

- Do preservice teachers' pedagogical knowledge and skills differ in terms of gender variable?
- Do preservice teachers' pedagogical knowledge and skills differ in terms of the grade variable?
- Is there a significant relationship between preservice teachers' curriculum literacy and pedagogical knowledge and skills?

Method

Research Model

This research is a correlational type. This model was used because the relationship between variables was examined. There are two types in the correlational model, correlation and comparison. Correlational research is conducted to examine the relationship between two or more variables and determine the degree of this relationship. Correlational research is an essential study that provide the necessary information to reveal the relationship between variables, determine the level of the relationship and carry out higher-level studies (Büyüköztürk et al., 2016).

Study Grup

The sample of the study consists of 213 preservice teachers studying at a state university. The criterion sampling method was used to determine the sample of the study. The criterion for using criterion sampling was determined as not being in the first year of university education. The reason is that preservice teachers who have just started university do not yet have knowledge of the program. The distribution of the sample related to the variables is given in Table 1.

Table 1

Distribution of the Sample Related to Various Variables

Variables		*n*	*%*
Gender	Female	170	79.81
	Male	43	20.19
Grade	2nd-grade	87	40.84
	3rd-grade	74	34.74
	4th-grade	52	24.42

When Table 1 is examined, 170 (79.81%) of the 213 preservice teachers are female, and 43 (20.19%) are male. In terms of the grade variable, 87 (40.84%) of the 213 preservice teachers are in the 2nd grade, 74 (34.74%) are in the 3rd grade, and 52 (24.42%) are in the 4th grade.

In the research, attention was paid to the fact that the sample consisted of preservice teachers studying in different departments and grade levels as much as possible. However, first-year preservice teachers were not included in the model because it is thought that teaching skills are acquired through institutional work and practical experience.

Data Collection Instruments

The data of the study were collected with 2 scales and a personal information form. Information about the data collection tools is given below.

Personal Information Form

The personal information form including gender, grade level and preservice teachers' department variables was used.

Curriculum Literacy Scale

Curriculum Literacy Scale was developed by Bolat (2017). The scale is prepared in 5-point Likert type and consists of 29 items and two subscales. The Cronbach Alpha internal consistency coefficient of the scale is 0.94. The scale explains 43.54% of the total variance. As a result of the confirmatory factor analysis, it was concluded that the calculated fit indices of the scale were adequate (X^2 =657.80; p < 0.05; sd = 376; NFI = 0.94; SRMR = 0.052; CFI = 0.97; NNFI = 0.97; IFI = 0.97; RMSEA = 0.059; GFI = 0.83 and AGFI = 0.80). The Cronbach Alpha reliability coefficient calculated for this research regarding the scale is .98.

Pedagogical Knowledge and Skills Scale

The scale was developed by Wong et al. (2012) and adapted into Turkish by Gökçek and Yılmaz (2019). The scale is prepared in 5-point Likert type and consists of 37 items and six sub-dimensions. The Cronbach Alpha internal consistency coefficient of the scale is 0.94. The six-dimensional structure of the scale was confirmed by confirmatory factor analysis (x2/sd=3.00, GFI=0.87, PGFI=0.75, PNFI=0.89, AGFI=0.85, IFI=0.98, RMSEA=0.05, NFI=0.97, and CFI=0.98). The Cronbach Alpha reliability coefficient calculated for this research regarding the scale is .97.

Analysis of Data

Ethical principles were followed during the research process. Ethics committee permission was obtained for the research. The data collection process took approximately 20 minutes. Before the data collection process, preservice teachers were asked whether they voluntarily participated in the study. In the data analysis, the normality of the data was examined first. For normality, median and arithmetic mean values, Kolmogorov-Smirnov and Shapiro-Wilk tests and graphs were examined and it was understood that the data were not normally distributed. Mann-Whitney U test and Kruskal-Wallis test, which are nonparametric tests were used in data analysis. Spearman's Rank Correlation Coefficient was used to determine the relationship between the two variables.

Results

Descriptive statistics regarding the mean scores of preservice teachers for the items of the curriculum literacy scale are given in Table 2.

Table 2

Opinions of Preservice Teachers on the Items of the Curriculum Literacy Scale

Sub-dimensions	$\overline{X}$	*Sd*
Reading	3.72	.96
Writing	3.68	.99
Total	3.70	.97

When Table 2 is examined, it is understood that preservice teachers generally express positive views on the items of the curriculum literacy scale.

Differentiation of preservice teachers' curriculum literacy related to gender variable was analyzed by Mann-Whitney U Test. Analysis Results are given in Table 3.

Table 3

Differentiation of Preservice Teachers' Curriculum Literacy Related to Gender Variables

Sub-dimensions	*Gender*	*N*	*Rank average*	*Rank sum*	*U*	*Z*	*p*
Reading	Female	170	107.04	18196.50	3648.50	-.018	.986
	Male	43	106.85	4594.50			
Writing	Female	170	105.13	17872.50	3337.50	-.880	.379
	Male	43	114.38	4918.50			
Total	Female	170	105.69	17968.00	3433.00	-.615	.539
	Male	43	112.16	4823.00			

When Table 3 is examined, no significant difference was found in both sub-dimensions and total curriculum literacy of preservice teachers according to gender variable [$U_{Reading}$=3648.50, z=-.018, p> .05; $U_{Writing}$=3337.50, z=-.880, p> .05; U_{Total}=3433, z=-.615, p> .05].

The Kruskal-Wallis Test was used to analyze whether preservice teachers' curriculum literacies differed according to the grade variable. The results are given in Table 4.

Table 4

Differentiation of Preservice Teachers' Curriculum Literacy Related to Grade Variable

Sub-dimensions	*Grade*	*N*	*Rank average*	*sd*	x^2	*p*	*Significant difference*
Reading	2	87	97.61	2	8.482	.014	4>2
	3	74	103.14				
	4	52	128.21				
Writing	2	87	98.26	2	3.898	.142	
	3	74	108.57				
	4	52	119.38				
Total	2	87	97.64	2	6.268	.044	4>2
	3	74	105.66				
	4	52	124.57				

When Table 4 is examined, a significant difference was found between the group rank averages of preservice teachers in the "Reading" sub-dimension and in total [$X^2_{Reading(2)}$ =8.482, p<.05; $X^2_{Total(2)}$ =6.268, p<.05] while there was no significant difference in the "Writing" sub-dimension [$X^2_{Writing\ (2)}$ =3.898, p>.05]. As a result of multiple comparison tests, it is understood that the differentiation of preservice teachers' curriculum literacies related to the grade variable

is in favor of 4th grade preservice teachers in the reading sub-dimension and in the current total between 4th grade preservice teachers and 2nd grade preservice teachers.

The mean scores and standard deviations of the preservice teachers on the items of the pedagogical knowledge and skills scale are given in Table 5.

Table 5

Opinions of Preservice Teachers on the Items of the Pedagogical Knowledge and Skills Scale

Sub-dimensions	$\overline{X}$	*Sd.*
Student learning	4.16	.95
Lesson planning	4.18	1.32
Instructional support	4.07	1.00
Accommodating diversity	4.18	.96
Classroom management	4.05	.97
Care and concern	4.07	1.01
Total	4.12	1.03

In general, it is understood that preservice teachers expressed their views on the items of the pedagogical knowledge and skills scale as "I agree" and "I totally agree."

The Mann-Whitney U Test was used to analyze whether preservice teachers' pedagogical knowledge and skills differed according to gender variable. The results are given in Table 6.

Table 6

Differentiation of Preservice Teachers' Pedagogical Knowledge and Skills Related to Gender Variables

Sub-dimensions	*Gender*	*N*	*Rank average*	*Rank sum*	*U*	*Z*	*p*
Student learning	Female	170	107.62	18295.50	3549.50	-.294	.769
	Male	43	104.55	4495.50			
Lesson planning	Female	170	108.46	18439.00	3406.00	-.693	.488
	Male	43	101.21	4352.00			
Instructional support	Female	170	107.82	18329.50	3515.50	-.389	.698
	Male	43	103.76	4461.50			
Accommodating diversity	Female	170	110.21	18735.50	3109.50	-1.523	.128
	Male	43	94.31	4055.50			
Classroom management	Female	170	108.20	18393.50	3451.50	-.571	.568
	Male	43	102.27	4397.50			

When Table 6 is examined, no significant difference was found in both sub-dimensions and total pedagogical knowledge and skills of preservice teachers related to gender variable [$U_{\text{Student Learning}}$ =3549.50, z=-.294, p> .05; $U_{\text{Lesson Planning}}$=3406, z=-.693, p> .05; $U_{\text{Instructional Support}}$ =3515.50, z=-.389, p> .05; $U_{\text{Accommodating Diversity}}$ =3109.50, z=-1.523, p> .05; $U_{\text{Classroom Management}}$ =3451.50, z=-.571, p> .05; $U_{\text{Care and Concern}}$=3457, z=-.550, p> .05; U_{Toplam}=3299, z=-.986, p>.05].

The Kruskal-Wallis Test was used to analyze whether the pedagogical knowledge and skills of preservice teachers differed according to the grade variable. The results are given in Table 7.

Table 7

Differentiation of Pedagogical Knowledge and Skills of Preservice Teachers by Grade Variable

Sub-dimensions	*Grade*	*N*	*Rank average*	*sd*	x^2	*p*	*Significant difference*
Student learning	2	87	93.10	2	12.329	.002	4>2
	3	74	106.60				
	4	52	130.83				
Lesson planning	2	87	90.47	2	14.659	.001	4>2
	3	74	109.26				
	4	52	131.43				
Instructional support	2	87	91.40	2	13.632	.001	4>2
	3	74	108.51				
	4	52	130.96				
Accommodation diversity	2	87	94.00	2	10.486	.005	4>2
	3	74	107.03				
	4	52	128.70				
Classroom management	2	87	89.32	2	15.731	.000	4>2
	3	74	110.95				
	4	52	130.95				
Care and concern	2	87	84.28	2	22.212	.000	3>2 4>2
	3	74	116.05				
	4	52	132.13				
Total	2	87	89.38	2	16.609	.000	4>2
	3	74	109.32				
	4	52	133.18				

When Table 7 is examined, a significant difference was found between the mean ranks of the groups in all sub-dimensions and total related to the grade variable of preservice teachers' pedagogical knowledge and skills [$X^2_{\text{Student Learning (2)}}$ =12.329, p<.05; $X^2_{\text{Planning Lesson(2)}}$ =14.659, p<.05; $X^2_{\text{Instructional Support(2)}}$ =13.632, p<.05; $X^2_{\text{Accommodation Diversity (2)}}$ = 10.486, p<.05; $X^2_{\text{Classroom Management (2)}}$ =15.731, p<.05; $X^2_{\text{Care and Concern(2)}}$ =22.212, p<.05; $X^2_{\text{Total(2)}}$ =16.609, p<.05]. As a result of the multiple comparison tests, it is understood that the pedagogical knowledge and skills of the preservice teachers differ related to the grade variable in favor of which groups. In addition, it is determined that there is a significant difference between the 3rd-grade preservice teachers and the 2nd-grade preservice teachers in favor of the 3rd-grade preservice teachers in the "Importance and Interest" sub-dimension.

Correlation analysis was conducted to determine the relationship between preservice teachers' curriculum literacy and their pedagogical knowledge and skills. The results are given in Table 8.

Table 8

The Relationship Between Preservice Teachers' Curriculum Literacy and Pedagogical Knowledge and Skills

		Curriculum Literacy	*Pedagogical Knowledge and Skill*
Curriculum Literacy	r		.658**
	p		.000
Pedagogical Knowledge and Skill	r	.658**	
	p	.000	

When Table 8 is considered, it is seen that there is a positive and significant relationship between pre-service teachers' curriculum literacy and pedagogical knowledge and skills [r= .658, n= 213, p< .01].

Discussion, Conclusion and Implications

Today, it is accepted that individuals should have literacy skills, one of the essential competence gains, to meet their needs in life, adapt to changing living standards, and participate in every part of society. Undoubtedly, educators guide individuals in the knowledge and skills they should have, shape human activities, and ensure that future generations are aligned with the desired goals. Teachers therefore need to have sufficient curriculum literacy and pedagogical knowledge and skills. Curriculums are road maps that enable educators to provide individuals with critical and analytical thinking skills. Teachers should be curriculum literate to obtain maximum efficiency from their curriculum. In addition, teachers' training program reveals that teachers should be able to acquainted with the dimensions of interpretation, application, and evaluation, and they should be equipped in terms of pedagogical knowledge and skills. This study aimed to determine the level of differentiation by examining the curriculum literacy and pedagogical knowledge and skills of preservice teachers related to various variables.

With reference to the research findings, preservice teachers' curriculum literacy levels are positive. This indicates that preservice teachers have a good level of curriculum literacy. Other studies show similar results that preservice teachers have good curriculum literacy skills (Aslan, 2018; Aygün, 2019; Erdem & Eğmir, 2018; Gündoğan, 2019; Süral & Dedebali, 2018). It can be said that these results indicate that preservice teachers improve their curriculum literacy in line with their preservice knowledge.

Preservice teachers' curriculum literacy does not show a significant difference related to gender variable. Aslan (2018), Erdem and Eğmir (2018), and Kızılaslan-Tunçer and Şahin (2019) similarly stated in their research that there is no significant difference in the curriculum literacy skills of teachers related to gender. One of the studies that do not overlap with the research findings is Erdamar (2020)'s research that teachers' curriculum literacy perceptions are higher in males than in females. Some other studies have concluded that female teachers and female

preservice teachers have higher curriculum literacy levels than male teachers and male preservice teachers (Aygün, 2019; Kahramanoğlu, 2019). The result obtained in the study regarding the differentiation of preservice teachers' curriculum literacy levels related to gender may have resulted from different sample groups.

It was concluded that preservice teachers' curriculum literacy showed a significant difference in the "reading" sub-dimension in terms of the grade variable. No significant difference was found in the "Writing" sub-dimension. As a result of the research, it was concluded that preservice teachers' "reading sub-dimension of curriculum literacy" skills improved with the increase in grade level. As the preservice teachers take the theoretical courses of the curriculum mainly in the third and last year, their curriculum literacy skills are expected to improve as the grade level increases. In Aygün (2019)'s research, it was seen that the fourth-grade preservice teachers' curriculum literacy levels were higher than the other grade levels. In Erdem and Eğmir (2018) studies, age was examined as a variable instead of the grade variable. In the study of Süral and Dedebali (2018), in which the curriculum literacy levels of preservice teachers were examined related to the grade variable, it was determined that there was a significant difference between the fourth-grade preservice teachers' reading and writing sub-dimensions and their curriculum literacy levels. In the study of Kızılaslan-Tunçer and Şahin (2019), which did not coincide with the research findings, they determined that the education curriculum knowledge levels of the preservice teachers did not show a significant difference related to the grade level.

Key to the research findings, it has been determined that the pedagogical knowledge and skills of the preservice teachers are at a reasonable level. This shows that the preservice teachers' pedagogical knowledge and skill levels are good. Meriç (2014) and Güler (2015) determined that preservice teachers have high self-perceptions about technological pedagogical content knowledge. The study of Bal and Karademir (2013) determined that preservice teachers consider themselves highly competent in pedagogical knowledge.

It was concluded that the pedagogical knowledge and skills of preservice teachers did not differ significantly related to gender variable. Similarly, Güler (2015) and Meriç (2014) concluded that the pedagogical knowledge and skills of preservice teachers did not differ related to gender variable. Hacıömeroğlu and Şahin-Taşkın (2012) also found that the mean pedagogical development level of preservice teachers did not differ related to gender. Mehmetlioğlu and Haser (2013) found that the readiness levels of preservice mathematics teachers did not differ related to the gender variable. Bulut (2012) and Erdoğan and Şahin (2010) found that the technological pedagogical knowledge of preservice teachers differed significantly in favor of male teachers. In the literature review, the insufficient number of studies examining the gender variable in terms of pedagogical knowledge and skills made it difficult to make comparisons. Therefore, it can be said that more research should be done on this subject.

Preservice teachers' pedagogical knowledge and skills differ significantly related to the grade variable. It was concluded in favor of 4th-grade students in the available total and all sub-dimensions. This finding may result from the pedagogical knowledge and skill levels that the preservice teachers acquired from the teaching profession courses during their undergraduate education are higher in the fourth grade (Bektaş et al., 2015). On the other hand, Hacıömeroğlu and Şahin-Taşkın (2012) determined that the pedagogical development

level averages of the preservice teachers resulted in favor of the 4th-grade preservice teachers. Similarly, in the study of Mehmetlioğlu and Haser (2013), preservice teachers' professional readiness levels show a significant difference related to the grade variable. This difference is that fourth-grade mathematics preservice teachers perceive themselves as ready for the profession at a higher level.

One of the most important results of the study is that there is a positive and significant relationship between preservice teachers' curriculum literacy levels and their pedagogical knowledge and skills. In his research, Aygün (2019) determined a meaningful positive relationship between the curriculum literacy levels of preservice teachers and their readiness for the teaching profession. A moderate positive relationship was found between preservice teachers' technological pedagogical content knowledge and classroom management skills (Ekici, 2018). When the literature is examined, a teacher with pedagogical knowledge and skills within the scope of "Teaching Profession General Competencies"; "Compares different strategies, methods, and techniques that can be used in teaching the field.", "Prepares teaching materials suitable for learning outcomes.", "Organises learning environments by taking into account the individual differences and needs of students.", "Creates learning environments that develop students' high-level cognitive skills.", "Compares the measurement and evaluation methods that can be used in the teaching processes of the field.", "Rearranges the teaching and learning processes with reference to the measurement and evaluation results." (General Directorate of Teacher Training and Development, 2017). It is thought that the defined teaching profession's pedagogical knowledge and skill competencies are related to curriculum literacy (Bolat, 2017).

As a result, it is understood that preservice teachers' views on their curriculum literacy are positive. Curriculum literacy levels of preservice teachers do not show a significant difference related to gender and grade level variables. When it comes to the grade variable, there is a substantial difference in the "reading" sub-dimension. In line with the research findings, it has been determined that the preservice teachers' pedagogical knowledge and skill levels are at a good level. The pedagogical knowledge and skills of preservice teachers do not show a significant difference related to gender variable. In terms of the grade variable, it was concluded in favor of the 4th-grade preservice teachers in the general total and all sub-dimensions. Finally, it was found out that there is a positive and significant relationship between the curriculum literacy levels of preservice teachers and their pedagogical knowledge and skill.

Similar studies with a larger sample groups can be conducted in other regions of Turkiye. The curriculum literacy and pedagogical knowledge and skill levels of preservice teachers can be examined with different variables such as the type of school graduated from, department, and parents being a teacher, which are not included in this study. This study is quantitative research. Qualitative studies or mixed studies can be conducted on curriculum literacy and pedagogical knowledge and skills.

Author Contributions

Conceptualization CD, AT; Data collection CD; Quantitative analysis AT, CD; Methodology AT, CD; Visualization AT; Writing—original draft AT, CD; Writing—review and editing AT, CD. All authors read and approved the final manuscript.

References

Akınoğlu, O., & Doğan, S. (2012, September 18-20). *A new concept proposal for curriculum development in education: Curriculum literacy.* [Paper presentation]. 21st National Educational Sciences Congress, İstanbul, Turkiye.

Akyıldız, S. (2020). A conceptual analysis of curriculum literacy concept: A study of scale development. *Electronic Journal of Social Sciences, 19*(73), 315-332. https://doi.org/10.17755/esosder.554205

Altıntaş, S., Göçen-Kabaran, G., & Kabaran, H. (2018). Determining preservice teachers' cognitive structures on the concept of curriculums via the word-association test. *Turkish Studies, 13*(4), 1397-1411. http://dx.doi.org/10.7827/TurkishStudies.13034

Arslan, S., & Özpınar, İ. (2008). Teachers qualifications: Comparison between primary school curriculum expectations and teachers acquisitions in education faculties. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education, 2*(1), 38-63.

Aslan, S. (2018). *Ortaokul öğretmenlerinin program okuryazarlık düzeyleri (The curriculum literacy level of secondary school teachers).* (Thesis No: 516831) [Master's Thesis, Hacettepe University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/434232

Aygün, H. E. (2019). The prediction of the teaching readiness level of prospective teachers in terms of curriculum literacy. *International Journal of Curriculum and Instructional Studies, 9(2*), 203-220. https://doi.org/10.31704/ijocis.2019.009

Bal, M. S., & Karademir, N. (2013). Determining social science teachers' self-assessment levels with regard to their technological pedagogical content knowledge (TPCK). *Pamukkale Üniversity of Journal Education, 34*, 15-32.

Baysen, F., Çakmak, N., & Baysen, E. (2017). Information literacy and teacher education. *Turkish Librarianship, 31*(1), 55-89. https://doi.org/10.24146/tkd.2017.5

Beck, J. (2013). Powerful knowledge, esoteric knowledge, curriculum knowledge. *Cambridge Journal of Education, 43*(2), 177-193. https://doi.org/10.1080/0305764X.2013.767880

Bektaş, M., Aydın, E., & Ayvaz, A. (2015). Elementary preservice teachers' views on their future professional competencies. *Sakarya University Journal of Education, 5*(2), 174-192. https://doi.org/10.19126/suje.35440

Bulut, A. (2012). *Investigating perceptions of preservice mathematics on their technological pedagogical content knowledge (TPACK) regarding geometry.* (Thesis No. 321082) [Master's Thesis, Middle East Technical University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/681749

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016*). Bilimsel araştırma yöntemleri* (22nd ed.). Pegem Akademi.

Bolat, Y. (2017). Concept of curriculum literacy and curriculum literacy scale. *International Periodical for the Languages, Literature, and History of Turkish or Turkic, 12*(18), 121-138. https://doi.org/10.7827/TurkishStudies.12103

Çelikten, M., Şanal, M., & Yeni, Ö. Y. (2005). Teaching professions and its characteristics. *Journal of the Institute of Social Sciences, 19*(2), 207-23.

Çiltaş, A., & Akıllı, M. (2011). Pedagogic qualifications of teachers. *Mehmet Akif Ersoy University Journal of the Institute of Social Sciences, 3*(4), 64-72.

Ekici, C. (2018). *Öğretmenlerin teknolojik pedagojik alan bilgisi (TPAB) ile sınıf yönetimi becerileri arasındaki ilişki (Çanakkale ili örneği) (The relationship between teachers' technological pedagogical content knowledge (TPAB) and classroom management skills (Çanakkale province case))* (Thesis No. 528831) [Master's thesis, Onsekiz Mart University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/109642

Erdamar, F. S. (2020). *Sınıf öğretmenlerinin program okuryazarlık algıları ve ilkokul yöneticilerinin öğretmenlerin program okuryazarlık becerisine yönelik algılarının ilerlemeci felsefe bağlamında analizi* (*The analysis of primary school teachers' curriculum literacy perceptions and primary school administrators' perceptions of teachers' curriculum literacy skills in the context of progressive philosophy).* (Thesis No. 621287) [Doctoral Dissertation, Fırat University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/353204

Erdem, A. R. (2013). *Öğretmen yetiştirmenin bugünü ve geleceği: Sorunlar ve çözüm önerileri* [*Present and future of teacher training: Problems and solution proposal]*. Anı.

Erdem, C., & Eğmir, E. (2018). Prospective teachers' levels of curriculum literacy. *Afyon Kocatepe University Journal of Social Sciences*, *20*(2), 123-138. https://doi.org/10.32709/akusosbil.428727

Erden, M. (1998). *Öğretmenlik mesleğine giriş*. Alkım.

Erdoğan, A., & Şahin, İ. (2010). Relationship between math teacher candidates' technological pedagogical and content knowledge (TPACK) and achievement levels. *Procedia Social and Behavioral Sciences, 2*, 2707–2711. https://doi.org/10.1016/j.sbspro.2010.03.400

Eskicumalı, A. (2005). Öğretmenlik mesleğine giriş. In Y. Özden (Ed.), *Eğitim, öğretim ve öğretmenlik mesleği* içinde (4th ed., pp. 2-29). Pegem Akademi.

Gencel, U. (2001). Total quality management and accreditation in the Turkish higher education system. *Dokuz Eylül University Journal of Social Sciences Institute, 3*(3), 164-218.

General Directorate of Teacher Training and Development. (2017). *General competencies of the teaching profession.* MEB Publications.

Green, B. (1999). Curriculum, literacy and the state: Re 'right'-ing English?. *Curriculum Studies, 7*(3), 385-407. https://doi.org/10.1080/14681369900200067

Güler, F. (2015). *Investigation of pre-service science teachers' perceptions related to pedagogical knowledge and pedagogical content knowledge.* (Thesis No. 399926) [Master's Thesis, Middle East Technical University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/680921

Gökçek, T., & Yılmaz, A. (2019). The adaptation of the pedagogical knowledge and skills survey into Turkish: Validity and reliability study. *Turkish Journal of Education, 8*(1), 52-70. https://doi.org/10.19128/turje.459678

*Gündoğan, G. (2019). Öğretmenlerin program okuryazarlıkları hakkında nitel bir değerlendirme [A qualitative evalution on teachers' curriculum literacy]. (*Thesis No. 579025) [Master's Thesis, Kahramanmaraş Sütçü İmam University]. Turkish Council of Higher Education Theses Center. https://acikbilim.yok.gov.tr/handle/20.500.12812/204687

Gürşimşek, I. (1998). New approaches in teacher education. *Hacettepe University Journal of Education, 14*, 25-28.

Hacıömeroğlu, G., & Şahin-Taşkın, Ç. (2012). Turkish adaptation of pedagogical development instrument: Elementary preservice teachers' development level regarding mathematics teaching. *Dicle University Journal of Ziya Gökalp Education Faculty*, *18*, 48-68.

Kahramanoğlu, R. (2019). A study on teachers' levels of currıculum literacy. *The Journal of International Social Research, 12*(65), 827-840. http://dx.doi.org/10.17719/jisr.2019.3495

Karagülle, S., Varki, E., & Hekimoğlu, E. (2019). An investigation of the concept of program literacy in the context of applicability and functionality of educational programs *Journal of Educational Reflections, 3*(2), 85-97.

Karseth, B., & Sivesind, K. (2010). Conceptualising curriculum knowledge within and beyond the national context. *European Journal of Education, 45*(1), 103-120.

Keskin, A., & Korkmaz, H. (2021). Development of teachers' curriculum literacy perception scale. *The Journal of Turkish Educational Sciences, 19*(2), 857-884. https://doi.org/10.37217/tebd.917130

Kızılaslan-Tunçer, B., & Şahin, Ç. (2019). Examining the knowledge level of pre-service teachers about the curriculum. *Erzincan University Journal of Education Faculty, 21*(2), 247-260. https://doi.org/10.17556/erziefd.511367

Koehler, M. J., & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. *Journal of Educational Computing Research, 32*(2), 131–152. https://doi.org/10.2190/0EW7-01WB-BKHL-QDY

Kozikoğlu, İ., & Uygun, N. (2018). Investigation of the relationship between teachers' philosophies of education beliefs and curriculum design approaches. *Cukurova University Journal of Education Faculty, 47*(2), 411-438. https://doi.org/10.14812/cuefd.404297

König, J., Blömeke, S., Klein, P., Suhl, U., Busse, A., & Kaiser, G. (2014). Is teachers' general pedagogical knowledge a premise for noticing and interpreting classroom situations? A video-based assessment approach. *Teaching and Teacher Education, 38*, 76-88. https://doi.org/10.1016/j.tate.2013.11.004

Mehmetlioğlu, D., & Haser, Ç. (2013). Preservice elementary mathematics teachers' preparedness for the teaching profession. *Pamukkale University Journal of Education, 34*(34), 91–102. https://doi.org/10.9779/PUJE531

Meriç, G. (2014). Determining science teacher candidates' self-reliance levels with regard to their technological pedagogical content knowledge. *Journal of Theory and Practical in Education, 10*(2), 352-367.

Mills, K. A., & Unsworth, L. (2015). The literacy curriculum: A critical review. In D. Wyse, L. Hayward & Z. Pandya (Eds.), *The SAGE handbook of curriculum, pedagogy and assessment* (pp. 621-637). SAGE Publications. https://doi.org/10.4135/9781473921405.n39

Nsibande, R. N., & Modiba, M. M. (2012). I just do as expected. Teachers' implementation of continuous assessment and challenges to curriculum literacy. *Research Papers in Education, 27*(5), 629-645. https://doi.org/10.1080/02671522.2011.560961

Ornstein, A. C., & Hunkins, F. P. (2016). *Eğitim programı temeller, ilkeler ve sorunlar* (2nd ed.). (A. Arı, Trans. Ed.). Eğitim Yayınları. (Original work published in 1988).

Öner, D. (2010). Is the teacher's knowledge private? A theoretical overview of the knowledge needed to teach. *Boğazici University Journal of Education, 27*(2), 23-32.

Özer, B. & Gelen, İ. (2008). Having general adequacy of teaching profession evaluation of the views of teacher candidates and teachers about their level. *Mustafa Kemal University Journal of Social Sciences Institute, 5*(9), 39-55.

Pinar, W. F., Reynolds, W. M., Slattery, P., & Taubman, P. M. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses.* Peter Lang.

Shawer, S. (2010). The influence of student teacher self-regulation of learning on their curricular content-knowledge and course-design skills. *The Curriculum Journal, 21*(2), 201–232. https://doi.org/10.1080/09585176.2010.480872

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15,* 4-14. https://doi.org/10.2307/1175860

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57,* 1-23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Stabback, P. (2016*). What makes a quality curriculum? Current and critical issues in curriculum and learning*. In-Progress Reflection No. 2. UNESCO.

Steiner, D. (2018). *Curriculum literacy: What it is and why it matters.* https://learningfirst.com/wp-content/uploads/2020/07/8.-Curriculum-literacy-in-schools-of-education.pdf

Süral, S., & Dedebali, N. C. (2018). Study of curriculum literacy and ınformation literacy levels of teacher candidates in the department of social sciences education. *European Journal of Educational Research, 7*(2), 303-317. https://doi.org/10.12973/eu-jer.7.2.303

Tamir, P. (1988). Subject matter and related pedagogical knowledge in teacher education. *Teaching and Teacher Education, 4*(2), 99–110. https://doi.org/10.1016/0742-051X(88)90011-X

Van Driel, J. H., Verloop, N., & de Vos, W. (1998). Developing science teachers' pedagogical content knowledge. *Journal of Research in Science Teaching, 35*(6), 673-695. https://doi.org/10.1002/(SICI)1098-2736(199808)35:6<673::AID-TEA5>3.0.CO;2-J

Wong, A. F., Chong, S., Choy, D., & Lim, K. M. (2012). Investigating changes in pedagogical knowledge and skills from pre-service to the initial year of teaching. *Educational Research for Policy and Practice, 11*(2), 105-117. https://doi.org/10.1007/s10671-011-9108-7

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13(*1*), 2023, 47-66
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmen Adaylarının Program Okuryazarlık Düzeyleri ile Pedagojik Bilgi ve Beceri Düzeylerinin İncelenmesi

Giriş

Bir programdan bütün öğrencilerin özel ilgi ve ihtiyaçları doğrultusunda yararlanabilmesi öğretmenin rehberliği ile gerçekleşir (Stabback, 2016). Bu doğrultuda eğitimcilerden; programı yorumlayabilmesi, uygulanan programın bileşenlerine uygun bir şekilde eğitim-öğretim sürecini sürdürmesi ve okuryazarlık becerilerini etkin kullanması beklenir. (Karagülle, Varki ve Hekimoğlu, 2019). Sonuç olarak program okuryazarlığı, tüm öğretmenlerin ve öğretmen adaylarının sahip olması gereken bir beceridir (Erdem & Eğmir, 2018). Program okuryazarlığı; eğitim programlarına ilişkin bilgi sahibi olma, programları yorumlayabilme ve mevcut koşullara uygun olacak şekilde eğitim programlarını uyarlayabilmedir (Keskin & Korkmaz, 2021).

Pedagojik bilgi ise sınıf yönetimi yeterliliği ve eğitim-öğretim ile ilgili beceriler olarak tanımlanır (Shulman, 1987). Okullarda bilimsel eğitim süreci içerisinde oluşan öğretmenlerin bilgi modeli, alanyazında tanımlanmış kavramlar, metotlar ve bir modelin sayısındaki bileşim olarak tasarlanmaktadır (Çiltaş & Akıllı, 2011). Bu modeli pedagojik bilgi olarak tanımlamışlardır.

Ülkemizde eğitim programlarının uygulayıcıları olan öğretmenleri yetiştirme işi eğitim fakültelerine verilmiştir. Gelecek nesilleri şekillendirecek olan öğretmen adaylarımızın program okuryazarlık düzeyleri ile pedagojik bilgi ve beceri düzeylerinin incelenmesi, ülkemizdeki eğitim fakültelerinde verilen eğitime dair bilgi vereceğinden önemli görülmektedir. Ayrıca bu araştırmanın program uygulayıcısı olan öğretmenlerde, program okuryazarlığının önemi hakkında farkındalık oluşturacağı ve program geliştirme uzmanları için bir bilgi kaynağı olacağı öngörülmektedir. Araştırma konusu ve bulguları, öğretmen yetiştiren kurumlar için yol gösterici olması açısından önemlidir. Bu doğrultuda öğretmen adaylarının program okuryazarlık düzeyleri ile pedagojik bilgi ve beceri düzeylerinin incelenmesi bu araştırmanın amacı olarak belirlenmiştir.

Yöntem

Öğretmen adaylarının program okuryazarlık düzeyleri ile pedagojik bilgi ve beceri düzeyleri arasındaki mevcut durumu ve ilişkiyi analiz etmeyi amaçlayan bu araştırma, nicel araştırma yöntemlerinden korelasyonel bir çalışmadır. Araştırmanın örneklemini bir devlet üniversitesinde öğrenim gören 213 öğretmen adayı oluşmaktadır. Veri toplama aracı olarak cinsiyet ve sınıf düzeyi değişkenlerinin yer aldığı kişisel bilgi formu, Eğitim Programı Okuryazarlığı Ölçeği, Pedagojik Bilgi ve Becerileri Ölçeği kullanılmıştır. Verilerin analizinde

öncelikle verilerin normalliği incelenmiştir. Normallik için medyan ve aritmetik ortalama değerleri, Kolmogorov-Smirnov ve Shapiro-Wilk testleri, Q-Q plot ve kutu grafikleri incelenmiştir. Verilerin normal dağılmadığı tespit edilmiştir. Verilerin analizinde Mann Whitney U testi, Kruskal Wallis testi ve Spearman Sıra Farkları Korelasyon Katsayısı ile kontrol edilmiştir.

Bulgular

Öğretmen adaylarının eğitim programı okuryazarlıklarının cinsiyet değişkenine göre farklılaşıp farklılaşmadığı verilerin normal dağılmamasından dolayı Mann Whitney U Testi ile analiz edilmiş, öğretmen adaylarının eğitim programı okuryazarlıklarının cinsiyet değişkenine göre hem alt boyutlarda hem de genel toplamda anlamlı bir farklılaşmanın olmadığı görülmüştür.

Öğretmen adaylarının eğitim programı okuryazarlıklarının sınıf değişkenine göre farklılaşıp farklılaşmadığı verilerin normal dağılım göstermemesinden dolayı Kruskal Wallis Testi ile analiz edilmiş, öğretmen adaylarının eğitim programı okuryazarlıklarının sınıf değişkenine göre farklılaşıp farklılaşmadığını test etmek için Kruskal Wallis Testi yapılmış ve grupların sıra ortalamaları arasında "Okuma" alt boyutunda ve toplamda anlamlı farklılık olduğu anlaşılmış; "Yazma" alt boyutunda ise anlamlı farklılık olmadığı anlaşılmıştır. Öğretmen adaylarının eğitim programı okuryazarlıklarının sınıf değişkenine göre farklılaşmanın hangi gruplar lehine olduğu çoklu karşılaştırma testleri sonucunda okuma alt boyutunda ve genel toplamda 4. sınıf öğretmen adayları ile 2. sınıf öğretmen adayları arasında 4. sınıf öğretmen adayları lehine olduğu anlaşılmaktadır.

Öğretmen adaylarının pedagojik bilgi ve becerilerinin cinsiyet değişkenine göre farklılaşıp farklılaşmadığı verilerin normal dağılmamasından dolayı Mann Whitney U Testi ile analiz edilmiş, öğretmen adaylarının pedagojik bilgi ve becerilerinin cinsiyet değişkenine göre hem alt boyutlarda hem de genel toplamda anlamlı bir farklılaşmanın olmadığı görülmüştür.

Öğretmen adaylarının pedagojik bilgi ve becerilerinin sınıf değişkenine göre farklılaşıp farklılaşmadığı verilerin normal dağılım göstermemesinden dolayı Kruskal Wallis Testi ile analiz edilmiş, grupların sıra ortalamaları arasında bütün alt boyutlarda ve toplamda anlamlı farklılık olduğu anlaşılmıştır. Öğretmen adaylarının pedagojik bilgi ve becerilerinin sınıf değişkenine göre farklılaşmanın hangi gruplar lehine olduğu çoklu karşılaştırma testleri sonucunda bütün alt boyutlarda ve genel toplamda 4. sınıf öğretmen adayları ile 2. sınıf öğretmen adayları arasında 4. sınıf öğretmen adayları lehine olduğu anlaşılmaktadır. Ayrıca "Önem ve İlgi" alt boyutunda 3. sınıf öğretmen adayları ile 2. sınıf öğretmen adayları arasında 3. sınıf öğretmen adayları lehine anlamlı farklılık olduğu tespit edilmiştir.

Öğretmen adaylarının eğitim programı okuryazarlıkları ile pedagojik bilgi ve becerileri arasındaki ilişkiyi belirlemek için Spearman Sıra Farkları Korelasyon Katsayısı hesaplanmış, öğretmen adaylarının eğitim programı okuryazarlıkları ile pedagojik bilgi ve becerileri arasında pozitif yönlü anlamlı bir ilişki olduğu anlaşılmıştır. Bu sonuç öğretmen adaylarının eğitim programı okuryazarlıklarının artması ile pedagojik bilgi ve becerilerinin de arttığı şeklinde yorumlanabilir.

Tartışma, Sonuç ve Öneriler

Öğretmen adaylarının eğitim programı okuryazarlık düzeylerinin araştırma bulgularına göre iyi düzeyde olduğu anlaşılmaktadır. Dolayısıyla öğretmen adaylarının iyi düzeyde program okuryazarı olduğu söylenebilir.

Öğretmen adaylarının program okuryazarlık becerilerine ilişkin bilgi düzeyleri cinsiyet değişkenine göre anlamlı farklılık göstermemektedir. Öğretmen adaylarının program okuryazarlık becerilerine ilişkin bilgi düzeyleri sınıf değişkenine göre "okuma" alt boyutunda anlamlı bir farklılık göstermektedir. "Yazma" alt boyutunda ise anlamlı bir farklılık olmadığı anlaşılmıştır. Araştırma sonucunda öğretmen adaylarının sınıf seviyesi arttıkça "okuma" becerilerinin de geliştiği bilgisine ulaşılmıştır.

Öğretmen adaylarının pedagojik bilgi ve becerilerinin iyi düzeyde olduğu tespit edilmiştir. Öğretmen adaylarının pedagojik bilgi ve beceri düzeyleri cinsiyet değişkenine göre anlamlı bir farklılık göstermemekle birlikte, sınıf değişkenine göre anlamlı farklılık göstermektedir. Genel toplamda ve bütün alt boyutlarda 4. sınıf öğrencileri lehine sonuçlanmıştır.

Genel araştırma amacı kapsamında ulaşılan sonuca göre, öğretmen adaylarının program okuryazarlık düzeyleri ile pedagojik bilgi ve becerileri arasında pozitif yönlü anlamlı bir ilişki olduğu sonucuna ulaşılmıştır.

Öneriler

Eğitim fakültelerinde ve öğretmen yetiştiren yükseköğretim lisans programlarında öğretmen adaylarına ders planlama, sınıf yönetimi ve programı uygulama alanlarına yönelik ilgili derslerin öğretim programındaki ders saat süresi artırılabilir. Öğretmen adaylarının "okuma" ve "yazma" becerilerinin gelişimini desteklemek için tasarlama ve yaratıcı düşünme becerilerine katkı sağlayacak dersler öğretim programına dahil edilerek adayların gelişimlerini tamamlamaları sağlanabilir. Daha geniş örneklem grubu ile benzer araştırmalar Türkiye'nin diğer bölgelerinde de gerçekleştirilebilir. Öğretmen adaylarının program okuryazarlık ve pedagojik bilgi ve beceri düzeyleri; bu araştırma kapsamında ele alınmayan mezun olunan okul türü, bölüm, ebeveynlerin öğretmen olması gibi farklı değişkenlerle incelenebilir. Bu çalışma nicel bir araştırmadır. Program okuryazarlığı ve pedagojik bilgi ve beceri üzerine nitel çalışmalar veya karma araştırmalar yapılabilir.

International Journal of Curriculum and Instructional Studies

13*(1),* 2023, 67-94

www.ijocis.com

Assessment of Digital Competencies of Teacher Educators with the DigCompEdu Framework

Meva Bayrak Karsli, Atatürk University, meva.bayrak@atauni.edu.tr, 0000-0002-9062-6482

Sevda Küçük, Atatürk University, sevdakucuk@atauni.edu.tr, 0000-0002-2679-5177

Raziye Kılıç, Atatürk University, raziyekilic@atauni.edu.tr, 0000-0002-9238-7710

Özge Albayrak Ünal, Atatürk University, ozgealbayrak@atauni.edu.tr, 0000-0001-7798-8799

Keywords

Digital competence
Digital transformation
Teacher educators
Higher education

Article Info:

Received : 13-09-2022
Accepted : 11-01-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.004

Abstract

This study aims to examine the digital competence levels of teacher educators, one of the essential stakeholders in the field of education, and their experiences of using digital technology in education processes based on the Digital Competencies for Educators (DigCompEdu) Framework. The study used an explanatory design, one of the mixed-method research designs. One hundred thirteen teacher educators working in a major state university in Türkiye participated in the study. According to the findings, teacher educators mostly use Learning Management Systems (LMS) and digital presentations, videos, and digital assessment tools. They have high competence in using digital technologies and see their work environment as sufficient in terms of technical infrastructure. Teacher educators' digital competencies and competencies for the leading competence areas are at the "Integrative - B1" level. Teacher educators at these levels are curious and open to innovations. However, educators should be supported in gaining higher-level competencies, such as using digital technologies, by supporting them with pedagogical approaches and providing guidance to other educators. In the interviews with teacher educators, the necessity of professional development programs in developing digital competencies for teacher educators and pre-service teachers was mentioned. In this context, obtained results and implications were discussed in detail.

To cite this article: Bayrak Karsli, M., Küçük, S., Kılıç R., & Albayrak-Ünal, Ö. (2023). Assessment of digital competencies of teacher educators with the DigCompEdu framework. *International Journal of Curriculum and Instructional Studies, 13*(1), 67-94. https://doi.org/ 10.31704/ijocis.2023.004

Introduction

In the 21st century, the Internet and digital technologies have become integral to daily life. The role of education processes at all levels is significant in helping individuals reach the potential to achieve and maintain these gains in social life. In this context, the primary mission of higher education institutions that prepare individuals for professional life is not only to support their current learning processes but also to enable them to gain digital competencies that will contribute to their growth as lifelong learners (Daniela et al., 2018; Rafique, 2014; Redecker, 2017).

Educators are essential for higher education institutions to reach their institutional goals. Therefore, educators must undertake laborious tasks for both themselves and learners to adapt to the developments efficiently. They must also follow new teaching, learning, and research trends more than learners and keep themselves up-to-date (Instefjord & Munthe, 2016; Rafique, 2014). Moreover, in the research on digital educator competencies, it is emphasized that educators should constantly change and develop in parallel with technological and social developments (Rychen & Salganik, 2003; Virtič & Pšunder, 2010), gain digital competencies focused on integrating technological, pedagogical and field-related knowledge by the cooperation with the learner (Ghomi & Redecker, 2019), and help the development of learners' digital competencies by using the pedagogical capacities of technologies (Fullan & Langworthy, 2014). However, supporting the development of digital competencies of educators has gained even more importance with the COVID-19 pandemic process. In this process, the unexpected spread of distance education (Emergency Remote Teaching [ERT]) brought the necessity of supporting the qualifications of educators in terms of distance teaching. In order to increase the quality of education offered in distance education environments, educators need to adapt to these new learning environments. For educators to adapt to the differences arising from the nature of online environments and have a qualified teaching process, they are expected to have competencies for the effective use of several technologies in learning processes beyond their competencies in traditional education processes (Arah, 2012; Baran et al., 2013; Varvel, 2007).

Digital Competencies for Educators (DigCompEdu) Framework

Many frameworks have been developed for the identification of digital competencies. These frameworks provide general descriptions of digital competencies but must be more specific to educators. Some of the relevant frameworks are specific to students and educators at certain levels, while others cover all adults or a particular segment of society (Calvani et al., 2008; Ferrari, 2012; International Society for Technology in Education [ISTE], 2017; Janssen et al., 2013; Ottestad et al., 2014). For this reason, the current research is based on the Digital Competencies for Educators (DigCompEdu) Framework, which is specific to educators.

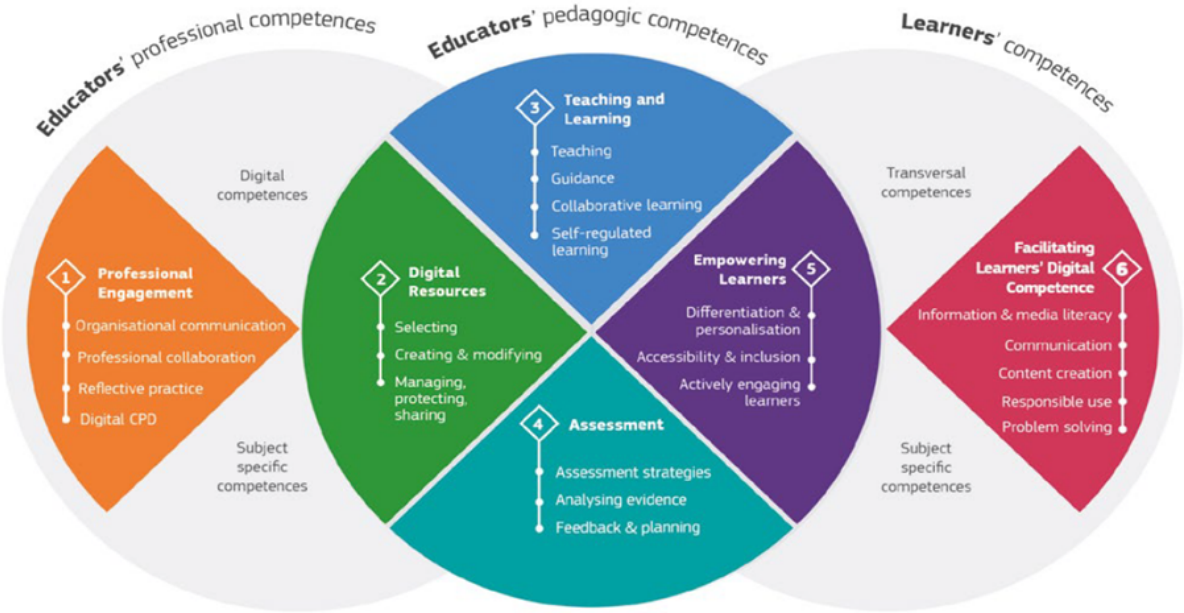
The "European Union Framework Study for Digital Competencies of Educators" was carried out by the European Union Commission in order to determine the digital competencies of teachers and educators and to develop them accordingly. As a result of the study, the DigCompEdu Framework" was created, reported, and presented to open access (Redecker, 2017). Educators are not only role models of learning processes but also facilitators. Therefore, as professionals devoted to teaching, they need to have digital competencies specific to educators and general digital competencies related to their own lives and work processes to

use digital technologies effectively in their teaching processes. The DigCompEdu framework aims to identify and define these digital competencies specific to educators (Redecker, 2017; Toker et al., 2021). The DigCompEdu framework, with its solid theoretical structure, guides policy-making studies at all educational levels and allows individuals or institutions to determine their current situation and needs. In addition, it ensures that digital educator qualifications can be evaluated in a common language and a standard structure at the international level. For this reason, in this research, the relevant framework has been taken as a basis to examine educators' digital competencies.

DigCompEdu consists of six main digital competence areas and 22 sub-competencies structured within the scope of professional and pedagogical competencies of educators and learners competencies (Redecker, 2017). The DigCompEdu framework is presented in Figure 1.

Figure 1

DigCompEdu Framework (Redecker, 2017, p15.)



It aims to help educators understand their strengths and weaknesses by defining different stages/levels of development for each competence covered in the DigCompEdu framework. In this direction, a leveled (A1, A2, B1, B2, C1, C2) evaluation model is used. At these levels, A1 represents the lowest level, and C2 represents the highest level. According to the DigCompEdu framework, *educators at the A1 (Beginner) level;* are individuals whose digital competencies must be developed. *Educators at the A2 (Explorer) level;* are aware of the potential of digital technologies and can use these technologies in some areas. However, they tend to research and develop themselves to use digital technologies in conjunction with pedagogical and professional practices. B1 (Integrative) level educators; are individuals who can integrate digital technologies with a significant part of the applications they perform per various contexts and purposes. They are willing to use digital technologies in innovative and different ways in order to improve themselves professionally. *Educators at the B2 (Expert) level;* use digital technologies securely and innovatively to enhance their professional activities. They can consciously choose the digital technologies to be used in certain situations and evaluate the

benefits and drawbacks of different digital strategies. They are curious and open to innovations. *Educators at the C1 (Leader) level;* have a consistent and comprehensive approach to digital technology in developing pedagogical and professional practices. They can continuously improve their educational practices with appropriate technologies and strategies. By constantly following new developments, they help other lecturers realize the potential of digital technologies to improve education. *Educators at the C2 (Pioneer) level* question the adequacy of innovative digital and pedagogical practices that they lead. They focus on constantly improving their educational processes by evaluating these applications from different perspectives. They try innovative and complex digital technologies and develop new pedagogical approaches. They play a pioneering role in innovation and a guiding role for other educators (Redecker, 2017).

Teacher Educators and Digital Competencies

Teacher educators' perspectives on technology are expected to be different from other educators. Because the target audience is pre-service teachers, how each technology can be utilized effectively in educational processes should be modeled to guide future use processes (Krumsvik, 2011; Røkenes & Krumsvik, 2014). In other words, it is necessary to use digital technologies with effective pedagogical practices and be aware of the impact of these technologies on learning strategies and students' acquisition of digital skills (Instefjord, 2014; Rana & Rana, 2020).

In the studies on teacher educators, it is emphasized that educators use digital technologies at an elementary and theoretical level (Blayone et al., 2018; Jwaifell et al., 2019; Røkenes & Krumsvik, 2016), and they also do not carry out pedagogical practices at a level that can be a model by integrating them into the education process (Amhag et al., 2019; Ranieri & Bruni, 2018). On the other hand, pre-service teachers show a positive attitude toward using digital technologies in education but consider themselves less experienced users (Štemberger & Konrad, 2021). In addition, these negativities may directly affect how pre-service teachers use digital technologies in their teaching processes (Agyei & Voogt, 2011). Another study shows that pre-service teachers' digital skills increase with years of training at universities (García-Vandewalle et al., 2021). At this point, of course, the frequency of digital technologies in educational processes is essential, as well as the individual characteristics of pre-service teachers, such as their attitudes toward technology (Cattaneo et al., 2022; Lucas et al., 2021). In addition, teacher educators' characteristics, digital competencies, and attitudes toward digital technologies also seriously affect the learning processes of pre-service teachers (Núñez-Canal et al., 2022). For this reason, it is crucial to examine the digital competencies of teacher educators who train future teachers and to determine the necessary policies in line with the results obtained (Cabero-Almenara et al., 2020; Jwaifell et al., 2019; Littlejohn et al., 2012; Virtič & Pšunder, 2010).

Purpose and Significance of the Study

The pandemic has also shown that digital transformation in education should be focused on continuing education effectively without interruption under all circumstances. Educators are the most critical stakeholders of digital transformation in education. During the pandemic, educators have gained the necessary experience using digital technologies in education with ERT. One of the issues that should be emphasized is whether educators will use the knowledge,

skills, and experiences they have gained from this process when they switch to formal or blended learning approaches. Determining the use of digital technologies and digital competence levels of teacher educators who train future teachers is vital in creating future education policies. This study examines teacher educators' digital competence levels and their experiences of using digital technology in education processes based on the DigCompEdu Framework. For this purpose, the following research questions will be answered:

(1) What is the level of use of digital technologies by teacher educators?

(2) What are the digital competence levels of teacher educators?

(3) What are teacher educators' actions and expressions in digital competence areas?

Method

In this study, an explanatory design, one of the mixed-method research designs, was used to determine the digital competence levels of teacher educators. The explanatory design consists of two stages. First, quantitative data is collected and analyzed. Then, qualitative data is used to explain better the quantitative data obtained (Fraenkel et al., 2012; McMillan & Schumacher, 2006). In this study, quantitative data was collected through a self-assessment tool to determine the digital competence levels of teacher educators. Then interviews were conducted with the selected educators. Thus, the actions and expressions of educators on digital competence areas were tried to be determined and explained.

Participants

One hundred thirteen teacher educators working in the education faculty of a major state university in Türkiye participated in the study. Participants were involved in the study voluntarily, and the necessary ethical permissions were obtained from the university's ethics committee. Demographic information of teacher educators participating in the study is presented in Table 1.

Table 1

Demographic Information of the Participants

	n	*%*		*n*	*%*
Gender			*Department*		
Female	33	29.20	Math and Science	31	27.40
Male	80	70.80	Turkish and Social Science	25	22.10
Age			Foreign Languages	13	11.50
25-39 years	24	21.20	Educational Sciences	14	12.40
40-49 years	48	42.50	Computer Education	7	6.20
50 years and above	41	36.30	Fine Arts	6	5.30
Years of teaching experience			Physical Education	5	4.40
1-9 years	21	18.50	Special Education	1	.90
10-19 years	34	30.10	*Digital technology usage before the pandemic*		
20 years and above	58	51.40	%0-25	43	38.10
Academic title			%26-50	38	33.60
Professor	36	31.90	%50 and above	32	28.30
Associate professor	36	31.90			
Assistant professor	33	29.20			
Lecturer	8	7.10			

In the quantitative phase of the study, data were collected from 113 teacher educators via an online survey. Afterward, semi-structured interviews were conducted with six selected participants. Attention was paid to these participants being in different departments and digital competence levels. The information of the teacher educators interviewed is presented in Table 2 in detail.

Table 2

Demographic Information of the Teacher Educators Interviewed

	Gender	*Department*	*Academic title*	*Digital Competence Level*
Participant 1	Male	Chemistry	Professor	A2
Participant 2	Male	Science	Professor	A2
Participant 3	Male	English language	Professor	A2
Participant 4	Male	Math	Associate professor	B1
Participant 5	Female	Social sciences	Assistant professor	B1
Participant 6	Female	Elementary	Assistant professor	B2

Teacher educators participating in the study conducted their lessons with the ERT during the pandemic process. In this process, they conducted their lessons through the Learning Management System (LMS), which uses the Moodle infrastructure and is provided free of charge by the university. Educators conducted synchronous virtual classrooms on the BigBlue Button platform. Asynchronously, they shared their course resources via LMS and organized asynchronous activities such as homework and forums. Many teacher educators without previous online teaching experience had to use various digital devices and platforms in this process. In this process, the relevant units of the university provided technological and pedagogical support to the instructors.

Data Collection Tools

This study used the self-assessment tool (DigCompEdu Check-In tool), which is based on the European DigCompEdu, (Caena & Redecker, 2019; Redecker, 2017). The Turkish-adapted version of the assessment tool in the study was used to make the items suitable for higher education (Toker et al., 2021). The tool includes 13 questions to reveal the educators' demographic information, their use of digital technologies, and the infrastructure and support activities related to using digital technology in their institution. Moreover, the tool includes 5-point Likert-type questions (1: Strongly Disagree…5: Strongly Agree) and 22 multiple-choice questions with five answer options for which points ranging from 0 to 4 are scored, for mean scores of 4-point Likert questions, value intervals indicate that 0-0.79 is very low, 0.80-1.59, is low, 1.60-2.39 medium, 2.40-3.19 high, 3.20-4.00 very high levels. DigCompEdu sets out 22 competencies organized in six areas. The competencies are explained at six levels competence (A1, A2, B1, B2, C1, C2). The total score ranging from 0 to 88 points is mapped onto the six competence levels of the framework. Digital competence levels according to the total score from six dimensions are given in Table 3. In this study, Cronbach's alpha reliability score of the assessment tool was calculated as .953.

Table 3

Digital Competence Categories by Dimensions

Competence Level	*Areas 1 and 3*	*Areas 2, 4 and 5*	*Area 6*	*Total*
Beginner (A1)	4 points	3 points	5-6 points	0-19
Explorer (A2)	5-7 points	4-5 points	7-8 points	20-33
Integrative (B1)	8-10 points	6-7 points	9-12 points	34-49
Expert (B2)	11-13 points	8-9 points	13-16 points	50-65
Leader (C1)	14-15 points	10-11 points	17-19 points	66-80
Pioneer (C2)	16 points	12 points	20 points	Above 80

For the qualitative part of the study, the researchers prepared a semi-structured interview form consisting of 6 questions to explain the quantitative data based on the dimensions of the DigCompEdu framework. In this form, there were questions to explain the actions and expressions for the digital competence levels of the educators in 6 competence areas. In this direction, questions were structured in the interview process, taking into account the department and digital competence level of the interviewer. For example, an interviewer, who considers himself at the B1 level regarding digital resource use, was asked questions about his practices and the opportunities and obstacles to reaching the high level.

Data Analysis

Quantitative data from the study were analyzed with descriptive statistical methods (percentage, frequency, graph, mean, etc.). SPSS 21 and Microsoft Power BI software were used to analyze the data. The qualitative data were obtained from the semi-structured interviews. The interviews were conducted by two researchers of the study and transcribed. Content analysis was carried out by importing the transcripts to NVivo 12. As a result of content analysis, various codes, categories, and themes were created. To ensure inter-coder reliability, one researcher coded the data, and the other coded it. The coded data were performed for reliability analysis, and Kappa was found to be 0.94, indicating a high degree of consistency. Finally, a consensus was reached on the coding of all data. In the findings section, direct quotations from the participants were also presented. While presenting direct quotations, participants were coded as P1, P2… according to the information in Table 2.

Results

The findings regarding the digital competence levels of teacher educators and their experience of using digital technology in education processes are presented in line with the research questions.

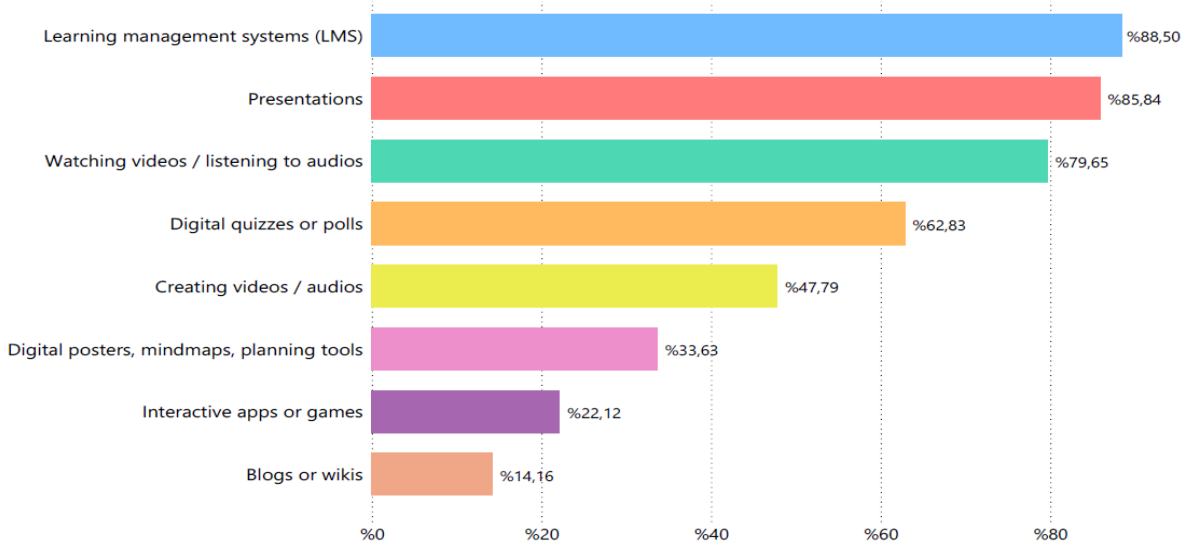
Teacher Educators' Digital Technology Backgrounds

The teachers` opinions and use of digital technology in their teaching and educational background were examined.

The data obtained on teacher educators' usage percentage of specific digital tools in the teaching and learning processes were analyzed and presented in Figure 2.

Figure 2

Digital Tools Usage Percentage



According to Figure 2, teacher educators use LMS and presentations the most and interactive apps/games and blogs/wikis the least.

Within the scope of the study, data on the usage of digital technologies in terms of private usage and work environment by teacher educators were analyzed and presented in Table 4.

Table 4

Digital Technology Usage and Work Environment

	M	*SD*
Private use of digital technologies		
I use the Internet extensively and competently.	4.18	.630
I am open to and curious about new apps, programs, and resources.	4.17	.706
I find it easy to work with computers and other technical equipment.	4.03	.773
I am a member of various social networks.	3.65	1.059
Work environment criteria		
The institution invests in updating and improving the technical infrastructure.	4.17	.718
The institution promotes the integration of digital technologies in teaching.	4.17	.755
The institution provides the necessary technical support.	4.15	.815
Interactive whiteboards, projectors, or similar presentation media are available in my teaching rooms.	4.07	.933
The internet connection of the institution is reliable and fast.	3.96	.981
The department supports the development of my digital competence, e.g., through continuous professional development activities.	3.88	.923
Students have access to digital devices.	3.67	.891
Many of my colleagues use digital media in their courses.	3.37	.868

When the status of teacher educators in terms of private usage of digital technologies is examined in Table 4, it is seen that they use the Internet competently, they are curious about using new applications, programs, and resources, and they find it easy to use computers and technical equipment. However, the status of being a member of social networks is at a moderate level. On the other hand, teacher educators consider the institution they work in to

be adequate in terms of digital infrastructure and support. However, students access to digital devices is relatively limited, and their colleagues think they need to use digital media more in their classes.

Teacher Educators' Digital Competence Level

The data obtained for the digital competence levels of teacher educators were analyzed, and the number of persons in the competence levels in each main competence area is presented in Table 5.

Table 5

Digital Competence Level Distribution in Six Main-Competence Areas

Digital Competence Areas*		*Min-Max*	*Mean*	*Number of Persons at Competence Levels***					
				A1	*A2*	*B1*	*B2*	*C1*	*C2*
Area 1	Professional Engagement	4-16 points	9 points (B1)	3	36	42	22	9	1
Area 2	Digital Resources	3-12 points	7 points (B1)	8	21	27	42	14	1
Area 3	Teaching and Learning	4-16 points	9 points (B1)	8	30	31	30	8	6
Area 4	Assessment	3-12 points	7 points (B1)	7	32	38	23	10	3
Area 5	Empowering Learners	3-12 points	7 points (B1)	4	36	36	18	16	3
Area 6	Facilitating Learners' Digital Competence	5-20 points	10 points (B1)	19	16	44	24	6	4

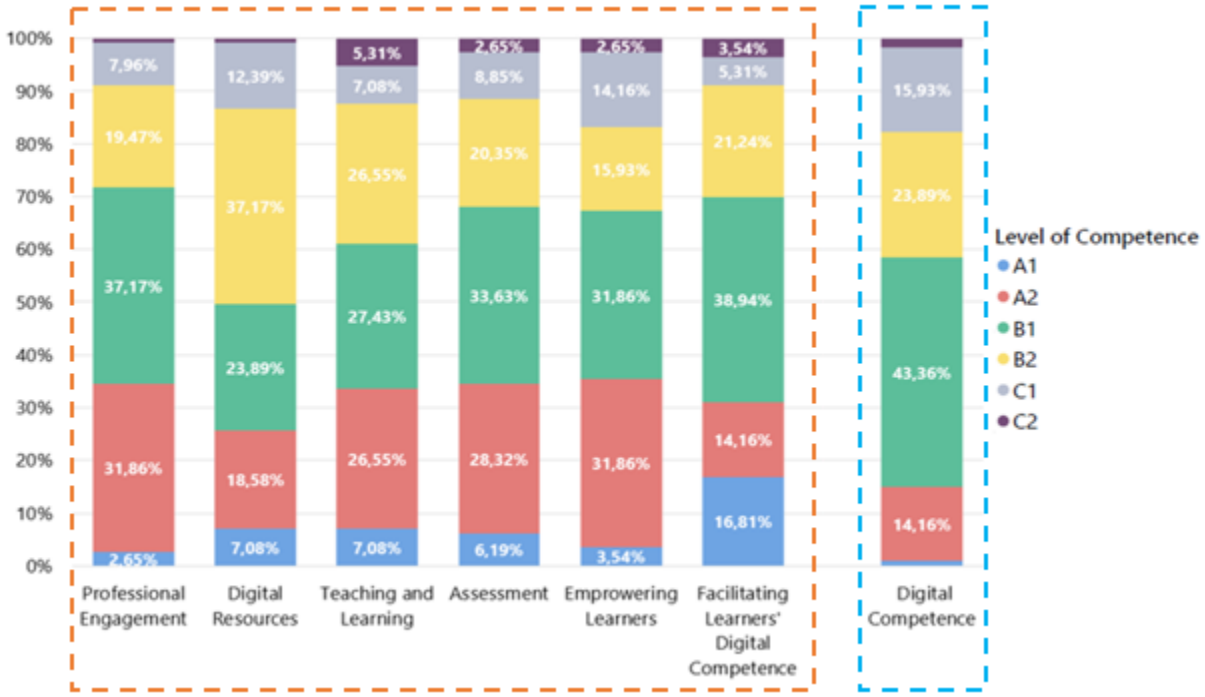
*Area 1: Educators' professional competencies; Area 2-5: Educators' pedagogic competencies; Area 6: Learners' competences

** The scoring in Table 3 is based on determining digital competence levels.

When Table 5 is examined, the digital competencies of teacher educators and their competencies for each of the main-competences areas are at the B1 level. The number of teacher educators at a total of C1 and C2 levels is higher in Areas 2 (f=15), 3 (f=14), 4 (f=13), and 5 (f=19), which are the areas of pedagogical competencies. On the other hand, the number of teacher educators at the C2 level, which is the highest level, is mostly concentrated in Area 3 (f=6). The highest number of teacher educators is in Area 6 (f=19) at the A1 level. The percentage distribution of digital competence levels of teacher educators for each main-competence area and general digital competence are also presented in Figure 3.

Figure 3

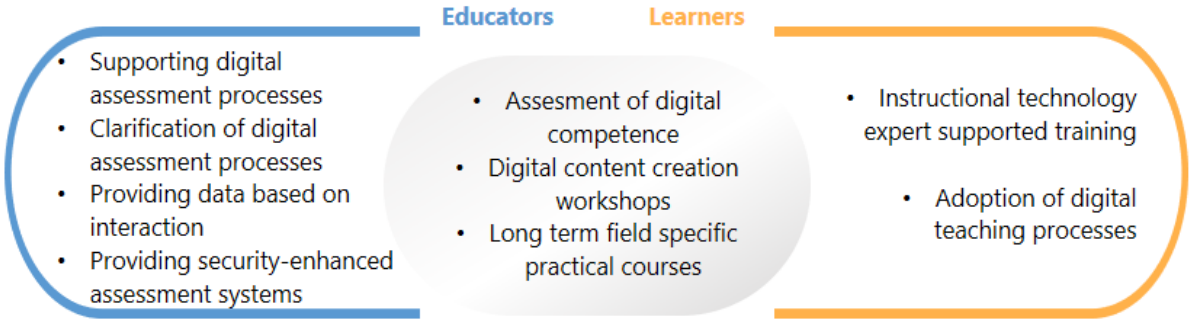
Digital Competence Level Distribution in Six Areas



In the interviews with teacher educators, the educators expressed some of their suggestions/expectations for developing digital competence levels. In Figure 4, these suggestions/expectations are presented under the titles of educators and learners.

Figure 4

Suggestions/Expectations of Teacher Educators for the Development of Digital Competencies



Some of the statements of teacher educators regarding the suggestions/expectations for developing digital competencies are given below.

"In my opinion, these technological training should be given to us, the educator, first of all. We, the instructors, need to be trained so that we can train the people we train..." (P5)

"Then I tried to figure it out through individual effort. I attended digital workshops or other activities. Nevertheless, I think this should be given to academicians as an education in the university context. Especially these web 2.0 tools are basic at this point, but an important

step. With this training, they should be informed about how to use these technologies in their lessons." (P6)

"What does the student do in the system? Does he watch the videos I post? Or when he watches? Did he download the resources during the midterm exam week?... or did he download and read it for a day, so it would be useful for us to get that information? Indeed, it would be beneficial." (P2)

Digital Competencies and Experiences of Teacher Educators in their Areas of Competence

Quantitative and qualitative data were analyzed to examine teacher educators' digital competence levels and experiences for each sub-competence area. Below, first of all, teacher educators' competence levels for the items in each sub-competence area, and then the actions and expressions they perform in the teaching processes for the relevant area, are given.

Professional engagement

The competence levels of teacher educators regarding the sub-competence area items for professional engagement and the actions and expressions they performed for the relevant area are presented in Table 6.

Table 6

Competence Levels Regarding the Items for Professional Engagement

Sub-Competence Area	*Items*	*Mean*
Digital CPD	1. I participate in online training opportunities E.g., online courses, MOOCs, webinars, virtual conferences...	2.69
Organizational communication	2. I systematically use different digital channels to enhance communication with students and fellow academics	2.21
Reflective practice	3. I actively develop my digital teaching skills	2.21
Professional collaboration	4. I use digital technologies to work together with colleagues inside and outside my educational organization	1.91

When Table 6 is examined, it is seen that teacher educators have higher levels of competence in improving their teaching skills and establishing digital communication, mainly by providing digital sustainable personal development. These dimensions were standard in the interviews with teacher educators. Teacher educators stated that to ensure their digital personal development, they took actions such as participating in online training, participating in workshops, and receiving digital mentoring support by rapidly adapting to digital activities, especially with the COVID-19 pandemic. Sample statements of teacher educators regarding these actions are given below.

"For example, we participate in seminars, conferences, and meetings related to our profession in online environments." (P4)

"For example, I attended workshops. There were digital competence workshops, and I attended them. It is like a deep sea that maybe we can only catch things from the tip of the ear. Because a new one of what we caught will come out and continue to come out." (P6)

Digital resources

The competence levels of teacher educators regarding the sub-competence area items for digital resources, the actions they took in the related area, and their expressions are presented in Table 7.

Table 7

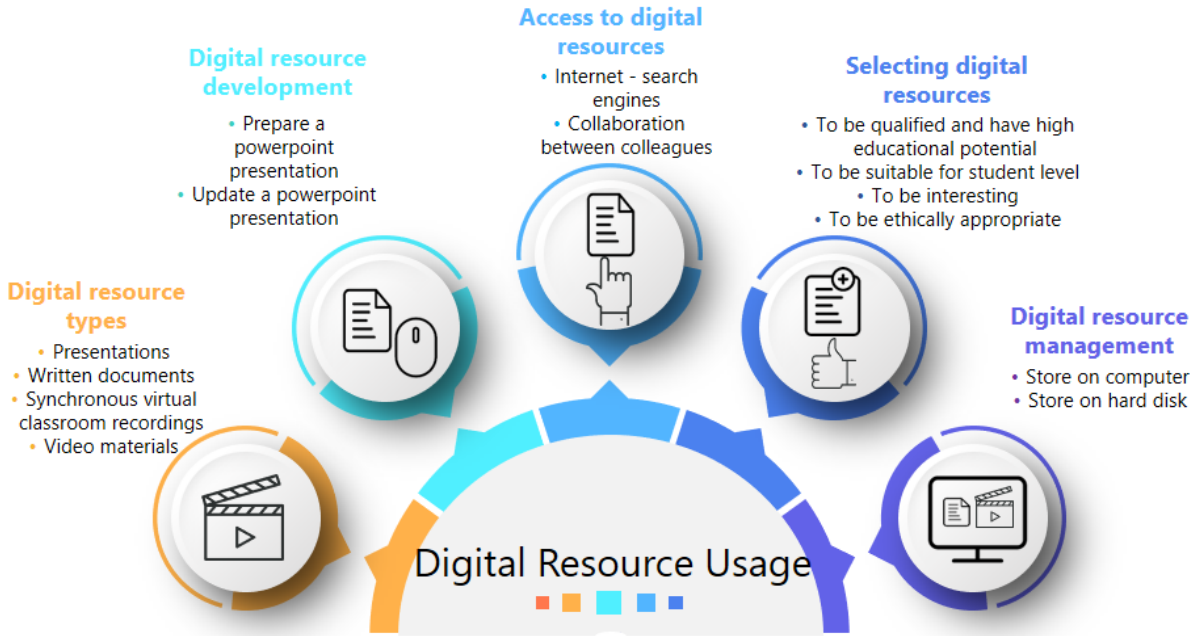
Competence Levels Regarding the Items for Digital Resources

Sub-Competence Area	*Items*	*Mean*
Creating & modifying	1. I create my digital resources and modify existing ones to adapt them to my needs	2.59
Selecting	2. I use different internet sites and search strategies to find and select a range of different digital resources	2.30
Managing, protecting, sharing	3. I effectively protect sensitive content, e.g. exams, students' grades, personal data	2.26

When Table 7 is examined, teacher educators have a high level of competence regarding creating their digital resources in the teaching processes and modifying the existing digital resources according to needs. The level of competence for selecting and managing digital resources is at a medium level. In the interviews with teacher educators, they stated the types of digital resources they use and the methods they prefer regarding dimensions such as creating, accessing, selecting, and managing these resources. Teacher educators described the creation of their digital resource pools in the process and the assurance of the copyrights of these resources by the relevant institution as factors that facilitate the use of digital resources. Details on the use of digital resources by teacher educators are presented in Figure 5. Then, statements about these dimensions are given.

Figure 5

Digital Resources Usage



"Especially in distance education, I prepare course presentations. For example, I use canvas." (P5)

"Now, first of all, the most used digital material is PowerPoint presentations. … On LMS, I put the links of the videos that I think are appropriate for the level of our students, that I think are educational, and the links of the videos related to the subject by watching them, especially among the dozens of videos I chose from YouTube." (P1)

"I have folders of my lessons on my computer. I store the 1st semester, the 2nd semester in those folders. Then I upload to LMS from there." (P3)

Teaching and learning

The competence levels of teacher educators regarding the sub-competence area items for teaching and learning and the actions and expressions they performed in the related area are presented in Table 8.

Table 8

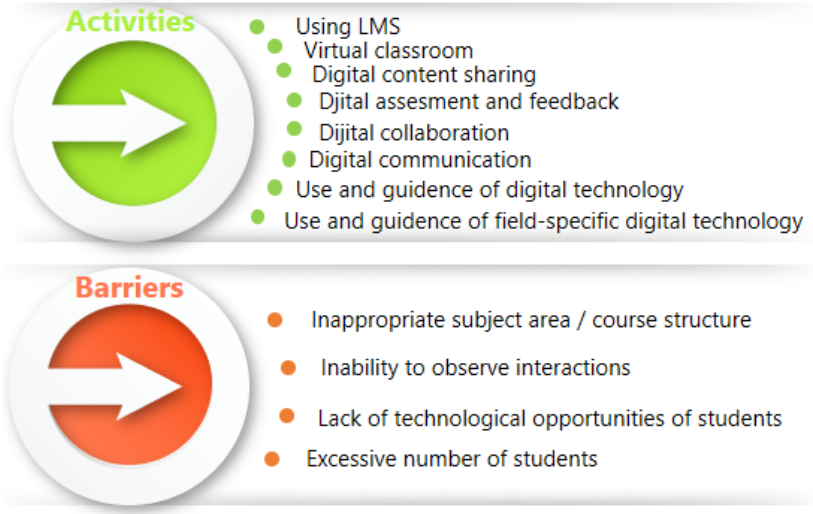
Competence Levels Regarding the Items for Teaching and Learning

Sub-Competence Area	*Items*	*Mean*
Guidance	1. I monitor my students' activities and interactions in the collaborative online environments we use	2.51
Teaching	2. I carefully consider how, when, and why to use digital technologies in teaching to ensure that they are used with added value	2.32
Self-regulated learning	3. I use digital technologies to allow students to plan, document and monitor their learning. E.g., quizzes for self-assessment, e-Portfolios for documentation and showcasing, and online diaries/blogs for reflection...	2.28
Collaborative learning	4. When my students work in groups or teams, they use digital technologies to acquire and document evidence	2.27

When Table 8 is examined, it is seen that the competence levels of teacher educators regarding the teaching and learning processes are at a medium level. In the interviews with the teacher educators, they mentioned many pedagogical activities that they carried out using digital technologies in their teaching processes and the difficulties they encountered while carrying out these activities. In Figure 6, the activities carried out by teacher educators using digital technology in the teaching and learning process are given as the difficulties they encounter. Then, their statements about these activities are given.

Figure 6

Digital Technology Usage in the Teaching Process (Activities and Barriers)



"I was not using LMS before the pandemic process. Now I am using LMS. It is something that the pandemic has brought. Because we do the exams over LMS, we do the homework over LMS. We do all the presentations over LMS." (P1)

"I was uploading the presentation to LMS, I was uploading a publication, I was uploading a book chapter. So I was loading materials there." (P4)

"I tried to conduct the lessons in cooperation like this because they like it more when I conduct them in collaboration, when I assign them homework, when I make them make presentations, and when I have them do certain things in the digital environment." (P5)

Assessment

The competence levels of teacher educators regarding the sub-competence area items for assessment, the actions they took in the related area, and their expressions are presented in Table 9.

Table 9

Competence Levels Regarding the Items for Assessment

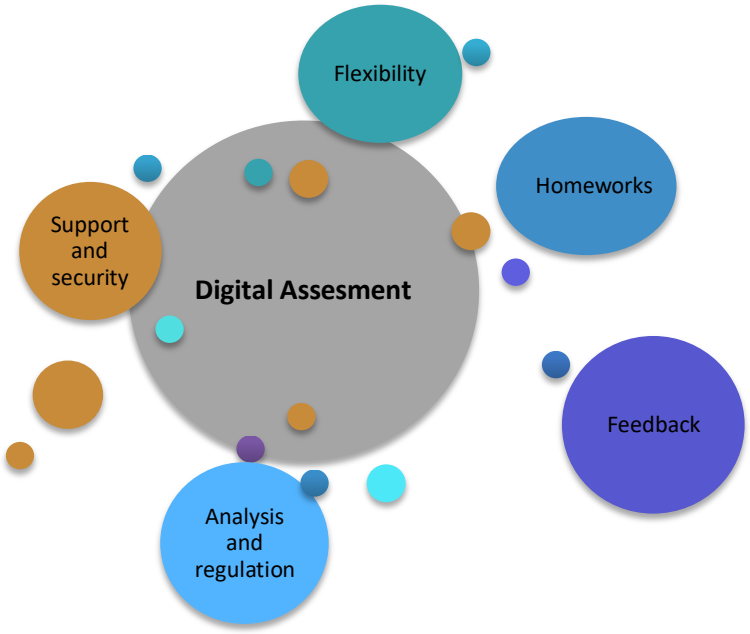
Sub-Competence Area	*Items*	*Mean*
Feedback & planning	1. I use digital technologies to provide effective feedback	2.35
Assessment strategies	2. I use digital assessment formats to monitor student progress	2.31
Analyzing evidence	3. I analyze all data available to me to timely identify students who need additional support	1.91

When Table 9 is examined, it is seen that teacher educators have higher levels of competence regarding using digital technologies in the assessment processes to monitor the development of students and provide feedback. However, the level of competence regarding

analyzing the data received from digital systems and using it in assessment processes needed to be higher. In interviews with teacher educators, they stated that they use digital technologies for formative and summative assessment. However, despite the support materials and guides for the digital assessment processes provided by the institution they work for, it was emphasized that the reliability problems in the digital assessment processes and the negative perception brought about by the inexperience in the use of digital assessment systems emerged as a complicating obstacle in front of this process. In addition, the need for more learners' technological opportunities and the high number of learners making feedback difficult are also stated as obstacles to digital assessment processes. In Figure 7, the practices in the digital assessment processes and then their statements about these practices are given.

Figure 7

Digital Technology Usage in the Assessment Process



At first, I did my exams in the form of online assignments because it was important for us to see what they knew. I wanted an exam system where they would write their sentences and make their explanations. (P3)

So people usually do like this. Here are my username and my password. You log in on my behalf. In other words, did the person do it or not, or did he/she answer the homework or exam? We cannot be sure of that. That is why I am worried.... (P1)

Empowering learners

The competence levels of teacher educators regarding the sub-competence area items for empowering learners, their actions in the related area, and their expressions are presented in Table 10.

Table 10

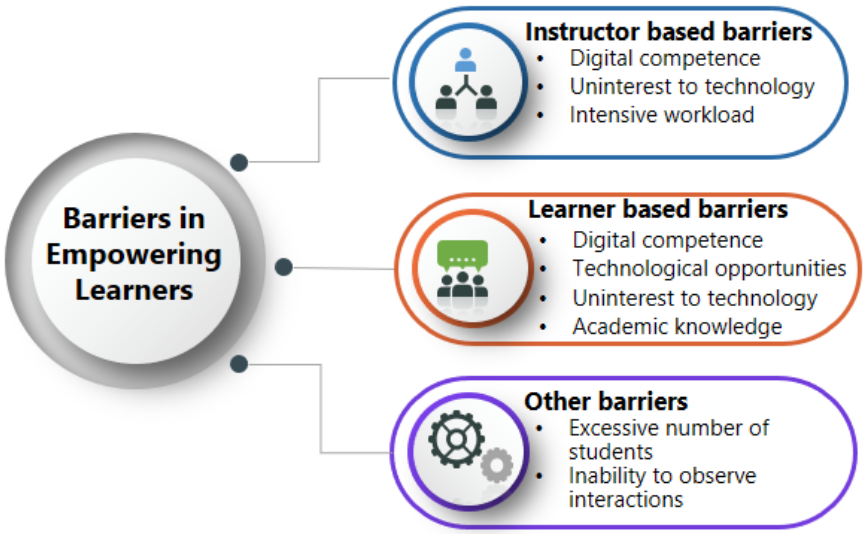
Competence Levels Regarding the Items for Empowering Learners

Sub-Competence Area	*Items*	*Mean*
Differentiation & personalisation	1. When I create digital assignments for students, I consider and address potential digital problems E.g., equal access to digital devices and resources, interoperability and conversion problems, lack of digital skills	2.58
Actively engaging learners	2. I use digital technologies for students to participate in classes actively	2.38
Accesibility & inclusion	3. I use digital technologies to offer students personalized learning opportunities E.g., I give different students different digital tasks to address individual learning needs, preferences, and interests	1.84

When Table 10 is examined, it is seen that teacher educators have high levels of competence regarding ensuring accessibility and active participation in digital technology-based activities to empower learners. However, the competence levels regarding the item for personalization and differentiation could be a lot higher. The interviews with teacher educators stated that their actions to empower learners were limited to directing students to digital resources suitable for them and ensuring their active participation by motivating students. They stated they encountered many complicated barriers in implementing actions to empower learners. In Figure 8, the barriers that teacher educators encountered in empowering learners and their related statements are given.

Figure 8

Barriers to Empowering Learners



"I think that my digital skills are sufficient in communicating with my colleagues, but insufficient in communicating with students, that is, in terms of using them in education." (P1)

"Let me tell you this way. I can follow it like this since there are two students in the course, I can always ask questions during the course and understand the student's situation this way. In other words, if there is a class of 20 or 30 students, it is difficult to follow the students, especially in distance education." (P1)

Facilitating learners' digital competence

The competence levels of teacher educators regarding the sub-competence area items for facilitating learners' digital competence, their actions, and statements regarding the relevant area are presented in Table 11.

Table 11

Levels of Competence Regarding the Items for Facilitating Learners' Digital Competence

Sub-Competence Area	*Items*	*Mean*
Communication	1. I set up assignments that require students to use digital means to communicate and collaborate with an outside audience	2.25
Content creation	2. I set up assignments that require students to create digital content E.g., videos, audio, photos, digital presentations, blogs, and wikis.	2.24
Information & media literacy	3. I teach students how to assess the reliability of information and identify misinformation and bias	2.12
Problem-solving	4. I encourage students to use digital technologies creatively to solve concrete problems E.g., to overcome obstacles or challenges emerging in the learning process	1.98
Responsible use	5. I teach students how to behave safely and responsibly online	1.92

When Table 11 is examined, it is seen that teacher educators have high levels of competence regarding facilitating learners' digital competence, digital communication and cooperation, digital content creation, and digital literacy competencies, respectively. In the interviews with teacher educators, they stated that, within the scope of facilitating learners' digital competence, they were trying to make students collaborate in digital environments, make presentations in digital environments, encourage digital content development, and guide them on fair use in the use of all these digital technologies. However, they noted that facilitating learners' actions on behalf of digital competence remained limited due to some complicating factors. Below is the statement of a teacher educator.

And, of course, some students are inclined towards digital and love it. Some students say I have prepared something like this even if I do not give the homework. Can you evaluate it? Can you take a look? Curious, I prepare something by myself whenever I have free time. Nevertheless, on the other hand, we have to force some students to do things. (P6)

Discussion, Conclusion, and Implications

This study examined the digital competence levels of teacher educators and their experiences with using digital technology in education processes. According to the results

obtained from the research, it was seen that almost all teacher educators use LMSs. Thus, they often use presentation and video materials and assessment tools such as quizzes and pools. Especially during the COVID-19 pandemic, educators quickly adapted and started using LMS in the teaching process (Junus et al., 2021; Pereira & Guerreiro, 2021). On the other hand, within the scope of digital competence levels, digital technologies such as blogs, wikis, concept maps, and posters, which require higher-level skills and cover different types of digital content development processes, are limited. While synchronous collaborative tools, pre-recorded videos, and LMS were widely used during the pandemic period, the use of advanced educational technology remained low (Bond et al., 2021). In the literature, it is stated that teacher educators use digital technologies at an elementary and theoretical level (Blayone et al., 2018; Jwaifell et al., 2019; Røkenes & Krumsvik, 2016) and do not carry out pedagogical practices at a level that can be models by integrating them into the education process (Amhag et al., 2019; Ranieri & Bruni, 2018). However, according to the study results, the fact that teacher educators have high self-efficacy, interest, and curiosity in using digital technologies and that they evaluate the technical infrastructure of the work environment as good is a promising situation for them to develop their digital competencies. As a matter of fact, in the literature, it is emphasized that personal factors such as the attitude towards technology use and the frequency of use of digital technologies are of greater importance compared to contextual factors in the development of digital competencies (Cattaneo et al., 2022; Lucas et al., 2021). It can also be said that the pandemic process had a positive effect on improving the digital competencies of educators.

According to the assessment results of digital competence levels of teacher educators, there are more teacher educators at the B1 (Integrator) and B2 (Expert) levels, which generally represent medium-level competencies. Educators at both levels are curious and open to innovations (Redecker, 2017). However, educators at these levels should be supported in gaining higher-level competencies, such as using digital technologies, by supporting them with pedagogical approaches and providing guidance to other educators. In addition, teacher educators' reflection on such high-level competencies in their teaching processes plays a vital role in encouraging pre-service teachers to use digital technologies as pedagogical tools as part of their vocational teaching skills, as well as supporting their learning processes (Fullan & Langworthy, 2014; Ghomi & Redecker, 2019; Instefjord, 2014; Røkenes & Krumsvik, 2014).

Another remarkable result obtained from the study is that although the number of educators at the C2 (Pioneer) level, which is the highest level, is low, teaching and learning competence intensifies. On the other hand, although the number of educators at the lowest level, A1 (Newcomer), is low, there has been intensification at this level, especially in facilitating learners' digital competence. With the COVID-19 pandemic, face-to-face education processes were suddenly switched to ERT. Even educators who have no interest in digital technologies had to develop themselves even at the primary level in terms of digital competencies, as it was expected from the educators in the ERT process to have the competencies for the effective use of some digital technologies in the learning processes in terms of technical and pedagogical aspects (Arah, 2012; Baran et al., 2013; Varvel, 2007). It is emphasized in the literature that the frequency of the use of digital technologies by educators in teaching processes directly affects the development of digital skills (Cattaneo et al., 2022). On the other hand, the need to support learners' digital competencies in this process can also be interpreted as educators' plans for developing digital competence to carry out teaching processes. In developing students' digital

competencies, they emphasized the importance of cooperation between instructional technology experts.

The digital competencies of teacher educators for professional engagement processes are mostly at B1 (Integrator) level. In this direction, they generally use digital technologies at the primary level to improve their teaching skills by ensuring sustainability in communication and personal development. Especially with the COVID-19 pandemic, the widespread use of digital technology in communication and teaching has made educators need to update themselves in professional processes (Rana & Rana, 2020). Studies have also shown that most people, regardless of their profession, are more competent in the general digital communication skills they usually use (chat, forum, videoconferencing, e-mail, etc.). However, educators need to develop specific digital skills for teaching methods (creating and managing meaningful online activities, knowing how to use the educational platform, structuring an online topic, etc.) that will increase students' learning performance with appropriate professional development programs (Portillo & de la Serna, 2021; Portillo et al., 2020).

When the competencies of teacher educators in using digital resources are examined, it has been determined that they generally create their digital resources or use existing ones in line with their individual needs. However, it has been noted that these digital resources generally consist of presentations, written documents, and synchronous virtual classroom recordings. In this process, it was seen that they benefited from basic strategies in accessing, selecting, and managing digital resources. As a matter of fact, in some studies in the literature, it has been revealed that educators generally use primary digital resources in their educational processes, but they do not prefer multimedia materials (interactive videos, posters, etc.) that require complex digital skills (Blayone et al., 2018; Jwaifell et al., 2019). The preferences of educators in this direction are directly related to their digital resource development competencies. It has been determined that teacher educators see the copyright assurance provided by their institutions as an encouraging factor in using digital resources. Teacher educators use various digital communication channels to integrate existing digital technologies (in-class technologies, etc.) and content (presentations, videos, etc.) into the learning process and to interact effectively with students in the guidance processes. However, it has been determined that the reflection of these skills in practice varies considerably among teacher educators. Therefore, it has been observed that higher-level activities were at the primary level. On the other hand, it has been revealed that educators need support for applications that require high-level digital skills, such as receiving and evaluating interactive data recorded in digital environments in their teaching processes. In addition, it is stated in the literature that weaknesses in ERT increase, especially when it comes to situations or tools related to online teaching (Portillo et al., 2020).

Teacher educators' skills in digital assessment processes are mostly at B2 (Integrator) level. In addition, educators generally use digital technologies in the evaluation phase to monitor the development of students and provide feedback to evaluate the process with assignments. They see flexibility in terms of time and space as an advantage. However, they need support in analyzing the data received from digital systems and using them in the evaluation processes. On the other hand, inexperience in using digital assessment systems and the reliability problems encountered in the process cause educators to develop negative perceptions about using technology in the assessment processes. In parallel with this result, challenges such as

academic dishonesty, infrastructure, coverage of learning outcomes, and commitment of students to submit assessments are stated in the remote assessment (Guangul et al., 2020).

The main strategies implemented by teacher educators at the point of empowering learners are to ensure learner accessibility and active participation in digital technology-based activities they use in teaching processes. However, it has been revealed that learners need support in identifying and empowering their characteristics by carrying out activities for differentiation/personalization. Learning analytics (LA) tools are standard in empowering learners. Educators may have needed to be stronger in these respects because they needed the opportunity to use LA tools. Studies also showed that adopting LA is mainly tiny in scale and isolated at the instructor level (Tsai et al., 2020). On the other hand, educators also mentioned barriers such as heavy workload, the high number of students, and low digital competence.

The study revealed the digital competencies of teacher educators in detail with a mixed approach. However, the study is limited to the education faculty of a university in Türkiye. In addition, the fact that digital competence was evaluated with a self-reported assessment tool is another limitation of the study. Since the ERT process during the pandemic requires educators to use digital devices and platforms, it has improved their essential digital competencies and realized the significance of using digital technologies after the pandemic. For teacher educators, choosing and integrating these communication channels more strategically takes them to a higher level of professional engagement. It will help them save time and make communication more effective and transparent. On the other hand, sharing materials and experiences in online communities will enable them to have an enriching experience on a personal and professional level. Moreover, being aware that technology is constantly changing, making improvements in the digital tools they are currently using, and constantly sharing with their colleagues about the use of current digital technologies in education will be beneficial in developing their digital competencies.

The resource pools consisting of institutional and national open educational resources to support educators' digital resource use processes should be created, and copyright measures should be taken for the use of these resources. In addition, units can be established in higher education institutions to support educators at the point of digital content development and content development platforms that empower cooperation between colleagues. On the other hand, with the opportunities offered by digital technologies, the learning needs of learners can be systematically monitored, and appropriate interventions can be made when necessary. Concerning this result, it has been revealed that teacher educators pay great attention to supportive activities, especially regarding digital assessment processes. Since teacher educators train the teachers of the future, their competence in the dimensions of empowering learners and facilitating learners' digital competence is vital. Empowering the digital competencies of pre-service teachers in their education processes is decisive for the effectiveness of technology integration practices in their future classrooms. Creating strategies for the effective use by higher education institutions by integrating LA tools into their systems, regular evaluation of the online behaviors, and digital competencies of educators and students will make digital transformation in higher education more sustainable.

In future studies, the competencies of teacher educators can be examined comprehensively by collecting data from a larger sample group and associating them with different variables.

Versatile assessments can be made by developing and applying a performance-based digital competence assessment tool. Relational results can be revealed by evaluating the digital competencies of pre-service teachers and teacher educators. The effects can be investigated by designing and implementing field-based applied professional development training to improve teacher educators' digital competencies.

Acknowledgment

- We want to thank Prof. Dr. Bülent Çavuşoğlu and the academics of Atatürk University Digital Transformation and Software Office for their support.
- This research paper was examined by Atatürk University/Educational Sciences Institute Directorate/Educational Sciences Unit Ethics Committee and approved for ethical compliance. Reference number: E-56785782-050.02.04-2100289244
- This research paper was supported within the scope of Atatürk University Scientific Research Projects (Project Number: SBA-2022-9974)

Authors' Contributions

Conceptualization SK, MBK; Data collection ALL; Methodology SK; Quantitative analysis RK, OAÜ; Qualitative analysis MBK, SK; Visualization RK, OAÜ; Writing-original draft MBK, SK; Writing-review and editing ALL. All authors read and approved the final manuscript.

References

Agyei, D. D., & Voogt, J. M. (2011). Exploring the potential of the will, skill, tool model in Ghana: Predicting prospective and practicing teachers' use of technology. *Computers & Education, 56*(1), 91-100. https://doi.org/10.1016/j.compedu.2010.08.017

Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators use digital tools and need for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203-220. https://doi.org/10.1080/21532974.2019.1646169

Arah, B. O. (2012). The competencies, preparations, and challenging (new) roles of online instructors. *US-China Education Review,10,* 841-856.

Baran, E., Correia, A. P., & Thompson, A. (2013). Tracing successful online teaching in higher education: Voices of exemplary online teachers. *Teachers College Record, 115*(3), 1-41. https://doi.org/10.1177/01614681131150

Blayone, T. J., Mykhailenko, O., vanOostveen, R., Grebeshkov, O., Hrebeshkova, O., & Vostryakov, O. (2018). Surveying digital competencies of university students and professors in Ukraine for fully online collaborative learning. *Technology, Pedagogy and Education, 27*(3), 279-296. https://doi.org/10.1080/1475939X.2017.1391871

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: mapping the first global online semester. *International Journal of Educational Technology in Higher Education, 18*(1), 1-24. https://doi.org/10.1186/s41239-021-00282-x

Cabero-Almenara, J., Gutiérrez-Castillo, J.-J., Palacios-Rodríguez, A., & Barroso-Osuna, J. (2020). Development of the teacher digital competence validation of DigCompEdu check-in

questionnaire in the university context of Andalusia (Spain). *Sustainability, 12*(15), 6094. https://doi.org/10.3390/su12156094

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European digital competence framework for educators (Digcompedu). *European Journal of Education, 54*(3), 356-369. https://doi.org/10.1111/ejed.12345

Calvani, A., Cartelli, A., Fini, A., & Ranieri, M. (2008). Models and instruments for assessing digital competence at school. *Journal of E-learning and Knowledge Society, 4*(3), 183-193.

Cattaneo, A. A., Antonietti, C., & Rauseo, M. (2022). How digitalised are vocational teachers? Assessing digital competence in vocational education and looking at its underlying factors. *Computers & Education, 176*, 104358. https://doi.org/10.1016/j.compedu.2021.104358

Daniela, L., Visvizi, A., Gutiérrez-Braojos, C., & Lytras, M. D. (2018). Sustainable higher education and technology-enhanced learning (TEL). *Sustainability, 10*(11), 3883. https://doi.org/10.3390/su10113883

Ferrari, A. (2012). Digital competence in practice: An analysis of frameworks. *Sevilla: JRC IPTS, 10*, 82116. https://doi.org/10.2791/82116

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* McGraw-hill.

Fullan, M., & Langworthy, M. (2014). *A rich seam: How new pedagogies find deep learning.* Pearson.

García-Vandewalle García, J. M., García-Carmona, M., Trujillo Torres, J. M., & Moya Fernández, P. (2021). Analysis of digital competence of educators (DigCompEdu) in teacher trainees: the context of Melilla, Spain. *Technology, Knowledge and Learning,* 1-28. https://doi.org/10.1007/s10758-021-09546-x

Ghomi, M., & Redecker, C. (2019). Digital competence of educators (DigCompEdu): development and evaluation of a self-assessment instrument for teachers' digital competence. *Proceedings of the 11th International Conference on Computer Supported Education,* 541-548. https://doi.org/10.5220/0007679005410548

Guangul, F. M., Suhail, A. H., Khalit, M. I., & Khidhir, B. A. (2020). Challenges of remote assessment in higher education in the context of COVID-19: a case study of Middle East College. *Educational Assessment, Evaluation and Accountability, 32*(4), 519-535. https://doi.org/10.1007/s11092-020-09340-w

Instefjord, E. (2014). Appropriation of digital competence in teacher education. *Nordic Journal of Digital Literacy, 9*(4), 313-329. https://doi.org/10.18261/ISSN1891-943X-2015-Jubileumsnummer-11

Instefjord, E., & Munthe, E. (2016). Preparing pre-service teachers to integrate technology: an analysis of the emphasis on digital competence in teacher education curricula. *European Journal of Teacher Education, 39*(1), 77-93. https://doi.org/10.1080/02619768.2015.1100602

International Society for Technology in Education [ISTE]. (2017). *ISTE standards for educators*. https://www.iste.org/standards/for-educators

Janssen, J., Stoyanov, S., Ferrari, A., Punie, Y., Pannekeet, K., & Sloep, P. (2013). Experts' views on digital competence: Commonalities and differences. *Computers & Education, 68*, 473-481. https://doi.org/10.1016/j.compedu.2013.06.008

Junus, K., Santoso, H. B., Putra, P. O. H., Gandhi, A., & Siswantining, T. (2021). Lecturer readiness for online classes during the pandemic: A survey research. *Education Sciences, 11*(3), 139. https://doi.org/10.3390/educsci11030139

Jwaifell, M., Kraishan, O. M., Waswas, D., & Salah, R. O. (2019). Digital competencies and professional attitudes as predictors of universities academics' digital technologies usage: Example of Al-Hussein Bin Talal. *International Journal of Higher Education, 8*(6), 267-277. https://doi.org/10.5430/ijhe.v8n6p267

Krumsvik, R. J. (2011). Digital competence in the Norwegian teacher education and schools. *Högre Utbildning, 1*(1), 39-51.

Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: A review of digital literacies in theory and practice. *Journal of Computer Assisted Learning, 28*(6), 547-556. https://doi.org/10.1111/j.1365-2729.2011.00474.x

Lucas, M., Bem-Haja, P., Siddiq, F., Moreira, A., & Redecker, C. (2021). The relation between in-service teachers' digital competence and personal and contextual factors: What matters most? *Computers & Education, 160*, 104052. https://doi.org/10.1016/j.compedu.2020.104052

McMillan, J. H., & Schumacher, S. (2006). *Research in education: Evidence-based inquiry.* Pearson.

Núñez-Canal, M., de Obesso, M. d. l. M., & Pérez-Rivero, C. A. (2022). New challenges in higher education: A study of the digital competence of educators in Covid times. *Technological Forecasting and Social Change, 174*, 121270. https://doi.org/10.1016/j.techfore.2021.121270

Ottestad, G., Kelentric, M., & Gudmundsdottir, G. B. (2014). Professional digital competence in teacher education. *Nordic Journal of Digital Literacy, 9*(4), 243-249. https://doi.org/10.18261/ISSN1891-943X-2014-04-02

Pereira, L., & Guerreiro, J. (2021). Evaluation on Moodle LMS data usage during the first wave of Covid-19's pandemic. *Proceedings of International Conference on Human-Computer Interaction,* 154-166.

Portillo, J., & de la Serna, A. L. (2021). Improving teacher professional development for online and blended learning: a systematic meta-aggregative review. *Educational Technology Research and Development, 69*(1), 25-28. https://doi.org/10.1007/s11423-019-09645-8

Portillo, J., Garay, U., Tejada, E., & Bilbao, N. (2020). Self-perception of the digital competence of educators during the COVID-19 pandemic: A cross-analysis of different educational stages. *Sustainability, 12*(23), 10128. https://doi.org/10.3390/su122310128

Rafique, G. M. (2014). Information literacy skills of faculty members: A study of the University of Lahore, Pakistan. *Library Philosophy and Practice*, 1-23.

Rana, K., & Rana, K. (2020). ICT integration in teaching and learning activities in higher education: A case study of Nepal's teacher education. *Malaysian Online Journal of Educational Technology, 8*(1), 36-47. http://dx.doi.org/10.17220/mojet.2020.01.003

Ranieri, M., & Bruni, I. (2018). Promoting digital and media competencies of pre-and in-service teachers. Research findings of a project from six European countries. *Journal of e-Learning and Knowledge Society, 14*(2), 111-125. http://dx.doi.org/10.20368/1971-8829/1497

Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu.* Joint Research Center. https://publications.jrc.ec.europa.eu/repository/handle/JRC107466

Røkenes, F. M., & Krumsvik, R. J. (2014). Development of student teachers' digital competence in teacher education-A literature review. *Nordic Journal of Digital Literacy, 9*(4), 250-280. https://doi.org/10.18261/ISSN1891-943X-2014-04-03

Røkenes, F. M., & Krumsvik, R. J. (2016). Prepared to teach ESL with ICT? A study of digital competence in Norwegian teacher education. *Computers & Education, 97*, 1-20. https://doi.org/10.1016/j.compedu.2016.02.014

Rychen, D. S., & Salganik, L. H. (2003). *Key competencies for a successful life and well-functioning society:* Hogrefe & Huber.

Štemberger, T., & Konrad, S. Č. (2021). Attitudes towards using digital technologies in education as an important factor in developing digital competence: The case of Slovenian student teachers. *International Journal of Emerging Technologies in Learning (iJET), 16*(14), 83-98.

Toker, T., Akgün, E., Cömert, Z., & Sultan, E. (2021). Eğitimciler için dijital yeterlilik ölçeği: Uyarlama, geçerlik ve güvenirlik çalışması. *Milli Eğitim Dergisi, 50*(230), 301-328. https://doi.org/10.37669/milliegitim.801607

Tsai, Y.S., Rates, D., Moreno-Marcos, P. M., Muñoz-Merino, P. J., Jivet, I., Scheffel, M., Drabchsler, H., Kloos, C. D., & Gašević, D. (2020). Learning analytics in European higher education - Trends and barriers. *Computers & Education, 155*, 103933. https://doi.org/10.1016/j.compedu.2020.103933

Varvel, V. E. (2007). Master online teacher competencies. *Online Journal of Distance Learning Administration, 10*(1). https://ojdla.com/archive/spring101/varvel101.pdf

Virtič, M. P., & Pšunder, M. (2010). Future teachers' opinions on the digital competencies obtained during their studies. *Problems of Education in the 21st Century, 24*, 95-105.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi

13(*1*), 2023, 67-94

www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmen Eğitimcilerinin Dijital Yeterliklerinin DigCompEdu Çerçevesi ile Değerlendirilmesi

Giriş

Çağımızda dijital yeterliklerin oldukça önemli olduğu görülmektedir. Yükseköğretim kurumları için eğitimcilerin dijital yeterliklerinin geliştirilmesine yönelik politikaların/modellerin belirlenmesi sürecinde mevcut yeterlik seviyelerinin ve bu yöndeki beklentilerinin belirlenmesi oldukça önemlidir (Jwaifell vd., 2019; Virtič & Pšunder, 2010). Yükseköğretim kurumları; ancak veriye dayalı planlamalar ile eğitimci yeterliklerini geliştirmeye dönük faaliyetler gerçekleştirebilir ve böylelikle öğrencilerini dijital çağa uygun bir şekilde yetiştirebilir, eğitim seviyesini üst düzeyde tutabilirler (Littlejohn vd., 2011).

Yükseköğretim kurumlarının önemli paydaşlarından olan öğretmen eğitimcilerinin teknolojiye bakış açısının diğer eğitimcilerden farklı olması beklenir. Çünkü yetiştirilen hedef kitle öğretmen adaylarıdır ve kullanılan her bir teknolojinin eğitim süreçlerinde etkili bir şekilde nasıl kullanılabileceğinin gelecekteki kullanım süreçlerini yönlendirmek için doğru bir şekilde modellenmesi gerekir (Krumsvik, 2011; Røkenes & Krumsvik, 2014). Bir başka ifadeyle dijital teknolojilerin etkili pedagojik uygulamalar eşliğinde kullanılması ve bu teknolojilerin öğrenme stratejileri ve öğrencilerin dijital becerilere yönelik kazanımları üzerindeki etkisinin farkında olunması gerekir (Instefjord, 2014; Rana & Rana, 2020). Bu nedenle geleceğin öğretmen adaylarını yetiştiren öğretmen eğitimcilerinin dijital yeterliklerinin incelenmesi, elde edilen sonuçlar doğrultusunda gerekli politikaların belirlenmesi oldukça önemlidir (Cabero-Almenara vd., 2020; Jwaifell vd., 2019; Littlejohn vd., 2011; Virtič & Pšunder, 2010). Bu durum COVID-19 salgını sürecinde çok daha fazla önem kazanmıştır.

Salgın süreci göstermiştir ki eğitimin her kademede ve her koşulda kesintiye uğramadan etkili bir şekilde devam ettirilebilmesi için dijital dönüşüme odaklanılmalıdır. Geleceğin öğretmenlerini yetiştiren öğretmen eğitimcilerinin bu süreçte dijital teknolojileri kullanım durumlarının ve dijital yeterlik seviyelerinin belirlenmesi geleceğe yönelik eğitim politikalarının oluşturulmasında önemlidir. Bu doğrultuda bu çalışmanın amacı öğretmen eğitimcilerinin dijital yeterlik seviyelerinin ve eğitim süreçlerinde dijital teknoloji kullanımına yönelik deneyimlerinin 'Eğitimciler için Dijital Yetkinlikler (DigCompEdu) Çerçevesi'ne dayalı olarak incelenmesidir.

Bu amaç kapsamında aşağıda yer alan araştırma sorularına cevap aranmaktadır:

(1) Öğretmen eğitimcilerinin dijital teknolojileri kullanım durumları ne düzeydedir?

(2) Öğretmen eğitimcilerinin dijital yeterlik seviyeleri ne düzeydedir?
(3) Öğretmen eğitimcilerinin dijital yeterlik alanlarına yönelik eylemleri ve görüşleri nasıldır?

Yöntem

Öğretmen eğitimcilerinin dijital yeterlik seviyelerini belirlemek amacıyla yürütülen çalışmada karma araştırma yöntemlerinden açıklayıcı desen kullanılmıştır. Açıklayıcı desen, öncelikle nicel verilerin toplanarak analiz edilmesi, daha sonra nicel verileri açıklamak amacıyla nitel verilerden yararlanılması olmak üzere iki aşamadan oluşur (Fraenkel vd., 2012; McMillan & Schumacher, 2010). Çalışmaya Türkiye'de büyük bir devlet üniversitesinin eğitim fakültesinde görev yapan 113 öğretmen eğitimcisi katılmıştır. Çalışmanın nicel aşamasında öğretmen eğitimcilerinden "Eğitimcilerin Dijital Yeterlikleri için Avrupa Birliği Çerçeve Çalışması" kapsamında geliştirilen "DigCompEdu Check-In Tool" adlı değerlendirme aracı ile veriler çevrim içi olarak toplanmıştır (Caena & Redecker, 2019; Redecker, 2017; Redecker, 2018). Çalışmada değerlendirme aracının Türkçeye uyarlanan versiyonu, maddeleri yükseköğretime uygun hale getirilerek kullanılmıştır (Toker vd., 2021). Araçta eğitimcilerin demografik bilgileri, dijital teknolojileri kullanım durumları ve kurumsal olanaklara ilişkin görüşlerini belirlemek amacıyla 13 soru bulunmaktadır. Dijital yeterlik seviyesi belirleme bölümünde ise 22 çoktan seçmeli 5'li Likert türünde madde bulunmaktadır. Bu maddeler, 6 temel dijital yeterlik alanı ve 22 alt yeterlik seviyesini temsil etmektedir. Yeterliklerin her biri giderek artan altı farklı seviye ile (A1, A2, B1, B2, C1, C2) açıklanmaktadır. Çalışmanın nitel bölümünde DigCompEdu çerçevesinin boyutlarına dayalı olarak nicel verileri açıklamaya yönelik 6 sorudan oluşan yarı yapılandırılmış görüşme formu kullanılarak 6 eğitimci (4 erkek, 2 kadın) ile yarı-yapılandırılmış görüşmeler gerçekleştirilmiştir. Çalışmadan elde edilen nicel veriler betimsel istatistiki yöntemlerle analiz edilmiştir. Analizde SPSS 21 ve Microsoft Power BI kullanılmıştır. Nitel verilerin analizinde ise içerik analizi kullanılmıştır.

Bulgular

Çalışmadan elde edilen bulgulara göre öğretmen eğitimcilerinin öğrenme ve öğretme süreçlerinde dijital ortam olarak çoğunlukla Öğrenme Yönetim Sistemlerini (ÖYS), dijital materyal olarak ise sunumları kullandıkları görülmüştür. Öğretmen eğitimcilerinin dijital teknolojileri bireysel ve öğretim süreçlerinde kullanım durumları incelendiğinde ise interneti yetkin bir şekilde kullandıkları, yeni uygulamalar, programlar ve kaynakları kullanım yönünde meraklı oldukları, bilgisayarları ve diğer teknik araçları kullanmayı kolay buldukları görülmektedir. Bunların yanında öğretmen eğitimcilerinin çalıştıkları kurumu, dijital altyapı ve destek açısından oldukça yeterli gördükleri ortaya çıkmıştır.

Öğretmen eğitimcilerinin dijital yeterlik düzeyleri incelendiğinde, genel dijital yeterlik düzeylerinin ve alt alanların her birine yönelik yeterliklerinin B1 (Bütünleştirici) düzeyinde olduğu tespit edilmiştir. Öğretmen eğitimcilerinin her bir alt yeterlik alanına yönelik aşağıda vurgulanan maddelere ilişkin yeterlik düzeylerinin nispeten daha yüksek olduğu tespit edilmiştir:

- Mesleğinde dijital becerilerin kullanımı, dijital sürekli kişisel gelişimi sağlayarak öğretim becerilerini geliştirme ve dijital iletişim kurma

- Dijital kaynak, öğretim süreçlerinde kendi dijital kaynaklarını oluşturma ve mevcut dijital kaynakları ihtiyaca göre değiştirerek kullanma
- Öğretme ve öğrenme, dijital yeterlikleri öğretim ve rehberlik amaçlı kullanma
- Değerlendirme, dijital teknolojileri öğrencilerin gelişimini izleme ve geri bildirim sağlama amacıyla kullanma
- Öğrencileri güçlendirme, erişilebilirliğin sağlanması ve öğrencilerin öğretim süreçlerine aktif katılımlarının desteklenmesi
- Öğrencilerin dijital yeterliklerinin desteklenmesi, dijital iletişim ve dijital okuryazarlık becerilerinin geliştirilmesi

Öğretmen eğitimcilerinin yukarıda belirtilen dijital yeterlik alanlarına ilişkin eylem ve görüşleri incelendiğinde; dijital olarak kişisel gelişimlerini sağlama noktasında özellikle çevrim içi eğitimlere katılma, atölye çalışmalarına katılma ve dijital mentörlük desteği alma gibi çeşitli eylemlerde bulunduklarını ortaya çıkmıştır. Öğretmen eğitimcileri, kullandıkları dijital kaynak türleri ve bu kaynakları oluşturma, erişme, seçme ve yönetme gibi süreçlerde farklı yöntemlere başvurduklarını belirtmişlerdir. Bu süreçte dijital kaynak havuzlarının oluşması ve bu kaynakların telif haklarının ilgili kurum tarafından güvence altına alınmasını ise dijital kaynak kullanımını noktasında kolaylaştırıcı birer unsur olarak nitelendirmişlerdir. Diğer taraftan dijital teknolojileri kullanarak gerçekleştirdikleri öğretim aktivitelerinde öğrenci sayısının fazla olması ve öğrencilerin teknik imkanlarının yetersiz olması gibi çeşitli zorluklarla karşılaştıklarını belirtmişlerdir. Öğretmen eğitimcileri, görev yaptıkları kurum tarafından dijital değerlendirme süreçlerine yönelik sağlanan destek materyallerine ve rehberlere rağmen bu süreçlerdeki güvenirlik problemleri ve sistem kullanımı konusundaki deneyimsizliğin beraberinde getirdiği olumsuz algının bu sürecin önünde zorlaştırıcı bir engel olarak ortaya çıktığını vurgulamışlardır. Öğretmen eğitimcileri, öğrencileri güçlendirmek adına yaptıkları eylemlerin öğrencileri kendilerine uygun dijital kaynaklara yönlendirme ve onları motive ederek aktif katılımlarını sağlamakla sınırlı kaldıklarını belirtmişlerdir. Öğrencilerin dijital yeterliklerinin desteklenmesi için ise öğrencileri dijital ortamlarda iş birliği yaptırma, sunum yaptırma, içerik geliştirmeye teşvik etme ve tüm bu dijital teknolojilerin kullanım sürecinde adil kullanım konusunda yönlendirme yapmaya çalıştıklarını vurgulamışlardır.

Tartışma, Sonuç ve Öneriler

Çalışmada öğretmen eğitimcilerin dijital yeterliklerini karma bir yaklaşımla ayrıntılı olarak ortaya koyulmuştur. Salgın sürecindeki acil uzaktan eğitim uygulamaları, öğretmen eğitimcilerinin dijital cihazları ve platformları kullanımını zorunlu kıldığından temel dijital yeterliklerini geliştirmeleri ve salgın sonrasında da dijital teknolojilerin kullanımının öneminin farkına varmaları açısından olumlu etkilerini göstermiştir. Bu doğrultuda öğretmen eğitimcilerinin neredeyse tamamının ÖYS'leri kullandıkları ve sıklıkla sunum ve video türündeki materyaller ile kısa sınav (quiz) ve anket gibi değerlendirme araçlarına başvurdukları görülmüştür. Diğer taraftan dijital yeterlik seviyeleri kapsamında daha üst düzey becerileri gerektiren, farklı türlerde dijital içerik geliştirme süreçlerini kapsayan blog, wiki, kavram haritası ve poster gibi dijital teknolojilerin kullanımının oldukça sınırlı olduğu göze çarpmıştır. Ancak öğretmen eğitimcilerin dijital teknolojileri kullanma öz-yeterliklerinin, ilgi ve meraklarının yüksek olması, çalışma ortamlarının teknik alt yapısını iyi olarak değerlendirmeleri dijital yeterliklerini geliştirmelerinde umut vadeden bir durumdur.

Öğretmen eğitimcilerinin dijital yeterlik seviyeleri genellikle orta düzeydeki yeterlik seviyelerini temsil eden B1 (Bütünleştirici) ve B2 (Uzman) seviyesinde yoğunlaşmaktadır. Her iki seviyedeki eğitimciler de meraklı ve yeniliklere açıktır (Redecker, 2019). Ancak bu seviyelerdeki eğitimcilerin dijital teknolojilerin pedagojik yaklaşımlarla desteklenerek kullanılması, dijital teknolojilerin kullanılması süreçlerinde diğer eğitimcilere rehberlik sağlanması, güncel dijital teknolojilerin takip edilerek ilgili teknolojilerin pedagojik kullanımına ilişkin stratejiler geliştirilmesi gibi daha üst düzey yeterliklerin kazandırılması noktasında desteklenmesi gerektiği söylenebilir.

Gelecek çalışmalarda, öğretmen eğitimcilerin yeterlikleri daha geniş örneklem grubundan veri toplanarak farklı değişkenlerle ilişkilendirilerek kapsamlı bir şekilde incelenebilir. Öğretmen eğitimcileri ile birlikte öğretmen adaylarının da dijital yeterlikleri değerlendirilerek ilişkisel sonuçlar ortaya konulabilir. Öğretmen eğitimcilerinin dijital yeterliklerini geliştirmeye yönelik alan bazında uygulamalı mesleki gelişim eğitimleri tasarlanıp uygulanarak etkileri araştırılabilir.

International Journal of Curriculum and Instructional Studies
13(1), 2023, 95-122
www.ijocis.com

Teacher Candidates' Training Needs for Social-Emotional Competencies

Ece Özdemir, TED Ankara College, eceozdemir.eo@gmail.com, 0000-0002-6065-7755

Mustafa Cem Babadoğan, Ankara University, cbabadogan@gmail.com, 0000-0002-6796-5654

Keywords

Social-emotional learning
Pre-service teacher training
Social-emotional skills

Article Info:
Received : 04-09-2022
Accepted : 05-05-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.005

Abstract

This study aims to identify the training needs of teacher candidates in social-emotional competencies. The study has a convergent parallel design in which qualitative and quantitative data were collected and analyzed during the same phase, and the two sets of results were subsequently merged into an overall interpretation. The qualitative data were obtained through unstructured interviews with 15 academicians selected using convenient sampling, and these data were analyzed through descriptive analysis. The quantitative data were analyzed using the mean scores of the responses to the scenario-based questionnaire administered to 161 teacher candidates selected using convenient sampling. According to the qualitative data analysis, the academicians stated that the social-emotional competencies teacher candidates should own are communication, empathy, self-awareness, and problem-solving competencies, followed by self-management, taking responsibility, entrepreneurship, critical thinking, cooperation, and decision-making competencies. Quantitative data on the mean scores obtained from the answers of the teacher candidates to the scenarios showed low self-knowledge and responsible decision-making competencies and high relationship skills, self-management, and social awareness competencies. When the qualitative data from the interviews and the quantitative data from the scenario-based questionnaire results were interpreted together, it was found that the social-emotional competencies identified by the academics were similar to the needs of teacher candidates in terms of social-emotional competencies. It is recommended that social-emotional competencies be supported by integrating lessons on these competencies in teacher training programs, extra-curricular activities, or curriculum development studies.

To cite this article: Özdemir, E., & Babadoğan, M. C. (2023). Teacher candidates' training needs for social-emotional competencies. *International Journal of Curriculum and Instructional Studies, 13*(1), 95-122. https://doi.org/10.31704/ijocis.2023.005

Introduction

Today, the questions of what competencies individuals need to adapt to the new, globalized world and how these competencies can be developed in the best way have gained importance. The world's ever-changing demands make it clear that a wide range of competencies are needed to prepare individuals for the challenges they might face in the future (Winthrop & McGivney, 2016). Rapid technological changes, increased interconnectedness, new forms of employment, population growth, ecological changes, natural disasters, wars, migrations, and pandemics require rapid adaptation to the emerging world, recognition of the nature of change, assessment of the current circumstances, and understanding of the present and future in respect to comprehensive competencies. It has become essential to consider the competencies needed presently and in the future (Kowal et al., 2022).

An essential part of the global discourse on the competencies needed to meet the demands of changing conditions is related to the concept of social-emotional learning (SEL) and social-emotional competencies (SEC) (Yoder et al., 2021). The concepts of SEL and SEC are prominent in educational research as well as in policy documents from global organizations such as the Organization for Economic Cooperation and Development (OECD), the Collaborative for Academic, Social, and Emotional Learning (CASEL), and the United Nations Educational, Scientific and Cultural Organization (UNESCO). In general, social-emotional learning goals start with the individual with self-awareness and self-management competencies and show a continuity toward applying self-regulation in the social environment (Omasta et al., 2021). Self-awareness, self-management, social awareness, relationship skills, and responsible decision-making are defined as social-emotional competencies. These competencies are necessary for the individual's well-being and for coping with complex situations (Jones & Bouffard, 2012). It is pointed out that developing these competencies positively impacts school and work life (Zins et al., 2007).

Educational institutions, businesses, and employers support the development of socially and emotionally competent individuals, stating that these competencies increase productivity at school and in the workplace (Elias et al., 1997). Kress (2000) emphasizes teachers' competence development by stating that the previous period required education for stability, and the subsequent period required education for instability. He states that the understanding of education, which requires more competencies, should be planned according to the demands of the age. The future will be different from the past and present in some respects, so teachers need new competencies to cope with all these changes, and their competencies need to be redefined (Selvi, 2010).

According to CASEL (2022a), SEL and SEC have become increasingly important, particularly in the current coronavirus pandemic (COVID-19). As the world struggles with the COVID-19 pandemic, the social-emotional needs of individuals and communities have emerged. Children, families, and communities have faced and coped with fear, anxiety, stress, curiosity, and uncertainty throughout the pandemic. The importance of demonstrating empathy and resilience, building relationships across distances, and supporting individuals and societies in a social-emotional context has become more evident, and social-emotional learning has become a necessity for the whole world (CASEL, 2022a).

SEL is an integral part of education and human development. It is a process by which individuals acquire and apply the knowledge, skills, and attitudes necessary to develop a healthy identity, manage their emotions, achieve personal and collective goals, establish and maintain empathetic and supportive relationships with others, and make responsible and thoughtful decisions. CASEL identifies five core SEC that underlie the fulfillment of life's many tasks. These competencies are listed as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, and the domains of SEL competencies are defined as follows (CASEL, 2022b).

- Self-awareness is the ability to recognize one's feelings and thoughts and their impact on behavior.
- Self-management is the ability to regulate one's emotions, thoughts, and behavior in different situations.
- Social awareness is the ability to take the perspective of others from different cultures, empathize with them, and understand social and ethical norms of behavior.
- Relationship skills are the ability to establish and maintain healthy and rewarding relationships.
- Responsible decision-making is the ability to make constructive and respectful choices about personal behavior and social interactions based on ethical standards, safety concerns, and social norms, taking into account the well-being of oneself and others.

However, researchers, educators, and policymakers find it difficult to define the scope of SEL. In essence, Jones and Doolittle (2017) define SEL as a tool that benefits children and young people, as well as other areas such as school, workplace, citizenship, and interpersonal relationships. It includes skills related to managing emotions and relationships that will help them succeed. In addition to this view, SEL is defined as the process by which children develop their thoughts, feelings, and behaviors to accomplish essential life tasks (Zins et al., 2007). Goleman (1995) also points to the importance of SEL to be effective in all critical areas of life, including school. On the other hand, SEC refers to a person's knowledge, skills, and motivation to master social and emotional situations, which are included in SEL (Elias et al., 1997; Weinert, 2001). Competencies related to SEL are defined as recognizing and managing emotions, establishing healthy relationships, setting positive goals, making responsible and ethical decisions, and meeting personal and social needs (Zins et al., 2007).

SEC has been emphasized by educators such as Dewey and psychiatrists such as Anna Freud, and educational efforts have focused on developing primary SEC. Although it has long been known that grades and test scores do not predict life satisfaction, success in the workplace, being an active, responsible, and caring individual in society, or building satisfying friendships, these views have often been confirmed in recent longitudinal studies (Goleman, 1995; Lettau, 2021; McCluskey, 2017; Rode et al., 2005; Tabbodi et al., 2015). Different theoretical perspectives from the fields of emotional intelligence (Boyatzis et al., 2000; Mayer et al., 2008) and SEL (Zins et al., 2007) have been used to define further the conditions that enable people to be successful in social-emotional situations. Studies have confirmed the need for SEC (Collie et al., 2017; Kyllonen, 2013; Matthews et al., 2004; Nangle et al., 2010; Paolini, 2020; Rose-Krasnor, 1997). These studies emphasize awareness of one's own emotions and the ability to regulate emotions on the one hand and awareness of others' emotions and the ability to manage relationships on the other. Awareness of one other's emotions is considered a

prerequisite for skills such as emotion regulation and relationship management, and these competencies are thought to have a hierarchical order (Joseph et al., 2015; Mayer & Salovey, 1997).

SEC does not exist in isolation but develops together throughout life. While the interpersonal function of emotions is central to other aspects of emotional competence (Denham et al., 2002), social interactions and relationships are regulated by the emotional process (Halberstadt et al., 2001). At this point, SEC could be defined as the ability to understand, manage, and express the social and emotional aspects of one's life in a way that enables the successful management of life tasks such as learning, forming relationships, solving everyday problems, and adapting to the complex demands of growth and development (Elias et al., 1997).

Beyond different conceptualizations, SEL is the keystone of positive development. Implementing each of the competencies defined for SEL with effective practices plays an essential role in enhancing the well-being of teachers and students and supporting learning by creating a positive classroom climate (Berg et al., 2021). The SEL movement, which is accelerating worldwide, is an essential issue that should be addressed holistically within the policy framework, given the impact it will have on large scales, starting with the individual. SEL, defined as the zeitgeist in education, has now captured the attention of scholars, legislators, and practitioners and is seen by many as the missing element in their efforts to provide practical education to all children and youth (Humphrey et al., 2020). The explosion of knowledge about the importance of emotions in predicting social and academic outcomes has led to the development of several intervention curricula aimed at developing global SEC in childhood (Greenberg et al., 1995). These curricula demonstrate that children's competence in the emotional domains can be developed through well-delivered, carefully planned instruction (Domitrovich et al., 2007). The value of the SEL curriculum has also been well-documented, and partnerships have been created to support the social-emotional development and academic achievement of children and youth around the world, with federal, state, and local perspectives established (Weissberg et al., 2015). Studies have been conducted that highlight the role of SEL in the educational system in the context of educational reform and its integration into the educational system, and curriculum development studies related to SEL were carried out (Damodaran et al., 2022; Jones & Doolittle, 2017; Mori, 2022; Reicher, 2010; Schonert-Reichl, 2019). SEL standards have been established, educational practices in schools have begun to change within the framework of these standards, and the effectiveness of well-designed SEL curricula has been demonstrated (Weissberg et al., 2015; Jones & Bouffard, 2012).

In the context of increasing interest and demand for SEL, teachers, who play an essential role in developing competencies through interpersonal and student-centered classroom interactions, are emphasized in achieving effective SEL. According to Williford and Wolcott (2015), SEL is developed by encouraging student participation and supporting positive student-teacher relationships. Therefore, teacher practices provide students with social-emotional support and create opportunities for students to make their voices, autonomy, mastery, and experiences heard, encourage student participation in the educational process, and provide opportunities for students to interact with each other and their environment. According to Jones et al. (2013), teachers in classrooms and schools are seen as the locomotives that prepare the curriculum and practices for SEL. In this sense, the development of teachers'

SEC plays a critical role in the well-being of the classroom and the integration of SEL in classrooms and schools in the context of learning. As teaching is considered one of the most stressful professions, teachers' SEC is essential for coping with their profession's social-emotional challenges and building positive teacher-student relationships (Aldrup et al., 2020). Teachers have to cope with daily routines based on social interactions involving their own emotions and those of students, parents, and peers. (Brotheridge & Grandey, 2002). Their relationship management skills influence their learning, health, the quality of social relationships, academic achievement, and job performance (Brackett & Caruso, 2007).

According to Roorda et al. (2011), caring teacher-student relationships are essential at all levels of K-12 education. SEL is a developmental process that affects children, adolescents, and adults in an interrelated developmental spiral (Jones & Bouffard, 2012). Classrooms with healthy teacher-child relationships and responsive interactions in a solid social-emotional environment can better promote deep learning among students (Merritt et al., 2012). In contrast, when teachers ignore social-emotional classroom expectations or disregard the strengths of diverse cultures in the classroom, students demonstrate lower levels of achievement and poorer on-task behavior. When the quality of the classroom environment deteriorates, it often triggers personal and interpersonal burnout that negatively impacts students' behavioral health, well-being, and academic performance (Jennings & Greenberg, 2009).

Considering the developments in the world regarding SEL, the practices of SEL in Türkiye are carried out with the contributions of civil organizations and universities beyond local and national education policies (Göl-Güven, 2016; Türk Sanayicileri ve İş İnsanları Derneği, 2019). Taking the findings of the OECD Report on social and emotional skills report (Ministry of National Education, 2021) into account, there is a need to develop strategies for SEL. Today, systematic attempts to integrate SEL into the education system are insufficient, but there are studies conducted within SEL to determine students' SEC at different levels of education (Abanoz et al., 2022; Demirci et al., 2022; Kılıç & Alıcı, 2022). In addition, studies on the definition, scope, and applications of SEL (Göl-Güven, 2022; Kurna, 2022; Verme, 2022) and studies on the determination and development of teachers' SEC (Kılıç & Alcı, 2022) are found in the literature. In reviewing the studies on the effectiveness of SEL curricula around the world, it was seen that the development of teachers' existing SEC and the importance of teacher training are emphasized (Davis et al., 2021; Lozano-Peña et al., 2022; Schonert-Reichl, 2017; Supriatna et al., 2022; Tran & Nguyen, 2021). SEL should become part of teacher education, contributing to developing these competencies during pre-service training through systematic learning and teaching experiences.

Within the scope of this study, it is considered essential to identify the social-emotional competencies that will form the basis for curriculum development research and course content design to improve the social-emotional competencies of teacher candidates. Considering the identified social-emotional competencies, the courses in teacher training programs can be reviewed for social-emotional competencies. It may be possible to integrate these competencies into the course content. The study may guide the development of competency-based course designs and curricula. Extra-curricular activities can also be reviewed and structured in the context of these competencies.

Because of these contributions to the field, this study aims to identify the needs of teacher candidates for social-emotional competencies from the perspectives of teacher educators and candidates. In this regard, the following research questions were sought to be answered:

- What are the views of academics on social-emotional competencies?
- What are the social-emotional competencies of teacher candidates?

Method

Research Design

This research is conducted with a convergent parallel design in which qualitative and quantitative data were collected and analyzed independently and simultaneously. Then the two findings were merged into an overall interpretation (Creswell & Clark, 2018). Equal importance was given to qualitative and quantitative methods within the scope of the research questions, and these data were analyzed separately. The data obtained from the academicians on social-emotional competencies and the data obtained from the teacher candidates were compared, and whether they confirmed each other was determined. Afterward, the data analyzed separately were interpreted together, and the results were reached. In the study, the first set of data consisted of interviews conducted with academicians regarding the social-emotional competencies of teacher candidates. In the second set of data, what social-emotional competencies the teacher candidates had were determined with a questionnaire. After these two sets of data were analyzed separately, the needs of teacher candidates for social-emotional competencies were summarized and presented in the final stage.

Study Group

For the qualitative part, the study group consisted of 15 academicians who volunteered to participate in this study and worked in five different departments at the faculties of education of five universities in Türkiye. The participants were determined by the convenient sampling method. Demographic information for the first study group is presented in Table 1.

Table 1

The Departments of the Academicians Participating in the Interviews

Interviewee	*Gender*	*Department*
A_1	Male	Computer Education and Instructional Technologies
A_2	Female	Elementary Education
A_3	Male	Computer Education and Instructional Technologies
A_4	Female	Computer Education and Instructional Technologies
A_5	Female	Mathematics and Science Education
A_6	Female	Elementary Education
A_7	Female	Mathematics and Science Education
A_8	Male	Mathematics and Science Education
A_9	Female	Mathematics and Science Education
A_{10}	Female	Turkish and Social Sciences Education
A_{11}	Female	Turkish and Social Sciences Education
A_{12}	Female	Educational Sciences
A_{13}	Male	Educational Sciences
A_{14}	Female	Educational Sciences
A_{15}	Male	Educational Sciences

For the quantitative part, the convenient sampling method was utilized in the first to fourth years in different departments at the faculties of education of four universities. The sample consisted of 161 teacher candidates who volunteered to participate in this study. Demographic information for the second study group is presented in Table 2.

Table 2

The Departments of the Teacher Candidates Responding to Scenario-Based Questionnaire

Department	*Gender*	
	Female (n)	*Male (n)*
Elementary Education	24	18
Mathematics and Science Education	15	13
Educational Sciences	18	14
Turkish and Social Sciences Education	15	12
Computer Education and Instructional Technologies	13	19

Data Collection Instruments

Two types of data collection instruments were used in this study. The first data collection tool was the interview questions form used in the interviews with academics to determine the social-emotional learning needs of teacher candidates. Firstly, a draft interview form was developed with questions to identify social-emotional learning needs. A curriculum development specialist and a measurement evaluation specialist trained in social-emotional learning were consulted on the interview questions in the draft form. It was recommended that new questions be added to the questions on the draft form. The semi-structured interview form questions were revised and finalized in line with the recommendations.

Examples of the interview questions are given below:

- What are the competencies related to SEL?
- Which SEC should teacher candidates have?
- Is the development of SEC supported in teacher training programs? In what way?
- Are there courses in current teacher training programs that support SEC? Can you give an example?

The second data collection tool is a questionnaire form consisting of scenario-based questions to identify the social-emotional competencies of teacher candidates. In order to identify the social-emotional competencies of teacher candidates, scenarios corresponding to five social-emotional competencies in the CASEL classification were written, along with sample behavioral statements related to these scenarios. The opinions of a curriculum development specialist and a measurement evaluation specialist in social-emotional learning were sought. The number of sample behavioral reactions related to the scenarios was reduced to four. After the expert opinions, the form was given its final version, and an online pre-application was administered to 20 students from years 1 to 4 in the educational sciences department. The statements that needed to be understood after the pretest were corrected.

A scenario example in the questionnaire is presented below:

Scenario. *In the new school year, you are assigned to a different group. You do not know any of the teachers in the group you have just joined, but you have been warned by others*

that the teachers you will be working with need to take the necessary responsibility for the work related to the group. Here are the actions you can take in this situation. Please rate the level of effectiveness of each action.

- Not communicating with relevant people.
- Trying to get more detailed information about the people.
- Considering opinions and acting cautiously.
- Communicating with the people in the group without considering warnings.

Data Collection Process

The ethical approval of the study was granted by the decision of the Ankara University Ethics Committee dated 12/02/2021 and issues 03/45. Due to the pandemic conditions, the data collection process was conducted through online platforms. In order to identify the SEC needs of teacher candidates, 20-minute interviews with academics were conducted via the Zoom application, and the interviews were recorded. Scenario-based questions developed to identify the social-emotional competencies of teacher candidates were shared with the teacher candidates via Google Forms. Before data collection, the purpose of the study was explained to the participants, who were asked to complete the consent forms.

Data Analysis

The data, including academicians' opinions on SEL competencies, were interpreted using descriptive content analysis. The opinions of academicians were grouped and coded under six categories (SEL competencies that the teacher candidates should have, compulsory/elective subjects to promote social-emotional competencies, extra-curricular activities to develop social-emotional learning competencies, SEL competencies to be included in the teacher training programs, instructional techniques to be considered in a curriculum, measurement, and assessment tools to be considered in the curriculum designed). Codes were created under the categories according to the answers given by the academicians to the open-ended questions after the online interviews, and the opinions of the academicians about each question were tabulated under more than one code. In the analysis of the qualitative data, the data of the interviews were read, and member checking was carried out by asking the participants in the study about the accuracy of the comments and results. The analysis ensured that all aspects of the analysis were reviewed by a measurement and evaluation specialist with peer debriefing. In addition, data triangulation, using multiple data sources in research, was used in this study. The data from the interviews with the academicians were compared and checked with the data from the questionnaires of the teacher candidates, and they were interpreted together.

The study used a questionnaire to assess the social-emotional competencies of teacher candidates based on 17 scenarios and four behavioral examples within each scenario. Teacher candidates were asked to rank the four behaviors in each scenario from most effective to least effective. With the suggestions of two psychologists and two psychological counselors who are social and emotional learning experts, the behaviors in each scenario were scored from 0 to 3, from the most to the least effective. The highest score that can be obtained from each scenario is 3, and the lowest score is 0. The scores obtained by the teacher candidates from the scenarios and their total scores were calculated. The descriptive statistics obtained according to the total scores are presented.

Results

Academicians' Views about the SEC

The findings on academicians' views on social-emotional competencies were examined. The results of the academicians' views on the competencies they defined in the context of SEL and the social-emotional competencies that teacher candidates should have are presented in Table 3.

Table 3

The Social-Emotional Competencies Defined by Academicians

Code	*Main competencies related to SEL (f)*	*SEC that teacher candidates should have (f)*
Empathy	14	13
Self-awareness	14	10
Communication	13	13
Decision-making	13	6
Collaboration	12	6
Sense of responsibility	12	8
Problem-solving	11	10
Entrepreneurship	10	7
Critical thinking	9	7
Leadership	8	-
Productivity	6	-
Self-management	2	8

The competencies that were frequently emphasized were self-awareness (f = 14), empathy (f = 14), communication (f = 13), decision-making (f = 13), collaboration (f = 12), sense of responsibility (f =12), and problem-solving (f =11). In addition to these competencies, competencies such as creativity (f = 11), entrepreneurship (f = 10), critical thinking (f = 9), leadership (f = 8), and productivity (f = 6) were mentioned.

On the other hand, when the academicians' views on the competencies that teacher candidates should have in SEL were examined, it was found that the competencies which are frequently mentioned were communication (f = 13), empathy (f = 13), self-awareness (f = 10), and problem-solving (f = 10). Creativity, entrepreneurship, productivity, and leadership, defined by academicians as social-emotional competencies, are not among the competencies that teacher candidates should have.

The academicians' views on the elective or compulsory courses implemented to support SEL in the current teacher training programs were indicated as social skills training (f = 3), human relations and communication (f = 3), drama in education (f = 2), and effective communication (f = 2). Academicians' views on social-emotional competencies courses in teacher training programs are presented in Table 4.

Table 4

Courses on Social-Emotional Competencies in Teacher Training Programs

Code	*f*	*Sample statements from the participants*
Social skills training	3	The elective social skills training in preschool education contributes to this area. A_6
Human relations and communication	3	In the second year, for Psychological Counselling and Guidance, we have human relations and communication lessons. A_{14}
Effective communication	2	There are "Social Service Practices" and "Effective Communication" courses among the general culture courses. A_{11} I am a biology teacher. There is a course on effective communication in our curriculum. A_{10}
Drama in education	2	I am a biology teacher. Many classes I teach here have this course, like drama, play, and physical education lessons. These lessons provide students to express themselves confidently. A_{10}
Practices of community service	1	Students can experience these skills through "Practices of Community Service" one of the general knowledge courses. A_{11}
Social psychology	1	"Social Psychology." A_7
Morals and ethics in education	1	"Morals and Ethics in Education" A_4
Economy and entrepreneurship	1	"Economy and Entrepreneurship" A_5
Critical and analytical thinking	1	I think the "Critical and Analytical Thinking" lesson can help students develop problem-solving skills and look at things from different perspectives. A_6

The academicians' views on extra-curricular activities to develop social-emotional learning competencies of teacher candidates were indicated as student club activities (f = 10) and social responsibility projects (f = 4). The results of the academicians' views on extra-curricular activities to develop social-emotional competencies in current teacher training programs are presented in Table 5.

Table 5

Extra-curricular Activities to Develop Social-Emotional Competencies

Code	*f*	*Sample statements from the participants*
Student club activities	10	Student clubs include creative drama in education, folk dance, theatre club, psychological counseling, guidance club, etc. A_2 Student clubs in which students find opportunities to use and develop their various skills exist. A_{10} There are creative drama, theatre, and art clubs that help students to develop self-awareness and social awareness competencies. A_8 Well-designed drama activities are important for students to develop self-expression competencies. A_5
Social responsibility initiatives	4	Students organize a fundraiser or kermes and plan campaigns to raise awareness of environmental issues. A_{11} Activities are organized for socially disadvantaged groups. A_6

Table 5. (Cont.)

Seminars	1	Seminars are planned with field experts for effective communication skills and personal development. A_4
Traveling	1	Field trips are organized in the biology education department (such as trips to Mount Ida). A_3
Extra-curricular activities	1	Empathy, problem-solving, and decision-making competencies are developed through discussions and debates on current global issues. A_{12}
PCG meetings	1	Students' social-emotional competencies are supported in socio-drama, self-awareness, self-management, and conflict management. A_8

The results of the academicians' views on the competencies to be included in the teacher training programs are presented in Table 6.

Table 6

Competencies to be Included in Teacher Training Programs

Code	*f*
Self-awareness	12
Communication	10
Empathy	10
Self-management	10
Problem-solving	5
Decision-making	5
Sense of responsibility	5
Collaboration	4
Critical thinking	2
Entrepreneurship	1

The academicians' views on the competencies to be included in the teacher training programs are listed as self-awareness (*f* = 12), self-management (*f* = 10), empathy (*f* = 10), and communication (*f* = 10).

The results of academicians' views on instructional techniques that can be used to develop social-emotional competencies are presented in Table 7.

Table 7

Instructional Techniques That Can be Used to Develop SEC

Code	*f*
Group discussion	13
Brainstorming	13
Opinion pool	12
Drama	12
Speaking circle	12
Case study	10
Visual interpretation	10
Six thinking hats	10
Station	8
Text analysis	8

The academicians' views on instructional techniques that can be used for the development of social-emotional competencies were group discussion (*f* = 13), brainstorming (*f* = 13), speaking circle (*f* = 12), opinion pool (*f* = 12), drama (*f* = 12), case study (*f* = 10), and six thinking hats (*f* = 10) methods and techniques.

The results of the academicians' views on the measurement and assessment tools to be used for assessing social-emotional competencies are presented in Table 8.

Table 8

Measurement and Evaluation Tools to be Used to Assess SEC

Code	*f*
Reflection paper	14
Observation form	13
Self-evaluation form	13
Interview form	11
Peer evaluation form	10
Attitude scale	10
Questionnaire	8
Checklist	3

When the views of the academicians on the measurement and assessment tools to be used for the evaluation of social-emotional competencies were examined, reflection papers (*f* = 14), observation form (*f* = 13), self-evaluation form (*f* = 13), interview form (*f* = 11), peer evaluation form (*f* = 10), and attitude scale (*f* = 10) were found to be frequently mentioned as assessment tools.

Social, Emotional Competencies of Teacher Candidates

As part of the second question of the research, the answers given by the teacher candidates to the scenarios in the questionnaire were scored, and the total scores were calculated (the highest score that can be obtained in each scenario is 3, and the lowest score is 0). Table 9 shows that the mean, mode, and median total scores for teacher candidates' needs were very close. The score difference (range) between the candidate with the highest score and the candidate with the lowest score was 71. As the results indicated, the values ranged from 140 to 160. The descriptive statistics resulting from the total scores are presented in Table 9.

Table 9

The Descriptive Statistics of Total Scores

Mean	*Mode*	*Median*	*Maximum*	*Minimum*	*Variance*	*Standard Deviation*
146,7	147	147	171	100	135.52	11.64

Of the mean scores of teacher candidates for social-emotional competencies, the lowest mean scores belonged to the skills of "self-awareness" and "responsible decision-making," and the highest mean score belonged to "relationship skills," which were examined in four scenarios. The mean scores indicate that teacher candidates' self-awareness and responsible decision-making competencies need further development. The mean scores of teacher candidates in five different areas of social-emotional skills are presented in Table 10.

Table 10

Mean Scores of Teacher Candidates in Social-Emotional Competencies

Social-emotional competence	*Related scenarios*	*Mean*
Self-awareness	S_4, S_{14}	1.88
Self-management	S_2, S_{17}	2.24
Social awareness	S_1, S_3, S_7, S_8, S_9, S_{12}	2.15
Relationship skills	S_6, S_{11}, S_{13}, S_{16}	2.38
Responsible decision making	S_5, S_{10}, S_{15}	1.72

Discussion, Conclusion, and Implications

According to the first research question, academicians' views on social-emotional competencies are examined, and the frequently emphasized competencies are self-awareness, empathy, communication, decision-making, collaboration, sense of responsibility, and problem-solving.

Social-emotional competencies are the characteristics necessary for individuals to adapt to social life, understand and manage their emotions, and express themselves based on these characteristics (Elias et al., 1997). By using these skills, individuals cope with situations that are necessary for their development, such as learning, building relationships, and solving daily problems. To do this, they need to be aware of their characteristics, control their impulses, work cooperatively, and be sensitive to others. Therefore, social and emotional skills are a framework encompassing a wide range of skills (Gueldner et al., 2020).

When academicians' views on the competencies that teacher candidates should have in SEL are examined, the most frequently mentioned competencies are communication, empathy, self-awareness, and problem-solving. Ministry of National Education (2017), under the general competencies of the teaching profession, defined the general attitudes and values of the teaching profession. Under the attitudes and values, national, spiritual, and universal values, approach to students, communication, and cooperation, personal and professional development competencies, and social-emotional competencies that teacher candidates should have are emphasized. Looking at the indicators defined under these competencies, the academics' views on the competencies that teacher candidates should own are parallel to the general competencies of the teaching profession. In this context, the course content in teacher training programs should be enriched to improve the social-emotional competencies of teacher candidates.

Similar to the views of academicians on social-emotional competencies, Khan et al. (2017) stated that most students learn well from teachers who have good communication skills in internal and external relationships and stated that communication skills are among the crucial skills teacher candidates should have. Loss (2000) supported that good communication skills strengthen the student-teacher relationship by improving the understanding between teachers and students. In addition, Cohort Nominate (2017) concluded that only fifty percent of teaching is about knowledge, and fifty percent is about interpersonal or communication skills, also stating that a teacher should have good communication skills rather than high-quality knowledge. Teachers in frequent contact with many stakeholders should consider how to

express themselves and correctly convey their feelings and thoughts as an essential issue. The social-emotional development of individuals should be addressed together with their professional development.

In parallel with the views of the academicians interviewed in this study, researchers and educators in educational psychology and related fields also identify empathy as a critical emotion for teaching, learning, and prosocial development, noting that empathy is often overlooked in teaching, especially in colleges and universities (Hoffman, 2000; Ormrod, 2000). Empathy is seen as an integral part of the teacher's behavior in creating positive relationships and an altruistic and conducive atmosphere for learning in educational settings (Whitford & Emerson, 2018). Woolfolk (1998) believes that it is vital for teachers to use empathic listening in the classroom, which he defines as hearing the intentions and emotions behind what others are saying and reflecting on them through paraphrasing. According to Makoelle (2019), teacher empathy tends to lead teachers to be reflective, act objectively, treat students fairly, and reduce biases. Therefore, the role of the teachers should be remembered in creating a classroom atmosphere free from biases and discrimination and respectful of cultural and individual differences. Teachers with advanced empathy competencies will encourage empathy in pupils. For this reason, it is necessary to draw attention to different perspectives by conducting studies on the development of empathy competencies in teacher candidates through scenarios and problem situations in everyday life.

Another social-emotional competence that the majority of academics believe teacher candidates should have is self-awareness. In the area of teachers' social-emotional competence, studies have pointed to the importance of self-awareness in the classroom (Jennings & Frank, 2015; Payton et al., 2008) and emphasized that a clear sense of self is necessary to develop an understanding of others. Lantieri (2001) argued that teacher training programs focus primarily on content delivery and neglect the development of teacher candidates' self-awareness. Baum and King (2006) argued that self-awareness helps teachers become aware of the impact of their emotions and behaviors on their students and helps teachers make informed decisions about their teaching practices. From the professional to the social world, from personal to social goals, a person can achieve success by becoming aware of himself and who he is. One of the most significant characteristics of leaders is their ability to healthily assess their strengths and weaknesses. A teacher with self-awareness will succeed by evaluating himself and his team in this way. Teachers should therefore be allowed to evaluate themselves objectively, with activities to raise awareness of feelings and debates that enable teachers to respect different perspectives and organize their thoughts.

It is seen that the views of academicians on the competencies that they define in the context of SEL and their views of the social-emotional competencies that teacher candidates should have to differ. The creativity, entrepreneurship, productivity, and leadership competencies that the academicians defined within the scope of social-emotional competencies are outside the competencies that teacher candidates should possess. These views of the academicians demonstrate that teacher candidates are expected to have only some competencies within the scope of social-emotional competencies. Cherniss (2012) stated that there are curricula that include different competencies for different professionals for the development of social-emotional competencies in business life. Some examples include curricula for competencies such as communication and empathy for doctors and coping with conflict, stress management,

and self-management for police officers. In addition, there are programs for motivation and self-confidence competencies for developing social-emotional competencies for individuals who do not have a job. In this framework, it becomes essential to focus on the development of social-emotional competencies in line with the priority needs of the relevant professionals beyond the development of the same and all social-emotional competencies for every professional group. Thus, the definition and scope of the teaching profession should be considered while conducting studies on the social-emotional competencies of teacher candidates. Considering the target audience and professional problems teachers face, priority should be given to developing specific social-emotional competencies.

In the study of Yoke and Panatik (2015) on teachers, the relationship between all dimensions of emotional intelligence and job performance was found to be significant. The study Shamsuddin and Rahman (2014) conducted using the data obtained from call center employees found emotional intelligence to affect job performance. In this study, the relationship of other dimensions with job performance was found to be significant, except for self-evaluation. According to Wong and Law (2017), the dimension of the use of emotions is related to the ability of individuals to use their emotions by directing them to constructive activities and personal performance, and the need for different professionals is different.

Academicians' views about courses on social-emotional competencies in teacher training programs indicated that the academicians needed sufficient knowledge about the elective or compulsory courses related to SEC. Academicians could give a limited number of examples for the courses included in teacher training programs. Allbright et al. state (2019) that schools can promote engagement, relationships, and SEL-related skills through elective courses and extra-curricular activities. Elective courses, such as music, physical education, or other classes, provide opportunities to model good communication and group interaction and to form trusting relationships between adults and students. Student clubs also promote kindness, compassion, and positive behavior. When examining academicians' views on extra-curricular activities to improve teacher candidates' social-emotional learning skills, student clubs such as theatre, drama, and art activities, as well as social responsibility initiatives, are at the top of these activities, with a few examples of the activities presented. In line with these results, Schiepe-Tiska et al. stated (2021) that teachers in schools teach students to express their thoughts by gaining self-confidence through painting clubs and painting exhibitions. They also stated that workshops that develop social-emotional competencies, such as cookery workshops, develop students' self-awareness and self-management skills.

The views of the academicians about the teaching techniques that can be used in the development of social-emotional competencies are listed as techniques such as inquiry-based group discussions, opinion pools, station techniques, conversation groups, and drama studies. These activities, which encourage different thinking and enable students to express their feelings and thoughts freely, are essential in developing social-emotional competencies. Uşaklı (2018) defined the drama method as a social interaction involving contact, communication, and negotiation of meaning within a group. It further elaborates that it supports social-emotional learning with contributions such as promoting independent thinking and cooperation, creating social awareness, and adopting the perspective of others.

When the academicians' views on the measurement and evaluation tools to be used for evaluating social-emotional competencies are examined, measurement tools such as reflection

papers, self-evaluation forms, checklists that allow students to assess their competencies, and measurement and assessment tools that allow students to be assessed by others, such as observation forms and peer forms are suggested. Self-assessment and reflection papers are essential processes for self-regulating skills, and they imply becoming aware of the objectives of the task and monitoring students' progress (Panadero & Alonso-Tapia, 2013). It is assumed that these tools will contribute to the development of competencies such as self-awareness, self-control, ethics, respect for other views, and the responsibility expected of students, and they will determine social-emotional competencies.

Within the scope of the second research question, the total scores obtained from the scenario-based questionnaire aimed at determining the social-emotional competencies of teacher candidates were interpreted. Findings are in parallel with the findings obtained from academicians within the scope of the research. Academicians listed communication, empathy, self-awareness, problem-solving, and decision-making skills as social-emotional competencies that teacher candidates should have. According to the academicians, self-awareness and responsible decision-making competencies, on which teacher candidates had low scores, are the competencies to be possessed in the first place.

Gold and Roth (1993) defined self-awareness as getting in touch with emotions and behaviors. They also stated that increased self-awareness allows us to more accurately understand how students affect our emotional processes and behaviors and how we affect students. It highlights that self-awareness is essential for teachers working with students with emotional and behavioral disorders.

Jennings and Greenberg (2009) also drew attention to the importance of self-awareness and self-management competencies. They stated that these competencies could provide teachers with essential skills in dealing with emotional demands in the teaching process. In addition, Dung and Zsolnai (2022) stated that teachers with high self-awareness have high social-emotional competencies. They further explained that these teachers are fully aware of their strengths and weaknesses in managing their emotions, and they develop strategies to determine and decide how best to use their emotions to motivate students and promote learning.

On the other hand, teacher candidates score high on relationship skills, including communication skills, and are seen as one of the critical social-emotional competencies that a teacher should own. Considering the opinions obtained from academicians within the scope of the research, communication skills are among the first competencies that teacher candidates should have.

Göksoy (2014) stated that teacher candidates are aware of the necessity and importance of communication in his research, which determines the communication skills of teacher candidates based on their perceptions. He also asserted that teacher candidates know that the prerequisite for being a successful and social individual and professional is to be healthy and communicate well with others.

In parallel with the findings of the research, Yavuz and Güzel (2020) revealed that while the communication skills of the teacher candidates were at a high level, their social problem-solving skills were at a medium level in their study that aimed to determine the level and direction of the relationship between the communication skills of Turkish education teacher

candidates and their social problem-solving skills. Yılmaz stated that (2011) teachers with low communication skills will have low professional performance and personal competencies. In a study conducted at Hanoi Pedagogical University, it was demonstrated that very few teachers trusted their communication and emotion regulation skills during their classroom performances, and it was reported that they could adapt to constantly changing teaching conditions and situations (Dung & Zsolnai, 2022). At this point, they drew attention to the importance of communication skills for teachers.

Communication skills include researching, investigating, and combining possible perspectives and definitions about the event that the person is faced with. Someone who has gained this skill can have the ability to make sense of different perspectives instead of a single point of view in the face of a warning, criticism, or complaint (Özer, 2008). In addition, individuals with improved communication skills can cope with the problems they encounter healthily, develop satisfying relationships, and be more successful in their social lives (Cüceloğlu, 2004). These views point out that communication skills include empathy and problem-solving competencies and draw attention to the intertwining of social-emotional competencies. When we look at the literature, social-emotional competencies are not seen as separate structures from each other, but the effect of these competencies on each other is predicted. Kesicioğlu and Güven (2014) examined the relationship between preschool teacher candidates' self-efficacy levels and their problem-solving, empathy, and communication skills. Their problem-solving, communication, and empathy skills can predict teacher candidates' self-efficacy.

To keep up with the new world and the changes it demands, developing social-emotional competencies of teacher candidates is a crucial issue in teacher training. Social-emotional competencies should be integrated into the course content in teacher training programs, and professional development and social-emotional development should be evaluated as a whole. It should be started with the development of social-emotional competencies of the individual, such as self-awareness and self-regulation. Then the development of competencies for relations with others should be supported. Characters, events, and situations that may be encountered in daily life that the teacher candidates are familiar with should be varied; examples should be diversified, and they should be enabled to think about problem situations, express their opinions, empathize with characters, and criticize events. The development of empathy for situations in the triangle of parent-children-school management should be supported. Compulsory and elective courses and extra-curricular activities for developing social-emotional competencies should be included. Social responsibility projects should provide opportunities for the development of teacher candidates' social and emotional competencies. These studies should not be limited to teacher training programs only. Supporting the social-emotional development of teacher candidates in the context of daily life through their participation in voluntary projects should be adopted. Systematic and holistic interventions are needed to train teacher candidates, who are responsible for raising future generations, as individuals with strong social-emotional competencies. Beyond teacher training programs, social-emotional learning should be included in government policies. The development of social-emotional competencies of individuals from the beginning of the first school years should be given importance. Teachers' social and emotional competencies should be followed throughout their professional life, and guidance support should be given.

The information obtained from this study will provide a scope for social-emotional competencies to be addressed in teacher training programs and offer suggestions for developing social-emotional competencies for future studies. It also draws attention to the necessity of raising strong individuals in terms of social-emotional competencies for the changing conditions of the new world.

Author Contributions

This study is derived from the PhD dissertation of the first author. The second author is the supervisor of the dissertation. The authors contributed equally to all stages of this paper.

References

Aldrup, K., Carstensen, B., Köller, M. M., & Klusmann, U. (2020). Measuring teachers' social-emotional competence: Developing and validating a situational judgment test. *Frontiers in Psychology, 11,* 892. https://doi: 0.3389/fpsyg.2020.00892

Allbright, T. N., Marsh, J. A., Kennedy, K. E., Hough, H. J., & McKibben, S. (2019). Social-emotional learning practices: Insights from outlier schools. *Journal of Research in Innovative Teaching & Learning, 12*(1), 35–52.

Abanoz, T., Ogelman, H. G., & Saraç, S. (2022). Küçük çocuklarda cinsiyete göre sosyal ve duygusal yeterlik. *Eğitim ve Öğretim Araştırmaları Dergisi, 11*(3), 95-104.

Baum, A. C., & King, M. A. (2006). Creating a climate of self-awareness in early childhood teacher preparation programs. *Early Childhood Education Journal, 33*(4), 217–222. https://doi.org/10.1007/s10643-005-0050-2

Berg, M., Talvio, M., Hietajärvi, L., Benítez, I., Cavioni, V., Conte, E., Cuadrado, F., Ferreira, M., Košir, M., Martinsone, B., Ornaghi, V., Raudiene, I., Šukyte, D., Talić, S., & Lonka, K. (2021). The development of teachers and their student's social and emotional learning during the "learning to project"-training course in five European countries. *Frontiers in Psychology,* 12. https://doi.org/10.3389/fpsyg.2021.705336

Boyatzis, R. E., Goleman, D., & Rhee, K. (2000). Clustering competence in emotional intelligence: insights from the emotional competence inventory (ECI). *Handbook of Emotional Intelligence, 99*(6), 343–362.

Brackett, M. A., & Caruso, D. R. (2007). *Emotional literacy for educators. SEL Media*.

Brotheridge, C. M., & Grandey, A. A. (2002). Emotional labor and burnout: Comparing two perspectives of people work. *Journal of Vocational Behavior, 60*(1), 17–39.

Buchanan, R., Gueldner, B. A., Tran, O. K. & Merrell, K. W. (2009). Social and emotional learning in classrooms: A survey of teachers' knowledge, perceptions, and practices. *Journal of Applied School Psychology, 25*(2), 187- 203.

Collaborative for Academic, Social, and Emotional Learning. (2022a). *COVID-19 and remote learning*.https://casel.org/fundamentals-of-sel/how-does-sel-support-your priorities/covid-19-and-remote-learning

Collaborative for Academic, Social, and Emotional Learning. (2022b). *What is the CASEL framework?* https://casel.org/fundamentals-of-sel/what-is-the- case-framework

Cherniss, C. (2012). Social and emotional competence in the workplace. In R. Bar-On & J. D. A. Parker (Eds.), *The Handbook of emotional intelligence: Theory, development, assessment, and Application at Home, school, and in the workplace* (pp. 433–458). Jossey-Bass.

Cohen, J., & Sandy, S. (2003). Perspectives in social-emotional education: Theoretical foundations and new evidence-based developments in current practice*. Perspectives in Education, 21*(4), 41-54.

Cohort Nominate. (2017). *Communication skill for teachers: An overview.* http://www.communicationskillsworld.com/communicationskillsforteachers.html.

Collie, R. J., Martin, A. J., & Frydenberg, E. (2017). Social and emotional learning: A brief overview and issues relevant to Australia and the Asia-Pacific. *Social and Emotional Learning in Australia and the Asia-Pacific,* 1-13.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research*, (3rd ed.). Sage.

Cüceloğlu, D. (2004). *İnsan ve davranışı* (7th ed.). Remzi yayınevi.

Damodaran, D., Thayyullathil, R. H., Tom, M., & Sivadas, R. K. (2022). Redefining learning through social-emotional learning: A review. *International Journal of Health Sciences*, *6*, 3008-3019.

Davis, K., Hammett, R., Seagraves-Robinson, T., Christian, D.D., & Low, G. (2021). Social-emotional learning: a framework for practice and pedagogy. *AI Practitioner*, *23*(4), 92-101.

Denham, S. A., & Burton, R. (1996). A social-emotional intervention for at-risk 4-year-olds. *Journal of School Psychology, 34*(3), 225-245.

Denham, S. A., von Salisch, M., Olthof, T., Kochanoff, A., & Caverly, S. (2002). Emotional and social development in childhood. In K. S. Peter & H. H. Craig (Eds.), *Blackwell handbook of childhood social development.* Blackwell Publishers.

Demirci, Z. A., Bıçakçı, M. Y., & Uysal, B. (2022). Investigation of the effect of social-emotional learning on peer relationships of adolescents. *Journal of Education and Future*, (21), 1-13.

Domitrovich, C., Cortes, R., & Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized trial of the preschool "PATHS" curriculum. *The Journal of Primary Prevention, 28*(2), 67-91.

Dung, D. T., & Zsolnai, A. (2022). Teachers' social and emotional competence: A new approach to teacher education in Vietnam. *Hungarian Educational Research Journal, 12*(2), 131-144.

Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., Shriver, T. P. (1997). *Promoting social and emotional learning: Guidelines for educators*. Association for Supervision and Curriculum Development.

Gold, Y., & Roth, R. A. (1993). *Teachers managing stress and preventing burnout*. Routledge.

Goleman, D. (1995). *Emotional intelligence.* Bantam Books.

Göksoy, S. (2014). Teacher candidates' (pedagogical formation students') communication skills. *Creative Education, 5*(14), 1334-1340.

Göl-Güven, M. (2016). The Lions Quest program in Turkey: Teachers' views and classroom practices. *International Journal of Emotional Education*, *8*(2), 60-69.

Göl-Güven, M. (2022). Sosyal ve duygusal öğrenmeye dair: tanımı, kuramsal çerçevesi ve uygulamaları. *Alternatif Eğitim Dergisi, 7*(15)*,* 9-18.

Greenberg, M. T., Kusche, C. A., Cook, E. T., & Quamma, J. P. (1995). Promoting emotional competence in school-aged children: The effects of the PATHS curriculum. *Development and Psychopathology, 7*(1), 117–136. https://doi: 10.1017/S0954579400006374

Gueldner, B. A., Feuerborn, L. L., & Merrell, K. W. (2020). *Social and emotional learning in the classroom: Promoting mental health and academic success.* Guilford Publications.

Halberstadt, A., Dunsmore, J., & Denham, S. A. (2001). Spinning the pinwheel, together: More thoughts on affective social competence. *Social Development,* 10, 130–136.

Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice.* Cambridge University Press.

Humphrey, N., Lendrum, A., Wigelsworth, M., & Greenberg, M. T. (Eds.). (2020). *Social and emotional learning.* Routledge.

Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to child and classroom outcomes. *Review of Educational Research, 79*(1), 491–525. https://doi: 10.3102/0034654308325693

Jennings, P. A., & Frank, J. L. (2015). Inservice preparation for educators. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 422–437). Guilford Publications.

Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013). Educators' social and emotional skills are vital to learning. *Phi Delta Kappan, 94*(8), 62-65.

Jones, S. M., & Doolittle, E. J. (2017). Social and emotional learning: introducing the issue. *The Future of Children, 27*(1), 3-11.

Jones, S. M., & Bouffard, S. M. (2012). Social and emotional learning in schools: from programs to strategies. Social policy report. *Society for Research in Child Development, 26*(4), 3-22.

Joseph, D. L., Jin, J., Newman, D. A., & O'Boyle, E. H. (2015). Why does self-reported emotional intelligence predict job performance? A meta-analytic investigation of mixed EI. *Journal of Applied Psychology, 100*(2), 298.

Kesicioğlu, O. S., & Güven, G. (2014). Okul öncesi öğretmen adaylarının özyeterlik düzeyleri ile problem çözme, empati ve iletişim becerileri arasındaki ilişkinin incelenmesi. *Electronic Turkish Studies, 9*(5), 1372-1383.

Khan, A., Khan, S., Zia-Ul-Islam, S., & Khan, M. (2017). Communication skills of a teacher and its role in the development of the student's academic success. *Journal of Education and Practice, 8*(1), 18-21.

Kılıç, C., & Alcı, B. (2022). Validity and reliability study of Turkish form of social-emotional learning questionnaire. *International Journal of Educational Research, 13*(1), 38-50.

Kowal, B., Włodarz, D., Brzychczy, E., & Klepka, A. (2022). Analysis of employees' competencies in the context of Industry 4.0. *Energies, 15*(19), 7142.

Kress, G. (2000). A curriculum for the future. *Cambridge Journal of Education*, *30*(1), 133-145.

Kurna, Z. B. (2022). Sosyal ve duygusal öğrenme alanında çeşitli yaklaşımlar ve tanımlamalar. *Alternatif Eğitim Dergisi, 7*(15), 19-24.

Kyllonen, P. C. (2013). Soft skills for the workplace. *Change: The Magazine of Higher Learning*, *45*(6), 16-23.

Lantieri, L. (2001). *Schools with Spirit: Nurturing the inner lives of children and teachers.* Beacon Press.

Lettau, J. (2021). The Impact of Children's Academic Competencies and School Grades on their Life Satisfaction: What Really Matters? *Child Indicators Research*, *14*(6), 2171-2195.

Loss, J. (2000). The communications contract. *The Internal Auditor, 57*(6), 88.

Lozano-Peña, G. M., Sáez-Delgado, F. M., & López-Angulo, Y. (2022). Social-emotional competence in primary and secondary school teachers: a systematic review. *Páginas de Educación*, *15*(1), 1-22.

Makoelle, T. M. (2019). Teacher empathy: a prerequisite for an inclusive classroom. *Encyclopedia of teacher education,* 1-6.

Matthews, G., Zeidner, M., & Roberts, R. D. (2004). *Emotional intelligence: Science and myth*. MIT Press.

Mayer, J. D., Roberts R. D., & Barsade S. G. (2008). Human abilities: emotional intelligence. *Annual Review of Psychology,* 59, 507–536. https://doi: 10.1146/annurev.psych.59.103006.093646

Mayer, J. D., & Salovey P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Ed.), *Emotional development and emotional intelligence: Educational implications* (pp. 3–34). Basic Books.

McCluskey, G. (2017). Closing the attainment gap in Scottish schools: three challenges in an unequal society. *Education, Citizenship and Social Justice*, *12*(1), 24–35. https:// doi: 10.1177/1746197916683468

Merritt, E. G., Wanless, S. B., Rimm-Kaufman, S., Cameron, C. E., & Peugh, J. L. (2012). The contribution of teachers' emotional support to children's social behaviors and self-regulatory skills in first grade. *School Psychology Review, 41*, 141–159.

Ministry of National Education. (2017). *General competencies for the teaching profession.* https://oygm.meb.gov.tr/meb_iys_dosyalar/2018_06/29111119_TeachersGeneralCompetencies.pdf

Ministry of National Education. (2021). *OECD Survey on social-emotional skills.* https://www.meb.gov.tr/meb_iys_dosyalar/2021_09/07170836_No19_OECD_Sosyal_ve_Duygusal_Beceriler_Arastirmasi.pdf

Mori, L. (2022). Synthesizing a Zest for Life with Social-Emotional Learning in the Educational System in Japan. *International Journal of Educational Reform,* 1-19. https://doi: 10.1177/10567879221129623

Nangle, D. W., Grover, R. L., Holleb, L. J., Cassano, M., & Fales, J. (2010). Defining competence and identifying target skills. *In practitioner's guide to empirically based measures of social skills* (pp. 3-19). Springer.

Omasta, M., Graham, M., Milling, S. L., Murray, E., Jensen, A. P., & Siebert, J. J. (2021). Social, emotional learning and the national core arts standards: A cross-disciplinary analysis of policy and practices. *Arts Education Policy Review, 122*(3), 158-170.

Ormrod, J. E. (2000). *Educational psychology: developing learners* (3rd ed.). Pearson Merrill Prentice Hall.

Özer, A. K. (2008). *İletişimsizlik becerisi* (12th ed.). Sistem Yayıncılık.

Panadero, E., & Alonso-Tapia, J. (2013). Self-assessment: Theoretical and practical connotations. When it happens, how is it acquired, and what to do to develop it in our students? *Electronic Journal of Research in Educational Psychology, 11*(2), 551–576. https://doi: 10.14204/ejrep.30.12200

Paolini, A. C. (2020). Social-emotional learning: the key to career readiness. *Anatolian Journal of Education*, *5*(1), 125-134.

Park, M. H., Riley, J. G., & Branch, J. M. (2020). Developing self-awareness using mindfulness meditation with pre-service teachers: reflections on practice. *Journal of Early Childhood Teacher Education, 41*(2), 183-196.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Collaborative for Academic, Social, and Emotional Learning. http://www.lpfch.org/sel/casel-narrative.pdf

Reicher, H. (2010). Building inclusive education on social and emotional learning: Challenges and perspectives–a review. *International Journal of Inclusive Education, 14(3), 213-246.*

Richardson, B. G., & Shupe, M. J. (2003). The importance of teacher self-awareness in working with students with emotional and behavioral disorders. *Teaching Exceptional Children, 36,* 8–13.

Rode, J. C., Arthaud-Day, M. L., Mooney, C. H., Near, J. P., Baldwin, T. T., Bommer, W. H., & Rubin, R. S. (2005). Life satisfaction and student performance. *Academy of Management Learning & Education*, *4*(4), 421-433.

Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher-student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research, 81*(4), 493–529. https://doi: 10.3102/0034654311421793

Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*(1), 111-135.

Schiepe-Tiska, A., Dzhaparkulova, A., & Ziernwald, L. (2021). A mixed-methods approach to investigating social and emotional learning at schools: Teachers' familiarity, beliefs, training, and perceived school culture. *Frontiers in Psychology, 12*, 518634.

Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The future of children,* 137-155.

Schonert-Reichl, K. A. (2019). Advancements in the landscape of social and emotional learning and emerging topics are on the horizon. *Educational Psychologist, 54*(3), 222-232.

Selvi, K. (2010). Teachers' competencies. *Cultura. International Journal of Philosophy Culture and Axiology, (7)1, 167-175.*

Shamsuddin, N., & Rahman, R. A. (2014). The relationship between emotional intelligence and job performance of call center agents. *Procedia-Social and Behavioral Sciences, 129,* 75-81.

Supriatna, E., Nur, E. V. A., & Andayani, S. (2022). How is the description of the teacher's social interaction on social-emotional learning? *Psychology Research on Education and Social Sciences, 3*(1), 19-24.

Tabbodi, M., Rahgozar, H., & Makki Abadi, M. M. (2015). The relationship between happiness and academic achievements. *European Online Journal of Natural and Social Sciences: Proceedings*, *4*(1), 241-246.

Tran, T. N., & Nguyen, T. D. H. (2021). Literature review of social-emotional competence: approach to professional standards of preschool teachers. *In Proceedings of 1st Hanoi Forum on Pedagogical and Educational Sciences,* 550-562.

Türk Sanayicileri ve İş İnsanları Derneği (2019). *Social and emotional learning skills: the key to work and life competencies on the verge of the new industrial revolution.* https://tusiad.org/tr/yayinlar/raporlar/item/10450-sosyal-ve-duygusal-ogrenme-becerileri.

Uşaklı, H. (2018). Drama-based social, emotional learning. *Global Research in Higher Education, 1*(1),1-16. https://doi: 10.22158/he.v1n1p1

Verma, S. K. (2022). KODA sosyal-duygusal öğrenme programı. *Alternatif Eğitim Dergisi, 7(*15), 69.

Weinert, F. E. (2001). Concept of competence: A conceptual clarification. In D. S. Rychen & L. H. Salganik (Ed.), *Defining and selecting key competencies* (pp. 45–65). Hogrefe & Huber Publishers.

Weissberg, R. P., Durlak, J. A., Domitrovich, C. E., & Gullotta, T. P. (Ed.). (2015). Social and emotional learning: Past, present, and future. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and practice* (pp. 3–19). Guilford Publications.

Whitford, D. K., & Emerson, A. M. (2018). Empathy intervention to reduce implicit Bias in pre-service teachers. *Psychological Reports, 0*(0), 1–19.

Woolfolk, A. (1998). *Educational psychology* (6th ed.). Allyn Bacon.

Williford, A. P., & Sanger Wolcott, C. (2015). SEL and student-teacher relationships. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg & T. P. Gullotta (Eds.), *Handbook of social and emotional learning: Research and Practice*, (pp. 229-243). Guilford Publications.

Winthrop, R., & McGivney, E. (2016). *Skills for a changing world: Advancing quality learning for vibrant societies.* Brookings Institution.

Wong, C. S., & Law, K. S. (2017). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *In Leadership Perspectives*, 97-128.

Yavuz, S., & Güzel, U. (2020). Relationship between communication skills and social problem-solving skills of Turkish education teacher candidates. *International Online Journal of Educational Sciences*, *12*(1), 299-311.

Yılmaz, N. (2011). *Okul öncesi öğretmenlerinin iletişim becerileri, problem çözme becerileri ve empatik eğilim düzeyleri.* (Thesis No: 326017) [Master Thesis, Muğla Sıtkı Koçman University]. Turkish Council of Higher Education Theses Center.

Yoder, N., Martinez-Black, T., Dermody, C., Godek, D., & Dusenbery, L. (2021). *State theory of action: Systemic social and emotional learning for states.* CASEL. https://casel.org/systemic-social-and-emotional-learning-for-states/.

Yoke, L. B., & Panatik, S. A. (2015). Emotional intelligence and job performance among school teachers. *Asian Social Science*, *11*(13), 227-234.

Zins, J. E., Bloodworth, M. R., Weissberg, R. P., & Walberg, H. J. (2007). The scientific base linking social and emotional learning to school success. *Journal of Educational and Psychological Consultation,17*(2-3), 191-210.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13*(1),* 2023, 95-122
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmen Adaylarının Sosyal-Duygusal Yetkinliklere Yönelik Eğitim İhtiyaçlarının Belirlenmesi

Giriş

Eğitim politikaları belgelerinde sosyal-duygusal öğrenme (SDÖ) ve sosyal-duygusal yetkinlikler (SDY) kavramları ön plana çıkmış (Omasta vd., 2021); öz farkındalık, öz yönetim, sosyal farkındalık, ilişki becerileri ve sorumlu karar verme yetkinlikleri bireylerin karmaşık koşullarla başa çıkabilmeleri için gerekli olan yetkinlikler olarak belirtilmiştir (Jones & Bouffard, 2012). Küresel salgın sürecinde de SDÖ ve SDY'ler önem kazanmış, bireyleri ve toplumları sosyal-duygusal bağlamda güçlendirme ihtiyacı ortaya çıkmıştır (CASEL, 2022a).

SDÖ, eğitim sisteminde bireylere etkili eğitim sağlama arayışındaki eksik parça olarak görülmeye başlanmış (Humphrey vd., 2020); DÖ'ye yönelik programların önemi anlaşılmış (Weissberg vd., 2015); bireylerin sosyal-duygusal yetkinliklerinin planlı öğretim etkinlikleri yoluyla geliştirilebileceği ortaya koyulmuştur (Domitrovich vd., 2007). SDÖ'nün gerçekleştirilmesinde öğretmenler, sınıflarda SDÖ'ye yönelik programları ve uygulamaları yönlendiren rehberler olarak görülmüştür. Ancak yakın zamana kadar SDÖ'nün gerçekleştirilmesinde öğretmenlerin sosyal-duygusal yetkinliklerinin geliştirilmesine yeterince odaklanılmamıştır.

SDÖ sürecinde öğretmenlerin SDY'ye yönelik ihtiyaçlarının belirlenmesini ve yetkinliklerin gelişimini sağlayacak eğitim programlarına ihtiyaç duyulmaktadır. Sosyal-duygusal yetkinliklerin hizmet öncesi öğretmen yetiştirme programlarına, ders içi ve dışı etkinlikler aracılığıyla uyumlandırılmasının öğretmenlerin bireysel ve mesleki gelişimlerine katkı sağlayacağı düşünülmektedir.

Bu araştırmanın amacı SDÖ'nün önemli aktörleri olan öğretmen adaylarının SDY'ye yönelik eğitim ihtiyaçlarını belirlemektir (Buchanan vd., 2009; Jones & Doolittle, 2017). Bu doğrultuda aşağıdaki araştırma sorularına yanıt aranmıştır.

- Akademisyenlerin sosyal-duygusal yetkinliklere ilişkin görüşleri nelerdir?
- Öğretmen adaylarının sosyal-duygusal yetkinlikleri nelerdir?

Yöntem

Çalışma, eğitim fakültelerinde görev yapan akademisyenlerin sosyal-duygusal yetkinliklere ilişkin görüşleri ile öğretmen adaylarının sahip oldukları mevcut sosyal-duygusal yetkinliklerin belirlenerek birlikte yorumlandığı yakınsayan paralel desen karma yöntem araştırmasıdır.

Çalışma grubunu, uygun örnekleme yöntemiyle belirlenen Türkiye'deki beş üniversitenin eğitim fakültelerinde farklı öğretmen yetiştirme programlarında görev yapan 15 akademisyen ile Türkiye'deki dört üniversitenin eğitim fakültelerinde farklı programlara kayıtlı 161 öğrenci oluşturmaktadır.

Akademisyenlerin SDY'ye ilişkin görüşleri pandemi nedeniyle çevrimiçi görüşmelerde açık uçlu sorularla toplanmış, betimsel içerik analiz yöntemiyle analiz edilerek yorumlanmıştır. Nicel veriler ise öğretmen adaylarının mevcut sosyal-duygusal yetkinliklerini belirlemeye yönelik hazırlanan senaryo temelli sorulardan oluşmuş, çevrimiçi anket yoluyla toplanmış, uzmanların önerileriyle senaryolara ait her seçenek puanlanmış, öğretmen adaylarının toplam puanları hesaplanarak elde edilen betimsel istatistikler analiz edilerek yorumlanmıştır. Uygulamalar öncesi katılımcılardan onam formları alınmıştır.

Bulgular

Akademisyenlerin SDÖ kapsamını oluşturan yetkinliklere ilişkin görüşleri öz farkındalık, empati, iletişim ve karar verme iken SDY kapsamında iletişim, empati, öz-farkındalık ve problem çözme olarak sıralanmıştır. Öğretmen yetiştirme programlarında SDY'nin gelişimine yönelik derslerin yer verilmesine bakıldığında SDY'lerin; öğretmen yetiştirme programında yer alan İnsan İlişkileri ve İletişim, Eğitimde Drama gibi zorunlu dersler ile Sosyal Beceri Eğitimi ve Etkili İletişim seçmeli derslerinde ele alındığı belirtilmiştir. SDY'lerin gelişimine yönelik ders dışı etkinliklere ilişkin akademisyen görüşleri sırasıyla öğrenci kulübü etkinlikleri, drama, sanat etkinlikleri ve sosyal sorumluluk projeleri şeklindedir. Hizmet öncesi öğretmen yetiştirme programında ele alınması gereken SDY'ler; öz farkındalık, özyönetim, empati ve iletişim yetkinlikleri olarak tanımlanmış, SDY'ye yönelik geliştirilecek bir öğretim programında kullanılması gereken öğretim yöntem ve teknikleri arasında grup tartışması, beyin fırtınası, konuşma halkası, görüş geliştirme, drama, beyin fırtınası, vaka analizi, altı şapkalı düşünme teknikleri sıralanmıştır. Ayrıca SDY'ye yönelik yetkinliklerin değerlendirilmesinde yansıtıcı yazı, gözlem formu, öz değerlendirme formu, görüşme formu, akran değerlendirme formu, tutum ölçekleri gibi ölçme-değerlendirme araçlarının kullanılabileceği belirtilmiştir. Öğretmen adaylarının mevcut SDY'ye yönelik puan ortalamalarına göre en düşük ortalama kendini tanıma ve sorumlu karar verme yetkinlikleri, en yüksek ortalama ilişki becerilerine aittir.

Tartışma, Sonuç ve Öneriler

Sosyal-duygusal yetkinlikler; çeşitli becerileri içeren genel bir çerçeve, bireylerin sosyal yaşama uyum sağlamalarını kolaylaştıran, kendilerini tanımalarına katkı sağlayan yetkinlikler olarak görülmektedir (Elias vd., 1997; Gueldner vd., 2020). Araştırmanın birinci sorusu kapsamında akademisyenler; SDÖ'yü oluşturan yetkinlikler olarak öz-farkındalık, empati, iletişim, karar verme, iş birliği, sorumluluk ve problem çözme yetkinliklerini sıralamış; yanı sıra yaratıcılık, girişimcilik, eleştirel düşünme, liderlik, verimlilik gibi 21. yüzyıl yetkinliklerini SDY'ler arasında belirtmiştir. Ayrıca akademisyenler öğretmen adaylarının sahip olmaları gereken sosyal-duygusal yetkinlikler olarak iletişim, empati, öz farkındalık, problem çözme yetkinliklerini sıralamıştır. Bu yetkinlikler MEB (2017) öğretmenlik mesleğinin genel yetkinlikleriyle paralellik göstermektedir. Araştırmalar, iletişim becerisinin öğretmenler ve öğrenciler arasındaki anlayışı geliştiren, öğretmenlerin sahip olmaları gereken bir yetkinlik olduğunu belirtmektedir (Cohort Nominate 2017; Khan vd., 2000; Zia-Ul-Islam & Khan, 2017). Ayrıca empati becerisinin öğretme,

öğrenme ve toplum yararına gelişimde önemli bir yetkinlik olduğu belirtilerek önemine vurgu yapılmaktadır (Hoffman, 2000; Ormrod, 2000; Woolfolk, 1998). Önyargılardan ve ayrımcılıktan uzak, kültürel ve bireysel farklılıklara saygılı sınıfların oluşturulmasında öğretmenin rolü unutulmamalı; sosyal-duygusal gelişimleri mesleki gelişimleriyle birlikte ele alınmalıdır. Empati becerileri gelişmiş öğretmenlerin öğrenciler arasında empatiyi teşvik edeceği hatırlanmalı, günlük yaşantılarla ilişkilendirilmiş senaryolarla yetkinliklerinin geliştirilmesine yönelik çalışmalar gerçekleştirilmelidir.

Akademisyenlerin çoğunluğunun SDY'ler arasında belirttiği öz farkındalık yetkinliğine yönelik çalışmalar, sınıfta öz farkındalığın önemine işaret etmekte (Jennings & Frank, 2015; Payton vd., 2008) ve bir anlayış geliştirmede açık bir benlik duygusunun gerekliğini vurgulamaktadır (Park vd., 2020). Öz farkındalığı gelişmiş bir öğretmen güçlü ve zayıf yanlarının farkındalığıyla kendisini ve ekibini başarıya ulaştırabilir. Duygular ve beden üzerindeki farkındalık ve sorgulayıcı çalışmalarla öğretmelerin kendilerini keşfetmeleri sağlanmalıdır.

Akademisyenler SDY'ler kapsamında yaratıcılık, girişimcilik, üretkenlik ve liderlik yetkinliklerini tanımlarken öğretmen adaylarının sahip olmaları gereken yetkinlikler kapsamında bu yetkinlikleri öncelikli olarak sıralamamışlardır. Bu görüşler, akademisyenler tarafından tanımlanan SDY'lerin tümüne, öğretmen adaylarının sahip olmalarının beklenmediğini göstermektedir. Öğretmenlik mesleği, kişilerarası sosyal ilişkiler temelli bir meslek olması nedeniyle ele alınması gereken yetkinliklerin öncelikle iletişim, empati, ilişki becerileri gibi yetkinlikler olması gerektiği düşünülmektedir. İş yaşantısında farklı meslek dallarındaki çalışanlar için ilgili meslek dalının çalışma alanları ve sunduğu hizmet türlerine yönelik geliştirilmiş SDY programlarının varlığı, meslek dalının ihtiyacı doğrultusunda ele alınacak yetkinliklerin değişebileceği görüşünü desteklemektedir (Cherniss, 2012; Shamsuddin & Rahman, 2014; Wong & Law, 2017; Yoke & Panatik, 2015). Öğretmen adaylarının sosyal-duygusal yetkinliklerine yönelik çalışmalar planlanırken öğretmenlik mesleğinin gereksinimleri göz önüne alınmalıdır.

Öğretmen yetiştirme programlarında SDY'lere yönelik derslerin varlığına ilişkin görüşler incelendiğinde akademisyenlerin SDY'lere yönelik derslere ilişkin yeterli bilgi sahibi olmadığı görülmekte, öğretmen yetiştirme programlarında SDY'lere yeterince vurgu yapılmadığı düşünülmektedir. Bu bağlamda öğretmen yetiştirme programlarındaki derslerde sosyal-duygusal yetkinliklerle ilişkileri kurulmalı, ders süreçlerine uyumu sağlanmalıdır.

Öğretmen adaylarının SDY'lerini geliştirmeye yönelik ders dışı etkinlikler, öğrenci kulüpleri, tiyatro/drama/sanat etkinlikleri ve sosyal sorumluluk projeleri şeklinde sıralanmıştır. Bulgular sosyal-duygusal yetkinliklerin günlük hayatta ders dışı sosyal etkinliklerle, yapılandırılmamış rastlantısal öğrenme deneyimlerle geliştirildiğini göstermektedir.

Öğretmen adaylarının SDY'lerinin geliştirilmesine yönelik yöntem ve tekniklere ilişkin görüşleri, sorgulamaya dayalı grup tartışmaları, görüş geliştirme, drama, istasyon gibi etkileşimli yöntem ve tekniklerdir. Ayrıca SDY'lerin değerlendirilmesine yönelik önerilen ölçme araçları; yansıtıcı yazılar, gözlem formları, öz değerlendirme formları gibi ölçme araçlarını içermektedir.

İkinci araştırma sorusunda öğretmen adaylarının mevcut SDY'lerini belirlemeye yönelik senaryoların toplam puanlarına bakıldığında ortalama puanların en düşüğünün kendini tanıma ve sorumlu karar verme, en yükseğinin ise ilişki becerilerine ait olduğu görülmektedir. Bu

bulgular, akademisyenlerden elde edilen bulgularla paraleldir. Araştırmalar benzer şekilde öğretmen adaylarının öz farkındalık, iletişim, empati, problem çözme yetkinliklerinin gelişiminin önemine dikkat çekmektedir (Dung & Zsolnai, 2022; Göksoy, 2014; Güzel & Yavuz, 2020; Jennings & Greenberg, 2009; Richardson & Shupe, 2003; Yılmaz, 2011). Ancak sosyal-duygusal yetkinliklerin her birini birbirinden ayrı yapılar şeklinde ele almaktan öte birbiriyle etkileşim içinde düşünmek doğru olacaktır. Araştırmalar sosyal-duygusal yetkinliklerin birbiri üzerindeki yordayıcılığını raporlamakta bütüncül bakmayı önermektedir (Güven & Kesicioğlu, 2014; Güzel & Yavuz, 2020; Özer, 2008).

Sonuç olarak öğretmen adayları, SDY'lerinin öğretmen yetiştirme programlarına gömülmelerini ya da öğrenci kulüpleri aracılığıyla sürecin yürütülmesini istemektedirler. Öğretmenlerin kendi SDY'lerini keşfetmelerine yönelik farkındalık çalışmaları, senaryo temelli örnekler üzerinde empatik düşünmeyi destekleyecek çalışmalar, sosyal sorumluluk uygulamaları derslere eklenmelidir. Gerek üniversitelerde gerekse devlet politikalarında SDÖ konusu irdelenmeli, sosyal-duygusal alanda bireylerin gelişimi desteklenmelidir.

Araştırma sonuçlarının öğretmen adaylarının SDÖ süreçlerinin planlanmasına ışık tutacağı, SDY'lerin gelişimine yönelik hazırlanacak eğitim programlarına temel oluşturacağı, sosyal-duygusal yetkinlikler açısından güçlü bireyler yetiştirilmesinde rehberlik edeceği düşünülmektedir.

International Journal of Curriculum and Instructional Studies
13*(1),* 2023, 123-157
www.ijocis.com

A Structural Equation Model of Teachers' Attitudes Towards Constructivist Curriculum Change[2]

Sibel Akin-Sabuncu, TED University &, Columbia University, sa3169@tc.columbia.edu, 0000-0002-4081-1233

Basak Calik, Istanbul Medeniyet University, basak.calik@medeniyet.edu.tr, 0000-0001-8581-0501

Keywords

Constructivist curriculum change
Beliefs about teaching
Self-efficacy beliefs for teaching
Readiness for change
Structural equation modeling

Article Info:
Received : 25-05-2022
Accepted : 17-02-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.006

Abstract

This study explores the relationships between teachers' beliefs about teaching, self-efficacy beliefs for teaching and their attitude towards the implementation of curriculum change through the mediating role of their readiness for change. In so doing, the study seeks to suggest an advanced approach to manifest the complex relations among the investigated variables. Designed as correlational research, the study included 422 teachers selected through cluster random sampling from elementary, middle, and high schools. The data were collected through four scales and a demographic information form. Structural equation modeling was performed to investigate the relationships between latent variables. The findings indicated that teachers' beliefs about teaching, self-efficacy beliefs, and readiness for change are significant predictors of teachers' attitudes towards the constructivist curriculum change. However, the contribution of each component differed on the two sub-dimensions: getting information about and implementation of constructivist curriculum. In addition, a mediation effect of teachers' emotional and intentional readiness was found for constructivist teaching beliefs. The findings imply that teachers' self-efficacy and general beliefs about teaching are critical in acknowledging the curriculum reform and thereby, teachers should be given a voice in curriculum development. This might encourage them to be the agents of change rather than the deliverers of the curriculum, which, in turn, might strengthen their beliefs and attitudes regarding the curriculum change. Given the significant role of teachers' emotional and intentional readiness for change, the findings further offer insights to policymakers to provide teachers with professional development opportunities for the success and sustainability of curriculum reforms.

To cite this article: Akin-Sabuncu, S., & Calik, B. (2023). A structural equation model of teachers' attitudes towards constructivist curriculum change. *International Journal of Curriculum and Instructional Studies, 13*(1), 123-157. https://doi.org/10.31704/ijocis.2023.006

[2*] This study is part of a larger research that was presented at the VIII. International Congress on Curriculum and Instruction (ICCI) on March 25-27, 2021.

Introduction

As education systems worldwide have been subjected to constant pressures with the rise of global developments and the advancement of technology, educational change has become an inevitable reality for teachers, especially within the past 25 years, which has been characterized as an epidemic of change by Levin (1998). Specifically, curriculum change has been seen as a key instrument of educational change; and therefore, school curricula are continuously subject to change to meet today's competitive needs and develop multi-skilled workforce for globalizing markets, largely fueled by neoliberal policies (İnal et al., 2016). As a result, this has placed significant demands on teachers as any curriculum change is expected to be reflected in their work (Ha et al., 2004; Liu & Wang, 2020; Mellegård & Pettersen, 2016). That is, the success of the changed curriculum depends primarily on how teachers enact it as they have a central role in curriculum implementation and therefore, might facilitate or hinder the intended curriculum changes.

While the concerns to be addressed by teachers in curriculum and pedagogy have gained urgency (Olibie, 2013), the role of teachers in curriculum reform has been a complex issue to establish an integration of top-down and bottom-up strategies for reform (Kirk & Macdonald, 2001). As educational practices mostly remain persistent in the face of such pressures to innovate, teachers feel professionally neglected and disempowered (Priestley, 2011). Thus, they are systematically positioned as barriers to change (Ball, 1990; Simmons & MacLean, 2018). Particularly, there has been a growing tension between discourses empowering teachers as agents of change for bottom-up curricular development versus centrally driven mandated curriculum reforms where teachers are seen as technicians, inhibitors of the change, and recipients and deliverers of a prescribed curriculum, which eventually leads to a culture of compliance and damages the professional autonomy of the profession (Carse, 2015; Clasquin-Johnson, 2011; Hargreaves & Goodson, 2006; Harris, 2011; Priestley, 2011; Simmons & MacLean, 2018).

Research has shown that when curriculum changes are introduced, teachers often experience negative emotions of fear, anxiety (Clasquin-Johnson, 2011), uncertainty, inadequacy, stress, burnout, and loss of motivation (Hargreaves & Evans, 1998) since they are usually only involved in the implementation of the curriculum change, rather than in the design process, and have very limited control over the actual implementation process (Bailey, 2000; Troudi & Alwan, 2010). Thus, it is the structural and contextual factors that mostly drive change (Harris & Graham, 2019), whereas such mandated change dynamics of school and curriculum reforms inevitably make a strong impact on the heart of the teaching profession: the personal dimension, including teachers' response to and attitudes towards curriculum change (Mellegård & Pettersen, 2016).

As a significant element of change, Goodson (2000) highlights the role of teachers' personal involvement and commitment in achieving change sustainability as it is likely that externally initiated changes will not be successful without some room for teachers' personal agency, who can become catalysts for progressive change. Based on this perspective, teachers' voice and responses lie at the heart of the curriculum change grounded in the belief that curriculum development is a process where teachers play an autonomous active role (Elliott, 1994; Lieberman, 1997; Webb, 2002). Thus, the ignorance of teachers' personal involvement and

responses to curriculum change may inhibit development and take the change process in a different direction from the intended. However, most curriculum change plans treat teachers as passive consumers within their organizational structure and are implemented through an authoritative, top-down approach (Troudi & Alwan, 2010).

Considering the context of Türkiye, the studies that investigated teachers' attitudes towards the major curriculum change in 2005 - the constructivist curriculum reform - mostly focused on the problems and the reasons for teachers' inability to implement the curriculum change, such as teacher-related (e.g., Altun & Şahin, 2009; Eraslan, 2013; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019), parent-related (e.g., Kosar Altinyelken, 2011), curriculum and instruction related (e.g., Altun & Şahin, 2009; Bulut, 2007; Yapıcı & Demirdelen, 2007; Ersen Yanık, 2008; Yaşar & Sözbilir, 2019), and assessment-related factors (e.g., Eraslan, 2013). While those studies employed qualitative or quantitative research methodologies, it was seen that the quantitative studies largely explored the direct relationships between teachers' attitude towards the constructivist curriculum and its predictors. Thus, none of these studies considered the relationship between and among sources or the indirect effects of sources on teachers' attitude towards the constructivist curriculum and its predictors. This signifies the need for further research on more complex relationship patterns that explain teachers' attitudes towards constructivist curriculum change. Accordingly, this study aimed at testing a model to investigate if teachers' attitude towards the implementation of constructivist curriculum is associated with their beliefs about teaching and self-efficacy beliefs for teaching through the mediating role of readiness for change. To that end, the present study sought to answer the following research question: How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change?

Context of the Present Study

Türkiye, as in many countries, has been involved in several curriculum reforms in the past few decades. However, curriculum change and innovation have been much debated for almost two decades as it usually tends to be authoritative, taking a top-down approach. The education system is highly bureaucratic and driven by policy mandates, rules, and regulations, consisting of several hierarchical levels. The macro planner of policy is the Ministry of National Education (MoNE) and situated at the micro-level of the schools are the principals and the teachers. Within this context, as a candidate for EU membership, Türkiye has been undertaking reforms for harmonisation with the EU countries, and the Turkish education system has undergone a progressive paradigm shift from the behavioral to constructivist approach in 2005, which was a top-down and mandated curriculum reform (Yıldırım & Kasapoğlu, 2015) that was introduced gradually by the MoNE across K-12 schooling and has still been undergirding the pedagogical reform. The constructivist curriculum has required teachers to change their instructional practices, shifting from teacher-centered traditional approaches towards more student-centered approaches. However, it is largely reported that the implementation of the constructivist reform has resulted in less than desirable outcomes, and the gap between the renewed school curricula and teachers' classroom practices has been persisting in many fields (e.g., Altun & Şahin, 2009; Ekiz, 2004; Hazır-Bıkmaz, 2006; Kosar Altinyelken, 2013, 2015; Nohl & Somel, 2016; Yıldırım & Kasapoğlu, 2015). This is partly because its success not only depends on the substantive content of the reform or the technical equipment alone, but it is also highly

related to the teachers' perceptions of the reform and their attitudes towards it as the most essential factors in the effectiveness of a curriculum change (Bümen et al., 2014; Chi-Kin Lee, 2000; Kyriakides, 1997). Thus, this study has the potential to provide new insights into the existing research on teachers' attitudes towards the implementation of constructivist curriculum change as it explores the complex relations between *teachers' attitudes towards the implementation of curriculum change* and its potential predictors, namely *teachers' beliefs about teaching*, *self-efficacy beliefs for teaching*, and *readiness for change* within the context of the constructivist curriculum change.

Attitudes towards Constructivist Curriculum

Remillard (2005) highlighted the participatory relationship between teacher and curriculum in which both sides influence and are influenced by each other. Thus, how teachers interpret, interact with, and reflect on the curriculum in teaching practices is essential to reduce the gap between intended and implemented curricula. That is also closely related to teachers' attitudes towards any change in curriculum. As Jenkins (2020) argues, teachers either embrace the change by controlling its effects and adapting their practices accordingly, or they disengage with it and maintain the existing approaches. From this perspective, while thinking about the huge transition towards student-centered pedagogy worldwide (e.g., Carney, 2008; Kosar Altinyelken, 2010; Utomo, 2005), exploring teachers' attitude towards the constructivist curriculum would be crucial for understanding the potential differences between teachers' perceptions of the curricula and their implementations.

To illustrate, Tafrova-Grigorova et al. (2012) discussed Bulgarian science teachers' attitudes towards the constructivist approach in their classrooms. The teachers were ranked somewhat in the middle, displaying change in their teaching practices; however, despite their willingness to learn about the constructivist approach, they criticized that no space was given for them in the regulatory documents to implement the constructivist approach. Similarly, Dharmadasa (2000) noticed that teachers described the constructivist approach as a challenge that cannot be comprehended within a short period, and the implementation of the constructivist curriculum might bring an additional burden for them.

In Türkiye, although teachers perceived the constructivist curriculum positively (Evrekli et al., 2009; Korkmaz, 2008; Ocak, 2010), they also expressed their inability to implement it successfully due to their inadequate knowledge and the provided support by MoNE (Akdeniz & Paniç, 2012; Altun & Şahin, 2009; Bulut, 2007; Eraslan, 2013; Korkmaz, 2008; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019). A wide range of research also displayed teachers' concerns about the large class sizes and the lack of resources (Altun & Şahin, 2009; Bulut, 2007; Korkmaz, 2008; Kosar Altinyelken, 2011; Yapıcı & Demirdelen, 2007; Ersen Yanık, 2008; Yaşar & Sözbilir, 2019). In many studies, teachers complained about parents as they were neither knowledgeable nor interested in the new constructivist curriculum (Eraslan, 2013; Korkmaz, 2008; Kosar Altinyelken, 2011). Additionally, teachers criticized the contradictions between what constructivist curriculum suggests versus the prevalent assessment practices in the presence of nationwide exams (Eraslan, 2013; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019). Moreover, many scholars argued on the effectiveness of the in-service trainings which were deemed to be unsatisfactory to address the demands of the teachers towards the constructivist curriculum (Altun & Şahin, 2009; Bulut, 2007; Eraslan, 2013; Korkmaz, 2008; Yaşar & Sözbilir, 2019).

As seen, there is a plethora of research pointing out several factors that are related to teachers' attitudes towards the constructivist curriculum change. However, the existing literature commonly tends to neglect the human element of change by over focusing on the structural, material, and contextual factors. To address this gap, this study focuses on the human side of the curriculum change by examining teachers' beliefs about teaching, self-efficacy beliefs about teaching, and readiness for change as the potential factors that might be associated with teachers' attitudes towards the constructivist curriculum change, as presented below.

Teacher Beliefs (Beliefs about Teaching and Self-Efficacy Beliefs)

The existing literature has put forth that *teacher beliefs*, including *beliefs about teaching* and *self-efficacy beliefs for teaching*, are also considered to influence teachers' attitudes towards the implementation of the constructivist curriculum, grounded in the argument that teachers' mental constructs underlie and shape their behaviors (Fang, 1996; Kagan, 1992). First, teacher beliefs pertain to teachers' attitudes, knowledge about teaching, learning, and students (Pajares, 1992). In general, teachers might hold beliefs about their teaching that comprise their perspectives on knowledge and reality, affecting their teaching and learning perceptions (Duru, 2006). In this study, those perceptions address teacher-centered/traditional and learner-centered/constructivist teaching beliefs. While teacher-centered beliefs utilize behaviorist approaches in teaching and learning process with a high focus on subject-matter knowledge, learner-centered beliefs acknowledge task-based approaches by addressing students' needs and interests (von Oppell & Aldridge, 2020; Zhang & Liu, 2014).

Another element in teacher beliefs is teacher self-efficacy beliefs for teaching, which consider teachers' capability judgments to reach intended teaching and learning outcomes (Tschannen-Moran & Woolfolk Hoy, 2001). Those beliefs are also related to their perceptions of control in their teaching settings (Flethcher, 1990). Therefore, teachers with firmer self-efficacy beliefs might readily welcome changes and adopt new methods and strategies (Allinder, 1994; Evers et al., 2002; Guskey, 1988). On the other hand, although teachers consider the educational change effective, they might experience difficulties implementing it in their classrooms if they question their capabilities in the implementation (De Mesquita & Drake, 1994).

Teachers' beliefs are seen as a screen through which behavior is enacted, and it is argued that teachers tend to struggle with reforms that do not comply with their belief systems (Harris & Graham, 2019). Hence, teachers' beliefs play a substantial role in teachers' decision-making processes about curriculum and instructional tasks (Fullan, 1993, 2001, 2007), and curriculum changes are unlikely to achieve their goals unless they are first translated into teachers' existing belief systems (Fullan, 1991). Since teachers' experiences, education, and background influence the formation of their beliefs (Murphy et al., 2004; van Driel et al., 2001), changing teachers' belief systems might be challenging (Prawat, 1992) and a long-term process (Kagan, 1992). As teachers' beliefs, for example, beliefs about teaching generally, can also become an integral part of their professional identity (Pajares, 1992), changes that conflict with a teacher's core values and sense of self can be seen as alarming (Harris & Graham, 2019).

Readiness for Change

Since the effectiveness of a curriculum change mostly depends on teachers' perceptions and attitudes towards it (Chi-Kin Lee, 2000; Kyriakides, 1997), one of the most critical factors for curriculum change effectiveness is the human side of change, including *teachers' readiness for change.* Armenakis et al. (1993) define readiness for change as "organizational members' beliefs, attitudes, and intentions regarding to extent to which changes are needed and the organization's capacity to successfully make those changes." (p. 681). Based on the definition, the literature foregrounds the close relationship between readiness for change and the individuals' attitudes towards implementing the change (Weiner, 2009). Yet, this element has largely been overlooked in educational reforms, including curriculum reforms. As a result, scholars have generally raised serious concerns about change effectiveness, given the imbalance between system-wide change and individual change (Kondakci et al., 2017), which might result in teacher reluctance and resistance to bringing the curricular change into practice, as well (Irez & Han, 2011; Janik et al., 2018).

Walsh and Gardner (2006), for example, indicated the constraining role of government-imposed changes on teachers' readiness to embrace the new early-year programs and reflect it in their classroom practices. Recently, Du and Chaaban's (2020) research on teachers' readiness to implement project-based learning as a top-down pedagogical change supports the idea that the lack of understanding of the change would result in low confidence in teachers to implement it. Differently, in Ittner et al.'s study (2019), school principals were more open to implementing the curriculum if perceived positively.

In Türkiye, Irez and Han (2011) and Han (2013) underlined the difficulty experienced by teachers in interpreting the theoretical framework of the educational reforms as a reason for the resistance to changes. That might be related to how teachers perceive the changes because, as argued by İnandı and Gılıç (2016), teachers' readiness for change would be higher if they were given a voice in decision-making processes. Yet, although there is still a hot debate on teachers' attitudes towards the constructivist curriculum change (e.g., Evrekli et al., 2009; Kaya, 2013; Ocak, 2010), there is no great deal of research seeking out the role of teachers' readiness for this change on their attitudes.

Beliefs about Teaching and its Relationship with Readiness for Change and Attitudes towards Constructivist Curriculum

As Pajares (1992) described, teachers' pedagogical beliefs considerably impact their actions regarding their instructional practices and behaviors. Besides, teachers' existing beliefs about teaching might be crucial to their readiness for curricula changes. Therefore, teachers might develop negative attitudes unless changes correspond to their belief systems and values (Carless, 2013; Park & Sung, 2013). The successful implementation of the constructivist curriculum change would depend on three types of readiness which are societal, curricular, and teachers' readiness (Elkind, 2004). Thus, teachers' proper understanding of theoretical and practical aspects of learner-centered education, which are directly related to their beliefs about teaching, contributes to their readiness. Yet, there has been scarce research considering the interplay between beliefs and teachers' readiness for change. Since Armenikas et al. (1993) state that individuals' beliefs, attitudes, and intentions add to their readiness for change, beliefs

might have been denoted as already established constituents of readiness for change as in several studies (i.e., Petko et al., 2018).

Several scholars also studied how teaching beliefs are reflected in teachers' attitudes and behaviors in practicing the changes related to student-centered approaches (e.g., Beck et al., 2000; Handal & Herrington, 2003; Muofhe, 2008). The findings implied that teachers would be reluctant to employ the proposed changes in the new curricula if the change did not address their deep-rooted beliefs. In addition, many researchers affirmed the restrictive nature of teaching beliefs on successfully implementing a reform-based curriculum. Accordingly, teachers who hold student-centered beliefs would easily change their teaching practices, which would not be possible for those possessing traditional beliefs (Czerniak & Lumpe, 1996; Roehrig & Kruse, 2005; Roehrig et al., 2007; Yates, 2006). Another line of research also posited the predictor role of teachers' attitudes towards implementing the curricular changes on their beliefs and intentions (Crawley, 1990; Haney et al., 1996).

Contrary to these studies, the relationship between teachers' beliefs and instructional behaviors was not in the expected direction (e.g., Anagün et al., 2012; Ersel Kaymakamoğlu, 2018; Fleurette Nelson, 2017; Ogan-Bekiroglu & Akkoc, 2009; Şeker, 2010; Uzuntiryaki et al., 2010) or even absent (e.g., Fang, 1996). As argued by Anagün et al. (2012), teachers might not apply constructivist teaching practices in their classrooms due to several factors, although they believe in the effectiveness of this approach. Parallel to Anagün et al.'s (2012) study, Şeker (2010) reported that teachers had tailored their classrooms in line with the behaviorist approach despite their clinging to student-centered beliefs. The authors also noted the discrepancy between what teachers said about their actions in their classrooms and what the researchers inspected. That might be because teachers are not cognizant of the given inconsistency or do not put sufficient effort to remove it concerning their habitual preferences on instruction (Raymond, 1997). Furthermore, teachers may hold conflicting beliefs in different parts of the curriculum, including objectives, content, instructional strategies, and assessment (Isikoglu et al., 2009; Ogan-Bekiroglu & Akkoc, 2009). Accordingly, teachers might hold certain beliefs pertaining to different components of the curriculum, but the incongruence among those beliefs may lead to controversial outcomes between their beliefs and behaviors. That confirms the idea of the complexity of belief systems which paper-pencil measurements cannot completely reveal. Therefore, the complex nature of beliefs might reveal contrasting findings because there might be some other factors influencing teachers' belief systems (Duru, 2006). Overall, the controversial findings in the literature yield inconclusive results on the relationship between teachers' beliefs and attitudes towards the curriculum change, which requires exploring the given association thoroughly.

Self-efficacy Beliefs about Teaching and its Relationship with Readiness for Change and Attitudes towards Constructivist Curriculum

Bandura (1977) states that people's beliefs about the action and the outcome association might be insufficient to explain their behaviors, which foregrounds teachers' self-efficacy beliefs about teaching as an essential component of teacher effectiveness (Bray-Clark & Bates, 2003). As teachers' self-efficacy beliefs are critical in understanding their willingness to implement the changes (e.g., Allinder, 1994; De Mesquita & Drake, 1994; Hsiao et al., 2011; Evers et al., 2002, Guskey, 1988), their self-efficacy beliefs about teaching might also account

for their readiness for change, and their attitudes toward educational changes, especially curricular changes.

In general, the literature pointed out the explanatory role of self-efficacy beliefs on people's readiness for change (Emsza et al., 2016; Oreg et al., 2011). People with high self-efficacy beliefs would display more positive behaviors and be more open to the changes (Bozbayındır & Alev, 2018; Herold et al., 2007). Similarly, Çelik and Atik (2020) stressed that the improvement of teachers' autonomy and self-efficacy beliefs contribute to their readiness for change. In line with this argument, in Tuğtekin et al's (2018) research, for example, information technology (IT) teachers' teaching self-efficacy beliefs were positively related to their readiness for the planned changes in the IT curriculum. Uslu and Çakar Özkan (2018) also supported the idea that teachers' self-efficacy beliefs contribute to their perceptions regarding the value of the change and make them less likely to resist it. On the other hand, Stokes (2018) indicated the importance of collective self-efficacy to implement the reforms successfully, as there was a weak relationship between teachers' self-efficacy beliefs and their reform readiness.

Several researchers also depicted the substantial role of teacher self-efficacy beliefs in their attitudes towards educational changes (De Mesquita & Drake, 1994; Ghaith & Yaghi, 1997; Gouëdard et al., 2020; Nie et al., 2013; Pan et al., 2013). The common point revealed in those studies is that teachers who believe in their capabilities to obtain desirable student outcomes are more likely to implement educational changes or curricular innovations in their classrooms. Similarly, a small number of studies indicated the positive relationship between teachers' self-efficacy beliefs and their attitudes towards constructivist curriculum as a curricular change in Türkiye (Çayak, 2014; Eskici & Özen, 2018; Kasapoğlu & Duban, 2012). Parallel to these studies, Çolak and Yabaş (2017) and Koç (2013) confirmed that teachers with firmer self-efficacy beliefs were more inclined to apply constructivist practices to prepare their lessons. That foregrounds the attention to how teachers' self-efficacy beliefs are related to implementing educational changes in their classrooms (Isler & Cakiroglu, 2010). Yet, some other studies displayed no relationship between teachers' self-efficacy beliefs regarding specific domains (i.e., self-efficacy for classroom management) and their willingness and commitment to implementing the constructivist curriculum (Cerit, 2013; Cobanoglu & Capa Aydin, 2015).

Given the aforementioned arguments, calls for a larger analysis of what predicts teachers' attitudes towards the implementation of curriculum change have increased. Specifically, many studies both globally and also in Türkiye demonstrate incongruence between the intended curriculum and enacted (implemented) curriculum. Accordingly, to shed light on what may lead to such a gap, this study aims to suggest a more advanced approach to manifest complex relations among the predictors and outcomes simultaneously rather than focusing only on the direct relations. From this perspective, in this study, a model was tested to clarify the hypothesized direct and indirect relationships among beliefs about teaching, self-efficacy beliefs for teaching, readiness for change, and teachers' attitudes towards the implementation of curriculum change as presented in Figure 1. More specifically, the study sought to answer the following sub-research questions (R.Q.):

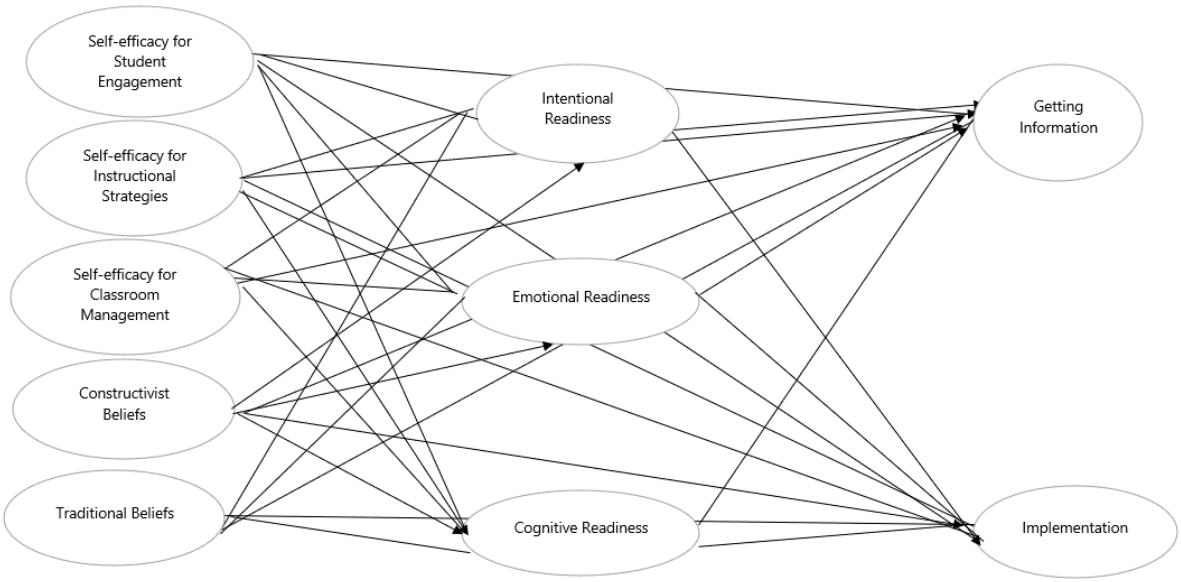
R.Q. 1. How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change?

R.Q. 2. How do teachers' self-efficacy beliefs for teaching and beliefs about teaching relate to their readiness for change?

R.Q. 3. What is the mediator role of teachers' readiness for change on the relationship between teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their attitudes towards the implementation of the constructivist curriculum change?

Figure 1

The Hypothesized Structural Model



Note. Getting Information = Attitudes towards constructivist curriculum concerning getting information, Implementation = Attitudes towards constructivist curriculum concerning implementation.

Method

Research Design

The study was designed as correlational research as it aims to yield relationships among the investigated variables and make predictions without manipulating them (Fraenkel & Wallen, 2009; Gay et al., 2012). To that end, the present study particularly focused on determining the relationship patterns among teachers' attitudes towards the implementation of constructivist approach, teachers' beliefs about teaching, self-efficacy beliefs for teaching, and readiness for change.

Participants

The study included 422 teachers selected through cluster random sampling from elementary, middle, and high schools in two large cities in Türkiye (Fraenkel & Wallen, 2009). Of the participants, 73.4% (n=303) were female and 26.6% (n=110) were male with ages from 23 to 63. The majority of the participants (66.6%) graduated from faculties of education, while the remaining graduated from other faculties (33.4%). Particularly, 61.4% completed their undergraduate education before 2005, when the constructivist curricula started to be implemented. Among the participants, 82.8% held a bachelor's degree, 16% held a master's degree, and only 1.2% held a Ph.D. degree. Of them, 29.9% had teaching experience of up to

10 years, 23.6% had taught for 11 to 20 years, 36% had taught for 21 to 30 years, and 10.5% had teaching experience of 31 to 37 years. Additionally, 47.7% were from public middle schools, 21.3% were from public primary schools, and 31% were from public high schools. Lastly, 72.2% reported that they had participated in in-service trainings related to constructivism, whereas 27.8% had not.

Data Collection Tools

The data collection instrument consisted of a demographic information form and four subscales:

The Teacher Beliefs Scale (TBS)

The TBS, originally developed by Woolley et al. (2004), was adapted into Turkish by Duru (2006) to gauge teachers' beliefs about teaching in relation to two dimensions: *constructivist beliefs (CB)* (sample item: Involving students in evaluating their own work and setting their own goals) and *traditional beliefs (TB)* (sample item: Teaching subjects separately, although aware of the overlap of content and skills). The adapted version of the scale consists of 12 items and uses a 6-point rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). Based on Exploratory Factor Analysis (EFA), Duru (2006) provided evidence for the construct validity and reliability of this two-factor structure of the scale. It was reported that the results of the EFA indicated the two-factor structure of the scale explaining a total of 37.16% of the variance. In addition, the reliability score computed for the CB subscale was found to be .65 and that of the TB subscale was found to be .61, which were within the acceptable limits with the proposed critical value of .60 (Hair et al., 2010).

In this study, confirmatory factor analysis (CFA) was conducted to test the factorial structure of TBS. The initial run of CFA revealed an inadmissible model fit ($\chi 2$ (118) = 460.40, RMSEA = .08, CFI = .64, NNFI = .59, and SRMR = .09). According to Bandalos and Finney (2001), item parceling might be used when the normality, sample size to variable ratio, and the parameter estimates were problematic in the hypothesized model. Therefore, item parcels were created for TBS, including at least three items per parcel based on Bandalos's (2002) suggestion. The second run of CFA yielded a good model fit ($\chi 2$ (4) = 8.605, RMSEA = .05, CFI = .99, NNFI = .97, and SRMR = .02). The Cronbach's alpha value was .70 for constructivist beliefs and .67 for traditional teaching.

The Teachers' Sense of Efficacy Scale (TTSES)

The TTSES was originally developed by Tschannen-Moran and Woolfolk-Hoy (2001) and it is designed to measure the efficacy beliefs of teachers. While the short version of the original scale involved 12 items and the long version involved 24 items, it is suggested that either long or short version could be accepted as a reliable and valid instrument (Tschannen-Moran & Woolfolk-Hoy, 2001). In this study, the 24-item instrument, designed on a 9-point rating scale ranging from 1 (nothing) to 9 (a great deal), was used. The scale was adapted to Turkish by Çapa et al. (2005) and it consisted of three dimensions: *student engagement (SE)* (sample item: How much can you do to get students to believe they can do well in schoolwork?), *instructional strategies (IS)* (sample item: To what extent can you use a variety of assessment strategies?), and *classroom management (CM)* (sample item: How much can you do to control disruptive behavior in the classroom?). Based on the results of the CFA, Çapa et al. (2005) provided evidence for the construct validity of this three-factor scale in their study (RMSEA = .065, CFI

= .99 and NNFI = .99). They also found that the coefficient alpha value was .82 for SE, .86 for IS, and .84 for CM as evidence for reliability.

In the current study, CFA results confirmed the three-dimensional structure of TTSES with a mediocre model fit ($\chi 2$ (249) = 673.06, RMSEA = .06, CFI = .90, NNFI = .89, and SRMR = .05). The Cronbach's alpha value was .88 for SE, .90 for IS, and .90 for CM.

The Readiness for Change-Cognitive Emotional Intentional Scale (RFOC-CEI)

The RFOC-CEI was developed by Kondakçı et al. (2013) to gauge readiness for change levels of school organizational members (e.g., teachers, administrators). The scale consisted of 12 items and was designed as a 5-point scale ranging from strongly disagree (1) to strongly agree (5). Based on the results of the CFA, Kondakçı et al. (2013) confirmed the three-dimensional factor structure of the scale ($\chi 2$ (49) = 206.403, RMSEA = .073, CFI = .966, NNFI = .954). They reported that 12 items loaded on three dimensions: *intentional readiness* (sample item: I would like to devote myself to the process of change), *emotional readiness* (sample item: I usually do not like to change), and *cognitive readiness* (sample item: I would like to see change activities in my school). The researchers reported the reliability scores as .90, .75, and .87 for the intentional, emotional, and cognitive readiness for change dimensions, respectively.

In this study, CFA was conducted to validate the factorial structure of RFOC-CEI. CFA yielded an acceptable model fit to the data ($\chi 2$ (51) = 153.68, RMSEA = .07, CFI = .94, NNFI = .92, and SRMR = .05). The Cronbach's alpha value was .86, .80, and .80 for intentional, emotional, and cognitive readiness for change dimensions.

The Attitude towards Constructivist Approach Scale for Teachers

The Attitude towards Constructivist Approach Scale for Teachers" was adapted by Eskici (2013) from the "Attitude towards Constructivist Approach Scale for Pre-service Science Teachers" developed by Evrekli et al. (2009). The adapted version of the scale was designed as a 5-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). It involves 16 items and consists of two-dimensional structure: *getting information* (sample item: I do not like to learn more about constructivist approach) and *implementation* (sample item: I like to implement curricula that are developed based on constructivist approach). Considering the results of the CFA, Eskici (2013) confirmed the two-factor structure of the scale (RMSEA = .069, CFI = .94, NNFI = .93). In addition, the reliability score calculated for getting information dimension was .89, and for implementation dimension was .80.

In this study, the validation of the scale was conducted with the use CFA, revealed a good model fit ($\chi 2$ (103) = 179.49, RMSEA = .04, CFI = .96, NNFI = .96, and SRMR = .04). For internal consistency estimates, Cronbach alpha coefficients were .87 for getting information and .89 for implementation dimensions.

Data Collection

The ethical committee approval was obtained for this research from TED University Human Subjects Ethics Committee with the decision numbered 2020/05, dated July 29, 2020. The researchers also obtained the necessary permission from the MoNE to collect data from teachers working at public primary, secondary, and high schools. The data collection took approximately seven months. Participation in the study was on a voluntary basis and the

informed consent of the participants was obtained in the study. Completing surveys required participants to take 15 to 20 minutes.

Data Analysis

Structural equation modeling (SEM) was performed to investigate the relationships between latent variables, including the dimensions of teacher beliefs, teachers' sense of efficacy, readiness for change, and attitudes towards the constructivist approach. Before testing the structural model, CFAs were performed through Mplus 6 (Muthen & Muthen, 2010) to validate the factorial structure of the scales and examine the measurement model. Root Mean Square Error of Estimation (RMSEA), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), and Standardized Root Mean Square Residual (SRMR) fit indices were used for the model evaluation. The Satorra-Bentler correction, known as MLM estimator, was utilized in Mplus to estimate model parameters. Since Cheung and Lau (2008) pointed out the possibility of Type I error rate inflation with small sample sizes for the bootstrapping method, the Delta method was preferred to explain the indirect or mediation effects (MacKinnon, 2008). Assumption checks and descriptive and reliability analyses were conducted through IBM SPSS 22 (IBM SPSS Corp., 2013).

Results

Assumptions of SEM

The number of participants was above the sample size criterion of 200 to perform the SEM (Kline, 2016). Afterward, the absence of outliers, univariate and multivariate normality, linearity, homoscedasticity, and multicollinearity assumptions were examined (Tabachnick & Fidell, 2019). Accordingly, eight cases were removed based on the inspection of univariate and multivariate outliers. As displayed in Table 1, no variable in this study correlated with the other variable with a value of .90 or above, so there was no multicollinearity issue among the variables (Field, 2018). Lastly, Satorra-Bentler correction was employed in Mplus using an MLM estimator, which was robust to non-normality (Muthen & Muthen, 2010) regarding Mardia's test statistics. The Delta method was employed in Mplus to explain the indirect effects on the model (MacKinnon, 2008).

Descriptive Analyses

As presented in Table 1, teachers' self-efficacy for classroom management (*M*=7.18, *SD*=.88) and instructional strategies (*M*=7.07, *SD*=.89) were higher than their self-efficacy for student engagement (*M*=6.62, *SD*=.95). Teachers' beliefs about constructivist teaching (*M*=4.60, *SD*=.54) were also firmer than their beliefs about traditional teaching (*M*=4.31, *SD*=.67). Besides, teachers' cognitive readiness had the highest mean (*M*=4.11, *SD*=.56), followed by their intentional readiness (*M*=4.01, *SD*=.53) and emotional readiness (*M*=3.97, *SD*=.69). The dimensions of teachers' attitudes towards the constructivist curriculum concerning implementation (*M*=3.79, *SD*=.54) and getting information (*M*=3.78, *SD*=.60) were nearly similar. Most of the correlations were also significant.

Table 1

Descriptive Statistics Results and Intercorrelations between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1.Efficacy for Student Engagement[a]	-									
2.Efficacy for Instructional Strategies[a]	.78*	-								
3.Efficacy for Classroom Management[a]	.71*	.80*	-							
4.Beliefs for Constructivist Teaching[b]	.28*	.23*	.23*	-						
5.Beliefs for Traditional Teaching[b]	.21*	.24*	.21*	.39*	-					
6.Intentional Readiness[c]	.22*	.21*	.16*	.38*	.20*	-				
7.Emotional Readiness[c]	.14*	.17*	.17*	.20*	.01	.51*	-			
8.Cognitive Readiness[c]	.24*	.29*	.22*	.38*	.21*	.74*	.51*	-		
9.Getting Information[c]	.17*	.23*	.18*	.28*	.02	.42*	.38*	.35*	-	
10.Implementation[c]	.24*	.24*	.18*	.36*	.19*	.55*	.32*	.47*	.65*	-
M	6.62	7.07	7.18	4.60	4.31	4.01	3.97	4.11	3.78	3.79
SD	.95	.89	.88	.54	.67	.53	.69	.56	.60	.54

**p <.001 [a]9-point scale, ,[b] 6-point scale, [c]5-point scale*

The Measurement Model

The relationships between items/item parcels of beliefs about teaching, efficacy beliefs for teaching, readiness for change and attitudes towards constructivist curriculum dimensions were examined by a ten-factor measurement model. The CFA with Satorra-Bentler correction revealed a reasonable fit: $\chi 2$ (1494) = 2626.19, p < .001, RMSEA = .043 (90% CI = .040-.045), CFI = .90, NNFI = .89, and SRMR = .049 (Browne & Cudeck, 1993; Hu & Bentler, 1999). The standardized estimates ranged from .40 to .85, which were all above the cut-off point of .30 (Brown, 2006), and significantly contributed to the proposed dimensions.

The Structural Model

The SEM model yielded an acceptable fit: $\chi 2$ (1494) = 2626.19, p < .001, RMSEA = .043 (90% *CI* = .040-.045), CFI = .90, NNFI = .89, and SRMR = .049 (Browne & Cudeck, 1993; Hu & Bentler, 1999). Table 2 presents direct, total indirect and total effects.

Table 2

Standardized Direct, Total Indirect, and Total Effects

		Self-efficacy for Student Engagement	*Self-efficacy for Instructional Strategies*	*Self-efficacy for Classroom Management*	*Beliefs about Constructivist Teaching*	*Beliefs about Traditional Teaching*	*Intentional Readiness*	*Emotional Readiness*	*Cognitive Readiness*
Intentional Readiness	Direct Effect	-.02	.26	-.15	.48***	-.06	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.02	.26	-.15	.48***	-.06	-	-	-
Emotional Readiness	Direct Effect	-.15	.25	.04	.36***	-.22**	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.15	.25	.04	.36***	-.22**	-	-	-
Cognitive Readiness	Direct Effect	-.27*	.63***	-.22*	.50***	-.06	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.27*	.63***	-.22*	.50***	-.06	-	-	-
Getting Information	Direct Effect	-.36*	.68*	-.23*	.31***	-.22***	.46***	.24**	-.29**
	Total Indirect	.03	-.003	.003	.16***	-.06	-	-	-
	Total	-.33*	.67	-.23*	.48***	-.28***	.46***	.24**	-.29**
Implementation	Direct Effect	-.03	.20	-.10	.20**	-.01	.56***	-.009	-.06
	Total Indirect	.005	.10	-.07	.24***	-.03	-	-	-
	Total	-.02	.30	-.17	.44***	-.04	.56***	-.009	-.06

$^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

R.Q.1. How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change? The tested structural model is displayed in Figure 2. Accordingly, teachers' self-efficacy for instructional strategies (γ=.68, p<.05), beliefs about constructivist teaching (γ=.31, p<.001), intentional readiness (β=.46, p<.001), and emotional readiness (β=.24, p<.01) were positively related to teachers' attitudes towards the constructivist curriculum concerning getting information. As teachers' self-efficacy for instructional strategies, beliefs about constructivist teaching, intentional and emotional readiness increased, they had higher attitudes towards the constructivist curriculum for getting information. On the other hand, teachers' self-efficacy for student engagement (γ=-.36, p<.05), self-efficacy for classroom management (γ=-.23, p<.05), beliefs about traditional teaching (γ=-.22, p<.001), and cognitive readiness (β=-.29, p<.001) were negatively associated with getting information. Increased self-efficacy for student engagement and classroom management, traditional teaching beliefs, and cognitive readiness were associated with a decline in attitudes towards the constructivist curriculum for getting information.

In addition, teachers' beliefs about constructivist teaching (γ=.20, p<.01) and intentional readiness (β=.56, p<.001) were positively related to their attitudes towards the constructivist curriculum for implementation. Teachers with firmer constructivist teaching beliefs and higher intentional readiness had higher attitudes towards implementing the constructivist curriculum. However, the relationships between the implementation dimension and self-efficacy for student engagement (γ=-.03, p>.05), instructional strategies (γ=.20, p>.05), classroom management (γ=-.10, p>.05); beliefs about traditional teaching (γ=-.01, p>.05); emotional readiness (β=-.009, p>.05) and cognitive readiness (β=-.06, p>.06) were non-significant.

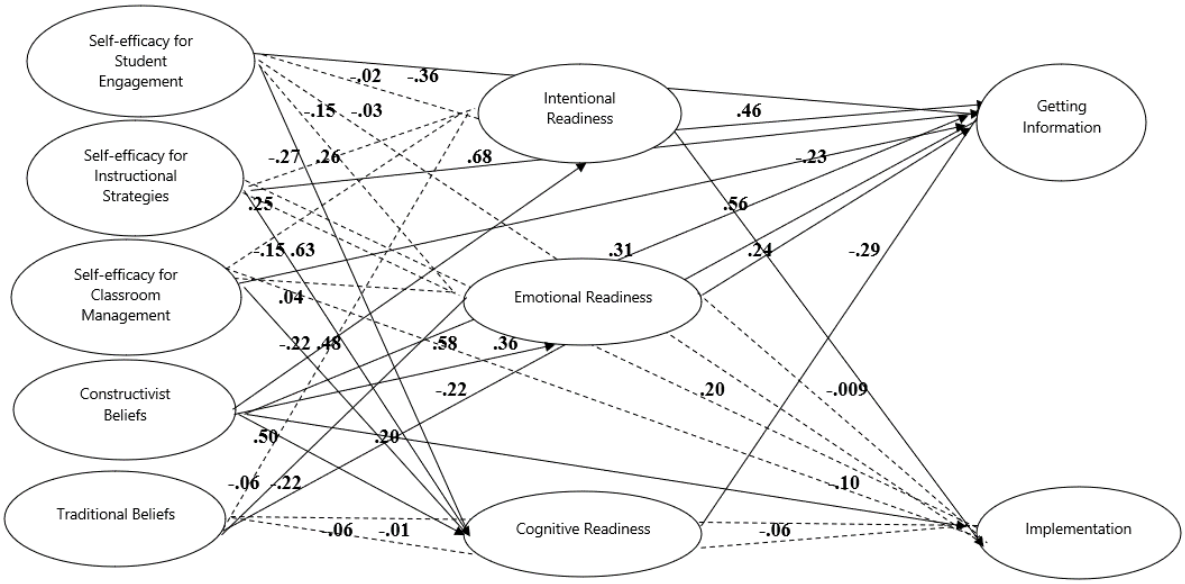
R.Q.2. How do teachers' self-efficacy beliefs for teaching and beliefs about teaching relate to their readiness for change? Teachers' cognitive readiness was negatively associated with their self-efficacy for student engagement (γ=-.27, p<.05) and self-efficacy for classroom management (γ=-.22, p<.05) but positively linked to their self-efficacy for instructional strategies (γ=.63, p<.001) and beliefs about constructivist teaching (γ=.50, p<.001). Teachers with an increased self-efficacy for student engagement and classroom management experienced less cognitive readiness. However, when teachers' self-efficacy for instructional strategies and constructivist teaching beliefs increased, they reported higher cognitive readiness. Besides, teachers' emotional readiness was positively related to their constructivist teaching beliefs (γ=.36, p<.001) but negatively linked to beliefs about traditional teaching (γ=-.22, p<.01). Teachers' intentional readiness was also positively associated with constructivist teaching beliefs (γ=.48, p<.001). When teachers had firmer beliefs about constructivist teaching, their emotional and intentional readiness rose.

R.Q.3. What is the mediator role of teachers' readiness for change on the relationship between teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their attitudes towards the implementation of the constructivist curriculum change? Teachers' beliefs about constructivist teaching had positive significant indirect effects on teachers' attitudes towards the constructivist curriculum for getting information (.16, p<.001) and implementation (.24, p<.001) through readiness for change variables. When total indirect effects were brought down, the effects of constructivist teaching beliefs were mediated through intentional readiness (.22, p<.01) and emotional readiness (.09, p<.01) but not cognitive readiness (-.14, p>.05) for getting information. For the implementation, the effects of constructivist teaching beliefs were mediated through intentional readiness (.27, p<.01) but not cognitive (-.028, p>.05) and emotional readiness (-.003, p>.05). Accordingly, an increase in constructivist teaching beliefs was associated with higher attitudes towards the constructivist curriculum for getting information through intentional and emotional readiness and higher attitudes for implementation through intentional readiness. On the other hand, teachers' beliefs about traditional teaching had non-significant indirect effects on teachers' attitudes towards the constructivist curriculum for getting information (-.06, p>.05) and implementation (-.03, p>.05). Teachers' self-efficacy for student engagement (.03, p> .05), instructional strategies (-.003, p>.05), and classroom management (.003, p>.05) had also a non-significant indirect effect on teachers' attitudes towards the constructivist curriculum for getting information. Besides, it was found that teachers' self-efficacy for student engagement (.005, p>.05), instructional strategies (.10, p>.05), and classroom management (-.07, p>.05) had a non-significant indirect effect on teachers' attitudes towards the constructivist curriculum for implementation. Overall, the structural model explained 25%, 13%, and 32% of the variance in intentional, emotional, and

cognitive readiness, 38% and 42% of the variance in teachers' attitudes towards the constructivist curriculum for getting information and implementation.

Figure 2

The Structural Model with Direct Effects



Note. Getting Information= Attitudes towards constructivist curriculum concerning getting information, Implementation= Attitudes towards constructivist curriculum concerning implementation. Only latent variables are described for clarity. Full lines referred to significant paths, dashed lines implied non-significant paths.

Discussion, Conclusion and Implications

This study provided evidence for the relationship among teachers' beliefs about teaching, self-efficacy beliefs for teaching, and attitudes towards the implementation of the constructivist curriculum through the mediating role of readiness for change. To start with teachers' beliefs about teaching, constructivist teaching beliefs were positively related to teachers' attitudes towards the constructivist curriculum on *getting information* about and *implementing* the curriculum. Accordingly, the present study underlined the substantial role of constructivist teaching beliefs in embracing the requirements of the constructivist curriculum, displaying a willingness to learn about and implement the curriculum rather than resisting or ignoring the change. Previous research has also shown that teachers reflect their teaching beliefs into their attitudes in identifying their roles and teaching approaches (Chen, 2015; Czerniak & Lumpe, 1996; Roehrig & Kruse, 2005; Roehrig et al., 2007; Yates, 2006). On the other hand, the relationship between traditional teaching beliefs and teachers' attitudes towards the constructivist curriculum was negative particularly on *getting information about the curriculum*. In this respect, teachers who were on the traditional side resisted learning more about the new curriculum. This finding sounds reasonable because teachers who espouse traditional or teacher-centered beliefs foreground attention on subject-matter knowledge, which might contradict the principles of constructivist curriculum. Thus, they might refuse to learn about how to center the teaching learning process on tailoring students' needs and interests. Moreover, no relationship was found between traditional teaching beliefs and

teachers' attitudes towards *implementing* the constructivist curriculum. That is, although teachers on the constructivist side responded with a high commitment to implementing the new curriculum, teachers who hold traditional teaching beliefs displayed either positive or negative attitudes towards implementing it, which is consistent with the findings of Cobanoğlu and Capa Aydin (2015). Jenkins (2020) described that teachers might accept the changes and adapt them into their practices in curricular changes, or they might not accept them and pursue their existing approaches. In the present study, teachers in the traditional camp seemed to prefer staying in their zones by maintaining their current practices rather than making any changes and adaptations. Fang (1996) also found non-significant relationships between beliefs and behaviors, while there are also contrasting findings (e.g., Anagün et al., 2012; Cronin-Jones, 1991; Uzuntiryaki et al., 2010; Yaşar & Sözbilir, 2019). Although teachers' pedagogical beliefs influence their instructional behaviors (Pajares, 1992), the discrepancy between adopted teaching beliefs and instructional practices might stem from the complex nature of belief systems.

Second, as for teachers' self-efficacy beliefs for teaching, Bandura (1977) defines the concept of self-efficacy as people's beliefs about their capabilities to complete a designated task. Accordingly, teachers' self-efficacy beliefs for teaching might also be important in explaining the association between beliefs and attitudes thoroughly. In line with the findings of Cerit (2013), Cobanoglu and Capa-Aydin (2015), and Kasapoğlu and Duban (2012), when teachers in the present study felt capable of employing different instructional strategies, they tended to learn more about *(getting information)* the constructivist curriculum. In several research, teachers with firmer self-efficacy beliefs were found to be more interested in discovering innovative teaching methods as well (Evers et al., 2002; Guskey, 1988). Interestingly, the higher self-efficacy for student engagement and classroom management teachers experienced in the present study in the present study, the less desire they demonstrated to learn about the constructivist curriculum. Before the progressive paradigm shift in Türkiye, the behavioral approach had been in practice for a long period. Therefore, teachers might have been more accustomed to applying teacher-centered methods (Cerit, 2013) and more competent in their capabilities in preserving classroom dynamics. As a result, they might display apathy towards seeking unique ideas about the constructivist curriculum.

On the other hand, the non-significant relationship between teachers' self-efficacy for teaching dimensions and their attitudes towards *implementing* the constructivist curriculum might be due to the mismatch between teachers' beliefs and actions. Although teachers might feel more capable of the constructivist curriculum over the years, they still might be reluctant to implement the curricular change in their classrooms due to their firmly established instructional habits. In addition, social desirability might be another important reason explaining the non-significant relationship between teachers' self-efficacy and their attitudes towards *implementing* the constructivist curriculum. That is, as Yıldırım & Kasapoğlu (2015) argue, *constructivism* and *student-centered teaching* are fancy terms in education that teachers may easily overestimate their capability judgments and hide their feelings on self-report instruments. Similarly, those findings might indicate a calibration problem as the difference between people's judgments and actual performances (Pajares & Kranzler, 1995). Therefore, teachers might have overestimated their beliefs about their capabilities in *implementing* the constructivist curriculum, although they had difficulties understanding the general principles and the essential aspects of the new curriculum. Consequently, poor

calibration might have revealed inconsistency between teachers' self-efficacy beliefs and their attitudes towards implementing the constructivist curriculum.

Concerning teachers' readiness for change, our findings indicated that the increase in constructivist teaching beliefs also led teachers to accept the constructivist curriculum intentionally, emotionally, and cognitively. However, there was a negative relationship between teachers with traditional beliefs and particularly their emotional readiness for change. Teachers' belief systems may influence their readiness for large-scale changes in education. Remarkably, the curriculum reform brings a new theoretical framework to teaching-learning processes, so teachers might have difficulties putting those changes into practice with their existing knowledge, beliefs, and experiences (Davis, 2002; Elmas et al., 2014). Therefore, teachers might resist especially top-down changes in education (e.g., Du & Chaaban, 2020; Kondakci et al., 2017; van Driel et al., 2001). However, no relationship was found between beliefs about traditional teaching and teachers' intentional and cognitive readiness, which might stem from their strong adherence to traditional teaching as an instructional habit regardless of the necessity of the change or teachers' willingness to invest energy in it.

Teachers' readiness for the curriculum change might also be triggered by their self-efficacy beliefs for teaching. Similar to Cerit's (2013) discussion, teachers' self-efficacy in employing different instructional strategies might have contributed to their beliefs about the positive and negative aspects of the change in terms of cognitive readiness. However, teachers' self-efficacy beliefs for student engagement and classroom management did not support their cognitive readiness. Teachers might rely highly on their capabilities to manage a classroom and rather increase student engagement by utilizing teacher-centered approaches, weakening their beliefs in the necessity of curriculum change cognitively. On the other hand, teacher self-efficacy did not account for teachers' intentional and emotional readiness for change, contrary to Tuğtekin et al. (2018). This finding might be due to lower intentional and emotional readiness average scores, so the relatively stronger relationship between cognitive readiness and teacher self-efficacy might have statistically suppressed their effects in this study.

Furthermore, a positive relationship was found between teachers' intentional and emotional readiness and their attitudes towards the constructivist curriculum on *getting information* about the curriculum. This finding might be significant as teachers' feelings and willingness to learn about the curriculum might increase in time, which might lead them to learn more about the constructivist curriculum (Elmas et al., 2014). However, there was a negative relationship between teachers' cognitive readiness and their attitudes towards getting information about the constructivist curriculum. Unsurprisingly, teachers might have participated in numerous in-service professional development activities about the curriculum reform within the past sixteen years. Thus, their perceived competence with the knowledge and skills that they possess about the constructivist curriculum might distract them from learning more about it.

Moreover, as for the *implementation* of the curriculum, any increase in teachers' intentional readiness raised their attitudes towards implementing the constructivist curriculum. Aligned with the literature (Altun & Şahin, 2009; Yıldırım & Kasapoğlu, 2015), teachers' inability to apply constructivist practices might arise due to their lack of competence about putting the theory into practice. In this regard, teachers' desire to display change practices played a critical role in remedying their difficulties in curriculum implementation. However, teachers' emotional and cognitive readiness did not explain their attitudes towards implementing the constructivist

curriculum. One possible explanation is that teachers' might expect to observe the actual consequences of the curriculum implementation on students' learning outcomes (Guskey, 2002). For those teachers, behavior change would precede changes in cognition and emotion (Fullan, 1985).

Lastly, there was a partial mediation for the relationship between teachers' constructivist teaching beliefs and their attitudes towards *getting information* about the constructivist curriculum through their intentional and emotional readiness. When teachers adopt stronger constructivist teaching beliefs, they would like to invest more energy and effort in constructivist curriculum change intentionally, and also emotionally feel more positive. As a result, they would like to get more information about the constructivist curriculum. Similarly, for *implementing* the constructivist curriculum, constructivist teaching beliefs were mediated through intentional readiness. That is, as teachers' beliefs about constructivist teaching increased, they had higher intentions to implement the constructivist curriculum practices. Consequently, they had higher attitudes towards implementing the constructivist curriculum. Although previous literature indicated the relationship between teaching beliefs and attitudes (e.g., Roehrig & Kruse, 2005; Roehrig et al., 2007), there is a scarcity of research examining the mediation among those variables. Finally, no mediation was inspected for teachers' traditional teaching beliefs and their self-efficacy for student engagement, instructional strategies, and classroom management.

To conclude, while previous research widely reported the role of several external factors in curriculum change, this study found the human side of change as another significant factor for successful and sustainable change outcomes. There are several pedagogical implications of this research for successful curriculum change practices. First, as teachers' beliefs are critical in acknowledging the curriculum reform, teachers might be given a voice in curriculum development and reflect on their former experiences (Fang & Garland, 2014; Shin, 2020). In so doing, they would be the agents of change rather than the deliverers of the curriculum, which might, in turn, foster their beliefs and attitudes regarding the curriculum change (Troudi & Alwan, 2010). Second, as teachers' professional development is crucial for the success of curriculum changes (So & Kang, 2014; Wang, 2022), teachers should be provided with sufficient professional development opportunities where their readiness for change would potentially increase with less ambiguity about the given curriculum. In addition, these professional development activities should not only focus on developing teachers' knowledge and skills, but they should also aim at developing new insights into and positive attitudes towards the new curriculum (Park & Sung, 2013). Accordingly, the MoNE should aim at helping teachers both acquire knowledge and skills and also develop positive attitudes towards the curriculum change through professional development activities. To this end, the partnership and collaboration between the MoNE and universities should be strengthened to develop systematic, sustainable (Park & Sung, 2013) and more practice oriented (e.g., Altun & Şahin, 2009; Hazır-Bıkmaz, 2006; Yaşar & Sözbilir, 2019) in-service trainings for successful curriculum change outcomes.

As in any research, this study also has its limitations. First, the cause-and-effect relationships cannot be exerted from correlational research. Therefore, further studies might be designed as experimental research to test causality. Second, the cross-sectional self-report data provide a snapshot of the responses. Thus, there is a likelihood that teachers might have suppressed

their feelings at a particular point in time. Accordingly, longitudinal research might be adopted to put time lags between assessing predictor and criterion variables. Third, this study focuses only on teachers' beliefs and readiness for change, so alternative statistical models with different variables might be utilized to explain the remaining variance in identifying what predicts teachers' attitudes towards constructivist curriculum change. Lastly, future research might also incorporate qualitative measures to shed light on the possible factors influencing teachers' attitudes towards the curriculum change. Similarly, further research should focus on an in-depth investigation of the factors underlying teachers' beliefs about teaching, self-efficacy beliefs for teaching, and readiness for change through qualitative or mixed research methodologies.

Author Contributions

- The first author has made substantial contributions to the conceptualization, the research design, data collection, analysis and interpretation of the data, reporting the findings, and writing/editing/revising the manuscript.
- The second author has made substantial contributions to the conceptualization, the research design, data collection, analysis and interpretation of the data, reporting the findings, and writing/editing/revising the manuscript.

Acknowledgment

The authors would like to thank the teachers who participated in the study and shared their experiences and time.

Conflict of Interest

The authors declare that they have no conflict of interest.

References

Akdeniz, A. R., & Paniç, G. (2012). Yeni fizik öğretim programına ve uygulamasına yönelik öğretmen görüşleri [Teachers' opinions about new physics education program and its implementation]. *Milli Eğitim*, *196*, 290-307.

Allinder, R. M. (1994). The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education*, *17*, 86-95. https://doi.org/10.1177%2F088840649401700203

Altun, T., & Şahin, M. (2009). Değişen ilköğretim programının sınıf öğretmenleri üzerindeki psikolojik etkilerinin incelenmesi üzerine nitel bir araştırma [A qualitative study on psychological effects of change of curriculum on classroom teachers]. *Kastamonu Education Journal, 17*(1), 15-32.

Anagün, Ş. S., Yalçınoğlu, P., & Ersoy, A. (2013). Sınıf öğretmenlerinin fen ve teknoloji dersi öğretme-öğrenme sürecine ilişkin inançlarının yapılandırmacılık açısından incelenmesi [An investigation of primary school teachers' beliefs on teaching-learning processes in science and technology courses in terms of constructivism]. *Kuramsal Eğitimbilim Dergisi*, *5*(1), 1-16.

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations, 4*(1), 681–703. https://doi.org/10.1177%2F001872679304600601

Bailey, B. (2000). The impact of mandated change on teachers. In N. Bascia & A. Hargreaves (Eds). *The sharp edge of educational change: teaching, leading and the realities of reform* (pp. 112-128). Routledge Falmer.

Ball, S. J. (1990). *Politics and policy making in education: Explanations in policy sociology.* Routledge.

Bandalos, D. L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling*, *9*, 78–102. https://doi.org/10.1207/S15328007SEM0901_5

Bandalos, D. L., & Finney, S. J. (2001). Item parceling issues in structural equation modeling. In G. A. Marcoulides, & R. E. Schumacker (Eds.), *New developments and techniques in structural equation modelling* (pp. 269–296). Lawrence Erlbaum Associates, Inc.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. https://psycnet.apa.org/doi/10.1037/0033-295X.84.2.191

Beck, J., Czerniak, C. H., & Lumpe, A. (2000). An exploratory study of teachers' beliefs regarding the implementation of constructivism in their classrooms. *Journal of Science Teacher Education*, *11*(4), 323–343. https://doi.org/10.1023/A:1009481115135

Bozbayındır, F., & Alev, S. (2018). Öğretmenlerin özyeterlilik, proaktif kişilik ve değişime açıklık algıları arasındaki ilişkinin incelenmesi [The analysis of the relationship between self-efficacy, proactive personality and openness to change perceptions teachers]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, *19*(2), 293-311. https://doi.org/10.17679/inuefd.346666

Bray-Clark, N. & Bates, R. (2003). Self-efficacy beliefs and teacher effectiveness: Implications for professional development. *Professional Educator*, *26*(1), 13-22.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. Guilford Press.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Sage.

Bulut, M. (2007). Curriculum reform in Turkey: A case of primary school mathematics curriculum. *Eurasia Journal of Mathematics, Science* and *Technology Education, 3*(3), 203-212. https://doi.org/10.12973/ejmste/75399

Bümen, N. T., Çakar, E., & Yıldız, D. G. (2014). Curriculum fidelity and factors affecting fidelity in the Turkish context. *Educational Sciences: Theory and Practice*, *14*(1), 219-228. https://doi.org/10.12738/estp.2014.1.2020

Carless, D. (2013). Innovation in language teaching and learning. In C. Chapelle (Ed.), *The encyclopedia of Applied Linguistics* (pp. 1-4). Blackwell Publishing.

Carney, S. (2008). Learner-centred pedagogy in Tibet: International education reform in a local context. *Comparative Education, 44* (1), 39–55. https://doi.org/10.1080/03050060701809417

Carse, N. (2015). Primary teachers as physical education curriculum change agents. *European Physical Education Review*, *21*(3), 309-324. https://doi.org/10.1177%2F1356336X14567691

Cerit, Y. (2013). Relationship between teachers' self-efficacy beliefs and their willingness to implement curriculum reform. *International Journal of Educational Reform*, *22*(3), 252-270. https://doi.org/10.1177%2F105678791302200304

Chen, J. (2015). Teachers' conceptions of approaches to teaching: A Chinese perspective. *The Asia-Pacific Education Researcher*, *24*(2), 341-351. https://doi.org/10.1007/s40299-014-0184-3

Cheung, G. W., & Lau, R. S. (2008). Testing mediation and suppression effects of latent variables bootsrapping with structural equation models. *Organizational Research Methods*, *11*(2), 296-325. https://doi.org/10.1177%2F1094428107300343

Chi-Kin Lee, J. (2000). Teacher receptivity to curriculum change in the implementation stage: The case of environmental education in Hong Kong. *Journal of Curriculum Studies*, *32*(1), 95-115. https://doi.org/10.1080/002202700182871

Clasquin-Johnson, M. G. (2011). *Responses of early childhood teachers to curriculum change in South Africa* [Unpublished doctoral dissertation]. University of Pretoria.

Cobanoglu, R., & Capa-Aydin, Y. (2015). When early childhood teachers close the door: Self-reported fidelity to a mandated curriculum and teacher beliefs. *Early Childhood Research Quarterly*, *33*(4), 77-86. https://doi.org/10.1016/j.ecresq.2015.07.001

Crawley, F.E. (1990). Intentions of science teachers to use investigative teaching methods: A test of the theory of planned behavior. *Journal of Research in Science Teaching*, 27, 685-697. https://doi.org/10.1002/tea.3660270708

Cronin-Jones, L. L. (1991). Science teacher beliefs and their influence on curriculum implementation: Two case studies. *Journal of Research in Science Teaching*, *28*(3), 235–250. https://doi.org/10.1002/tea.3660280305

Czerniak, C. M., & Lumpe, A. T. (1996). Relationship between teacher beliefs and science education reform. *Journal of Science Teacher Education*, *7*(4), 247-266. https://doi.org/10.1007/BF00058659

Çapa, Y., Çakıroğlu, J., & Sarıkaya, H. (2005). The development and validation of a Turkish version of the teachers' sense of efficacy scale. *Education and Science*, *30*(137), 74-81.

Çayak, M. (2014). İlkokul öğretmenlerinin yapılandırmacı yaklaşımı uygulamaya yönelik tutumları ile özyeterlikleri arasındaki ilişki [Primary school teachers' self efficacy beliefs and attitudes about the implementation of the constructivist approach]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, *31*, 88–110. https://doi.org/10.21764/efd.32007

Çelik, O. T., & Atik, S. (2020). Preparing teachers to change: The effect of psychological empowerment on being ready for individual change. *Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 49*(1), 73-97. https://doi.org/10.14812/cuefd.635770

Çolak, E., & Yabaş, D. (2017). Investigating lesson plans of teacher candidates according to their self-efficacy levels towards implementation of constructivist approach. *Inonu University Journal of the Faculty of Education*, *18*(2), 86-103. https://doi.org/10.17679/inuefd.323420

Davis, K. (2002). Change is hard: What science teachers are telling us about reform and teacher learning of innovative practices. *Science Education, 87*(1), 3-30. https://doi.org/10.1002/sce.10037

De Mesquita, P. B., & Drake J. C. (1994). Educational reform and the self-efficacy beliefs of teachers implementing nongraded primary school programs. *Teaching and Teacher Education, 10*(3), 291–302. https://doi.org/10.1016/0742-051X(95)97311-9

Dharmasada, J. (2000, April 17-20). *Teachers' perspectives on constructivist teaching and learning* [Paper presentation]. The Annual Conference of the Association for Childhood Education International, Baltimore, MD, United States.

Du, X., & Chaaban, Y. (2020). Teachers' readiness for a statewide change to PjBL in primary education in Qatar. *The Interdisciplinary Journal of Problem-Based Learning*, *14*(1). https://doi.org/10.14434/ijpbl.v14i1.28591

Duru, S. (2006). *Pre-service elementary education teachers' beliefs about teaching and learning in Turkey* [Unpublished doctoral dissertation]. Indiana University.

Ekiz, D. (2004). Teacher professionalism and curriculum change: Primary school teachers' views of the new science curriculum. *Kastamonu Education Journal, 12*(2), 339-350.

Elliott, J. (1994). The teacher's role in curriculum development: An unresolved issue in English attempts at curriculum reform. *Curriculum Studies, 2*(1), 43–69. https://doi.org/10.1080/0965975940020103

Elkind, D. (2004). The problem with constructivism. *The Educational Forum*, *68*(4), 306–312. https://doi.org/10.1080/00131720408984646

Elmas, R., Ozturk, N., Irmak, M., & Cobern, W. W. (2014). An investigation of teacher response to national science curriculum reforms in Turkey. *Eurasian Journal of Physics and Chemistry Education, 6*(1), 2-33.

Emsza, B., Eliyana, A., & Istyarini, W. (2016). The relationship between self-efficacy and readiness for change: The mediator roles of employee empowerment. *Mediterranean Journal of Social Sciences*, *7*(3), 201-206. https://doi.org/10.5901/mjss.2016.v7n3s1p20

Eraslan, A. (2013). Teachers' reflections on the implementation of the new elementary school mathematics curriculum in Turkey. *Hacettepe University Journal of Education*, *28*(2), 152-165.

Ersel Kaymakamoğlu, S. (2018). Teachers' beliefs, perceived practice and actual classroom practice in relation to traditional (teacher-centered) and constructivist (learner-centered] teaching. *Journal of Education and Learning*, *7*(1), 29-37. http://doi.org/10.5539/jel.v7n1p29

Eskici, M. & Özen, R. (2018). Öğretmenlerin yapılandırmacı yaklaşıma ilişkin öz yeterlik algıları ile tutumları [Teachers' self efficacy perceptions and attitudes about the constructivist approach]. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 18*(4), 2050-2070. https://doi.org/10.17240/aibuefd.2018.18.41844-437148

Ersen Yanık, A. (2008). Primary school English teachers' perceptions of the English language curriculum of 6th, 7th and 8th grades. *Hacettepe University Journal of Education, 35,* 123-134.

Eskici, M. (2013). *İlköğretim Öğretmenlerinin yapılandırmacı yaklaşıma ilişkin öz yeterlik algıları ile tutumları* [Primary school teachers' self efficacy perceptions and attitudes about the constructivist approach] (Thesis No: 336313) [Doctoral Dissertation, Abant Izzet Baysal University]. Turkish Council of Higher Education Theses Center.

Evers, W. J. G., Brouwers, A., & Tomic, W. (2002). Burnout and self-efficacy: A study on teachers' beliefs when implementing an innovative educational system in the Netherlands. *British Journal of Educational Psychology*, *72*, 227–243. https://bpspsychub.onlinelibrary.wiley.com/doi/abs/10.1348/000709902158865

Evrekli, E., İnel, D., Balım, A. G., & Kesercioğlu, T. (2009). Fen öğretmen adaylarına yönelik yapılandırmacı yaklaşım tutum ölçeği: Geçerlilik ve güvenirlik çalışması [The attitude scale of constructivist approach for prospective science teachers: A study of validity and reliability]. *Turkish Science Education*, *6*(2), 134-152.

Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational Research*, *38*(1), 47-65. https://psycnet.apa.org/doi/10.1080/0013188960380104

Fang, X., & Garland, P. (2014). Teacher orientations to ELT curriculum reform: An ethnographic study in a chinese secondary school. *Asia-Pacific Education Researcher, 23*(2), 311-319. https://doi.org/10.1007/s40299-013-0106-9

Field, A. (2018). *Discovering statistics using IBM SPSS*. Sage Publications.

Fletcher, S. (1990, August). *The relationship of the school environment for teacher efficacy* [Paper presentation]. The Annual Meeting of the American Psychological Association, Boston, MA.

Fleurette Nelson, A. (2017). *Constructivist instructional practices and teacher beliefs related to secondary science teaching and learning* [Unpublished doctoral dissertation]. College of Saint Elizabeth.

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education*. The McGraw-Hill Companies, Inc.

Fullan, M. (1985). Change processes and strategies at the local level. *Elementary School Journal*, *85*(3), 390–421. https://doi.org/10.1086/461411

Fullan, M. (1991). Curriculum implementation. In A. Lewih (Ed.), *The international encyclopedia of curriculum* (pp. 378-384). Pergamon Press.

Fullan, M. (1993). *Change forces: Probing the depths of educational reform.* The Falmer Press.

Fullan, M. (2001). *Leading in a culture of change.* Jossey-Bass.

Fullan, M. (2007). *The new meaning of educational change*. Teachers College Press.

Gay, L. R., Mills, G. E., & Airasian, P. (2012). *Educational research: Competencies for analysis and applications*. Pearson.

Ghaith, G., & Yaghi, M. (1997). Relationships among experience, teacher efficacy, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education, 13,* 451-458. https://doi.org/10.1016/S0742-051X(96)00045-5

Goodson, I. F. (2000). *Professional knowledge, professional lives: Studies in education and change.* Open University Press.

Gouëdard, P., Pont, B., Hyttinen, S., & Huang, P. (2020). *Curriculum reform: A literature review to support effective implementation*. Organization for Economic Co-operation and

Development. https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/WKP(2020)27&docLanguage=En

Guskey, T. R. (1988). Teacher efficacy, self-concept, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education, 4,* 63-69. https://doi.org/10.1016/0742-051X(88)90025-X

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*(3), 381-391. https://doi.org/10.1080/135406002100000512

Ha, A., Lee, J., Chan, D., & Sum, R. (2004). Teachers' perceptions of in-service teacher training to support curriculum change in physical education: The Hong Kong experience. *Sport, Education and Society*, *9*(3), 421-438. https://doi.org/10.1080/1357332042331302467

Hair, J. F., Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis.* Pearson Education.

Han, Ç. (2013). Öğretmenlerin işlevsel paradigmaları ve eğitim reform [Teachers' functional paradigms and educational reform]. *Trakya University Journal of Education*, *3*(1), 59-79.

Haney, J. J., Czerniak, C. M., & Lumpe, A. T. (1996). Teacher beliefs and intentions regarding the implementation of science education reform strands. *Journal of Research in Science Teaching*, *33*(9), 971–993.

Handal, B., & Herrington, A. (2003). Mathematics teachers' beliefs and curriculum reform. *Mathematics Education Research Journal*, *15*(1), 59-69. https://doi.org/10.1007/BF03217369

Hargreaves, A., & Evans, R. (1998). *Beyond educational reform: Bringing teachers back in.* Open University Press.

Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly, 42*(1), 3–41. https://doi.org/10.1177%2F0013161X05277975

Harris, A. (2011). Reforming systems: Realizing the fourth way. *Journal of Educational Change, 12*(2), 159–171. https://doi.org/10.1007/s10833-011-9156-z

Harris, R., & Graham, S. (2019). Engaging with curriculum reform: Insights from English history teachers' willingness to support curriculum change. *Journal of Curriculum Studies*, *51*(1), 43-61. https://doi.org/10.1007/s10833-011-9156-z

Hazır-Bıkmaz, F. (2006). Yeni ilköğretim programları ve öğretmenler [New elementary curricula and teachers]. *Ankara University Journal of Faculty Educational Sciences, 39*(1), 97–116.

Herold, D. M., Fedor, D. B., Caldwell, S. D. (2007). Beyond change management: A multilevel investigation of contextual and personal influences on employees' commitment to change. *Journal of Applied Psychology*, *92*(4), 942-951. https://psycnet.apa.org/doi/10.1037/0021-9010.92.4.942

Hsiao, H. C., Chang, J. C., Tu. Y. L., & Chen, S. C. (2011). The impacts of self-efficacy in innovative work behavior for teachers. *International Journal of Social Science and Humanity*, *1*(1), 31-36. https://doi.org/10.7763/IJSSH.2011.V1.6

Hu, L. H., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: Multidisciplinary Journal*, *6*(1), 1-15. https://doi.org/10.1080/10705519909540118

IBM SPPS Corp. (2013). *IBM SPSS statistics for windows, Version 22.0* [Computer Software]. IBM Corp.

Irez, S., & Han, Ç. (2011). Educational reforms as paradigm shifts: Utilizing Kuhnian lenses for a better understanding of the meaning of, and resistance to, educational change. *International Journal of Environmental and Science Education, 6*(3), 251-266.

Isikoglu, N., Basturk, R., & Karaca, F. (2009). Assessing in-service teachers' instructional beliefs about student-centered education: A Turkish perspective. *Teaching and Teacher Education*, *25*, 350-356. https://doi.org/10.1016/j.tate.2008.08.004

Isler, I., & Cakiroglu, E. (2010). *Teachers' efficacy beliefs and perceptions regarding the implementation of new primary mathematics curriculum*. Proceedings of CERME 6, Lyon France.

Ittner, D., Hagenauer, G., & Hascher, T. (2019). Swiss principals' emotions, basic needs satisfaction and readiness for change during curriculum reform. *Journal of Educational Change*, *20*, 165-192. https://doi.org/10.1007/s10833-019-09339-1

İnal, K., Akkaymak, G., & Yıldırım, D. (2016). The Constructivist curriculum reform in Turkey in 2004: In fact what is constructed? In A. Darder, P. Mayo, & J. Paraskeva (Eds.), *International critical pedagogy reader* (pp. 163-168). Routledge.

İnandı, Y., Yeşil, H., Karatepe, R., & Uzun, A. (2015). Öğretmenlerin ve okul müdürlerinin öz yeterlikleri ile değişime gösterdikleri direnç arasındaki ilişkinin incelenmesi [The study of relationship between teachers' and principals' self-efficacy and resistance to change]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, *11*(2), 563-581. https://doi.org/10.17860/efd.08526

Janik, T., Janko, T., Peskova, K., Knecht, P., & Spurna, M. (2018). Czech teachers' attitudes towards curriculum reform implementation. *Human Affairs*, *28*, 54-74. http://dx.doi.org/10.1515/humaff-2018-0006

Jenkins, G. (2020). Teacher agency: The effects of active and passive responses to curriculum change. *The Australian Educational Researcher*, *47*, 167-181. http://dx.doi.org/10.1007/s13384-019-00334-2

Kagan, D. M. (1992). Implication of research on teacher belief. *Educational Psychologist*, *27*(1), 65-90. https://doi.org/10.1207/s15326985ep2701_6

Kasapoğlu, K., & Duban, N. (2012). Sınıf öğretmeni adaylarının yapılandırmacı yaklaşımı uygulamaya yönelik öz yeterlik inançlarını yordayan bir faktör olarak yapılandırmacı yaklaşıma yönelik tutumları (Afyonkarahisar ili örneği*). Mersin University Journal of the Faculty of Education, 8* (2), 85-96.

Kirk, D., & Macdonald, D. (2001). Teacher voice and ownership of curriculum change. *Journal of Curriculum Studies, 33*(5), 551–567. https://doi.org/10.1080/00220270010016874

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. The Guilford Press.

Koç, C. (2013). Sınıf öğretmenlerinin öz yeterlik algıları ve yapılandırmacı öğrenme ortamı oluşturma becerilerinin incelenmesi [An investigation into elementary school teachers'

self-efficacy beliefs and skills for creatıng constructivist learning environments]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *Özel Sayı* (1), 240-255.

Kondakci, Y., Beycioglu, K., Sincar, M., & Ugurlu, C. T. (2017). Readiness of teachers for change in schools. *International Journal of Leadership in Education*, *20*(2), 176-197. https://doi.org/10.1080/13603124.2015.1023361

Kondakçı, Y., Zayim, M., & Çalışkan, Ö. (2013). Development and validation of readiness for change scale. *Elementary Education Online, 12*(1), 23-35. https://hdl.handle.net/11511/75548

Korkmaz, İ. (2008). Evaluation of teachers for restructured elementary curriculum (Grades 1 to 5). *Education, 129*(2), 250-258.

Kosar Altinyelken, H. (2010). Curriculum change in Uganda: Teacher perspectives on the new thematic curriculum. *International Journal of Educational Development, 30*(2),151–61. https://doi.org/10.1016/j.ijedudev.2009.03.004

Kosar Altinyelken, H.K. (2011). Student-centred pedagogy in Turkey: conceptualizations, interpretations and practices. *Journal of Education Policy*, *26*(2), 137-160. https://doi.org/10.1080/02680939.2010.504886

Kosar Altinyelken, H. (2013). Teachers' principled resistance to curriculum change: A compelling case from Turkey. In A. Verger, H. Altinyelken, & M. De Koning (Eds.), *Global managerial education reforms and teachers: Emerging policies, controversies and issues in developing contexts* (pp. 109-126). Education International.

Kosar Altinyelken, H. (2015). Democratizing Turkey through student-centred pedagogy: Opportunities and pitfalls. *Comparative Education*, *51*(4), 484-501. https://doi.org/10.1080/03050068.2015.1081794

Kyriakides, L. (1997). Influences on primary teachers' practice: Some problems for curriculum change theory. *British Educational Research Journal*, *23*(1), 39-46. https://doi.org/10.1080/0141192970230104

Levin, B. (1998). An epidemic of education policy: (What) can we learn from each other? *Comparative Education, 34*(2), 131–141. https://doi.org/10.1080/03050069828234

Lieberman, A. (1997). Navigating the four C's: Building a bridge over troubled waters. In D. J. Flinders, & S. J. Thornton (Eds.), *The curriculum studies reader* (pp. 350–354). Routledge.

Liu, W., & Wang, Q. (2020). Walking with bound feet: teachers' lived experiences in China's English curriculum change. *Language, Culture and Curriculum*, *33*(3), 242-257.

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis.* Taylor & Francis Group/Lawrence Erlbaum Associates.

Mellegård, I., & Pettersen, K. D. (2016). Teachers' response to curriculum change: Balancing external and internal change forces. *Teacher Development*, *20*(2), 181-196. https://doi.org/10.1080/13664530.2016.1143871

Muofhe, L.T. (2008) The interpretation and implementation of reform: A case of Simon. *Equity & Excellence in Education*, *41*(4), 417-432. https://doi.org/10.1080/10665680802414205

Murphy, P. K., Delli, L. A., & Edwards, M. N. (2004). The good teacher and good teaching: Comparing beliefs of second-grade students, preservice teachers, and in-service teacher.

The Journal of Experimental Education, *72*(2), 69-92. https://doi.org/10.3200/JEXE.72.2.69-92

Muthen, L. K., & Muthen, B. O. (2010). *MPlus6* [Computer Software]. Muthen & Muthen.

Nie, Y., Tan, G. H., Liau, A. K., Lau, S., & Chua, B. L. (2013). The roles of teacher efficacy in instructional innovation: Its predictive relations to constructivist and didactic instruction. *Educational Research for Policy and Practice*, *12*, 67-77. https://doi.org/10.1007/s10671-012-9128-y

Nohl, A. M., & Somel, R. N. (2016). Curricular change in Turkey: Time, sequentiality, and differential power of actors in establishing a new knowledge path. *Journal of Educational Change*, *17*(3), 303-318.

Ocak, G. (2010). Yapılandırmacı öğrenme uygulamalarına yönelik öğretmen tutumları [Teacher attitudes towards constructivist learning practices]. *Gazi Eğitim Fakültesi Dergisi, 30*(3), 835-857.

Ogan-Bekiroğlu, F., & Akkoç, H. (2009). Preservice teachers' instructional beliefs and examination of consistency between beliefs and practices. *International Journal of Science and Mathematics Education*, *7*, 1173-1199. https://doi.org/10.1007/s10763-009-9157-z

Olibie, E. (2013). Emergent global curriculum trends: Implications for teachers as facilitators of curriculum change. *Journal of Education and Practice*, *4*(5), 161-167.

Oreg, S., Vakola, M., & Armenakis, A. (2011). Change recipients' reactions to organizational change: A 60-year review of quantitative studies. *The Journal of Applied Behavioral Science*, *47*(4), 461-524. https://doi.org/10.1177%2F0021886310396550

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, *62*(3), 307-332. https://doi.org/10.3102%2F00346543062003307

Pajares, F., & Kranzler, J. (1995). Self-efficacy beliefs and general mental ability in mathematical problem- solving. *Contemporary Educational Psychology*, *20*, 426–443. https://doi.org/10.1006/ceps.1995.1029

Pan, Y. H., Chou, H. S., Hsu, W. T., Li, C. H., & Hu, Y. L. (2013). Teacher self-efficacy and teaching practices in the health and physical education curriculum in Taiwan. *Social Behavior and Personality*, *4*(2), 241-250. http://dx.doi.org/10.2224/sbp.2013.41.2.241

Park, M., & Sung, Y. (2013). Teachers' perceptions of the resent curriculum reforms and their implementation: What can we learn from the case of Korean elementary teachers? *Asia Pacific Journal of Education, 33*(1), 15-33. https://doi.org/10.1080/02188791.2012.756391

Petko, D., Prasse, D., & Cantieni, A. (2018). The interplay of school readiness and teacher readiness for educational technology integration: A structural equation model. *Computers in the Schools*, 1-18. https://doi.org/10.1080/07380569.2018.1428007

Prawat, R. (1992). Teachers' beliefs about teaching and learning: A constructivist perspective. *American Journal of Education, 100*(3), 354-395. https://psycnet.apa.org/doi/10.1086/444021

Priestley, M. (2011). Schools, teachers, and curriculum change: A balancing act?. *Journal of Educational Change*, *12*(1), 1-23. https://doi.org/10.1007/s10833-010-9140-z

Raymond, A. M. (1997). Inconsistency between a beginning elementary school teacher's mathematics beliefs and teaching practice. *Journal for Research in Mathematics Education, 28*(5), 550-76. https://doi.org/10.2307/749691

Remillard, J. T. (2005). Examining key concepts in research on teachers' mathematics curricula. *Review of Educational Research, 75*(2), 211-246. https://doi.org/10.3102%2F00346543075002211

Roehrig, G. H., & Kruse, R. A. (2005). The role of teachers' beliefs and knowledge in the adoption of a reform-based curriculum. *School Science and Mathematics, 105*(8), 412-422. https://doi.org/10.1111/j.1949-8594.2005.tb18061.x

Roehrig, G. H., Kruse, R. A., & Kern, A. (2007). Teacher and school characteristics and their influence on curriculum implementation. *Journal of Research in Science Teaching, 44*(7), 883-907. https://doi.org/10.1002/TEA.20180

Simmons, J., & MacLean, J. (2018). Physical education teachers' perceptions of factors that inhibit and facilitate the enactment of curriculum change in a high-stakes exam climate. *Sport, Education and Society*, *23*(2), 186-202. https://doi.org/10.1080/13573322.2016.1155444

Shin, K. (2020). Examining Korean teachers' experiences teaching the centrally developed integrated curriculum. *The Asia-Pacific Education Researcher*. https://doi.org/10.1007/s40299-020-00537-7

So, K., & Kang, J. (2014). Curriculum reform in Korea: Issues and challenges for twenty-first century learning. *The Asia-Pacific Education Researcher*, *23*(4), 795-803. https://doi.org/10.1007/s40299-013-0161-2

Stokes, E. W. (2018). The development of the school reform model and reform readiness survey. *Research Issues in Contemporary Education*, *3*(1), 4-18.

Şeker, H. (2010). Applicability of the approaches-related beliefs of prospective teachers. *Problems of Education in the 21st Century*, *25*, 138-150.

Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics*. Allyn and Bacon.

Tafrova-Grigorova, A., Boiadjieva, E., Emilov, I., & Kirova, M. (2012). Science teachers' attitudes towards constructivist environment: A Bulgarian case. *Journal of Baltic Science Education*, *11*(2), 184-192.

Troudi, S., & Alwan, F. (2010). Teachers' feelings during curriculum change in the United Arab Emirates: Opening Pandora's box. *Teacher Development*, *14*(1), 107-121. https://doi.org/10.1080/13664531003696659

Tschannen-Moran, M., & Woolfok-Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783-805. https://doi.org/10.1016/S0742-051X(01)00036-1

Tuğtekin, U., Barut Tuğtekin, E., & Dursun, Ö. Ö. (2018). Analysis of readiness for change and self-efficacy perceptions of IT teachers and pre-service teachers. *Mersin University Journal of the Faculty of Education*,*14*(3),1200-1221. https://doi.org/10.17860/mersinefd.354881

Uslu, Ö., & Çakar Özkan, E. (2018). Öğretmenlerin değişim eğilimlerinin yordanmasında özyeterlik inançlarının ve tükenmişlik düzeylerinin rolü [The role of self-efficacy beliefs and burnout in predicting teachers' change tendencies]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, *48*, 278-300. https://doi.org/10.21764/maeuefd.387459

Utomo, E. (2005). *Challenges of curriculum reform in the context of decentralization: The response of teachers to a competency based curriculum (CBC) and its implementation in schools* [Unpublished doctoral dissertation]. University of Leeds.

Uzuntiryaki, E., Boz, Y., Kirbulut, D., & Bektas, O. (2010). Do pre-service chemistry teachers reflect their beliefs about constructivism in their teaching practices? *Research in Science Education, 40*(3), 403-423. https://doi.org/10.1007/s11165-009-9127-z

van Driel, J. H., Beijaard, D., & Verloop, N. (2001). Professional development and reform in science education: The role of teachers' practical knowledge. *Journal of Research in Science Teaching*, *38*(2), 137–158. https://doi.org/10.1002/1098-2736(200102)38:2%3C137::AID-TEA1001%3E3.0.CO;2-U

von Oppell, M. A., & Aldridge, S.M. (2020). The development and validation of a teacher belief survey for the constructivist classroom. *International Journal of Educational Reform*, 1-25. http://dx.doi.org/10.1177/1056787920939896

Walsh, G., & Gardner, J. (2006). Teachers' readiness to embrace change in the early years of schooling: A Northern Ireland perspective. *European Early Childhood Education Research Journal*, *14*(2), 127-140. https://doi.org/10.1080/13502930285209961

Wang, L. (2022). English language teacher agency in response to curriculum reform in China: An ecological approach. *Frontiers in Psychology*, *13*, 1-13. https://doi.org/10.3389/fpsyg.2022.935038

Weiner, B. J. (2009). A theory of organizational readiness for change. *Implementation Science*, *4*, 67–75. https://doi.org/10.1186/1748-5908-4-67

Webb, P. T. (2002). Teacher power: The exercise of professional autonomy in an era of strict accountability. *Teacher Development,* *6*(1), 47–61. https://doi.org/10.1080/13664530200200156

Woolley, S. L., Benjamin, W. J., & Woolley, A. W. (2004). Construct validity of a self-report measure of teacher beliefs related to constructivist and traditional approaches to teaching and learning. *Educational and Psychological Measurement*, *64*(2), 319-331. https://doi.org/10.1177%2F0013164403261189

Yapıcı, M., & Demirdelen, C. (2007). Teachers' views with regard to the primary 4th grade social sciences curriculum. *Elementary Education Online*, *6*(2), 204-212.

Yaşar, M.D., & Sözbilir, M. (2019). Investigating teachers' fidelity to constructivist chemistry curriculum in Turkey: Congruence between intended, perceived and observed curriculum in Turkey. *International Journal of Physics and Chemistry Education*, *11*(4), 93-104. https://doi.org/10.12973/ijpce/84519

Yates, S. M. (2006). *Elementary teachers' mathematics beliefs and teaching practices after a curriculum reform*. Proceedings of the 30th Conference of the International Group for the Psychology of Mathematics Education.

Yıldırım, A., & Kasapoğlu, K. (2015). Teachers' perceptions of constructivist curriculum change as a predictor of their perceptions of the implementation of constructivist teaching–learning activities. *Asia Pacific Education Review*, *16*(4), 565-577. https://doi.org/10.1007/s12564-015-9394-5

Zayim, M., & Kondakci, Y. (2015). An exploration of the relationship between readiness for change and organizational trust in Turkish public schools. *Educational Management*

Administration & Leadership, *43*(4), 610-625. https://doi.org/10.1177%2F1741143214523009

Zhang, F., & Liu, Y. (2014). A study of secondary school English teachers' beliefs in the context of curriculum reform in China. *Language Teaching Research*, *18*(2), 187-204. https://doi.org/10.1177%2F1362168813505940

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13*(1),* 2023, 123-157
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmenlerin Yapılandırmacı Program Değişikliğine Yönelik Tutumlarının İncelenmesi: Bir Yapısal Eşitlik Modeli

Giriş

Öğretim programlarında sıkça meydana gelen değişiklikler özellikle öğretmenlere önemli bir sorumluluk yüklemektedir. Programların başarılı sonuçlar vermesi öğretmenler tarafından nasıl ve ne ölçüde uygulandığına bağlı olduğundan, öğretmenlerin hedeflenen değişime aracı olma ya da değişimi zorlaştırma yönünden kilit bir rolü vardır (Ha ve diğ., 2004; Liu & Wang, 2020; Mellegård & Pettersen, 2016). Öte yandan, öğretmenlerin öğretim programı değişim süreçlerinde çoğu zaman duygu ve düşüncelerinin göz ardı edilmesi ve değişen programı yalnızca harfiyen uygulayacak bir teknisyen olarak görülmeleri nedeniyle mevcut uygulamalar çoğu zaman aynı şekilde süregelmekte ve beklenen değişim gerçekleşememektedir (Ball, 1990; Carse, 2015; Clasquin-Johnson, 2011; Hargreaves & Goodson, 2006; Harris, 2011; Priestley, 2011; Simmons & MacLean, 2018). Değişim sürecinde genellikle yapısal ve çevresel faktörlere odaklanıldığından (Harris & Graham, 2019) öğretmenlik mesleğinin kişisel boyutu çoğu zaman ihmal edilmektedir (Mellegård & Pettersen, 2016). Bu araştırmanın amacı, öğretmenlerin değişime hazır olma tutumlarının dolaylı etkisi yoluyla öğretmenlerin özyeterlik inançları ve öğrenme-öğretme ile ilgili inançlarının, yapılandırmacı yaklaşımı uygulamaya yönelik tutumlarını ne ölçüde yordadığını araştıran bir modeli test etmektir. Bu amaçla, şu araştırma sorusuna yanıt aranmıştır: Öğretmenlerin özyeterlik inançları, öğrenme-öğretme ile ilgili inançları ve değişime hazır olma tutumları ile yapılandırmacı yaklaşımı uygulamaya yönelik tutumları arasında nasıl bir ilişki vardır?

Yöntem

İlişkisel araştırma deseninde tasarlanan bu araştırmanın örneklemini küme örnekleme yoluyla ilkokul, ortaokul ve liselerden seçilen 422 öğretmen oluşturmuştur. Bu araştırma, TED Üniversitesi İnsan Araştırmaları Etik Kurulunun 29.07.2020 tarihli 2020/05 sayılı kararı ile alınan izinle yürütülmüştür. Veriler kişisel bilgi formu ve Değişime Hazır Olma Ölçeği, Öğretmen Özyeterlik Ölçeği, Öğretmen İnançları Ölçeği ve Öğretmenlerin Yapılandırmacı Yaklaşımı Uygulamaya Yönelik Tutum Ölçeği olmak üzere dört ölçek aracılığıyla toplanmıştır. Araştırmada önerilen modeli test etmek üzere yapısal eşitlik modellemesi (YEM) kullanılmıştır.

Bulgular

Araştırma sorusu kapsamında önerilen YEM uyum iyiliği indeksi değerleri kabul edilebilir düzeyde bulunmuştur (RMSEA = .043, CFI = .90, NNFI = .89, SRMR = .049). Buna göre:

- Yordayıcı değişkenler ve öğretmenlerin yapılandırmacı programa yönelik tutumları arasındaki doğrudan ilişki açısından; öğretmenlerin
    - öğretim stratejilerine yönelik özyeterlikleri, yapılandırmacı öğretim inançları ve kararlılık boyutu ve duygusal boyutta değişime hazır olmaları yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumlarını pozitif olarak yordamaktadır.
    - öğrenci katılımı ve sınıf yönetimine yönelik özyeterlikleri, geleneksel öğretim inançları ve bilişsel boyutta değişime hazır olmaları yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumlarını negatif olarak yordamaktadır.
    - yapılandırmacı öğretim inançları ve kararlılık boyutunda değişime hazır olmaları yapılandırmacı programı *uygulamaya* yönelik tutumlarını pozitif olarak yordamaktadır.
    - özyeterlik boyutları, geleneksel öğretim inançları, duygusal ve bilişsel boyutlarda değişime hazır olmaları ve yapılandırmacı programı *uygulamaya* yönelik tutumları arasında anlamlı bir ilişki bulunamamıştır.
- Yordayıcı ve yordanan değişkenler arasındaki ilişkide değişime hazır oluşun aracı rolü açısından; öğretmenlerin
    - yapılandırmacı öğretim inançları, yapılandırmacı program hakkında *bilgi edinmeye* dönük tutumlarını kararlılık boyutu ve duygusal boyutta değişime hazır olma ile dolaylı olarak yordamaktadır.
    - yapılandırmacı öğretim inançları, yapılandırmacı programı *uygulamaya* dönük tutumlarını kararlılık boyutunda değişime hazır olma ile dolaylı olarak yordamaktadır.

Tartışma, Sonuç ve Öneriler

Bu araştırmada değişime hazır olmanın aracı rolü ile öğretmenlerin öğrenme-öğretme inançları, özyeterlik inançları ve yapılandırmacı programı uygulamaya yönelik tutumları arasındaki ilişki incelenmiştir. Elde edilen bulgular, öğretmenlerin *yapılandırmacı öğretim inançlarının*, yapılandırmacı programı *öğrenme* ve *uygulamada* istekli olmaları üzerindeki önemine dikkat çekmektedir. Mevcut araştırmalar da bu durumu desteklemektedir (örn., Roehrig ve diğ., 2007). Öte yandan, öğretmenlerin *geleneksel öğretim inançları* ve yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumları arasında negatif bir ilişki bulunmuştur. Geleneksel öğretim inançlarına sahip öğretmenler konu bilgisine ağırlık verdiklerinden öğrenme-öğretim sürecini öğrencilerin ilgi ve ihtiyaçlarına göre uyarlama konusunda ilgili olmayabilirler. Ayrıca, bu öğretmenlerin programı *uygulamaya* yönelik tutumları arasında ise anlamlı olmayan bir ilişki bulunmuştur.

Öğretmen özyeterlikleri açısından, alanyazına paralel olarak (örn, Cobanoglu & Capa-Aydin, 2015; Kasapoğlu & Duban, 2012) farklı *öğretim stratejilerini kullanmaya* yönelik kendilerini yeterli hisseden öğretmenler yapılandırmacı program hakkında daha fazla *bilgi edinme*

eğilimindedirler. *Öğrenci katılımı* ve *sınıf yönetimine* dair özyeterlikleri yüksek olan öğretmenlerin ise *bilgi edinmeye* daha az istekli oldukları görülmüştür. Bu bakımdan, Türkiye'de uzun yıllar uygulamada olan davranışçı yaklaşımın etkisiyle öğretmenler öğretmen merkezli uygulamalara daha alışkın (Cerit, 2013) ve sınıf yönetiminde kendilerini daha yetkin hissediyor olabilirler.

Öğretmenlerin özyeterlikleri ve programı *uygulamaya* dönük tutumları arasında anlamlı bir ilişkinin olmaması ise öğretmenlerin inançları ve davranışları arasındaki uyumsuzluklardan kaynaklanabilir. Çünkü yapılandırmacı program hakkında zaman içinde kendilerini yeterli hissetseler de yerleşik öğretim alışkanlıkları sebebiyle programla ilgili değişikleri uygulama konusunda isteksiz olabilirler. Benzer şekilde, bu bulgular bireylerin değerlendirmeleri ve gerçek performansları arasındaki fark olarak da bilinen kalibrasyon sorununa da işaret etmektedir (Pajares & Kranzler, 1995).

Değişime hazır oluş açısından, öğretmenlerin program hakkında *bilgi edinmeye* dönük tutumları ile kararlılık boyutu ve duygusal boyutta değişime hazır oluşları arasında pozitif; bilişsel boyutta değişime hazır oluşları arasında negatif bir ilişki bulunmaktadır. Öğretmenler zaman içinde programı öğrenmeye dönük daha yoğun duygu ve istek sahibi olabileceklerinden program hakkında daha fazla bilgi edinmek isteyebilirler (Elmas ve diğ., 2014). Ancak, şu ana kadar katılmış oldukları hizmet içi mesleki gelişim faaliyetleri ve bilgi ve becerilerine dönük algılanan yeterlikleri, onları program hakkında daha fazla öğrenmekten alıkoyabilir.

Ayrıca, öğretmenlerin kararlılık boyutunda değişime hazır oluşlarındaki artış, yapılandırmacı programı *uygulamaya* dönük tutumlarını artırmaktadır. Öğretmenlerin program değişimini uygulamaya dönük isteklerinin programı uygulama ile ilgili zorlukların giderilmesinde kritik bir rol oynayacağı düşünülmektedir. Ancak, duygusal ve bilişsel boyutta değişime hazır oluş programı uygulamaya dönük tutumu açıklamamaktadır. Bu durum, öğretmenlerin programla ilgili değişiklikleri öğrenme çıktıları üzerinde görmek istemelerinden kaynaklanabilir (Guskey, 2002).

Son olarak, öğretmenlerin yapılandırmacı öğretim inançları ile yapılandırmacı program hakkında *bilgi edinmeye* dönük tutumları arasındaki ilişkide kararlılık ve duygusal boyutlarda değişime hazır oluş değişkenlerinin kısmi aracılık rollerinin olduğu görülmektedir. Öğretmenlerin yapılandırmacı öğretim inançlarının artması ile program hakkında bilgi edinmeye dönük tutumları kararlılık ve duygusal boyutlarda değişime daha hazır hissetmelerinin dolaylı etkisiyle daha yüksek olacaktır. Benzer şekilde, yapılandırmacı öğretim inançları ile yapılandırmacı programı *uygulamaya* dönük tutumları arasında kararlılık boyutunda değişime hazır oluşun aracı değişken olduğu görülmektedir. Özetle, öğretmenlerin yapılandırmacı öğretim inançları arttıkça programı uygulamaya dönük tutumları kararlılık boyutunda değişime hazır oluşlarının dolaylı etkisiyle daha yüksek olacaktır.

Araştırma bulguları kapsamında öğretmen inançları program değişimini kabul etmede önemli bir rol oynamaktadır. Dolayısıyla, öğretmenlere program geliştirme sürecinde daha fazla söz hakkı verilebilir. Öğretmenlerin program uygulayıcıları olmaktan öte değişimin bir aracı olmaları onların program değişikliğine yönelik inanç ve tutumlarını besleyecektir (Troudi & Alwan, 2010). Program değişikliklerinin etkililiği ve sürdürülebilirliği için öğretmenlere programla ilgili daha az belirsizlik yaşayacakları ve değişime hazır olmalarının potansiyel olarak artacağı mesleki gelişim olanakları sağlanabilir. Ayrıca, MEB tarafından öğretmenlere sunulacak

mesleki gelişim faaliyetlerinin sadece bilgi ve beceri gelişimine odaklanmaması, aynı zamanda yeni programa yönelik olumlu tutum geliştirmeyi de amaçlaması önerilebilir. Bu bağlamda, MEB ve üniversiteler arasındaki iş birliğinin güçlendirilmesiyle sistemli, sürdürülebilir (Park & Sung, 2013) ve uygulamaya yönelik (örn., Yaşar & Sözbilir, 2019) hizmet içi mesleki gelişim faaliyetleri düzenlenebilir.

International Journal of Curriculum and Instructional Studies
13*(1),* 2023,158-175
www.ijocis.com

Understanding the Cognitive and Socio-Emotional Dimensions of Dialogic Teaching and Learning Approach

Serkan Ucan, İstanbul Medeniyet University, serkan.ucan@medeniyet.edu.tr, 0000-0002-3639-3171

Zehra Kılıç Özmen, İstanbul Medeniyet University, zehrakilic.ozmen@medeniyet.edu.tr, 0000-0001-7825-0016

Merve Taşkın Serbest, İstanbul Medeniyet University, taskinmerve@windowslive.com, 0000-0002-5760-867X

Keywords

Dialogic teaching and learning
Classroom dialogue
Cognitive dimension
Socio–emotional dimension

Article Info:
Received : 16-05-2022
Accepted : 10-02-2023
Published : 24-06-2023

DOI: 10.31704/ijocis.2023.007

Abstract

As a pedagogical approach aiming at increasing the quality of classroom talk, dialogic teaching and learning puts an emphasis on students' understanding and thinking and supports their learning process in numerous ways. As recent studies show, alongside promoting students' cognitive, social, and emotional development, dialogic teaching and learning pedagogy supports the acquisition of 21st-century skills as well as contributing to the internalisation of democratic values and active citizenship. Nevertheless, despite its importance for student learning, the present research literature also indicates that productive forms of dialogue are still not prevalent in most classrooms. Considering that one of the reasons for the limited adoption of this approach can be related to the tendency of considering dialogic pedagogy solely from a cognitive perspective (i.e. conceptualising dialogue as specific forms of verbal interactions and moves) while mostly ignoring its socio–emotional dimensions (e.g. classroom climate and ethos, interpersonal relations, emotions), this conceptual review study looks into well–known models and relevant literature to uncover and highlight the common characteristics of cognitive and socio–emotional dimensions of dialogic teaching and learning approach. It is hoped that this review study will be helpful for researchers and educators who wish to study and implement dialogic pedagogy in classrooms.

To cite this article: Ucan, S., Kılıç Özmen Z., & Taşkın Serbest, M. (2023). Understanding the cognitive and socio-emotional dimensions of dialogic teaching and learning approach. *International Journal of Curriculum and Instructional Studies, 13*(1), 158-175. https://doi.org/10.31704/ijocis.2023.007

Introduction

Dialogic teaching and learning is a pedagogical approach that utilises the power of classroom dialogue to help students achieve meaningful learning, advance their thinking and problem–solving skills, and develop more positive attitudes to schooling (Alexander, 2008; Kershner et al., 2020). In contrast to the traditional teacher–centred approach, in dialogic teaching and learning, students show active engagement in their learning process, having opportunities to share and explore diverse and contrasting ideas, critique others' opinions in an open–minded and respectful way, inquire open–ended questions, engage in collective reasoning and thinking, and co–construct knowledge and understanding (Alexander, 2008; Chow et al., 2021; Hennessy et al., 2018; Hennessy, Kershner et al. 2021; Lefstein & Snell, 2014; Mercer & Littleton, 2007).

In the current literature, dialogic teaching and learning is considered to support cognitive, social and emotional aspect of learning as well as the development of 21st-century skills, such as critical, reflective, and creative thinking and problem–solving (Alexander, 2020; Hennessy et al., 2018). Dialogic teaching and learning practices can increase student motivation and academic achievement, and contribute to students' social development and positive peer relationships (Alexander, 2020). It can also help students develop democratic attitude and awareness for active citizenship and hence enhance the quality of their lives in society (Alexander, 2020; Hennessy et al., 2016; Lefstein & Snell, 2014).

The number of research studies on dialogic teaching and learning has substantially increased internationally over the last decade. While these studies link dialogic teaching and learning to higher student academic achievement (Howe et al., 2019; Mercer & Sams, 2006), it is also revealed that despite the advancements in the field of education, teaching practices have not changed yet, and monologic teaching is still maintained as teachers usually prefer the authoritarian and monologic teaching approach and hence rarely utilise dialogic discourse in their classroom practices (Alexander, 2018; Howe & Abedin, 2013; Kutnick et al., 2002; Mercer et al., 2019; Muhonen et al., 2020; Reznitskaya & Gregory, 2013; Sedova et al., 2014).

The reasons why dialogic teaching and learning pedagogy is not widely observed in classrooms can be stated as teachers' inclination of using monologic approach in classroom communication (Hennessy et al., 2011; Teo, 2016), being pressured for keeping up with the curriculum requirements (Hennessy & Davies, 2019), crowded classrooms (Lefstein & Snell, 2014), and underestimating students' contributions to lessons (Boyd & Rubin, 2006). In addition to those reasons, uncertainty in the literature about what dialogic pedagogy is, how it should be applied, and the confusion arising from the existence of many similar but different models is also seen to be another crucial factor for the slow adoption of dialogic teaching and learning approach (Cui & Teo, 2021; Hennessy & Davies, 2019; Kim & Wilkinson, 2019). The dialogic teaching and learning models, such as 'dialogic teaching' (Alexander, 2008), 'dialogically organized instruction' (Nystrand, 1997), 'dialogic space' (Wegerif, 2007), 'accountable talk' (Michaels et al., 2008), 'collaborative reasoning' (Reznitskaya et al., 2009), 'thinking together' (Mercer, 2000), have all their own terminology and emphasise different aspects of classroom talk reflecting their own perspectives (Calcagni & Lago, 2018). As the review by Hennessy and Davies (2019) indicates, mostly due to this diversity and conceptual confusions across models, most teachers find it a cognitively demanding task to implement

dialogic teaching and learning pedagogy in practice, as they often lack understanding of its practices and principles, do not have sufficient knowledge and skills in applying productive classroom dialogue, and are not be able to build and maintain a socio–emotional climate supporting a dialogic classroom environment.

In this paper, we also argue that the tendency of approaching to classroom dialogue mostly from a cognitive perspective (i.e., conceptualising dialogue as specific forms of interactions and moves) and ignoring its socio–emotional dimensions (i.e., relational and affective aspects, such as interpersonal relations, classroom climate, values, attitudes, emotions) in research studies and intervention programs constitutes another reason for the low occurrence of dialogic teaching and learning in classrooms. As a number of researchers point out (Alexander, 2020; Cui & Teo, 2021; Hennessy, Calcagni et al. 2021; Kim & Wilkinson, 2019; Lefstein & Snell, 2014; Resnick et al., 2018), classroom dialogue has both cognitive and socio–emotional dimensions that interact and reinforce one another and mutually contribute to the adoption of a dialogic pedagogy in classrooms. Hence considering classroom dialogue solely as an interactional form without reference to its socio–emotional dimension appears inadequate and obstructs full understanding of dialogic pedagogy.

To contribute to a better understanding of the dialogic teaching and learning approach, this article presents a conceptual review study (Kennedy, 2007) that critically looks into several well–known models and relevant literature to uncover the features of cognitive and socio–emotional dimensions of dialogic pedagogy. For this purpose, in the following sections, five prominent dialogic teaching and learning models, 'dialogic teaching' (Alexander, 2020), 'dialogic teaching' (Burbules, 1993), 'dialogically organized instruction' (Nystrand, 1997), 'accountable talk' (Resnick & Hall, 1998) and 'thinking together' (Mercer, 2000), will be critically scrutinised and discussed along with other relevant literature. It is hoped that this review study will be helpful for researchers and educators who wish to study and implement dialogic teaching and learning approach in classrooms.

Dialogic Teaching and Learning Approach

As a pedagogical approach that views learning as social, interactive and dialogic (Mercer et al., 2020), dialogic teaching and learning is mainly rooted in Vygotsky's (1978) sociocultural theory, Bakhtin's (1981) theory of dialogism and Freire's (1970) dialogue–based educational approach. In his sociocultural theory, Vygotsky (1978) considers the interactive and effective use of language as playing an important role in the learning process, shaping the development of individual and collective thinking. Focusing on the interplay among language, interaction and cognitive development along with the influence of social and cultural context, he describes language both as a cultural tool, which facilitates social interactions and collective thinking and as a psychological tool, through which individuals internalise knowledge, skills and understanding emerging in social interaction and discourse. This perspective suggests that via language and social interaction, individuals think together, co–create meaning, and reach higher mental functions (Mercer et al., 2020).

In his theory of dialogism, Bakhtin (1981) views language as essentially dialogic, as he considers every utterance produced by each speaker in conversations to represent a link in the chain of dialogic interactions, since each utterance responds to a previous utterance(s) and anticipates a response from a subsequent utterance(s). In this perspective, a dialogic utterance always involves the interaction of at least two speakers, who position themselves in relation to

one another and recognise the diversity of voices, perspectives, values and beliefs in a dialogue that leads to the creation of new meaning and insights (Bakhtin, 1981; Hennessy et al., 2020). According to dialogism, classroom discourse becomes more dialogic when participants actively listen to each other, share and engage with each other's ideas, and mutually create new meanings via extended sequences of utterances (Bakhtin, 1981).

In his dialogue–based educational approach, Freire (1970) considers dialogue as vital for true learning to take place, as it creates a space in which individuals are able to understand the perspectives of others, critically reflect on their own perspective, and co–construct new knowledge and understanding. He views dialogue as a horizontal relationship between two or more individuals, involving reciprocal and constant communication, empathy, and mutual recognition (Vaughan, 2011). According to Freire (1970), while the process of dialogue is central to the development of critical thinking and critical consciousness of students, achieving dialogue is no simple process, as it requires each individual to be equal and have the right to speak, involves a collaborative activity in which individuals work with each other without imposing one's own ideas on another, and respectful and critical discussion of ideas rather than making simple exchanges or engaging in a hostile, polemical argument. Moreover, Freire (2018) describes five ideas (i.e., humility, hope, faith, love, and critical thinking) that he believes to be important for the occurrence of true dialogue among teachers and students. He contends that only when teachers employ these ideas in dialogue, a climate of mutual trust and positive connections with students can be established, and meaningful learning can occur and be fostered (Freire, 1970).

Mostly influenced by these theoretical perspectives, several researchers put forward different models of dialogic teaching and learning. Five of these models are explained and critically scrutinised below in terms of the cognitive and socio–emotional features of dialogic pedagogy they emphasise.

Alexander's Dialogic Teaching Model

Alexander (2017) defines his model of 'dialogic teaching' as a general pedagogical approach that encourages students to think, learn and understand by utilising the power of talk. Focusing on both teacher–student and student–student talk, he describes dialogic teaching as involving "a particular kind of interactive experience… to engage children, stimulate and extend their thinking, and advance their learning and understanding" (Alexander, 2006, p. 37).

In his comparative research conducted in the US, England, France, India, and Russia, Alexander (2006) studied classroom discourse practices in primary schools, and his analysis of observed and video–recorded lessons revealed the features of the quality of classroom dialogue that enhance student learning, and pointed out the influence of curricular and cultural context on its occurrence. Through the research, Alexander (2020) identified a set of justifications, principles, repertoires, and indicators that form the basis of his dialogic teaching model, touching both the cognitive and socio–emotional features of dialogic pedagogy.

In terms of justifications, Alexander (2020) propounds eight reasons why classroom dialogue is important. Among them, 'talk for thinking' ("talking and thinking are intimately related"), 'talk for learning' ("learning is a social process, and talk helps to scaffold thinking from the given to the new"), 'talk for mastery' ("through talk, students deepen their understanding within each curriculum domain, subject or area of learning"), 'talk for communicating' ("we use language

of all kinds to exchange and negotiate meaning and engage in everyday transactions") and 'talk for teaching' ("well-structured talk gives teachers access to students' thinking") refer to the cognitive benefits of dialogic teaching, while the remaining three justifications, 'talk for relating' ("talk builds and consolidates social relationships and gives us the confidence and competence to handle them"), 'talk for acculturation' ("talk expresses and helps us to engage with what we have in common with others in our community and culture") and 'talk for democratic engagement' ("talk is vital for civic participation and engagement"), concerns more about socio–emotional benefits of classroom dialogue (Alexander, 2020, p. 130).

Alexander (2020) also identifies six principles that help characterising dialogic teaching in the classroom. These principles are as follows:

- Collective: The classroom is a site of joint learning and enquiry, and, whether in groups or as a class, students and teachers are willing and able to address learning tasks together.
- Reciprocal: Participants listen to each other, share ideas, ask questions, and consider alternative viewpoints; and teachers ensure that they have ample opportunities to do so.
- Supportive: Students feel able to express ideas freely, without risk of embarrassment over contributions that are hesitant or tentative, or that might be judged 'wrong', and they help each other to reach common understandings.
- Cumulative: Participants build on their own and each other's contributions and chain them into coherent lines of thinking and understanding.
- Deliberative: Participants discuss and seek to resolve different points of view, they present and evaluate arguments and they work towards reasoned positions and outcomes.
- Purposeful: Classroom talk, though sometimes open-ended, is nevertheless structured with specific learning goals in view. (p. 130).

As Alexander (2020) clarifies, the first three of these principles (collective, reciprocal, and supportive) are more related to the socio–emotional features of dialogic teaching, namely "the classroom culture within which dialogue is most likely to prosper, its learning potential has the best chance of being realised, and students will be most at ease in venturing and discussing ideas" (p. 131). These principles clearly attach importance to active student participation in classroom talk, as well as the positive classroom climate which includes optimal mood, attitudes, behaviours and tone of teachers and students that are essential to maximise the potential of dialogue in the process of teaching and learning. On the other hand, the second (reciprocal) and the last three principles (cumulative, purposeful, and deliberative) appear to be associated with the cognitive features, namely the dialogic interaction forms and moves, which characterise the applications of dialogic pedagogy in classrooms.

In line with these principles, Alexander (2020) also introduced eight repertoires in his model that aim to help teachers organise interactions and effective classroom dialogue, and support students' agency in engaging talk and in constructing their knowledge and understanding of a learning topic. These repertoires are named (1) interactive culture, (2) interactive settings, (3) learning talk, (4) teaching talk, (5) questioning, (6) extending, (7) discussing, and (8) arguing. Among these, the first repertoire, interactive culture, includes some elements of socio–emotional dimension, as it portrays the "norms for the management of talk form part of the

wider framework of routines, rules, and rituals that shape and maintain the culture of the classroom" (Alexander, 2020, p. 136). The second repertoire, interactive settings, describes the classroom organisation in terms of activity types (e.g., whole class, group, individual), grouping (e.g., size, friendship, gender), time, and classroom space. The remaining repertoires characterise the specific forms of dialogic interactions and moves teachers and students are expected to utilise in the classroom.

Lastly, Alexander (2020) lists 15 indicators through which he describes both the cultural context and conditions (e.g., "agreed and respected norms for speaking, listening and discussion", "respect for the situation, needs, and rights of every student") as well as the characteristics of dialogic interactions and moves (e.g., "questions which invite more than simple recall", "exchanges which chain together into coherent and deepening lines of enquiry") needed for the successful implementation of dialogic teaching pedagogy (p. 163).

Burbules' Dialogic Teaching

In his dialogic teaching model, Nicholas Burbules (1993) describes dialogue as "a relation that we enter into — we can be caught up in it and carried away by it" rather than being something used or done (p. xii). He also views dialogue as an ongoing and evolving pedagogical process that is "directed toward the discovery and new understanding, which stands to improve the knowledge, insight, or sensitivity of its participants" (Burbules, 1993, p. 8). Considering the differences between individuals as central to dialogue, Burbules (1993) argues that "we need to be similar enough for communication to happen, but different enough to make it worthwhile" (p. 31). In this respect, he compares dialogue to playing a game in which participants experience tension, enjoyment, and creativity, as well as follow ground rules and use particular moves (Burbules, 1993).

Burbules (1993) contends that as a communicative relationship, dialogue includes cognitive and socio–emotional elements for learning. From a cognitive perspective, he argues that dialogue should include utterances, such as exchanging views, questioning, responding, and explaining, which lead to the development of new knowledge, understanding and insights. Moreover, Burbules (1993) suggests that "cognitive interest is not all that attracts us to the dialogical encounter, or keeps us in it when it becomes difficult or contentious", but the dialogue is also relational, conveying emotions, such as "concern, trust, respect, appreciation, affection, and hope – [which] are crucial to the bond that sustains a dialogical relation over time" (p. 41). Burbules (1993) also posits three rules, namely (1) participation (i.e., active involvement of all participants), (2) commitment (i.e., having intersubjective understanding, openness about one's positions, willingness to reach some meaningful outcome, respect for differences), and (3) reciprocity (i.e., showing mutual respect and concern, not taking for granted roles of expertise or privilege, assuming a dynamic reversible and reflexive stance). Similar to Alexander's (2020) first three principles (collective, reciprocal, supportive), these rules clearly emphasise the importance of creating a classroom culture that supports active participation of all individuals involved in the dialogue process and facilitate the emergence of a positive climate in which open–mindedness, mutual trust, respect for differences prevail.

Nystrand's Dialogically Organized Instruction

Mostly influenced by Bakhtin's (1981) theory of dialogism, Nystrand (1997) used the term 'dialogically organized instruction' to emphasise the role of instructional context and the ways

it is organised by teachers in unveiling the potential of language and dialogue. Nystrand and colleagues observed English lessons in over a hundred US secondary schools and identified the aspects of his model based on the pedagogic characteristics of the successful lessons observed. The lessons aimed at transmitting knowledge to students via an initiation–response–feedback (IRF) sequence was defined as 'monologically organized instruction', while 'dialogically organized instruction' was characterised as involving lessons aimed at enhancing students' understanding by valuing and providing a "space for student responses, accommodating and frequently intermingling teacher–student voices representing differing values, beliefs, and perspectives" (Nystrand, 1997, p. 18).

Nystrand's model involves both the cognitive and socio–emotional elements of dialogic pedagogy. In terms of cognitive dimension, Nystrand et al. (1997) characterises dialogic instruction via three teacher discourse moves, namely (1) posing authentic questions (which seek multiple and thoughtful answers, exploring students' views and ideas, rather than pre–specified answers), (2) uptake (incorporating students' previous responses into subsequent questions), and (3) high–level evaluation (instead of offering a simple evaluation or praise, acknowledging a student's contribution and incorporating their responses into "the discourse of the class, usually in the form of either an elaboration (or commentary) or a follow–up question") (p. 21). In addition to teacher questions, Nystrand et al. (2003) also point out the importance of encouraging students to freely voice their own ideas and ask engaged questions (e.g., eliciting and/or clarifying questions). In terms of socio–emotional dimension, the abovementioned teacher and student discourse moves are suggested to help cultivate a positive classroom culture in which teachers actively welcome and solicit students' ideas, make students feel that their questions and ideas are important and taken into consideration, allow students to take control of the flow of classroom dialogue showing active participation, and afford more agency in shaping their understanding and learning.

Resnick's Accountable Talk

This dialogic approach was introduced by Lauren Resnick and her colleagues from the US (Michaels et al., 2008; Resnick, 1999) as the most 'academically productive classroom talk'. Its authors suggest that for promoting thinking and learning, teacher and student talk should be accountable to the learning community, standards of reasoning, and knowledge (Michaels et al., 2008). Accountability to the learning community refers to the talk in which participants respect and listen to one another, build on each other's contributions, and ask each other clarifying or elaboration questions. Accountability to standards of reasoning requires participants to make logical connections and draw reasonable conclusions via explanations and self–corrections. Accountability to knowledge implies the talk that "based explicitly on facts, written texts or other publicly accessible information", and involves participants making "an effort to get their facts right and make explicit the evidence behind their claims or explanations" (Michaels et al., 2008, p. 289). As Michaels et al. (2008) assert, all three aspects of accountability are "inextricably intertwined, interdependent, and must co-occur if discourse is to promote academic learning" (p. 292).

In ensuring that classroom talk is accountable in terms of the three aspects, from a cognitive perspective, Resnick and her colleagues (Chapin et al., 2009; Resnick et al., 2007) list a variety of talk moves to help students to articulate and share their thinking, build on each other's thinking and deepen their understanding of concepts. Suggested teacher talk moves include:

- Revoicing (restating a student's contribution),
- Repeating (asking students to restate someone else's contribution),
- reasoning (asking students to apply their own reasoning to another reasoning shared),
- Adding on (prompting students for further participation),
- And waiting (giving students time to think) (Chapin et al., 2009, p. 13).

Resnick et al. (2015) also describe the moves of productive classroom talk from students' perspectives:

> This kind of talk begins with students thinking out loud about a domain concept: noticing something about a problem, puzzling through a surprising finding, or articulating, explaining, and reflecting upon their own reasoning. Students do not simply report facts they already know for the teacher to evaluate. Instead, with teacher guidance, they make public their half-formed ideas, questions, and nascent explanations. Other students take up their classmates' statements: challenging or clarifying a claim, adding their own questions, reasoning about a proposed solution, or offering a counterclaim or an alternate explanation (pp. 3-4).

In terms of socio–emotional dimension, akin to the collective, reciprocal and supportive principles posited by Alexander (2020), this approach also points out the importance of creating a positive classroom climate and promoting active student participation. As Michaels et al. (2010) state, accountable talk in the classroom requires a "climate of respect, trust, and risk–taking, with challenges, criticism, or disagreements directed at ideas, not at individuals" (p. 3). In addition, it is seen as important to encourage equitable, inclusive, and active student participation in classroom talk in which students feel comfortable presenting diverse ideas, listen and respond carefully to each other with interest, and respect and value each other's point of view (Michaels & O'Connor, 2015).

Mercer's Thinking Together Approach

In Thinking Together approach, in line with Vygotsky's (1978) sociocultural perspective, Neil Mercer and his colleagues view the use of language as a tool for collective thinking to solve problems collaboratively and co–create new meanings, knowledge, and understanding (Mercer 1995, 2000; Mercer & Littleton, 2007; Mercer & Dawes, 2008; Mercer et al., 2019). Specifically focusing on student–student group interactions, this approach is characterised by an educationally effective type of talk named 'exploratory talk' which "represents a distinctive social mode of thinking "based on principles of accountability, clarity, constructive criticism and receptiveness to well–argued proposals (Mercer & Littleton, 2007, p. 57). In contrast to the less effective talk types, such as disputational talk (e.g., involves disagreements, individualised decision making, and no attempts to make constructive contributions) or cumulative talk (e.g., involves up taking each other's opinions without any critique), as Littleton and Mercer (2013) describe, in the exploratory talk:

- Everyone engages critically but constructively with each other's ideas;
- Everyone offers the relevant information they have;
- Everyone's ideas are treated as worthy of consideration;
- Partners ask each other questions and answer them, ask for reasons and give them;
- Members of the group try to reach an agreement at each stage before progressing;
- To an observer of the group, the reasoning is 'visible' in the talk (p.16).

From a cognitive perspective, exploratory talk prevails when students think together (or interthink) while utilising a number of talk moves, such as exploring ideas, reasoning, asking questions, challenging, justifying, and elaborating upon ideas, acknowledging, 'revoicing' and building on each other's ideas, and working towards agreement (Mercer & Dawes, 2008).

In terms of socio–emotional perspective, 'thinking together' approach points out the importance of creating a dialogic culture via setting ground rules for talk based on mutual trust and respect and helping students achieve a 'meta–awareness' of the importance of exploratory talk (Mercer et al., 2019). As Mercer and Dawes (2008) state, exploratory talk is likely to emerge and be fostered when "a sense of trust and common endeavour" and "a shared understanding of how to engage in a productive discussion" exist among students (p. 66). The authors suggest that the ground rules which can facilitate such should include, such as the following:

- Everyone actively participates.
- Tentative ideas are treated with respect.
- Ideas offered for joint consideration may be challenged.
- Challenges are justified and alternative ideas or understandings are offered.
- Opinions are sought and considered before decisions are jointly made (Mercer & Dawes, 2008, p. 66)

Discussion

While emphasising different aspects of classroom talk (e.g., teacher–student and/or student–student talk) within a range of instructional contexts (e.g., whole class, small group), all the models explicated above suggest a number of dialogic interactions and moves that are considered to represent the productive classroom dialogue. Furthermore, while differing in the level of importance attached, they also recognise the socio–emotional aspects of classroom dynamics in creating and cultivating a dialogic environment that fosters and facilitates the use of dialogic interactions and moves by students and teachers. The following sections present a summary of the cognitive and socio–emotional features of dialogic teaching and learning by taking into account the abovementioned models as well as other relevant literature.

Cognitive Dimension

From a cognitive perspective, dialogic teaching and learning is conceptualised as specific forms of verbal interactions and moves (see Cui & Teo, 2021; Hennessy, Calcagni et al. 2021; Khong et al., 2019). As this review shows, dialogic teaching and learning models propose a number of dialogic interactions and moves that are thought to be productive for student learning. Taking into account also the recent literature that lists the shared features of dialogic interactions (e.g., Hardman, 2020; Hennessy et al., 2016; Howe et al., 2019; Vrikki et al., 2019), this review identifies the following categories of dialogic interactions and moves commonly observable across the dialogic teaching and learning models:

- *Invitations:* Emphasised in all the reviewed models and other review studies, this move involves asking open–ended ('how' and 'why'), thought–provoking, and/or genuine questions that invite for reasoning, clarifications, explanations, elaboration, coordination, comparison or evaluation of ideas, arguments or opinions shared previously (e.g., Alexander, 2020; Burbules, 1993; Hennessy et al., 2016; Howe et al., 2019; Mercer & Littleton, 2007; Nystrand et al., 2003; O'Connor et al., 2015; Vrikki et al.,

2019). This move can help with making students' ideas, understanding, and reasoning explicit to others, and have the function of evoking multiple and thoughtful responses and stimulating collective thinking.

- *Extended and reciprocal contributions:* Also included in all the reviewed models and other review studies, this dialogic move involves multiple participants (both students and teachers) reciprocally making extended contributions by building on, clarifying, justifying, elaborating, or evaluating own or others' contributions (e.g., Alexander, 2020; Burbules, 1993; Hennessy, Kershner et al., 2021; Howe et al., 2019; Mercer & Dawes, 2008; Nystrand et al., 2003; O'Connor et al., 2015; Vrikki et al., 2019).
- *Critical engagement with ideas:* Emphasised in four of the models and other review studies, this move involves students engaging critically and constructively with ideas shared, such as via challenging, counter–challenging, critiquing, and/or evaluating each other's viewpoints and reasons (e.g., Alexander, 2017; Howe et al., 2019; Maine & Čermáková, 2021; Mercer & Littleton, 2007; Michaels et al., 2008; Nystrand, 1997; Vrikki et al., 2019). As this move goes beyond simple idea expression, evaluation, or praise, teachers can find an opportunity to think together with their students and utilise their ideas and perspectives during the lesson, while students can explore different perspectives, reason and support their ideas, as well as resolve different points of view (Hennessy et al., 2020).
- *Links and connections:* Clearly evident in four of the reviewed models and other review studies, in this move, participants are expected to make links and identify connections amongst questions and contributions (e.g., ideas, arguments, perspectives) as well as with previous knowledge, experiences or a wider context (e.g., Alexander, 2020; Hennessy et al., 2016; Howe et al., 2019; Mercer & Dawes, 2008; Michaels et al., 2008; Nystrand, 1997; Vrikki et al., 2019).
- *Joint construction of knowledge:* Emphasised by all the reviewed models and other review studies, this move involves multiple students actively engaging in a continuous joint knowledge-building process through exploring, transforming, elaborating, critiquing, coordinating, and/or negotiating different ideas and viewpoints via cumulative exchanges (e.g., Alexander, 2008; Burbules, 1993; Hennessy et al., 2016; Mercer & Dawes, 2008; Michaels et al., 2008; Nystrand, 1997).
- *Consensus:* Acknowledged by the three of the reviewed models and other review studies, in this move, participants attempt to reach a consensus, to resolve inconsistencies among ideas shared (e.g., Alexander, 2020; Howe et al., 2019; Mercer & Littleton, 2007; Michaels et al., 2008; Vrikki et al. 2019). Even though achieving a consensus is not absolutely necessary, they are expected to demonstrate at least some commitment to work towards reaching a solution via indicating agreement/disagreement, supporting their positions with reasons, justifying, clarifying and/ or evaluating arguments (Hennessy et al., 2016).
- *Metacognitive reflection on dialogue:* Specifically emphasised by Mercer and Dawes (2008), Hennessy et al. (2020), and Howe et al. (2019), this move suggests both teachers and students to adopt a metacognitive perspective on their verbal interactions in terms of becoming aware of the value of dialogue and reflecting on its quality and productiveness in achieving learning objectives.

Socio–Emotional Dimension

As explained previously, the socio–emotional dimension of dialogic pedagogy typically refers to the relational and affective aspects of classroom dynamics, such as classroom climate and ethos, interpersonal relations, values, attitudes, and emotions. As this review shows, dialogic teaching and learning models point out the importance of creating and cultivating a classroom climate and ethos that promote active student participation and agency for facilitating the emergence of dialogic interactions and moves.

As Hennessy et al. (2016) state, dialogic pedagogy views students as "active rather than passive participants in the process of dialogic interactions" (p. 18). In line with this view, all the reviewed models and other studies highlight the importance of providing students with equal opportunities for active and inclusive involvement in classroom talk (e.g., Alexander, 2020; Burbules, 1993 Cui & Teo, 2021; Hennessy, Calcagni, et al., 2021; Howe et al., 2019; Kim & Wilkinson, 2019; Mercer & Littleton, 2007; Nystrand et al., 2003; O'Connor et al., 2015; Vrikki et al., 2019). In order to ensure an equitable participation of all students, it is considered important for teachers to act as co–learners with their students and make their classroom "a site of joint learning and enquiry" (Alexander, 2020, p. 130).

Furthermore, across the reviewed models, a positive classroom climate, characterised by mutual trust and respect, positive interpersonal relationships, being open–minded to new ideas, feeling valued, and feeling comfortable to speak, is also seen as a precondition for productive classroom dialogue and active student participation (Alexander, 2020; Burbules, 1993; Mercer et al., 2019; Michaels et al. 2010; Nystrand, 1997). As the recent reviews highlight, a dialogically safe classroom atmosphere can only be cultivated if teachers and students respect, trust and actively listen to each other, share their opinions freely without any fear, are open–minded to new, multiple and diverse ideas, remain open to criticism and negotiation of their own ideas, and show a willingness to change their minds (e.g., Hennessy et al., 2016; Hennessy, Calcagni, et al., 2021; Howe et al., 2019; Kershner et al., 2020; Khong et al., 2019).

Conclusion

With the purpose of better understanding of dialogic teaching and learning approach, this study looked into several prominent models and relevant literature to uncover the key features of cognitive and socio–emotional dimensions of dialogic pedagogy. As explained in detail above, from a cognitive perspective, the dialogic teaching and learning models primarily treat classroom dialogue as an interactional form, emphasising the significance of using specific types of dialogic interactions and discourse moves that help students to think and learn. From a socio–emotional perspective, they also point out the importance of the existence of a supportive classroom climate and ethos in enabling teachers and students to take part in an effective classroom dialogue process. In line with this result, similar to Kim and Wilkinson's (2019) stance, this review highlights the importance of viewing dialogic teaching and learning as a pedagogical framework that comprises both cognitive and socio–emotional dimensions.

Only recently, several researchers have started to look into socio–emotional dimension of classroom dialogue (e.g., Hennessy, Calcagni et al., 2021). Hence to have a better understanding of socio–emotional dimension of dialogic pedagogy, this study urges future research studies to explore further the role of relational and affective aspects of classroom

dynamics in supporting classroom dialogue across a wide variety of instructional settings, subject areas, and socio–cultural contexts. In particular, future research studies are suggested to focus on investigating the factors that can impede or facilitate the cultivation of a supportive classroom climate for active student participation in classroom dialogue. Moreover, it appears important for intervention programs to include socio–emotional dimension of a dialogic pedagogy in their design process, and explicitly highlight the best strategies and tools for helping teachers with the creation and cultivation of a dialogic classroom climate and ethos.

Author Contributions

All three authors conceived of the presented idea of the manuscript, carried out the literature review, developed the main arguments and wrote and edited the manuscript.

References

Alexander, R. J. (2006). *Towards dialogic teaching: Rethinking classroom talk* (3rd ed.). Dialogos.

Alexander, R. J. (2008). *Towards dialogic teaching: Rethinking classroom talk* (4th ed.). Dialogos.

Alexander, R. J. (2017). *Towards dialogic teaching: Rethinking classroom talk* (5th ed.). Dialogos.

Alexander, R. J. (2018) Developing dialogic teaching: Genesis, process, trial. *Research Papers in Education*, *33*(5), 561–598. https://doi.org/10.1080/02671522.2018.1481140

Alexander, R. (2020). *A dialogic teaching companion*. Routledge.

Bakhtin, M. M. (1981). *The dialogic imagination: Four essays by M. M. Bakhtin*. University of Texas Press.

Boyd, M., & Rubin, D. (2006). How contingent questioning promotes extended student talk: A function of display questions. *Journal of Literacy Research*, *38*(2), 141–169. https://doi.org/10.1207/s15548430jlr380

Burbules, N. C. (1993). *Dialogue in teaching: Theory and practice*. Teachers College Press.

Calcagni, E., & Lago, L. (2018). The three domains for dialogue: A framework for analysing dialogic approaches to teaching and learning. *Learning, Culture and Social Interaction*, *18*, 1–12. https://doi.org/10.1016/j.lcsi.2018.03.001

Chapin, S. H., O'Connor, M. C., & Anderson, N. C. (2009). *Classroom discussions: Using math talk to help students learn, Grades K-6.* Math Solutions.

Chow, B. W. Y., Hui, A. N. N., Li, Z., & Dong, Y. (2021). Dialogic teaching in English as a second language classroom: Its effects on first graders with different levels of vocabulary knowledge. *Language Teaching Research*, 1–23. https://doi.org/10.1177/13621688209813

Cui, R., & Teo, P. (2021). Dialogic education for classroom teaching: A critical review. *Language and Education*, *35(3)*, 187–203. https://doi.org/10.1080/09500782.2020.1837859

Freire, P. (1970). *In pedagogy of the oppressed. The Continuum International Publishing Group.* Retrieved from http://www.historyisaweapon.com/defcon2/pedagogy/pedagogychapter3.html

Freire, P. (2018). *Pedagogy of the oppressed: 50th anniversary edition* (4th ed.). Bloomsbury Academic.

Hardman, F. (2020). Embedding a dialogic pedagogy in the teaching of English. In J. Davison, & C. Daly (Eds.), *Debates in English teaching* (pp. 131–144). Routledge.

Hennessy, S., Mercer, N., & Warwick, P. (2011). A dialogic inquiry approach to working with teachers in developing classroom dialogue. *Teachers College Record*, *113*(9), 1906–1959. https://doi.org/10.1177/016146811111300902

Hennessy, S., Rojas–Drummond, S., Higham, R., Márquez, A. M., Maine, F., Ríos, R. M., Garcia–Carrion, R., Torreblanca, O. & Barrera, M. J. (2016). Developing a coding scheme for analysing classroom dialogue across educational contexts. *Learning, Culture and Social Interaction, 9*, 6–44. https://doi.org/10.1016/j.lcsi.2015.12.001

Hennessy, S., Dragovic, T., & Warwick, P. (2018). A research–informed, school–based professional development workshop programme to promote dialogic teaching with interactive technologies. *Professional Development in Education*, *44*(2), 145–168. https://doi.org/10.1080/19415257.2016.1258653

Hennessy, S., & Davies, M. (2019). Teacher professional development to support classroom dialogue. In N. Mercer, R. Wegerif, & L. Major (Eds.), *The Routledge international handbook of research on dialogic education* (pp. 238–253). Routledge.

Hennessy, S., Howe, C., Mercer, N., & Vrikki, M. (2020). Coding classroom dialogue: Methodological considerations for researchers. *Learning, Culture and Social Interaction*, *25*, 100–404. https://doi.org/10.1016/j.lcsi.2020.100404

Hennessy, S., Calcagni, E., Leung, A., & Mercer, N. (2021). An analysis of the forms of teacher–student dialogue that are most productive for learning. *Language and Education*, 1–26. https://doi.org/10.1080/09500782.2021.1956943

Hennessy, S., Kershner, R., Calcagni, E., & Ahmed, F. (2021). Supporting practitioner-led inquiry into classroom dialogue with a research-informed professional learning resource: A design-based approach. *Review of Education*, *9*(3), e3269. https://doi.org/10.1002/rev3.3269

Howe, C., & Abedin, M. (2013). Classroom dialogue: A systematic review across four decades of research. *Cambridge Journal of Education*, *43*(3), 325–356. https://doi.org/10.1080/0305764X.2013.786024

Howe, C., Hennessy, S., Mercer, N., Vrikki, M., & Wheatley, L. (2019). Teacher–student dialogue during classroom teaching: Does it really impact on student outcomes? *Journal of the Learning Sciences*, *28*(4–5), 462–512. https://doi.org/10.1080/10508406.2019.1573730

Kennedy, M. M. (2007). Defining a literature. *Educational Researcher*, *36*(3), 139–147. https://doi.org/10.3102/0013189X07299197

Kershner, R., Hennessy, S., Wegerif, R., & Ahmed, A. (2020). *Research methods for educational dialogue*. Bloomsbury Publishing.

Khong, T. D. H., Saito, E., & Gillies, R. M. (2019). Key issues in productive classroom talk and interventions. *Educational Review*, *71*(3), 334–349. https://doi.org/10.1080/00131911.2017.1410105

Kim, M. Y., & Wilkinson, I. A. (2019). What is dialogic teaching? Constructing, deconstructing, and reconstructing a pedagogy of classroom talk. *Learning, Culture and Social Interaction, 21*, 70–86. https://doi.org/10.1016/j.lcsi.2019.02.003

Kutnick, P., Blatchford, P., & Baines, E. (2002). Pupil groupings in primary school classrooms: Sites for learning and social pedagogy. *British Educational Research Journal*, *28*(2), 187–206. https://doi.org/10.1080/01411920120122149

Lefstein, A., & Snell, J. (2014). *Better than best practice: Developing teaching and learning through dialogue*. Routledge.

Littleton, K., & Mercer, N. (2013). *Interthinking: Putting talk to work*. Routledge.

Maine, F., & Čermáková, A. (2021). Using linguistic ethnography as a tool to analyse dialogic teaching in upper primary classrooms. *Learning, Culture and Social Interaction*, *29*, 100-500. https://doi.org/10.1016/j.lcsi.2021.100500

Mercer, N. (1995). *The guided construction of knowledge: Talk amongst teachers and learners.* Multilingual Matters.

Mercer, N. (2000). *Words & minds: How we use language to think together.* Routledge.

Mercer, N., & Sams, C. (2006). Teaching children how to use language to solve maths problems. *Language and Education, 20*(6), 507–528. https://doi.org/10.2167/le678.0

Mercer, N., & Littleton, K. (2007). *Dialogue and the development of children's thinking: A sociocultural approach*. Routledge.

Mercer, N., & Dawes, L. (2008). The value of exploratory talk. In N. Mercer & S. Hodgkinson, *Exploring talk in school* (pp. 55–72). Sage.

Mercer, N., Hennessy, S., & Warwick, P. (2019). Dialogue, thinking together and digital technology in the classroom: Some educational implications of a continuing line of inquiry. *International Journal of Educational Research, 97*, 187–199. https://doi.org/10.1016/j.ijer.2017.08.007

Mercer, N., Wegerif R., & Major L. (2020). *The Routledge international handbook of research on dialogic education*. Routledge.

Michaels, S., O'Connor, C., & Resnick, L. B. (2008). Deliberative discourse idealized and realized: Accountable talk in the classroom and in civic life. *Studies in Philosophy and Education, 27*(4), 283–297. https://doi.org/10.1007/s11217-007-9071-1

Michaels, S., O'Connor, M. C., Hall, M. W., & Resnick, L. B. (2010). *Accountable talk sourcebook: For classroom conversation that works.* University of Pittsburgh Institute for Learning.

Michaels, S., & O'Connor, C. (2015). Conceptualizing talk moves as tools: Professional development approaches for academically productive discussion. In L. B. Resnick, C. Asterhan, & S. N. Clarke (Eds.), *Socializing intelligence through talk* (pp. 347–362). AERA.

Muhonen, H., Pakarinen, E., Lerkkanen, M. K., Barza, L., & von Suchodoletz, A. (2020). Patterns of dialogic teaching in kindergarten classrooms of Finland and the United Arab Emirates. *Learning, Culture and Social Interaction*, *25*, 100264. https://doi.org/10.1016/j.lcsi.2018.11.011

Nystrand, M. (1997). Dialogic instruction: When recitation becomes conversation. In M. Nystrand, A. Gamoran, R. Kachur, & C. Prendergast (Eds.), *Opening dialogue: Understanding the dynamics of language and learning in the English classroom* (pp. 1-29). Teachers College Press.

Nystrand, M., Gamoran, A., Kachur, R., & Prendergast, C. (1997). *Opening dialogue: Understanding the dynamics of language and learning in the English classroom*. Teachers College Press.

Nystrand, M., Wu, L. L., Gamoran, A., Zeiser, S., & Long, D. A. (2003). Questions in time: Investigating the structure and dynamics of unfolding classroom discourse. *Discourse Processes*, *35*(2), 135-198. https://doi.org/10.1207/S15326950DP3502_3

O'Connor, C., Michaels, S., & Chapin, S. (2015). 'Scaling down' to explore the role of talk in learning: From district intervention to controlled classroom study. In L. B. Resnick, C. S. C. Asterhan, & S. N. Clarke (Eds.), *Socializing intelligence through academic talk and dialogue* (pp. 111–126). American Educational Research Association.

Resnick, L. B., & Hall, M. W. (1998). Learning organizations for sustainable education reform. *Daedalus, 127*(4), 89–118.

Resnick, L. B. (1999). Making America smarter. *Education Week Century Series, 18*(40). 38–40.

Resnick, L., O'Connor, C., & Michaels, S. (2007). *Classroom discourse, mathematical rigor, and student reasoning: An accountable talk literature review:* LearnLab, Pittsburgh Science of Learning Center.

Resnick, L., Asterhan, C., & Clarke, S. (Eds.). (2015). *Socializing intelligence through academic talk and dialogue.* AERA.

Resnick, L. B., Asterhan, C. S., Clarke, S. N., & Schantz, F. (2018). Next generation research in dialogic learning. *Wiley Handbook of Teaching and Learning*, 323-338.

Reznitskaya, A., Kuo, L. J., Clark, A. M., Miller, B., Jadallah, M., Anderson, R. C., & Nguyen-Jahiel, K. (2009). Collaborative reasoning: A dialogic approach to group discussions. *Cambridge Journal of Education*, *39*(1), 29–48. https://doi.org/10.1080/03057640802701952

Reznitskaya, A., & Gregory, M. (2013). Student thought and classroom language: Examining the mechanisms of change in dialogic teaching. *Educational Psychologist, 48*(2), 114–133. https://doi.org/10.1080/00461520.2013.775898

Sedova, K., Salamounova, Z., & Svaricek, R. (2014). Troubles with dialogic teaching. *Learning, Culture and Social Interaction, 3*(4), 274–285. https://doi.org/10.1016/j.lcsi.2014.04.001

Teo, P. (2016). Exploring the dialogic space in teaching: A study of teacher talk in the pre–university classroom in Singapore. *Teaching and Teacher Education*, *56*, 47–60. https://doi.org/10.1016/j.tate.2016.01.019

Vaughan, C. (2011). Dialogue, critical consciousness, and praxis. In I. D. Hook, B. Franks, & M. W. Bauer (Eds.), *The social psychology of communication* (pp. 46–66). Palgrave MacMillan.

Vrikki, M., Wheatley, L., Howe, C., Hennessy, S., & Mercer, N. (2019). Dialogic practices in primary school classrooms. *Language and Education*, *33*(1), 85–100. https://doi.org/10.1080/09500782.2018.1509988

Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.

Wegerif, R. (2007). *Dialogic education and technology: Expanding the space of learning*. Springer.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13*(1),* 2023, 158-175
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Diyalojik Öğretim ve Öğrenme Yaklaşımının Bilişsel ve Sosyo-Duygusal Boyutlarını Anlamak

Giriş

Diyalojik öğretim ve öğrenme, sınıftaki konuşmaların gücünden yararlanan pedagojik bir yaklaşımdır. Öğretmen merkezli monolojik yaklaşımın aksine, diyalojik öğretim ve öğrenmede öğrenciler, öğrenme süreçlerine aktif katılım gösterir, başkalarının görüşlerini açık fikirli, saygılı bir şekilde eleştirme, sorgulama fırsatı bulur; açık uçlu sorularla, kolektif akıl yürütmeyle bilgiyi ve anlayışı birlikte yapılandırır (Alexander, 2008; Chow vd., 2021; Hennessy vd., 2018; Hennessy, Kershner, vd., 2021; Mercer & Littleton, 2007). Diyalojik öğretim ve öğrenme yaklaşımının uygulanması öğrencilerin üst düzey düşünme becerilerini (eleştirel düşünme vb.) geliştirir (Alexander, 2020; Hennessy vd., 2018), derse karşı motivasyonlarını ve akademik başarılarını arttırır, sosyal gelişimi ve olumlu akran ilişkilerini destekler (Alexander, 2020).

Öğrencinin gelişimine katkıda bulunan diyalojik öğretim ve öğrenmenin sınıflarda yaygın olarak görülmemesinin nedenleri olarak, öğretmenlerin sınıf iletişiminde monolojik yaklaşımı kullanma eğilimleri (Hennessy vd., 2011; Teo, 2016), öğretim programı gerekliliklerine uyma konusunda baskı hissetmeleri (Hennessy & Davies, 2019), kalabalık sınıflar (Lefstein & Snell, 2014), öğrencilerin derslere katkısının önemsenmemesi (Boyd & Rubin, 2006) sayılabilir. Diyalojik pedagojinin ne olduğu, nasıl uygulanması gerektiği konusunda literatürdeki belirsizlikler, benzer ancak farklı birçok modelin varlığından kaynaklanan kafa karışıklığı da diyalojik öğretim ve öğrenmenin yavaş benimsenmesinde etkilidir. Ayrıca bu makalede, araştırma ve müdahale çalışmalarında sınıf diyaloğuna çoğunlukla bilişsel bakış açısıyla yaklaşıldığı belirlenmiştir. Sosyo-duygusal boyutun göz ardı edilmesinde sınıflarda diyalojik öğretim ve öğrenme yaklaşımının az görülmesinin de etkili olduğu düşünülmektedir. Çok sayıda araştırmacının vurguladığı üzere (Alexander, 2020; Cui & Teo, 2020; Hennessy, Calcagni, vd., 2021; Kim & Wilkinson, 2019; Resnick vd., 2018), sınıf diyaloğunun birbirleriyle etkileşen, sınıflarda diyalojik pedagojinin benimsenmesine katkıda bulunan, hem bilişsel hem de sosyo-duygusal boyutları vardır. Bundan dolayı, sınıf diyaloğunun sosyo-duygusal boyutunu ihmal ederek yalnızca bilişsel süreçler açısından değerlendirmek yetersizdir, diyalojik pedagojinin tam olarak anlaşılmasını engellemektedir.

Diyalojik öğretim ve öğrenme yaklaşımının daha iyi anlaşılmasına katkıda bulunmayı amaçlayan bu makale, diyalojik pedagojinin bilişsel ve sosyo-duygusal boyutlarının özelliklerini ortaya çıkarmak için literatürde iyi bilinen modelleri ve diğer ilgili literatürü eleştirel bir şekilde inceleyen kavramsal inceleme çalışması (Kennedy, 2007) sunmaktadır. Bu amaçla, 'diyalojik öğretim' (Alexander, 2020), 'diyalojik olarak düzenlenmiş öğretim' (Nystrand, 1997) 'diyalojik

öğretim' (Burbules, 1993), 'sorumlu konuşma ' (Resnick & Hall, 1998) ve 'keşfedici konuşma' (Mercer, 2000) modelleri diğer ilgili literatürle birlikte eleştirel bir şekilde incelenerek tartışılmaktadır. Bu çalışmanın, sınıflarda diyalojik öğretim ve öğrenme yaklaşımını incelemek ve uygulamak isteyen araştırmacılara, eğitimcilere yardımcı olacağı umulmaktadır.

Tartışma, Sonuç ve Öneriler

Diyalojik öğretim ve öğrenmenin temelleri Vygotsky'nin (1978) sosyokültürel, Bakhtin'in (1981) diyalogculuk teorisine ve Freire'nin (1970) diyaloğuna dayanır. Bu teorik bakış açılarından etkilenen bazı araştırmacılar, farklı diyalojik öğretim ve öğrenme modelleri öne sürmüşlerdir. Alexander (2020) diyalojik öğretim modelini, öğrencileri konuşmanın gücünden yararlanarak düşünmeye, öğrenmeye ve anlamaya teşvik eden genel bir pedagojik yaklaşım olarak tanımlamaktadır. Sınıftaki diyalojik öğretimi karakterize etmeye yardımcı olan kolektif, karşılıklı, destekleyici, kümülatif, müzakereci, amaçlı olmak üzere altı ilke tanımlar. Burbules (1993) diyalojik öğretimi kuralları gereği bir oyuna benzetmekte, bilişsel ve duyuşsal ilişkileri geliştiren iletişimsel bir ilişki olarak görmektedir. Michaels ve diğerleri (2008) diyalojik öğretim tanımlarında, öğrenmenin sorumlu konuşmalarla daha iyi gerçekleşebileceğini belirtmektedir. Nystrand (1997) diyalojik olarak düzenlenmiş öğretim terimini kullanır. Öğretmenin dersi organize ettiğini, öğretmen-öğrenci sorularının önemli olduğunu vurgular. Mercer (1995, 2000) birlikte düşünme yaklaşımı ile katılımcıların sorunlarını iş birliği içinde çözdüklerini, keşfedici konuşmalarla öğrencilerin kendi anlayışlarını oluşturabildiklerini belirtmektedir.

Yukarıda açıklanan tüm modeller üretken sınıf diyaloğunun temsil ettiği düşünülen bir dizi diyalojik etkileşim ve hareket önermektedir. Bu modeller, öğrenciler ve öğretmen tarafından diyalojik etkileşimlerin kullanımını teşvik eden, kolaylaştıran diyalojik bir ortam yaratma ve geliştirmede sınıf dinamiklerinin sosyo-duygusal yönlerini de tanımlar. Bu da modellerin bilişsel ve sosyo-duygusal boyutu beraber ele aldığını yani sınıf içi konuşmalar kadar pozitif sınıf katılımının oluşturulacağı sınıf ortamının da önemli olduğunu göstermektedir.

Bilişsel bakış açısına göre diyalojik öğretim ve öğrenme, sözel etkileşimlerin belirli biçimleri olarak tasarlanmaktadır (bkz. Cui & Teo, 2020; Hennessy, Calcagni, vd., 2021; Khong vd., 2019). Yukarıda bahsedilen modeller ve diyalojik etkileşimlerin ortak özelliklerini listeleyen güncel literatür (Hardman, 2020; Hennessy vd., 2016; Howe vd., 2019; Vrikki vd., 2019) dikkate alındığında yaygın olarak gözlemlenen diyalojik etkileşimler; açık uçlu sorular sormak (ör. özgün sorular sorarak açıklamalar isteme), verilen cevapların gerekçelerini istemek, sunulan fikirlere eleştirel bir şekilde yaklaşmak, onları sorgulamak ve üzerine yeni bilgi inşa etmek, konuyla ilgili bağlamı ve ilişkileri tanımlamak, tutarsızlıkları çözerek fikir birliğine varmaya çalışmak ve sınıfta gerçekleşen konuşmalar üzerine üstbilişsel yansıtmalar yapmak, şeklinde sıralanabilir.

Sosyo-duygusal boyut ise; sınıf iklimi, kişilerarası ilişkiler, değerler, tutumlar ve duygular gibi sınıf dinamiklerinin ilişkisel ve duygusal yönlerini kapsamaktadır. Bu makalenin ortaya koyduğu diyalojik öğretim ve öğrenme modelleri, diyalojik etkileşimlerin ortaya çıkmasını kolaylaştırmak için olumlu bir sınıf ikliminin yanı sıra aktif öğrenci katılımının teşvik edilmesinin önemini de vurgular. Diyalojik olarak güvenli bir sınıf ortamı ancak öğretmenler ve öğrenciler birbirlerine saygı ve güven duyar, birbirlerini dinler, fikirlerini özgürce paylaşır, yeni ve farklı fikirlere açık olur, kendi fikirlerini eleştirmeye, değiştirmeye istekli olduklarını gösterirlerse geliştirilebilir (ör. Hennessy vd., 2016; Howe vd., 2019; Kershner vd., 2020; Khong vd., 2019). Gözden geçirilen

modellerde, karşılıklı güven ve saygı, olumlu kişilerarası ilişkiler, yeni fikirlere açık olma, değer verildiğini hissetme, rahat konuşma ile karakterize edilen olumlu bir sınıf iklimi, üretken sınıf diyaloğu için bir ön koşul olarak görülmektedir (Alexander, 2020; Burbules, 1993; Mercer vd., 2019; Nystrand, 1997).

Diyalojik öğretim ve öğrenme yaklaşımının daha iyi anlaşılması amacıyla yapılan bu çalışmada, diyalojik pedagojinin bilişsel ve sosyo-duygusal boyutlarının temel özelliklerini ortaya çıkarmak için öne çıkan bazı modeller ve ilgili literatür incelenmiştir. Yukarıda ayrıntılı olarak açıklandığı üzere, bilişsel bir bakış açısından, diyalojik öğretim ve öğrenme modelleri, sınıf diyaloğunu öncelikle etkileşimli bir biçim olarak ele alır, öğrencilerin düşünmesine ve öğrenmesine yardımcı olan belirli diyalojik etkileşim türlerinin, söylem hareketlerinin kullanılmasının önemini vurgular. Sosyo-duygusal bakış açısıyla, öğretmenlerin ve öğrencilerin etkili bir sınıf içi diyalog sürecinde bulunmalarını sağlamada destekleyici bir sınıf ikliminin varlığı önemli görülmektedir.

Son yıllarda, araştırmacıların sınıf diyaloğunun sosyo-duygusal boyutunu incelemeye başladığı (ör. Hennessy, Calcagni, vd., 2021) görülmektedir. Bu çalışmanın, gelecekteki araştırmalara; çeşitli öğretim ortamlarında, konu alanlarında, sınıf diyaloğunu desteklemede sınıf dinamiklerinin ilişkisel ve sosyo-duygusal yönlerinin rolünü daha fazla keşfetmede yol göstereceği umulmaktadır. Sınıf diyaloğunda, aktif öğrenci katılımını destekleyici sınıf ikliminin geliştirilmesini etkileyen faktörlerin de araştırılmasına odaklanılabilir. Ayrıca, müdahale programlarının, diyalojik pedagojinin sosyo-duygusal boyutunu tasarım süreçlerine dâhil etmesi, öğretmenlere yardımcı olacak en iyi stratejileri, araçları açıkça vurgulaması da önemli görünmektedir.

International Journal of Curriculum and Instructional Studies
13*(1),* 2023, 176-199
www.ijocis.com

Evaluation of Preparatory Class Mathematics Curriculum of Social Sciences High School

Derya Göğebakan Yıldız, Manisa Celal Bayar University, derya.yildiz@cbu.edu.tr, 0000-0002-8831-8878

Seçil Bilgin, Ministry of National Education, secilbilgin45@gmail.com, 0000-0003-3544-3007

Sayime Arıkız, Ministry of National Education, sayimearikiz@hotmail.com, 0000-0002-7005-5344

Reyhan Tarhan, Ministry of National Education, reyhanaydemir45@gmail.com, 0000-0003-1150-0820

Keywords

Curriculum
Mathematics Curriculum
Curriculum Evaluation
Social Sciences High School

Article Info:

Received : 02-07-2022
Accepted : 21-05-2023
Published : 24-06-2023

DOI: *1*0.31704/ijocis.2023.008

Abstract

This study aims to evaluate mathematics curriculum used in social sciences high schools' preparatory classes based on Stufflebeam (CIPP) evaluation model in terms of context, input, process and product dimensions. With this aim, this study seeks to answer "How is preparatory class mathematics curriculum (PCMC) evaluated in terms of its context, input, process and products?" from the viewpoint of teachers and students. Case study method which is one of qualitative research methods is used in this study. The study is carried out in the first term of 2021-2022 academic year in a social sciences high school which uses National Ministry of Education's curriculum. Participants of the study are 65 students and four mathematics teachers. Mathematics achievement test and interview forms are used as data gathering tools. The results of the study revealed that both teachers and students have critical views of context, input, process and product dimensions of the curriculum; however, the criticisms intensify in process and product dimensions of the curriculum. Another finding of the study is that specific conditions of schools and characteristics of students and teachers have a major impact on commitment to curriculum, teaching-learning processes and learning outcomes. Some recommendations are made for implementers and researchers based on the findings of the study.

To cite this article: Göğebakan Yıldız, D., Bilgin, S., Arıkız, S., & Tarhan, R. (2023). Evaluation of preparatory class mathematics curriculum of social sciences high school. *International Journal of Curriculum and Instructional Studies, 13*(1), 176-199. https://doi.org/10.31704/ijocis.2023.008

Introduction

Studies for developing curriculum for secondary education have been carried out since the establishment of Turkish Republic. These studies for developing curriculum for secondary education initially were considered as preparing subject lists and aimed increasing students' general knowledge and also equipping them with necessary occupational skills in line with their interests and talents (Varış, 1996). The biggest impact on secondary school curricula was United States of America's starting educational reforms as a result of Soviet Union's sending first human made space rocket to the moon. United States of America's efforts to improve science programs soon took effect on Europe and European countries started similar programs. Educational programs were modernized and fundamental changes were made especially in the fields of science, mathematics, engineering and technology (Kazez, Durdu, & Göktaş, 2017).

In Türkiye secondary schools were considered as educational institutions only accessible to upper class families until mid-1950s. However, after this period they opened their gates to people from all socio-economic levels of society. Thereby secondary schools gained a higher diversity of talents, motivations, values and behavioral patterns. This situation resulted in upper class socio economic level children to turn onto Anatolian high schools and private schools for their secondary education. Although, nearly all students graduated from high schools could get into universities until 1950s and 1960s, the capacities of universities started to be insufficient for all high school graduates as a result of insufficient planning (Sakaoğlu, 2003).

The number of young population willing to get into universities increased with 1970s and universities started to be regarded as an opportunity to improve quality of life for individuals. 1960s and 1970s were the years of seeking for improvement and Türkiye was considerably affected from tendency to prioritize science and mathematics in secondary education which was prevalent notion worldwide. At the end of 1960s and 1970s major structural changes and modernizations were made in science and mathematics curricula of secondary schools especially in science high schools and Anatolian high schools (Ünal & Ünal, 2010). However, improving quality of social sciences education were neglected and as a result, content of social sciences lessons were not sufficient to equip individuals with abilities to connect with daily activities, adapt changing social conditions and find solutions to social problems they encounter (Demir & Demir, 2012).

A number of intellectuals, Sina Akşin, Murat Katoğlu, İlber Ortaylı and Mete Tunçay, expressed the idea that literature high schools should be established as a way to balance science high schools. This idea led up to the foundation for social sciences high schools. Although high schools which had been established before this period seemed to be convenient in terms of student selection and efficiency, the lack of a system related to social fields became obvious. It was clear that students gifted in social sciences field were placed in unrelated high schools as there weren't schools relevant to their abilities. Due to increasing importance of social sciences education in developed countries, emergence of career opportunities for individuals and widespread popularity of financial and political subjects made establishment of social sciences high schools an important agenda in Türkiye (Bilgili, 2001). Establishment of social sciences high schools were announced in 17 November 2003 in Government Gazette with issue number 25292 (Government Gazette, 2003).

The number of social sciences high schools, which were first established in 2003-2004 educational year with the name of Prof. Dr. Mümtaz Tarhan Social Sciences High Schools, were 32 until May 2014. However, with National Ministry of Education's decision to turn Anatolian Teacher High Schools into Social Sciences, Anatolian and Science High Schools formalized with enactment of "2014-2015 Educational Year Basic Regulations for Registrations into Secondary Schools", (Government Gazette, 2014) their number increased to 92. Selection and placement of students to social sciences high schools is carried out via central exam system (LGS) and most of the schools have boarding schools. Curricula in social sciences high schools mostly focus on social sciences and mathematics subjects. Graduates of social sciences high schools can opt for various fields such as law, political sciences, geography, literature, public administration and history as well as fields related to science and technology. One of the most important characteristics of social sciences high schools' is their 5 yearlong curricula in which the first year is preparatory class.

Preparatory classes were first introduced in Anatolian high schools with the aim of teaching some lessons in foreign languages (English, German, and French) as a way to improve students' foreign language knowledge and skills and prepare them to learn these lesson subjects in the targeted foreign languages in the upcoming years. Preparatory class weekly schedule in Anatolian high schools and social sciences high schools consists of 40 class hours in total. Distribution of lesson hours are 4 hours for Turkish Language and Literature, 4 hours for Physical Education, Art and Music, 3 hours for Mathematics, 20 hours for first foreign language, 4 hours for second foreign language, 4 hours for information technologies, 1 hour for counseling and guidance (MEB, 2018).

National Ministry of Education's decision published in Government Gazette with issue number 31232 (2020) regarding Regulatory Change in Administration of Secondary Education Institutions stated that "Secondary schools which admit students with central examination system can open preparatory classes for all or part of their students if Ministry approves their eligibility" (p. 1). This regulation removed Social Sciences High Schools' obligation to have preparatory classes and out of 92 Social Sciences High Schools 24 continued to have preparatory classes without making any change, 19 schools continued with a limited number of preparatory classes and 49 schools decided to continue their programs without preparatory classes (MEB, 2021).

Review of related literature didn't reveal any data showing that this decision was taken after evaluation of curriculum. However, results of curriculum evaluation provide necessary information for administrators to design, implement and reform curricula (Kridel, 2010). For this reason, carrying out evaluative research about efficiency of lessons taught in preparatory classes can remarkably benefit making educational policies. This study is expected to shed light on the topic of evaluating mathematics lesson curriculum in social sciences high schools' preparatory classes.

High School Preparatory Classes Mathematics Curriculum

Both global developments in scientific, social, financial, technological fields and exam results obtained from national and international tests made making changes in mathematics curriculum an unavoidable necessity and several changes have been made in 1927, 1931, 1934, 1949, 1952, 1956, 1970, 1976, 1987, 2005, 2011, 2013, 2018 throughout Turkish Republic's history (Keskin, 2019).

Middle School Mathematics (grade 5, grade 6, grade 7, grade 8) and High School Mathematics Lessons (grade 9, grade 10, grade 11, grade 12) curricula introduced in 2013-2014 educational year reformed mathematics programs. Secondary schools preparatory class mathematics curriculum was prepared in line with this program. This new curriculum was designed to improve mathematics skills attained in previous years and prepare students for 9th grade mathematics curriculum. The curriculum's objectives are enabling students understand mathematical concepts and expressions, express their opinions during stages of solving a mathematical problem, develop positive attitudes and self-esteem towards mathematics, efficiently use mathematical language, do mental arithmetic calculations, solve problems related to daily life, improve themselves intellectually, learn about historical development of mathematics and scientists who contributed to this development, and improve skills for doing research, creating and using knowledge (MEB, 2016).

Preparatory class's mathematics lesson is planned to be 3 class hours each week. 1 hour of the lesson is allocated to learning outcomes related to games and 2 hours of the lesson is allocated to other learning outcomes. Content of the curriculum includes two learning areas which are "Numbers and Algebra" and "Geometry". "Numbers and Algebra" learning area includes "Numbers" and "Algebraic Expressions" units while "Geometry" learning area includes "Angles" unit. The lesson consists of 26 learning outcomes and 108 class hours in total. The lesson aims to achieve meaningful understanding of mathematics instead of rote learning and memorization based education.

Curriculum and Curriculum Evaluation

According to Bobbitt, curriculum in its broadest sense includes all learning experiences and a part of these experiences take place under school educations' supervision. On the other hand, John Dewey, who has an experience, centered educational approach, states that school is life itself and defines curricula in much broader terms (Kridel, 2010). According to Hewitt (2018), curriculum is the source of taught information and it is a combination of all information and skills gained from official setting of school or informal setting of all social groups such as family and peer groups. Bilen (2014) defines curriculum as all regular learning experiences provided to students in order to achieve specific learning objectives. On the other hand, Ornstein and Hunkins (2009) state that there are various variables and viewpoints involved in definition of curriculum and for this reason it is not possible to make a simple definition. Although there have been alternative definitions and approaches of curriculum made by pedagogues, politicians and specialists since 1900s (Kridel, 2010), it is obvious that a well-designed curriculum can guide teachers and help students achieve their goals (Serçe, 2020). Curricula must have certain qualities such as flexibility, practicality, being scientific and serving specified aims. Also, they need to be open to changes in accordance with changing conditions of educational processes. Keskin (2019) states that educational systems can raise progressive individuals who are able to contribute their countries provided that they develop and implement educational curricula which are suitable to specified aims.

Analysis and evaluation of effects of changes made in educational curricula has a significant place in educational research. Planning this type of research in the related field, identifying deficiencies in implementation and receiving feedback from implementers can remarkably benefit curriculum development (Bayraktar, Güner, Akkurt Denizli, & Sezer, 2016). Curriculum evaluation includes processes such as systematically documenting curriculum outcomes and

adding a value in reaching a decision to related curriculum (Green & Stone, 1977). According to Piskurich (2000), any person other than curriculum developer can use curriculum evaluation to see effectiveness of related curriculum or an activity included in the curriculum. A variety of approaches are embraced in the process of curriculum evaluation. These models are Goal Based Evaluation, CIPP (Context, Input, Process, Product) Model, Discrepancy Evaluation Model, Congruence-Contingency Model, UCLA Evaluation Model, Educational Connoisseurship and Criticism Model, Saylor, Alexander and Lewis Model, Analytic Program Evaluation Model, Consumer Oriented Model, Goal Free Evaluation Model, Responsive Model and CODE Model (Demirel, 2021). Curriculum's capacity to deliver activities, which are created to achieve learning objectives, is analyzed during decision making stage of evaluation. Daniel Stufflebeam is the pioneer of decision oriented approach. Stufflebeam programs developed CIPP (Context, Input, Process, Product) model which focuses on decisions taken by related administrators instead of goals. Stufflebeam defines curriculum evaluation as a process of gathering, specifying, reporting and implementing some objects' merit and worth in order to support accountability, disseminate effective practices and guide decision making (Stufflebeam, 2003). According to Stufflebeam, evaluation offers opportunities to gathering a wide range of information related to curriculum and enables making healthy decisions. Curriculum needs to be evaluated in four different stages (Context, Input, Process, Product) in order to gathering information which can be used as a base for decisions. Also, decisions have to be made in the areas of "Planning", "Constructing", "Implementation" and "Reconstructing" during the process of curriculum evaluation (Uşun, 2016). CIPP model requires curriculum evaluators to make decisions in the following four areas:

a) *Context Evaluation* is the stage in which evaluators gathering data about what kind of needs are expected to be fulfilled by the curriculum. Deficiencies encountered during evaluation, unfulfilled needs and underlying reasons for these unfulfilled needs are focused during the process of collecting data related to targeted needs.

b) *Input Evaluation* is the stage which specifies required resources and how to use them. Specific strategies are determined and decisions about how and where to use these strategies are taken in this stage. A wide range of resources such as materials, methods and techniques to be used are reviewed during this stage.

c) *Process Evaluation* is the stage which evaluators check whether there is or isn't a consistency between planned and implemented activities. They try to find out if the curriculum is being implemented as it was planned.

d) *Product Evaluation* is the stage in which evaluators compare targeted goals and outcomes of the curriculum. Outcomes of the curriculum are interpreted, achievements and shortcomings are evaluated at this stage and whereby evaluators set a course for maintaining or abolishing the curriculum in case of success or failure.

Examination of studies carried out in Türkiye related to curriculum evaluation reveals that mathematics curricula have been evaluated in various aspects. Mathematics curricula have been evaluated in terms of learning domains (Devlez, 2011; Övez, 2012), assessment and evaluation aspects of curriculum (Tuncel, 2015), school type (Avcı, Erikçi & Ok, 2021; Biçer & Ada, 2020), Bloom Taxonomy (Çil, Kuzu, & Şimşek, 2019) as well as grade levels (Biçer, 2019; Demir, 2021; Eroğlu, 2019; Yalçınkaya, 2018). In addition to these studies, there are some studies which evaluated mathematics curricula using Stufflebeam's Context-Input-Process-

Product Model (Aközbek, 2008; Keskin, 2019, Önal, 2020). However, review of related literature showed that there isn't any study carried out on preparatory class's mathematics curriculum. This study, which evaluated preparatory class's mathematics curriculum, is believed to contribute curriculum evaluation research in this regard.

Within this context, this study aims to evaluate preparatory class curriculum in social sciences high schools in terms of context, input, process and product stages defined by Stufflebeam Evaluation Model. To this aim, this study inquires to answer the question "How is preparatory class mathematics curriculum evaluated from the point of students' and teachers' views in terms of its context, input, processes, products and effects?"

Method

Research Design

This study aims to evaluate preparatory class's mathematics curriculum (PCMC) using Stufflebeam (CIPP) model to make judgments about value and efficiency of the curriculum with a qualitative design. Case study method, which is one of qualitative research methods, is used in this study. Case study is in depth and descriptive analysis of a limited system (Merriam, 2018). Case study is an empirical research method analyzing a current phenomenon in its real life context especially when the boundary between context and phenomena is ambiguous (Yin, 2008). Both qualitative and quantitative data can be used in this design. Qualitative and quantitative data are gathered together but they are analyzed separately and findings are compared to see whether they confirm each other or not (Creswell, 2013). Achievement test results constitute qualitative data while semi-structured interviews and document analysis constitute qualitative data of this study.

Case

Preparatory classes became optional for schools with regulatory change published in Türkiye - Legal Gazette (Resmi Gazete) issue number 31232 (2020). The school this study was carried out decided to abolish preparatory classes at the beginning of 2021-2022 academic year. For this reason, there were 9th grade students who attended preparatory class in the previous year and also 9th grade students who started the school without preparatory class education at the beginning of 2021-2022 academic year. This situation provided an opportunity to evaluate PCMC.

Participants

The study was carried out in a state social sciences high school in 2021-2022 academic year two groups of participants are formed for the study. An achievement test consisting of 32 multiple choice questions was applied to 60 preparatory class students to obtain qualitative data. 4 mathematics teachers and 5 students, chosen from the 9th grade students who had completed the preparatory class, from among 60 preparatory class students, took part in a semi-structured interview to obtain qualitative data.

Data Collection Tools

Achievement Test

In the development of this achievement test, 8th grade achievements were also included in the PCMC. Twenty learning outcomes from 8th grade curriculum was selected and a total of 40 questions which include 2 items for each learning outcome were prepared by researchers in order to assess achievement levels of students. The achievement test was applied to 187 9th grade students to identify reliability of the test. The results obtained from the test was analyzed through SPSS25 program and KR20 (Büyüköztürk, 2002) value internal consistency coefficient was determined as 78. 8 items which had low item difficulty was excluded from the test and KR20 value was determined as 80. Content validity is an assessment tool's extent of representing desired behaviors (Baykul, 2000). The test includes at least one item from each learning outcome in order to gain content validity. The achievement test was applied to a total of 60 students from two classes. One of these classes had preparatory class education from the previous year and the other class didn't have preparatory class education.

Teacher and Student Interview Forms

Document analysis and interview forms are used as qualitative data collection tools in the study. Interview is a technique of collection data through verbal communication. Interviews are carried out mostly through face to face communication although they can also be carried out through phone calls and video calls (Karasar, 2020). Interviews in this study were carried out with 4 preparatory class mathematics teachers and 5 preparatory class students by using semi-structured interview forms. Open ended questions were prepared in line with context, input, process and product dimensions of CIPP model. Related literature was reviewed to ensure content validity of the items prepared and items were controlled by three specialists working on the fields of teaching mathematics and educational curriculum. Necessary changes were made with regard to specialists' views. Examples of teacher and student interview questions are shared below.

Sample teacher interview questions:

Do you think that PCMC efficiently prepares students to 9th grade curriculum?

What are your ideas about suitability of learning outcomes to students' readiness levels in PCMC?

What are your ideas about the course book?

Do you make changes during the process of implementing PCMC? Can you explain what kind of changes do you make?

What are your thoughts about activities and games included in PCMC and could you implement them as stated in curriculum? Can you explain it?

Does the program form a basis for 9th grade mathematics lessons? What are your thoughts about its ability to improve students' mathematical thinking?

Do you think there is any difference between academic achievements of students who attended preparatory class and students who didn't attend preparatory class?

What is your general idea about PCMC? What do you think are strengths and weaknesses of the curriculum?

Student interview questions:

Is PCMC suitable to your learning level? Can you explain it?

Do you think that weekly class hours (3 hours) of mathematics course enough to cover all topics and activities?

What are your thoughts about activities included in PCMC?

Do topics and activities appeal to your interest? Can you explain it?

What are your ideas about techniques your teacher used during mathematics lesson?"

Document Analysis

PCMC was analyzed for document analysis. Document analysis aims to specify an existing or formerly existing situation as it is. The case, object or individual that is the subject of analysis is examined on its merits without any effort to change them (Karasar, 2020).

Data Analysis

Descriptive analysis (Büyüköztürk, 2002) and t test was used to analyze quantitative data gathered from achievement tests applied to 60 students. Analysis of quantitative data was carried out through descriptive analysis of semi-structured interview forms. "In descriptive analysis, initially the data is openly described and then these descriptions are explained and interpreted. Cause-effect relations are scrutinized and some conclusions are drawn" (Yıldırım & Şimşek, 2016). In direct quotations, teachers are coded as T1….T4 and students as ST1...ST5.

Results

Findings of the study include qualitative findings of interviews carried out with teachers and students and quantitative findings obtained from achievement tests.

Context Evaluation

PCMC is analyzed in terms of class hour sufficiency and suitability to student needs and qualifications. To this aim, teachers were asked "Do you think that PCMC efficiently prepares students to 9th grade curriculum? Do you find this curriculum sufficient?". Teachers expressed that the curriculum was sufficient and it prepared students for 9th grade. However, teachers also added that some parts of curriculum were too congested for the allocated time. Some quotations from teachers' opinions about curriculum are as follows:

> T4: *"Yes, I think curriculum prepares preparatory class students to the 9th grade. Because the curriculum is beneficial to cover any missing areas from 8th grade and as students are coming from diverse middle schools with diverse levels of readiness it is important to form a base for 9th grade curriculum."*

> T1: *"The program aims to prepare students for 9th grade but there are too many topics and it is not possible for us to teach all of them. That's why I believe it is not sufficient."*

PCMC is a common curriculum for all Anatolian and social sciences high schools and there are differences between achievement levels of these schools. Implementing the same curriculum for all these schools can be thought as the main drawback.

In order to understand readiness level of students, the question "Is PCMC suitable to your learning level? Can you explain it?" was asked to students. Students expressed that they generally didn't have much difficulty in learning as PCMC is mostly a revision of 8th grade except from equations and algebraic expressions. Some quotations from students' opinions are as follows:

> ST1: *"I didn't have any difficulty in the first term but in the second term I had difficulty in algebraic expressions. This may be because of my own mistake.*"
>
> ST4: *"*Actually *I didn't have difficulty in most of the topics but algebraic expressions and equations were a little bit compelling."*

Achievement test results showed that most of the students had difficulty in algebraic expressions and equations topics. Students' average from a total of 4 items related to these topics was $\bar{x}$:2,3.

Another question posed to students and teachers was about the amount of weekly class hours of mathematics. Teachers were asked "What are your thoughts about weekly class hours of PCMC (3 hours in a week) and is it enough to adequately cover activities?"

Weekly class hours of PCMC consist of 2 hours of teaching and 1 hour of practice. General view of teachers is that the class hours are sufficient and they expressed that they can cover topics and activities adequately (f:3). Only one teacher expressed that class hours aren't sufficient. Some quotations from teachers' views are as follows:

> T4: *"We have three class hours in total. We spend two hours for teaching and one hour for games which are a part of curriculum. This is how our curriculum is prepared and we follow it by allocating to hours to teaching and one hour for activities. I think it is quite sufficient."*
> T1 who finds class hours insufficient expressed that *"There are no restrictions for topics here. The lesson book is also prepared without time planning. We do all activities but cannot cover all topics in depth."*

Students were asked "Do you think that weekly class hours (3 hours) of mathematics course enough to cover all topics and activities?" Majority of students expressed that class hours allocated for the lesson were enough to cover topics and activities. 2 students stated that activity time, which is one hour a week, should be increased. For instance, ST4 stated that

> ST4: *"We generally had enough time. We had two hours for learning topics and one hour for* activities *and games. I think it would have been better if we had one more hour for games and activities."*

Input Evaluation

Input provided by PCMC was analyzed in this stage of the study. Teachers were asked "What are your ideas about suitability of learning outcomes to students' readiness levels in PCMC?" Common view of teachers related to this question was that learning outcomes for preparatory classes should be a revision of middle school which aims to overcome any missing learning areas. Additionally, some learning outcomes were stated to be above students' readiness levels. Some quotations from teachers' views are as follows:

T3: *"Some parts of the curriculum are not suitable to students' levels. I mean there are some topics above students' levels and there are questions related to these topics. I believe that these questions should be revised and edited to match students' levels."*

T4: *"I think preparatory class curriculum shouldn't include any new learning outcomes. I believe that it should be a revision of 8th grade or all middle school. Second degree two unknowns equations is not an emphasized topic in 8th grade but we have this learning outcome in preparatory class. There are even equations with elimination model and graphic drawings. I think these topics and learning outcomes are not necessary for 9th grade. However, the other topics especially first degree equations are suitable for students' levels."*

Another question related to PCMC was "What are your thoughts about topics appeal to students' interests?" Teachers expressed that topics were above students' levels and some topics should be excluded from curriculum. On the other hand, teachers expressed that game activities were appealing to students' interests. Some quotations from teachers' views are as follows:

T1: *"Some topics appeal to students' interests and some don't. I believe that some topics should be excluded because they shouldn't be taught at this stage."* similarly T2 stated that *"They were not much interested in mathematics parts of the lesson but they were quite interested in games. We added some other games to make the lesson more fun and we also used smart board which students liked very much."*

Students were also asked a similar question "What are your thoughts about activities included in PCMC?" Students expressed that they found game activities quite fun and interesting. They found topics easy as they were a revision of 8th grade. One student expressed that activities were not useful. Some quotations from students' views are as follows:

ST4: *"Especially game activities increased our participation in the lessons and this positively affected our achievement."*

ST2: *"Some topics were bad. I mean they didn't contribute to our learning but the games were good and helped us a lot."*

Another factor of input evaluation was course book. Interviews with teachers and students provided insight related to their ideas about course book. The first question posed to teachers about the course book was "What are your ideas about the course book?" Common view of teachers was that the course book was above students' levels. They expressed that students had difficulty in doing activities. One of the teachers expressed that topics were not sequenced while another teacher stated that the number of examples need to be increased. Some quotations from teachers' views are as follow:

T3: *"I think the course book is not a good one. Let's put it this way, difficulty level of topics, random sequencing and some topics that belong to 9th grade. All these things make me think that a better book could be prepared by just revising middle school subject."*

T1: *"The course book is prepared as if it is a university entrance exam preparation book. Questions and question forms are way too exaggerated not suitable to students' levels at all. The only positive thing in the course book is games. Other than that, topics are way above required level."*

Students were asked "Do topics and activities appeal to your interest? Can you explain it?" in order to take their opinions about course book. Common views of students were that they found the activities in course book generally easy and similar to activities they had in previous year. Also they expressed that they skipped some activities. Some quotations from students' views about course book are as follows:

ST1: *"Activities in the course book were nearly the same as the ones we did in the 8th grade. Some of them were a little bit difficult and there were some activities teacher said that they were not useful. I remember that we skipped these activities as teacher said they were not useful for us."*

ST4*: "Activities that we played games were interesting. We made these activities by playing games and they were very nice."*

Process Evaluation

Teachers' and students' views related to implementation of curriculum, techniques and methods were used in the process evaluation stage of PCMC. To this aim, the first question asked to teachers was "Do you make changes during the process of implementing PCMC? Can you explain what kind of changes do you make?" Common view of teachers was that activities in course book were above students' levels and they used supplementary resources for this reason. Also, they skipped some topics which they thought were above students' readiness levels. Some quotations from teachers' views are as follows:

T3: *"Personally I made some changes. For example, there were those questions not suitable for my students. I prepared questions myself to make topics more comprehensible for students. There were questions in exponents and some other topics which I prepared questions to make them easier for students"*

T2: *"We were only making changes in the usage of course books. We used some extra resources and that way we dealt with problems."*

Another question posed to teachers related to process evaluation stage was "What are your thoughts about activities and games included in PCMC and could you implement them as stated in curriculum? Can you explain it?" General view of teachers is that games were interesting for students. They expressed that games were suitable to students' levels but some activities were difficult for them to understand. Some quotations from teachers' views are as follows:

T1: *"I think the games were fine but activities were above students' levels. Students weren't ready for high school level yet but some questions were at 12th grade level. That's why we had to find questions from other resources and use them in the classroom."*

T2: "*The games were nice. We found and added some games so we had quite a large number of games. The numbers of examples were too few."*

Students were asked "What are your ideas about techniques your teacher used during mathematics courses?" in the process evaluation stage. Students stated that their teachers used extra resources during classes and they solved many questions. Some quotations from students' views are as follows:

ST1: *"Generally our teacher used extra resources in addition to course book. Our teacher usually taught the subject and gave assignments at the end of classes. Assignments were helpful for the exams."*

ST5: *"We usually solved questions as a learning technique. First, our teacher taught the subject then we solved questions. The games were entertaining activities."*

Product-Effect Evaluation

Product-effect evaluation stage of PCMC includes daily life usability of program, practicality of information, effects of attending preparatory class on academic achievement in mathematics, strengths and weaknesses. Finally, teachers' suggestions for improvement were compiled.

The first question posed to teachers about daily usability of information students learn in PCMC was "Do you think that students can use the skills they learn in PCMC in their daily lives?" Common view of teachers was that students use these skills and problem solving abilities in daily activities such as shopping, measuring time and counting. Also, students improve their arithmetic skills. Some quotations from teachers' views are as follows:

T2: *"I think they must have used these skills. They must have improved their practicality and quick thinking. The course included simple problems related to real life. Their arithmetic abilities must also have improved. I think this is useful."*

T4: *"They are definitely used in daily life as mathematical skills. The course benefits them in many ways such as cognitive development, strategic thinking. The course does not only just improve their simple arithmetic operations, but also their cognitive abilities."*

A similar question was asked to a student which was "Can you explain whether you use or do not use what you have learned in mathematics lessons in daily life?" 3 students expressed that they use mathematics in their daily life activities such as shopping, dates, figuring time and dates and managing money. However, 2 students couldn't relate mathematics they learned in the class with their daily usages. As such, there were differences between teachers' and students' ideas. Some quotations from students' views are as follows:

ST2: *"I use it in my daily life the way it can be used. Usually things about money or time, nothing else."*

ST4: *"I didn't use it in my daily life"*

Another question posed to teachers in the product-effect evaluation stage of CPMC was Does the program form a basis for 9th grade mathematics lessons? What are your thoughts about its ability to improve students' mathematical thinking? Teachers expressed that the curriculum was beneficial in covering missing areas from 8^{th} grade and forming a basis for 9th grade. One of the teachers expressed that geometry of triangles shouldn't be in curriculum. Some quotations from teachers' views are as follows:

T4: *"Yes, I believe that it forms a basis for 9th grade and this is the main aim of this curriculum. This curriculum serves as a revision for middle school and preparation for high school. It forms a basis for next year by covering all missing points from previous years."*

T1: *"Sure, there are many topics which prepare students to the next year. There are some unnecessary topics like geometry of triangles but I think the other topics were beneficial for 9th grade."*

Students were asked "Do you use the information you learned in preparatory class mathematics lesson in mathematics lessons or any other lessons?" Students answered that they use the information they learned in mathematics lessons or other lessons. Some quotations from students' views are as follows:

ST5: *"I used it in mathematics and other lessons."*

ST4: *"The things we learned in this class were useful in mathematics lessons and other related lessons."*

Teachers were asked "Do you think there is any difference between academic achievements of students who attended preparatory class and students who didn't attend preparatory class?" In order to understand effects of PCMC on students' achievement levels in product-effect evaluation stage of PCMC. Two teachers stated that they have lessons for both classes whereas two teachers stated that they have lessons with only classes which attended preparatory classes. All 4 teachers expressed that students who attended preparatory classes had higher level of academic achievement. However, they couldn't present a specific reason for this difference. They expressed that the situation may be a result of higher cognitive development or covering missing subjects during preparatory class. Some quotations from teachers' views are as follows:

T3: *"I personally believe that they have an advantage. Because some of the topics in 9th grade had already been taught in preparatory class. For example, equations, operations on whole numbers and basic problems. I think they have advantages in these topics."*

T4: *"There is difference between academic achievements. I can clearly see that because I have lessons for both classes. But I am not exactly sure about why there is such a difference. It may be because they had preparatory class but they are definitely better. They are one year older than other 9th grades and they may be cognitively more improved because of that. Maybe last years' program formed a good basis for them."*

At this stage, students were asked "What are your thoughts about advantages and disadvantages of having mathematics lessons in preparatory class?" Students expressed that it was beneficial for them as they had a chance to revise topics from middle school which helped them to make up for their missing points and form basis for 9th grade. Some quotations from students' views are as follows:

ST2: *"I think it was a great advantage because we revised previous years and I believe it will affect next year very positively. I wasn't only beneficial for remembering previous topics but also beneficial for making future topics easier for us."*

ST3: *"Topics were better structured. For example, we have square roots topic this year and we can understand it easily because we learned it last year."*

Additionally, a 32 item mathematics achievement test was applied to compare achievement levels of students who have attended preparatory class and students who didn't attend preparatory class. Results of the test are presented in Table 1.

Table 1

T-test Results for Students Who Attended Preparatory Class and Students Who Didn't Attend Preparatory Class.

Test	*N*	$\bar{X}$	*SS*	*Sd*	*t*	*p*
Students who attended preparatory class	30	21,13	3,82	58	1,429	.158*
Students who didn't attend preparatory class	30	19,67	4,12			

*p< 0.05

Table 1 shows that average score of students who attended preparatory class ($\bar{X}$= 21.13) is higher than average score of students who didn't attend preparatory class ($\bar{X}$= 19.67). However, there isn't a statistically significant difference between achievement scores of these two classes (*t= 1.429; p< .05*).

Teachers were asked "What is your general idea about PCMC? What do you think are strengths and weaknesses of the curriculum?" in order to get teachers' general views of PCMC in product-effect evaluation stage of the study. Teachers expressed that the main strength of the curriculum was game activities and historical development of mathematics. They believed that these topics and activities appealed students' interests and helped them develop positive attitudes towards mathematics. In regard to weakness of the program, the factors stated were those some topics were above students' levels, some topics and activities were too difficult and some topics were not suitable for preparing to 9th class. Some quotations from teachers' views are as follows:

> T4: *"The curriculum is actually a nice one and different from other curricula. It has a lot of topics related to historical development of mathematics. This appeals to students' interests. Also there are games and no other curriculum has so much time allocated to games. It is nice to show students other aspects of mathematics. I mean many learning outcomes are presented this way. Weakness of the program is that it lacks learning outcomes which consolidates middle school topics, they could have been better than giving new topics."*

> T3: "*It has some weaknesses. Topic selection and presentation should be more like a revision and preparation for 9th grade. There are some too difficult questions which are not suitable to students' level. This curriculum can be changed to match students. This is my general idea."*

The last question asked to teachers in product-effect stage of the study was "What are your ideas for improving PCMC?." Teachers expressed that PCMC should be revised to match basic topics and its content needs to be decreased. Some quotations from teachers' views are as follows:

> T1: *"I think there are too many topics and they should be decreased and simplified. There can be some 9th grade topics but their content should be limited."*

> T3: *"I can say that the course book and its content needs to be revised. Instead of randomly giving topics they need to be sequenced like numbers, exponential numbers, root*

numbers, absolute value, and problem types. Also they have to be appropriate to students' levels. There are discrepancies in the book. Some topics are too easy while some others are too difficult and they are not sequenced logically. For this reason, we had to use some extra resources."

Discussion, Conclusion and Implications

Teachers' and students' views related to curriculum were analyzed to evaluate PCMC in terms of context, input, process and product. Additionally, mathematics achievement test was applied to both students who attended preparatory class and students who didn't attend to preparatory class in order to assess curriculum's efficiency.

Evaluation of context showed that most of the teachers believed that PCMC prepared students to next grade and covered missing learning areas. Also, teachers expressed that 3 hours of course time would normally be sufficient but some topics such as algebraic expressions and equations were too intensive which created problems related to allocated time. Except for this problem, the curriculum was found sufficient taking into consideration that preparatory class is a transition period for 9th grade and a revision of 8th grade. Similar to teachers' views, students' views related to context of the curriculum show that students had difficulty in algebraic expressions and equations. Review of literature shows that there are no studies carried out to evaluate PCMC. However, comperative studies carried out by Önal (2019), Abat (2016) and Aközbek (2008) to evaluate context, input process and product dimensions of 9th grade mathematics curriculum reveal similar findings to this study. These studies also showed that the curriculum was sufficient in terms of context and allocated enough time for activities and learning outcomes. Consequently, efficiency of the curriculum can be increased with some alterations in line with teachers' and students' views.

The second part of the findings is the input evaluation. PCMC course book was evaluated in the input stage of the study. Teachers expressed that learning outcomes of the curriculum should aim to revise middle school topics and cover missing areas. Additionally, some learning outcomes such as algebraic expressions and equations were found above students' academic levels. Preparatory classes are a transition period for students and these learning outcomes above students' levels necessitated teachers to utilize some other resources. Review of literature showed that Singer (2018) and Önal (2019) found learning outcomes were suitable to students' levels.

However, the study carried out by Çiftçi, Akgün and Deniz (2013) showed that 9th grade mathematics learning outcomes were not suitable to all students' levels and they differed among different school types. Anatolian High School and Social Sciences High Schools in Türkiye accept students with varying academic achievement levels. However, the same curriculum is used in all schools which can in turn affect curriculum fidelity. Bümen, Çakar and Yıldız, (2014) stated that one of the most important factors effecting curriculum fidelity in Türkiye is learning differences among students. On the other hand, students and teachers interviewed in the study expressed that activities and games included in PCMC were appealing to students' interests.

One of the findings of this study is that the course book used in preparatory classes was not suitable to all school types and it consisted of activities above students' levels. Demir (2018)

found that 9th grade mathematics course book was found insufficient by teachers. Also, the study carried out by Önal (2020) revealed that teachers were not content with course book and they thought topics were difficult to understand. There is only one preparatory class mathematics course book prepared by National Ministry of Education Board of Education and Discipline. This course book is prepared for all Anatolian High Schools and Social Sciences High Schools in Türkiye and this situation can explain why this book is not suitable for the specific school this study is carried out. Students interviewed in the study expressed that most of the topics were suitable to their levels as they had already learned them in middle schools but some topics were above their levels.

The third part of the findings is the process evaluation. Data from process stage of curriculum evaluation shows that teachers utilized extra resources and activities during lessons. Game activities included in the curriculum were found to be appealing o students' interests. Teachers expressed that they were obliged to utilize extra resources and activities as some activities in the course book were above students' levels.

Teachers' and students' views related to techniques and methods in PCMC were used in the process evaluation stage of the study. Teachers stated that activities in the course book, which is the main resource for the lesson, were above students' levels. For this reason, they utilized extra resources for some activities and they skipped some topics. Also, teachers expressed that game activities included in the curriculum were more appealing to students' interests.

The fourth part of the findings is the product-effect evaluation. Product-effect evaluation stage of PCMC includes daily life practicality of knowledge given by curriculum, effects of attending or not attending preparatory class on mathematics academic achievement, and weaknesses and strengths of the curriculum. Lastly, teachers' suggestions for improvement of the curriculum are presented.

According to teachers' views, product evaluation shows that students can reflect their mathematical operations and thinking skills into real life. Common view of teachers is that students use these skills for solving problems, shopping, managing time and counting. Also, students' abilities for arithmetic operations increase. Aközbek (2008), Önal (2020) also state that curriculum increases students' mathematical skills and contributes problem solving process. Findings of these studies are in line with findings of this study. PCMC is also focused on forming a basis for 9th grade and covering missing areas from previous years. 3 students interviewed for the study expressed that they use the information they learned in mathematics in various areas of daily life such as managing money and time. However, two students expressed that had difficulty in relating their mathematical knowledge with daily life activities. Çil, Kuzu and Şimşek, (2019) state that preparing mathematics curricula with a process based approach and integrating activities with projects enables reflecting mathematical knowledge in daily life activities efficiently and provides opportunities for meaningful learning.

Another finding of the study is related to PCMC's efficiency in preparing students to next grade. Teachers expressed that the curriculum covered missing areas form previous years and formed a basis for 9th grade topics. Additionally, students expressed that they were able to use mathematical knowledge they learned in preparatory class in various other lessons. However, one of the teachers stated that the topic geometry of triangles shouldn't be in the curriculum. Common view of the teachers was that the number of topics should be reduced and that topics needed to be reorganized from easy to more difficult. Furthermore, they

believed that the topics formed a basis for next grade but topics related to geometry shouldn't be in preparatory class curriculum. The study carried out by Çiftçi, Akgün and Deniz (2013) also concluded that geometry topics were not mastered sufficiently as 9th grade mathematics curriculum was congested.

Another finding of the study is related to difference between academic achievement levels of students who attended preparatory class and students who didn't attend preparatory class. All teachers expressed that students who attended preparatory class had higher academic achievement. Similarly, students who attended preparatory classes expressed that they had advantages over other students. However, it is unclear whether they are more successful because they had opportunity to revise middle school subjects and cover missing areas in preparatory class or they have developed more cognitively because they had an extra year. The study carried out by Arslan and Babadoğan (2004) states that age can be an important factor which has positive effect on concrete and abstract thinking.

Teachers' opinions about strengths and weaknesses of PCMC and suggestions for further improvement make up the final stage of product-effect evaluation. Strengths of the curriculum were identified as game activities and topics related to historical development of mathematics. Teachers expressed that these activities and topics aroused students' interests and developed positive attitudes towards the lesson. Weaknesses of the curriculum were concluded as some of the topics not being suitable to students' levels and including too difficult questions. Teachers suggested that PCMC should be revised by excluding some topics and putting more emphasis on basic subjects. Additionally, allocation of topics should be more focused on preparing students to 9th grade. One of the teachers added that preparatory class should be made optional for students.

To sum up, findings of this study showed similar results to various studies carried out on mathematics curricula (Aközbek, 2008; Keskin, 2019; Önal, 2019). These studies show that context and input elements of curricula are generally viewed positively whereas process and product elements are criticized more prominently. It is evident that curriculum development processes are carried out with most ideal methods but teacher and student characteristics have significant effects on curriculum fidelity, teaching-learning processes and learning outcomes (Bümen, Çakar & Yıldız, 2014). Based on the findings of this study, following suggestions are proposed for researchers and implementers.

- Course books can be revised to match their content to students' levels.
- A variety of course books can be prepared to meet needs of different schools.
- Preparatory class curriculum can be reformed to include only 8th grade learning outcomes.
- This study was carried out with teachers and students of preparatory classes in a Social Sciences High School. Different types of schools which have preparatory classes can be researched to extend scope of the research; hence mathematics curriculum of preparatory classes in different types of schools can be further evaluated.
- This study is the first study to evaluate mathematics curriculum in preparatory classes. For this reason, findings of this study can be a resource for other studies.

Author Contributions

Literature review and Research Design: Derya Göğebakan Yıldız, Seçil Bilgin.

Acquisition, Analysis and Interpretation of Research Data: Seçil Bilgin, Sayime Arıkız, Reyhan Tarhan.
Statistical Analysis: Seçil Bilgin, Sayime Arıkız.
Drafting of the manuscript: Derya Göğebakan Yıldız, Seçil Bilgin, Sayime Arıkız, , Reyhan Tarhan
Critical Revision of the Manuscript: Derya Göğebakan Yıldız, Seçil Bilgin.

References

Abat, E.Z. (2016). *9. Sınıf matematik dersi öğretim programının bağlam girdi süreç ürün değerlendirme modeline göre değerlendirilmesi (The evaluation of 9th grade mathemathics curriculum according to CIPP evaluation model).* (Thesis No: 436746) [Master's Thesis, Akdeniz University] Turkish Council of Higher Education Theses Center.

Avcı, N., Erikçi, B., & Ok, A. (2021). Ortaöğretim temel düzey matematik dersi öğretim programı'nın Stake'in yanıtlayıcı değerlendirme modeli ile değerlendirilmesi. *Journal of Qualitative Research in Education*, (27),1-25. https://doi.org/10.14689/enad.27.2

Aközbek, A. (2008). *Lise 1. sınıf matematik öğretim programının CIPP değerlendirme modeli ile öğretmen ve öğrenci görüşlerine göre değerlendirilmesi (genel liseler, ticaret meslek liseleri, endüstri meslek liseleri) (The evaluation of 9th grade mathematics curriculum via the opinions of teachers and students by using context, input, process and product (CIPP) model (general high schools, vocational and technical high schools)* (Thesis No: 230917*)* [Master's Thesis, İstanbul Yıldız Teknik University]. Turkish Council of Higher Education Theses Center.

Arslan, B., & Babadoğan, C. (2005). İlköğretim 7. ve 8. sınıf öğrencilerinin öğrenme stillerinin akademik başarı düzeyi, cinsiyet ve yaş ile ilişkisi, *Eurasian Journal of Educational Research*, *21*, 35-48.

https://ejer.com.tr/wp-content/uploads/2021/01/ejer_2005_issue_21.pdf

Baykul, Y. (2000). *Eğitimde ve psikolojide ölçme: klasik test teorisi ve uygulaması*. ÖSYM Yayınları.

Bayraktar , A., Güner, N., Akkurt Denizli, Z., & Sezer R. (2016). The Development of a scale to determine middle school principals' opinions on the Turkey's mathematics curriculum. *International E-Journal of Advances in Education*, *2*(5), 218-226. http://ijaedu.ocerintjournals.org/en/download/article-file/225682

Biçer, F. (2019). Dokuzuncu sınıf düzeyinde matematik dersi öğretim programı hakkında meslekî ve teknik anadolu lisesi matematik öğretmenlerinin görüşlerinin incelenmesi *(Investigation of the opinions of the teachers of vocational and technical Anatolian high schools about ninth class mathematics curriculum)* (Thesis No: 545014) [Master's thesis, Anadolu University]. Turkish Council of Higher Education Theses Center.

Biçer, F., & Ada, T. (2020). Matematik dersi öğretim programı üzerine meslek lisesi matematik öğretmenlerinin görüşleri. *Anadolu Journal of Educational Sciences International*, *10*(1): 543-582 *https://doi.org/10.18039/ajesi.682059*

Bilgili, A. E. (2001). Bir orta öğretim formatı olarak sosyal lise. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, *14*(14), 53-62.

Bümen, N. T., Çakar, E., & Yıldız, D. G. (2014). Türkiye'de öğretim programına bağlılık ve bağlılığı etkileyen etkenler. *Kuram ve Uygulamada Eğitim Bilimleri*, *14*(1), 203-228.

Büyüköztürk. Ş. (2002). Faktör analizi: Temel kavramlar ve ölçek geliştirmede kullanımı. *Kuram ve Uygulamada Eğitim Yönetimi*, *32*(32), 470-483.https://doi.org/10.12738/estp.2014.1.2020

Creswell, J. W. (2013). *Araştırma deseni: nitel, nicel ve karma yöntem yaklaşımları*. Eğiten Kitap.

Çiftçi, Z., Akgün, L., & Deniz, D. (2013). Dokuzuncu sınıf matematik öğretim programı ile ilgili uygulamada karşılaşılan sorunlara yönelik öğretmen görüşleri ve çözüm önerileri. *Anadolu Journal of Educational Sciences International*. *3*(1), 1-21. https://dergipark.org.tr/tr/pub/ajesi/issue/1528/18743

Çil, O. , Kuzu, O., & Şimşek, A. S. (2019). 2018 Ortaöğretim matematik programının revize Bloom taksonomisine ve programın ögelerine göre incelenmesi. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, *16*(1), 1402-1418. http://dx.doi.org/10.23891/efdyyu.2019.165

Eroğlu, T. (2019). *Güncellenen ortaöğretim matematik dersi öğretim programına yönelik öğretmen görüşlerinin değerlendirilmesi.* (*Evaluation of teachers' views towards updated secondary school mathematics curriculum)* (Thesis No: 602835) [Master's Thesis, Gazi University]. Turkish Council of Higher Education Theses Center.

Eyiol, K.Ö. (2019). *Ortaokul matematik uygulamaları öğretim programının Eisner'ın Eğitsel Eleştiri Modeline göre değerlendirilmesi (Evaluation of elementary school mathematics applications curriculum based on Eisner's Educational Criticism Model)* (Thesis No: 564508) [Master's Thesis, Pamukkale University]. Turkish Council of Higher Education Theses Center.

Demir, T. (2021). *Ortaöğretim 9. sınıf matematik dersi öğretim programının değerlendirilmesi (Evaluation of secondary education 9th grade mathematics curriculum)* (Thesis No: 689041) [Master's Thesis, Balıkesir Üniversitesi]. Turkish Council of Higher Education Theses Center.

Demir, S., & Demir A. (2012). New high school instructional programs in Turkey: Problems, expectations and suggestions. *Elementary Education Online*, *11*(1), 35-50.

Demirel, Ö. (2021). *Eğitimde program geliştirme: Kuramdan uygulamaya* (30th ed.). Pegem Akademi.

Devlez, M. F. (2011). *Ortaöğretim 9. sınıf matematik dersi programı mantık öğrenme alanının değerlendirilmesi (Evaluation of the secondary 9th grade mathematics lesson curriculum logic learning area)* (Thesis No: 299341) (Master's Thesis, Balıkesir University). Turkish Council of Higher Education Theses Center.

Green, J. L., & Stone, J. C. (1977). *Curriculum evaluation: Theory and practice, with a case study from nursing education* (Vol. 1). Springer Publishing Company.

Hewitt, T.W. (2018). *Eğitimde program geliştirme: neyi neden öğretiyoruz*. (S. Arslan Trans.). Nobel Publications. (Original work published 2006).

İlhan, B. (2006). *Türkiye'de genel ortaöğretim kurumları 9. sınıf matematik eğitim programının değerlendirilmesi* (*An assesstment of high school mathematics curriculum by means of 9th class in Turkey)* (Thesis No: 209602) [Master's Thesis, İnönü University]. Turkish Council of Higher Education Theses Center.

İlhan, A., & Aslaner, R. (2019). 2005'ten 2018'e ortaokul matematik dersi öğretim programlarının değerlendirilmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, *46*: 394-415. https://doi.org/10.9779/pauefd.452646

Karasar, N. (2020). *Bilimsel araştırma yöntemi: Kavramlar ilkeler teknikler*. Nobel Basımevi.

Kazez H., I., & Göktaş Y. (2017, 24-26 May). *Sputnik sonrası Amerikan eğitim reformlarının değerlendirilmesi* [Paper presentation]. XIth International Computer and Instructional Technologies Symposium, Malatya, Türkiye.

Keskin, İ. (2019). *Ortaöğretim matematik dersi öğretim programının CIPP modeline göre değerlendirilmesi* (*Evaluation of high school mathematics curriculum according to CIPP model)* (Thesis No: 612966) [Doctoral dissertation, Dicle University]. Turkish Council of Higher Education Theses Center.

Kridel, C. (Ed.). (2010). *Encyclopedia of curriculum studies* (Vol. 1). SAGE Publications, Inc.

Merriam, S. B. (2018). *Nitel araştırma: desen ve uygulama için bir rehber* (S. Turan Trans.). Nobel Akademik Publications (Original work published 2009).

Ministry of National Education. (2016). *Ortaöğretim hazırlık sınıfı matematik dersi öğretim programı*. MEB Publications.

Ministry of National Education. (2019). PISA 2018 Türkiye ön raporu https://www.meb.gov.tr/meb_iys_dosyalar/2019_12/03105347_PISA_2018_Turkiye_On_Raporu.pdf

Ministry of National Education. (2018). *Millî Eğitim Bakanlığı, Talim ve Terbiye Kurulu başkanlığı, ortaöğretim kurumları haftalık ders çizelgesi*, http://ttkb.meb.gov.tr/meb_iys_dosyalar/2018_02/21173451_ort_ogrtm_hdc_2018.pdf

Ministry of National Education. (2021). *Milli Eğitim Bakanlığı 2021 LGS taban ve tavan puanları* http://www.meb.gov.tr/meb_iys_dosyalar/2021_07/26102304_2021LGSTabanTavan.pdf

Ornstein, A., & Hunkins, F. (2009). *Curriculum: Foundations, principles, and issues.* (5th Ed) Allyn & Bacon.

Önal, B. T. (2019). *Ortaöğretim 9. sınıf matematik dersi öğretim programının CIPP modeli ile öğretmen ve öğrenci görüşlerine göre değerlendirilmesi* (*The evaluation of 9th grade mathemathics lesson curriculum according to CIPP evaluation model by teachers and students)* (Thesis No: 612966) [Master's Thesis, Siirt University]. Turkish Council of Higher Education Theses Center.

Övez, D. T. F. (2012). *Matematik öğretim programlarının değerlendirilmesi (cebir öğrenme alanı) (Evaluation of mathematics curriculums (algebra learning domain)* (Thesis No: 312964) [Doctoral Dissertation, Balıkesir University]. Turkish Council of Higher Education Theses Center.

Piskurich, G. M. (2000). *Rapid instructional design, learning ID fast and right.* Jossey-Bass, Pfeiffer.

Government Gazette. (2003). Millî eğitim bakanlığı sosyal bilimler liseleri yönetmeliği Government Gazette No. 25292, dated 17 November 2003,https://www.resmigazete.gov.tr/eskiler/2003/11/20031117.htm

Government Gazette. (2014). Milli eğitim bakanlığı ilköğretim kurumları yönetmeliği, Government Gazette dated 26.07.2014 and numbered 29072. https://www.resmigazete.gov.tr/eskiler/2014/07/20140726-4.htm

Government Gazette. (2020). Millî eğitim bakanlığı ortaöğretim kurumları yönetmeliğinde değişiklik yapılmasına dair yönetmelik, Government Gazette dated 2 September 2020 and numbered 31232, https://www.resmigazete.gov.tr/eskiler/2020/09/20200902-3.htm

Sakaoğlu, N. (2003). *Osmanlı'dan günümüze eğitim tarihi*. İstanbul Bilgi Üniversitesi Yayınları.

Serçe, F. (2020). *Türkiye, Estonya, Kanada ve Singapur ortaöğretim matematik öğretim programlarının karşılaştırmalı incelenmesi (A comparative study of high school mathematic curricula in Turkey, Estonia, Canada, and Singapore)* (Thesis No: 630399) [Master's Thesis, Düzce University]. Turkish Council of Higher Education Theses Center.

Singer, E. N. (2018). *İlköğretim matematik öğretim programının CIPP modeline göre değerlendirilmesi (Evaluation of primary school mathematics curriculum according to CIPP model) (Thesis No: 532465)* [Master's Thesis, Kırıkkale University]. Turkish Council of Higher Education Theses Center.

Stufflebeam, D. L. (2003). *The CIPP model for evaluation.* Portland, OR: Annual Conference of the Oregon Program Evaluators Network (OPEN). Retrieved June 25, 2022, from https://goeroendeso.files.wordpress.com/2009/01/cipp-modeloregon10-031.pdf

Ministry of National Education. (2020). TIMSS 2019 Türkiye Ön Raporu https://odsgm.meb.gov.tr/meb_iys_dosyalar/2020_12/10175514_TIMSS_2019_Turkiye_On_Raporu_.pdf

Tuncel, T. (2015). *Lise Matematik dersi öğretim programı ölçme değerlendirme boyutunun öğretmen görüşlerine göre değerlendirilmesi* (*Evaluating measurement and evaluation aspect of high school mathematic curriculum based on teacher's opinion)* (Thesis No: 383510) [Master's Thesis, Fırat University]. Turkish Council of Higher Education Theses Center.

Uşun, S. (2016). *Eğitimde program değerlendirme: Süreçler, yaklaşımlar ve modeller.* Anı Publications.

Ünal, F., & Ünal, M. (2010). Türkiye'de ortaöğretim programlarının gelişimi. *Sosyal Bilimler Araştırmaları Dergisi,* 5 (1), 110–125. https://hdl.handle.net/20.500.12881/898

Varış, F. (1996). *Eğitimde program geliştirme: Teori ve teknikler*. Alkım Publications.

Yalçınkaya, Y. (2018). Yenilenen 9. sınıf matematik dersi öğretim programı hakkında öğretmen görüşleri. *Eğitim Kuram ve Uygulama Araştırmaları Dergisi, 4*(3), 100-110. http://ekuad.ejournalmanagement.com/admin/articles/yenilenen-9.-sinif-matematik-dersi-ogretim-programi-hakkinda-ogretmen-gorusleri3.pdf

Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri.* Seçkin Publications.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13*(1),* 2023, 176-199
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Hazırlık Sınıfı Matematik Öğretim Programının Değerlendirilmesi: Sosyal Bilimler Lisesi Örneği

Giriş

Öğretim programlarında yapılan yeniliklerin ve değişimlerin etkilerinin incelenmesi ve değerlendirilmesi eğitim araştırmalarında önemli yer tutmaktadır. Piskurich (2000)'e göre programı hazırlayanın dışında başka biri, ilgili programın ya da programın içindeki bir etkinliğin verimlilik bakımından sonuçlarını görmek amacıyla program değerlendirmeden yararlanabilir. Yapılan alanyazın taramalarında hazırlık sınıfı matematik dersi öğretim programı değerlendirme verilerine ulaşılamamıştır. Yapılan bu çalışmanın program değerlendirme çalışmalarına katkı sağlayacağı düşünülmektedir. Bu bağlamda çalışmanın amacı, Sosyal Bilimler Lisesi hazırlık sınıflarında yer alan Hazırlık Sınıfı Matematik Öğretim Programı'nı (HMÖP), Stufflebeam (CIPP) değerlendirme modelinin bağlam, girdi, süreç ve ürün boyutları açısından değerlendirmektir. Bu amaç doğrultusunda çalışmada "HMÖP'ün a) bağlamı, b) girdileri, c) süreci, d) ürünleri ve etkileri öğretmen ve öğrenci görüşleri açısından nasıl değerlendirilmektedir?" sorusuna cevap aranmıştır.

Yöntem

Bu çalışma HMÖP'ü Stufflebeam (CIPP) modeline göre değerlendirmeyi amaçlayan nitel bir çalışmadır. Araştırmada sınırlı bir sistemin derinlemesine betimlenmesi ve incelenmesine dayalı nitel araştırma desenlerinden durum çalışması kullanılmıştır (Merriam, 2018). Çalışma 2021-2022 eğitim öğretim yılı I. döneminde MEB'e bağlı bir Sosyal Bilimler Lisesinde yürütülmüştür. Çalışmaya 65 öğrenci, 4 matematik öğretmeni katılmıştır. Veri toplamak amacıyla matematik başarı testi, öğretmen ve öğrenci görüşme formları kullanılmıştır.

Bulgular

Çalışmanın bulgular bölümünde öğretmenlerle ve öğrencilerle yapılan bireysel görüşmelerden elde edilen nitel bulgulara ve matematik başarı testinden elde edilen nicel bulgulara yer verilmiştir. Bağlam değerlendirmesinde HMÖP'ün ders saati ve yeterliği öğrenci özellik ve ihtiyaçları açısından incelenmiştir. Öğretmenler programın yeterli olduğunu, öğrencileri üst sınıfa hazırladığını ve öğrencilerin eksik bilgilerini giderdiğini ifade etmişlerdir. Ancak öğretmenler programın içeriğinin bazı bölümlerinin yoğun olması nedeniyle yeterli bir biçimde uygulanamadığını belirtmişlerdir. Ayrıca öğretmenler ve öğrenciler haftada 2 saat ders

ve 1 saat uygulama şeklindeki planlamanın uygun olduğunu ancak bazı konuların içeriklerinin azaltılmasının program uygulamalarını rahatlatacağını ifade etmişlerdir.

Çalışmada HMÖP ve ders kitabı girdi olarak ele alınmıştır. İlk olarak öğretmenlerden programın kazanımlarının öğrencilerin düzeyine uygunluğu açısından görüş alınmıştır. Ortak görüş, kazanımların ortaokulun tekrarı şeklinde olması gerektiği ve programın öğrencilerin eksik bilgilerini tamamlamayı hedeflemesi gerektiği yönündedir. Ayrıca programda bazı kazanımların ve konu içeriklerinin öğrenci seviyesinin üzerinde olduğu ifade edilmiştir. Ancak, oyun etkinliklerinin öğrencinin ilgisini çektiğini belirtmişlerdir. Bir başka girdi olarak kabul edilen ders kitabı hakkındaki ortak görüş, ders kitabının öğrenci seviyesinin üzerinde hazırlanmış olmasıdır. Bir öğretmen konularda ardışıklık olmadığını dile getirirken bir öğretmen örnek sayısının artırılması gerektiğini belirtmiştir. Öğrenciler ders kitabındaki konu ve etkinlikleri genel olarak yapılabilir bulduklarını, etkinliklerin ortaokulda öğrenim gördükleri kitap ile aynı olduğunu ve bazı etkinlikleri hiç yapmadıklarını söylemiştir.

HMÖP'ün süreç boyutunun değerlendirmesinde program uygulamaları ve kullanılan öğretim yöntem ve tekniklerine ilişkin öğretmen ve öğrenci görüşlerine başvurulmuştur. Öğretmenlere programdaki uygulamaları nasıl buldukları, programı uygularkenherhangi bir değişiklik yapıp yapmadıkları sorulmuştur Öğretmenler ders kitabında bulunan etkinliklerin öğrenci seviyesinin üzerinde olduğunu düşünmektedirler. Bu nedenle ek kaynak kullanma gereği duymuşlardır. Aynı zamanda öğrenciler için zor olduğunu düşündükleri konuları işlemediklerini belirtmişlerdir. Öğrenciler ise öğretmenlerin ders kitabına ek olarak yardımcı kitap kullandıklarını ve çoğunlukla soru çözümü yaptıklarını ifade etmişlerdir.

HMÖP'ün ürün-etki değerlendirmesi boyutunda programın günlük yaşama aktarılabilirliği, bilgilerin kullanışlılığı, hazırlık sınıfı okuyup okumamanın matematik akademik başarısına olan etkisi, güçlü ve zayıf yönleri açısından ele alınmıştır. Öğretmenlerin ortak görüşü öğrenciler problem çözme becerilerini alışveriş yapma, zaman ölçme, sayma gibi günlük hayat durumlarında kullanmaktadırlar. Ancak öğrencilerle yapılan görüşmelerde bazı öğrencilerin dersle günlük hayattaki kullanım arasında bağ kurmada zorlandıkları anlaşılmıştır. Tüm öğretmenler hazırlık okuyanların daha başarılı olduğunu ifade etmiştir. Ama başarının neden kaynaklandığını net bir şekilde söylememişlerdir. Zihinsel gelişimin etkisinin olabileceği ve hazırlık sınıfında eksik bilgilerin giderilerek bir üst sınıfa geçilmesinin başarı farkını oluşturabileceği ifade edilmiştir. Öğrenciler programın avantajları olduğunu ifade etmişlerdir. Ortaokulun tekrarı olduğunu ve eksiklerini kapatıp iyi bir temel attıklarını dile getirmişlerdir. Diğer taraftan hazırlık sınıfı okuyan öğrencilerin matematik testinden aldıkları puanların ortalaması ($\bar{x}$:21.13) hazırlık okumayan öğrencilerin ortalamasından daha yüksektir. Ancak hazırlık sınıfı okuyan ve okumayan öğrencilerin matematik başarıları arasındaki bu farkın istatistiksel açıdan anlamlı olmadığı sonucuna ulaşılmıştır.

Son olarak, öğretmenler, programın güçlü yönü olarak oyun ve matematiğin tarihsel gelişimi etkinliklerini dile getirmişlerdir. Bunların öğrencilerin ilgisini çektiğini ve derse ilişkin olumlu tutum sergilemelerine katkı getirdiğini ifade etmişlerdir. Programın zayıf yönü olarak ise konuların öğrenci seviyesine uygun olmaması ve zor olarak adlandırılan etkinliklerin ve soruların olmasını belirtmişler, bunun yanında konu dağılımının 9. sınıfa hazırlık şeklinde olması gerektiğini söylemişlerdir.

Tartışma, Sonuç ve Öneriler

Araştırmanın bulgusu matematik öğretim programı değerlendirmesi yapan birçok çalışma ile benzerlik göstermektedir (Aközbek, 2008; Keskin, 2019; Önal, 2019). Birçok çalışmada programların bağlam ve girdi boyutları genel olarak olumlu algılanırken özellikle süreç ve ürün boyutlarında öğretmen ve öğrencilerden gelen eleştirilerin daha fazla ön plana çıktığı görülmektedir. Program geliştirme süreçlerinde ideal olan yaklaşımların göz önünde tutulduğu ancak okullar arası farklılıkların, öğrenci ve öğretmen özelliklerinin (Bümen, Çakar, Yıldız, 2014) programa bağlılığa, öğrenme-öğretme süreçlerine ve öğrenme ürünlerine çok fazla etki ettiği anlaşılmaktadır. Araştırma sonuçlarından hareketle aşağıda uygulayıcılara ve araştırmacılara önerilerde bulunulmuştur:

- Öğretmenler ders sırasında öğrenciyi merkeze alan öğretim yöntem ve tekniklerini kullanarak geleneksel eğitim anlayışı dışına çıkabilirler.
- Ders kitapları içerikleri bakımından tekrar gözden geçirilerek konular ve içerisindeki örnek sorular öğrenci seviyesi dikkate alınarak yeniden düzenlenebilir.
- Hazırlık sınıfı matematik ders kitabı çeşitliliği artırılabilir.
- Hazırlık sınıfı programı sadece 8. sınıf kazanımlarını kapsayacak şekilde düzenlenebilir.
- Bu araştırmada, bir sosyal bilimler lisesinin hazırlık sınıfı matematik öğretmenleri ve bu derse giren öğrencilerle çalışılmıştır. Araştırmanın kapsamının genişletilmesi adına farklı türde liselerin hazırlık sınıfı matematik öğretmenleri ve öğrencileri seçilebilir. Böylelikle farklı türdeki liselerin hazırlık sınıfı matematik öğretim programları daha kapsamlı değerlendirilebilir.
- Bu araştırma HMÖP değerlendirmesi konusunda yapılmış ilk çalışmadır. Bu bakımdan diğer araştırmacılar için elde edilen bulgular kaynak teşkil edebilir.

International Journal of Curriculum and Instructional Studies
13*(1),* 2023, 200-223
www.ijocis.com

Teachers' Views on Electronic Teacher Portfolio Preparation Process

Esma Genç, Mimar Sinan Fine Arts University, esma.genc@msgsu.edu.tr,
0000-0002-7180-6066

İlker Cırık, Mimar Sinan Fine Arts University, ilker.cirik@msgsu.edu.tr,
0000-0002-3018-9831

Keywords

Professional development
Teacher portfolio
Peer coaching
Electronic portfolio

Article Info:
Received : 22-11-2022
Accepted : 25-05-2023
Published : 24-06-2023

DOI: *1*0.31704/ijocis.2023.009

Abstract

The purpose of the study has been framed as exploring the views of the participants on the process of preparing an electronic teacher portfolio through peer coaching. The study was designed as a case study. The participants of the research consisted of 10 volunteer teachers who were graduate students in the field of Curriculum and Instruction at the level of master's degree. They developed a teacher portfolio within the scope of the research. The data were collected through the Pre-Questionnaire Form applied at the beginning of the study and the Post Questionnaire Form applied in the end. The data obtained from the questionnaire forms were analyzed by content analysis method. As a result, it was observed that portfolio development process through peer coaching contributed to teachers' professional development and reflection. Teachers stated the electronic portfolios were more functional than traditional portfolios. It was seen that they had difficulties in allocating time to portfolio work. It may also be suggested to conduct longer-term studies with a broader participation. In addition, the needs of teachers regarding time should also be considered, and fixed time arrangements should be made for such collaborative work in their timetables.

To cite this article: Genç, E., & Cırık, İ. (2023). Teachers' views on electronic teacher portfolio preparation process. *International Journal of Curriculum and Instructional Studies, 13*(1), 200-223. https://doi.org/10.31704/ijocis.2023.009

Introduction

Professional learning community practices, considered as one of the ways to make teachers learn mutually from each other, have come to the forefront as an important opportunity to provide professional development for teachers. Under the professional learning community framework, different ways are used to create environments where teachers work, learn, try and share in order to develop and implement more effective teaching practices (Wray, 2007a). One of these ways mentioned above is teacher portfolios (Beck, Livne, & Bear, 2005; Diaz-Maggioli, 2004; Richards & Farrell, 2005). Therefore, it is important to examine the opportunities that portfolios provide in terms of professional development.

The teacher portfolio can be defined as a structured collection of works of a teacher that provides information on different aspects of his/her work and that demonstrates their competence as well as development (Richards & Farrell, 2005; Tucker et al., 2002). According to Zepeda (2017), the portfolio preparation is a process that contributes to the professional development of the teacher through developing of skills such as reflection, feedback and goal setting, and records professional development chronologically. This process provides a basis for facilitating and reviewing professional development (Richards & Farrell, 2005; Tucker et al., 2002). Therefore, educators have utilized the teacher portfolio systematically over the past two decades to provide evidence for professional development (Diaz-Maggioli, 2004). The increasing importance of teacher portfolios in the process has brought about the differentiation of portfolios.

In line with the technological developments, it has been witnessed that the portfolio structure has evolved from the traditional/printed portfolio to the form of electronic portfolio. "An electronic portfolio can be considered as a digital container that can store visual and audio content, including text, images, video and audio" (Abrami & Barrett, 2005, p. 2). Moreover, it has advantages over printed forms due to features such as ease of access, independence from time and place, easy updating, fluidity of transfer and storage of materials (Ledoux & McHenry, 2006; Totter & Wyss, 2019). Although structuring is a bit more difficult and time-consuming than traditional portfolios, electronic portfolios enable teachers to understand their professions better and improve their reflective and digital literacy skills (Bokiev et al., 2017); help them make connections between portfolio sections more easily and to draw a more detailed teacher profile with its structure that allows adding photos and videos (Wray, 2007b). The fact that it has been heavily involved in both pre-service and in-service teacher development studies in recent years can also be attributed to its mentioned strengths (Aras, 2021; Harun et al., 2020; Kilbane & Milman, 2017; Kloser et al., 2021; Vorotnykova & Zakhar, 2021). It can be said that portfolios will continue to be used in the professional development of teachers in the coming years due to their stated strengths.

On the other hand, portfolios, whether prepared in a traditional or electronic way, are complex structures, and the preparation of a portfolio is complicated and time consuming. In this process, being in a communication process about the goals of their portfolios and using collaborative participation forms to develop a successful portfolio will be useful for professional development of teachers (Wray, 2007a). Richert (1990) states that discussions with a colleague enduring the portfolio preparation process facilitate the structuring of reflections regarding teaching, while Zepeda (2017) emphasizes that portfolio preparation is an interactive

process and underlines the fact that ideally it would be better to work with a colleague or a supervisor. In the studies that highlight working-together approaches (teamwork, coaching, mentoring, peer assessment) (Kato, 2018; Sung et al., 2009; Wray, 2007a) enables teachers to move from a passive role to a truly collaborative one. Also, this collaborative approach contributes the professional development in a positive way.

In the light of the descriptions mentioned above, peer coaching, as well, can be considered as one of the ways to make this contribution. "Coaching is a way that provides two people with a continuous dialogue by focusing on developing the skills, techniques and behaviors that lead to professional and personal success" (Barkley & Bianco, 2010, p. 39). Many different types of coaching—technical coaching, challenge coaching, instructional coaching, team coaching, cognitive coaching, peer coaching, collegial coaching—are mentioned in the literature (Fogarty & Pete, 2007; Richards & Farrell, 2005; Showers & Joyce, 1996). "In this study peer coaching, whose main purpose is to improve teaching practices, increase professional dialogue, and help teachers think deeply about their work, taken into consideration" (Garmston, 1987, p. 20). What can be stated regarding peer coaching is that it aims to support the personal and professional development of teachers who have similar experiences, reducing their social isolation and providing them with the opportunity to reflect through personal dialogues. "In the coaching process, colleagues plan a series of opportunities to explore teaching activities collaboratively. During and after the process, the coach provides feedback to the teacher and a positive contribution to the professional development is provided through mutual interaction" (Richards & Farrell, 2005, p. 143). In this context, the present study focuses on the process of preparing an electronic teacher portfolio through peer coaching. It is considered that process of preparing professional portfolios in a coaching relationship with another teacher who has a similar experience when they have problems in the portfolio development process, situations that they have difficulty making decisions, or issues that they want to discuss will enrich the process. Both approaches come to the fore as ways of practice aiming to improve the teacher with the teacher within the framework of the professional learning community. When the literature is examined, it is seen that, the studies that examine the role of electronic and traditional portfolios as a reflection tool (Aras, 2021; Ayan & Seferoğlu, 2011; de Jager, 2019; Öner & Adadan, 2013; Pennington, 2011; Yao et al., 2009); its impact of teachers on their learning (Harun et al., 2020; Kilbane & Milman, 2017; Vorotnykova & Zakhar, 2021); their opinions or perceptions towards the portfolio preparation process (Huff, 2006; Samuels, 2006) shed light on the field and offer suggestions for the more effective use of teacher portfolios in professional development. In addition, it is emphasized that studies on portfolios are mostly carried out on pre-service teachers (Hazar, 2020) and considering the limited number of studies, it can be concluded that there is a need for more research on electronic portfolios and on-duty teachers (Kilbane & Milman, 2017). Furthermore, the emphasis that the collaborative process of preparing a teacher portfolio will create a more qualified environment in terms of professional development by providing an environment of sharing and discussion (Kloser et al., 2021; Richert, 1990; Wray, 2007a; Zepeda, 2017) can be considered as an indicator of the need for such studies.

The above-mentioned opinions were acknowledged as an indicator that signifies the need for studies on teachers which highlight the collaborative learning culture in line with the understanding of the professional learning community. The main purpose of the study has been framed as exploring the views of the participants on the process of preparing an

electronic teacher portfolio through peer coaching. For this purpose, answers to the following research problems were sought:

1. What are the teachers' views on the electronic portfolio preparation process?

2. What are the teachers' views on the process of preparing the teacher portfolio with peer coaching?

Method

Research Design

In the present study, exploring the views of the participants on the process of preparing an electronic teacher portfolio through peer coaching is aimed. Therefore, the case study, which is one of the qualitative research designs, was applied. "The case study is a type of study where a single individual, group or significant example is studied extensively and meticulously, various data are collected and used to formulate interpretations applicable or peculiar to a specific situation" (Fraenkel et al., 2012, p. 13). In the study, the portfolio preparation process carried out within the scope of a graduate's course on the professional development of teachers was explored. Within the scope of the course, a ten-hour teaching process was allotted to the topics of professional learning community, peer coaching and teacher portfolio. The teaching process was carried out within the framework of sharing and discussing the presentation prepared on the subject and reading the articles on the subject. The class was then divided into groups of two for peer coaching practice. Preliminary information was given to the participants regarding the titles which were expected to be in the teacher portfolio and the other issues to be given utmost importance in the process by sharing the guide prepared for the process of preparing an electronic teacher portfolio. In this process, using the PowerPoint program as an electronic portfolio preparation tool means was agreed as the collective decision of the group. Afterwards, the stage of portfolio preparation was initiated. This phase lasted for eight weeks, and peer-coaching groups of teachers came together online every week or every two weeks. They shared information regarding their portfolios. Further, they supported each other in terms of the problems with their portfolios, the documents they would put in the portfolio, and the progress they made. The process was concluded with the presentation of the prepared portfolios to the group. As a result, the electronic portfolio preparation process of a group consisting of teachers was treated as a case study and it was aimed to analyse and interpret the views of teachers in details.

Participants

Purposive sampling method was applied in the study. In this method, researchers make use of their judgments to select a sample that they believe will provide the data they need based on previous knowledge and that addresses the specific purpose of the research (Fraenkel et al., 2012). The rationale and strength of purposive sampling comes from its emphasis on a deep understanding. This emphasis leads to the selection of situations rich in information for the depth of the study (Patton, 2014). In the study, the typical sampling strategy based on the purposive sampling method, developed by Patton (2014), was applied. According to Fraenkel et al. (2021) a typical sample, one that is considered or judged to be typical or representative of that which is being studied. In this context, the participants of the research consisted of 10 volunteer teachers who were graduate students in the field of Curriculum and Instruction at

the level of master's degree in the academic year 2020-2021 and who prepared a teacher portfolio within the scope of a course they had. Participants completed and signed the 'Informed Voluntary Consent Form'. In addition, necessary permissions from the Social and Human Sciences Research and Publication Ethics Committee of the university where the study was conducted were obtained with the official letter dated 16.02.2021 and numbered E-60750483-050.01.03-4845. Demographic characteristics of the participants are presented in Table 1.

Table 1

The Characteristics of the Participants

Participant	*Gender*	*Age*	*Experience (Year)*	*Teaching Field*	*Education Level*
T1	Female	29	4	Mathematics	Undergraduate
T2	Male	29	4	Turkish language and literature	Undergraduate
T3	Female	29	6	Pre-School	Undergraduate
T4	Female	22	1	English	Undergraduate
T5	Female	25	3	Visual arts	Undergraduate
T6	Male	31	10	Turkish language and literature	Undergraduate
T7	Male	31	12	Mathematics	Undergraduate
T8	Male	42	16	Music	Undergraduate
T9	Female	32	10	Turkish language and literature	Undergraduate
T10	Male	35	9	Chemistry	Undergraduate

As seen in Table 1, five of the participants were female and five were male. Participants who teach in different fields have an undergraduate degree. The participants have not prepared a teacher portfolio before. Only one participant stated that she created an electronic portfolio for her visual products as she is a Visual Arts teacher.

Data Collection Process

The data were collected via the pre-questionnaire form applied at the beginning of the study and the post questionnaire form applied at the end of the study. While preparing the forms, a question pool was formed after examining the electronic portfolio and peer coaching literature. The questions were analysed several times and organized under categories within the framework of the purpose of the research and the relevant literature. Afterwards, it was presented to the opinion of an expert working in the field of curriculum and instruction who also has publications on qualitative research and portfolio development and within the scope of the pilot application a teacher who was not in the study group was asked to examine the forms. The teacher stated that she/he could easily answer all the questions. Then the forms were sent to the participants via e-mail; the answers were received in a written form. The features of the pre-questionnaire form and the post questionnaire form are as follows:

Pre-Questionnaire Form

This form was prepared by the researchers in the light of the related literature. Through the form, it was aimed to collect the expectations and thoughts of the participants about the process of preparing a teacher portfolio in an electronic environment. The form consisted of three questions belonging to two categories: "teachers' views on the electronic portfolio preparation process" and "teachers' views on the process of preparing the teacher portfolio with peer coaching". At the beginning of the form, there was a section reserved for the personal information of the participants. In the section, the participants were asked to write a code name representing themselves. Further, questions regarding the gender, age, experience, teaching field and the education levels of the participants were also included in this section.

Post Questionnaire Form

This form, which was administered to the participants at the end of the application, enabled them to express their experiences and thoughts regarding the teacher portfolio preparation process. It consisted of nine questions under the title of two categories: "teachers' views on the electronic portfolio preparation process" and "teachers' views on the process of preparing the teacher portfolio with peer coaching"

Data Analysis

In the research, the data gained from the questionnaire forms were analysed through the method of content analysis. The main purpose of the content analysis method is to reach concepts and relationships which can explain the collected data. For this purpose, in the first place it is necessary to conceptualize the collected data, then to organize it in a logical way in accordance with the concepts that have emerged and to determine the themes that explain the data accordingly (Yıldırım & Şimşek, 2013). Likewise, in the present study, the data obtained from the questionnaire forms were analysed independently and separately by both researchers twice, and the answers given by the participants were entirely input into the Excel Program. Codes were generated based on the obtained data. Afterwards, the researchers came together and examined the codes which were produced. At this stage, it was evaluated that the codes created were compatible with each other, some code names that were found to be long or had the same meaning were revised in order to provide clearer expressions and rearranged in the light of the related literature. Following the arrangement of the codes, the two researchers gathered the codes that were related to each other under themes based on the questions in the data collection form. Thus, it was ensured that the data had an organized and systematic structure. The researchers tried to define and interpret the data in relation to each other by adhering to the specified codes and themes to provide more detailed explanations in the process of interpreting the data. Code, category and theme examples of the data are presented in Table 2.

Table 2

Sample Data Analysis Process

Raw Data	*Codes*	*Categories*	*Themes*
T4: While preparing portfolio, I had experiences parallel to my initial thoughts about my own teaching. It was an eye-opening study in terms of seeing how I did what I did, evaluating myself, criticizing and improving myself	Seeing strengths and limitations Mirror yourself	Making self-assessment	Benefits of preparing a teacher portfolio
T2: The feedback I got was mostly positive. In this respect, I did not make any significant changes to my portfolio. I can say that I received more psychological support, especially that I did not feel alone in the process	Psychological support Disappearance of loneliness	Improvement in their psychological well-being	Thoughts about the feedback
T7: Thanks to the colleague coaching application in the teacher portfolio, I had the opportunity to help my friend. Thus, for the first time, I had the opportunity to evaluate our own teaching practices with a colleague	Collaboration skill Social awareness Peer assessment	Peer guidance	Benefits of preparing a teacher portfolio

Validity and Reliability Studies

Taking the necessary precautions to reach the right information (validity) and defining the research process and data in a clear and detailed way (reliability) are important in qualitative research (Yıldırım & Şimşek, 2013). Within the framework of the concepts (credibility, transferability, consistency, confirmability) explained by Yıldırım and Şimşek (2013), some precautions were taken to ensure the validity and reliability of the research. First, a long-term interaction with the participants for approximately one semester was provided for credibility. The results obtained were constantly compared, interpreted and conceptualized by both researchers. For this, the researchers came together after creating the codes independently and discussed the conflicting codes and came to a decision on common codes in line with the relevant literature. In addition, the generated codes and themes were re-examined two weeks later and the researchers evaluated the codes and themes in the same way. Researchers evaluated explicit and implicit content together in the data analysis process. The answer given by each participant about the implicit content was analyzed several times in a holistic way and the underlying meaning was tried to be reached. In this way, the establishment of deeper ties between the data and the themes were supported. In addition, it was ensured that the data and the results obtained were examined by interviewing an academician who is an expert in qualitative research. For credibility, the participants were also interviewed individually and their opinions on the accuracy of the collected data were taken. Secondly, the data obtained for transferability were described in detail and rearranged according to codes, categories and themes. In this context, direct quotations were also used. In addition, in the selection of the participants, both general and private information were tried to be revealed by using the purposeful sampling method. Thirdly, for consistency, besides the researchers, the qualitative researcher also examined whether the data were collected in similar processes, the consistency

of the conceptualization approach in the coding process of the data, and the establishment of the relationship of the data with the results. Fourth, for confirmability, the data collection tools used in the research, the raw data, the coding made during the analysis phase were archived by the researchers, and the results reached by both the researchers and the qualitative research specialist were constantly confirmed with the data.

Results

The findings of the research are presented in two parts within the scope of research questions. In the first part, "teachers' views on the electronic portfolio preparation process", in the second part, "teachers' views on the process of preparing the teacher portfolio with peer coaching" are given. Findings for each research problem were reported by determining the questions in the data collection form as the themes. Direct quotations related to each theme are given under themes.

Results Regarding the Teachers' Views on the Electronic Portfolio Preparation Process

There are five themes in this section. The themes are "benefits of preparing a teacher portfolio", "challenges of preparing a teacher portfolio", "skills developed by the portfolio preparation process", "thoughts on portfolio presenting process" and "advantages and disadvantages of electronic portfolio".

Benefits of Preparing a Teacher Portfolio

Table 3 presents the findings of benefits of preparing a teacher portfolio within the scope of the analysis of the data obtained from the pre and post questionnaire implementation.

Table 3

Benefits of Preparing a Teacher Portfolio

Theme	*Categories*	*Pre-Questionnaire (f)*	*Post Questionnaire (f)*
Benefits of preparing a teacher portfolio	Directing professional development	6	4
	Evaluating professional development	5	8
	Making self-assessment	5	-
	Opportunity for reflection	3	6
	Peer guidance	1	-
	Motivating professional development	1	4
	Documenting the professional development	-	4
	Planning future professional development	-	4

When Table 3 examined, before teachers prepare portfolios, it was observed that all the teachers focused on the contribution of the portfolios to their professional development and categorized this contribution under the heading as directing (f = 6), evaluating (f = 5) and motivating (f = 1) professional development. Teachers also emphasized that preparing a portfolio will provide making self-assessment (f = 5), opportunity for reflection (f = 3) and peer

guidance (f = 1). The state of a teacher who emphasized the evaluative effect of preparing a teacher portfolio on professional development can be given as an example.

> Professional development is a collection of studies which enable the teacher to see his/her competences or weaknesses in subjects related to their field or in applied activities. I think that professional development is the type of work that enables me as a teacher to self-evaluate myself and how much information I can convey to my students, that is, it helps me to weigh myself. (T5)

After they prepared their portfolio, teachers still find the positive effect of the portfolio on their professional development important in terms of evaluating (f = 8), motivating (f = 4) and directing (f = 4) dimensions. Teachers also emphasized the usefulness of the portfolio as a reflection tool (f = 6). In addition, regarding the benefits of the portfolio, they also mentioned two new effects on professional development, documenting (f = 4) and planning (f = 4). The state of a teacher who emphasized the motivating and evaluative effect of the portfolio in professional development and its structure that provides reflection can be given as an example:

> Developing a teacher portfolio can be considered as self-accountability or personal accountability and self-examination. However, this questioning is not a situation that makes you feel nervous or apprehensive, rather it has been a period of time that has increased my professional motivation for me. It has also been a period of time that has made me say I wish I had done earlier and look myself in the mirror with the taste of keeping a diary. Further, it has been a time during which, you get the motivation to improve and continue what you see by highlighting your positive aspect. (T10)

Challenges of Preparing a Teacher Portfolio

Table 4 presents the findings of challenges of preparing a teacher portfolio within the scope of the analysis of the data obtained from the pre and post questionnaire implementation.

Table 4

Challenges of Preparing a Teacher Portfolio

Theme	*Categories*	*Pre-Questionnaire (f)*	*Post Questionnaire (f)*
Challenges	Allocating time	3	9
	Finding necessary documents for portfolio	2	2
	Performing the reflection process	2	
	Organizing the portfolio	1	2
	Lack of knowledge about preparing a portfolio	-	7
	Lack of experience about preparing a portfolio	-	6

In Table 4, the frequencies of the categories related to challenges of the portfolio preparation process are given place in terms of pre and post questionnaire implementation. Before teachers prepare portfolios, they think they will face difficulties about allocating the time (f = 3), finding the necessary documents (f = 2), performing the reflection process (f = 2), organizing the portfolio (f = 1).

At the end of the study, the teachers, who prepared and presented their portfolios, stated difficulties in allocating time (f = 9), lack of knowledge (f = 7) and experience (f = 6) about preparing a portfolio, finding necessary documents (f = 2) and organizing the portfolio (f = 2) they found. A teacher's statement can be given as an example:

> At first, I had difficulty in determining what criteria to use when determining the subheadings. I experienced the shortcoming of not specifying this earlier in my teaching model. I had a hard time getting it into shape and my inexperienced in prepaid it took my inexperienced time. Preparing a portfolio really takes time. Every time you say it must have happened and you look at it again, you go for a change by saying "this should be like this". You should really take a good time to create a responsive portfolio, think carefully and use your materials correctly; I learned this in the process. I think that the portfolio should not be left as it is but should be updated during the working process. (T9)

Skills Developed by Preparing a Teacher Portfolio

Table 5 presents the skills developed by teachers in preparing portfolios within the scope of the analysis of the data obtained from the post questionnaire implementation.

Table 5

Skills Developed by Preparing a Teacher Portfolio

Theme	*Categories*	*Post Questionnaire (f)*
Skills	Self-assessment	10
	Reflection	9
	Coaching	9
	Professional planning	2
	Technology use	2

Given in Table 5, the skills developed by teachers in preparing portfolios were expressed as follows: Self-assessment (f = 10), reflection (f = 9), coaching (f = 9), professional planning (f = 2) and technology use (f = 2) skills.

Thoughts on Portfolio Presenting Process

Teachers' thoughts on portfolio presenting process within the scope of the analysis of the data obtained from the post questionnaire implementation were given in Table 5.

Table 6

Thoughts on Portfolio Presenting Process

Theme	*Categories*	*Post Questionnaire (f)*
Thoughts of portfolio presenting process	Contributed to their acquisition of new learning	2
	Made them proud of their work	2
	To know their colleagues better	2
	Contributed to reflection process	2
	Made the whole portfolio process meaningful	1

When the answers given in Table 6 were examined, it was observed that all the teachers were contented to share their portfolios. They expressed portfolio presentations of their peers contributed to their acquisition of new learning (2), made them proud of their work (2), to know their colleagues better (2), contributed to reflection process (2). One teacher stated that the presentation made the whole portfolio process meaningful. A teacher's statement can be given as an example:

> I felt that I got to know my friends better because I saw other characteristics besides their teacher identities. I think that the posts are presented in visuals and designs that emphasize which of our professional or other features we want to come to the fore. For this reason, I think that portfolios reflect how we want our professional and personal characteristics to be. I found the portfolios impressive as they reveal what we are affected by as teachers, where we are stuck, what are the events that left a mark on us, and how we evaluate all these from our own eyes, even though we may not be aware of it. In this context, I must say that I enjoyed the presentations, which we can also consider as a psychological analysis, and I would like to see the continuation if possible. (T10)

Positive and Negative Features of Electronic Teacher Portfolio

At the end of the study, the teachers, who prepared and presented their portfolios, were asked to explain the positive and negative features of electronic portfolio development compared to the traditional way. Their answers are given in Table 7.

Table 7

Positive and Negative Features of Electronic Teacher Portfolio

Theme	*Categories*	*Positive Features f*	*Negative Features f*
Positive and negative features of electronic teacher portfolio	Ease of carrying, storing and updating	8	-
	Richness of design	3	-
	Ease of accessing electronic portfolio samples	1	-
	Ease of converting into a traditional portfolio	1	-
	Increase in their awareness the importance of developing technology competencies	1	-
	Use of online opportunities to exchange ideas	1	
	Not being able to carry as a written catalogue	-	1
	Inconvenience caused by the lack of prior knowledge about the technological environment	-	1
	Slowness in the technologies utilized	-	1
	Expensive costs of portfolio applications	-	1

When Table 7 was examined, it was observed that the teachers mentioned mostly the positive features of the electronic portfolio. These positive features were ease of carrying, storing and updating (f = 8), richness of design (f = 3), ease of accessing electronic portfolio samples (f = 1), ease of converting into a traditional portfolio when necessary (f = 1), increase in their awareness regarding the importance of developing technology competencies (f = 1)

and use of online opportunities to exchange ideas (f = 1). The opinion of a teacher emphasizing positive aspects is given below:

> Thanks to the digital portfolio, I was able to edit and transfer the material I acquired, to make changes in the design and to edit the content in a very short period of time. When I decided to exchange ideas, it was enough only to share it online. (T4)

Among the limited number of negative features given in Table 6, it was stated that not being able to carry as a written catalogue (f = 1), inconvenience caused by the lack of prior knowledge about the technological environment (f = 1), slowness in the technologies utilized (f = 1) and having problems in accessing portfolio applications due to their costs (f = 1) could be listed. Each opinion stated regarding the negative features was expressed only once. However, teachers also stated that they did not regard the negative features they expressed very important. For instance, the teacher (T9) who expressed the view that "not being able to carry it as a written catalogue" indicated that "this is not a big handicap for me, the technology is already at a level that will not match this.

Results Regarding Teachers' Views on the Process of Preparing the Teacher Portfolio with Peer Coaching

There are two themes in this section. The themes are "benefits of peer coaching" and "thoughts about the feedback". Direct quotations related to each theme are given under themes.

Benefits of Peer Coaching

Table 8 presents the findings of benefits of preparing a teacher portfolio with peer coaching within the scope of the analysis of the data obtained from the pre and post questionnaire implementation.

Table 8

Benefits of Peer Coaching

Theme	*Categories*	*Pre-Questionnaire(f)*	*Post Questionnaire (f)*
Benefits of peer coaching	Sense of relief and reduced their anxiety	10	10
	Supportive effect	8	-
	Positive effect on their critical thinking skills	2	-
	The feeling of trust in colleagues	-	10
	Peer support	-	3
	Contributed positively to their professional development	-	6

Under this theme as explained in Table 8, before the teachers had prepared portfolio, all the teachers agreed on the fact that carrying out the process through peer coaching will give them a sense of relief and reduced their anxiety (f = 10). Further, they emphasized that peer coaching would have a supportive effect (f = 8). It was observed that the concepts of avoiding mistakes, motivating, being able to consult with ease and getting answers to their questions were used in explaining the supportive effect. In addition, they emphasized that this process would have

a positive effect on their critical thinking skills (f = 2). A teacher's statement is given as an example below:

> The fact that we will guide each other by helping people with whom I meet on the common denominator will prevent me from making any mistakes such as misunderstanding or deviation from the right path in the portfolio process and working with my colleague will improve my critical thinking skills. (T4)

At the end of the portfolio preparation process, it was observed that the teachers emphasized the dimensions of trust in colleagues, sense of relief and reduced their anxiety and the dimension of contribution to professional development. The feeling of trust in colleagues (f = 10) was emphasized by all the participants. All of the teachers (f = 10) stated that thanks to this trust, their anxiety decreased, they relaxed and they felt better. In addition, teachers pointed out that, peer support increased (f = 3). Teachers also stated that colleague coaching contributed positively to their professional development (f = 6). An example excerpt is as follows:

> It made me feel more comfortable. Knowing that I was not alone in a study that I was involved in for the first time made me feel comfortable. Having someone doing the same job as me, whom I could ask questions and share with whenever I wanted, made me work in a reassuring feeling. (T1)

Thoughts about the Feedback

At the end of the study, the teachers who prepared and presented their portfolios stated their thoughts about the feedback given by their peer coach. Their thoughts are given in Table 9.

Table 9

Thoughts About the Feedback

Theme	*Categories*	*Positive Features (f)*
Thoughts about the feedback	Contributed significantly to their professional development	6
	Use of technology	5
	Improvement in their psychological well-being	5
	Strengthened peer communication	4

When the answers given in Table 9 were examined, all the teachers stated that they found the feedback they received positive and that they gave importance to it. Teachers (f = 6) stated that the feedback they received contributed significantly to their professional development. Two of these teachers pointed out that the feedback received from their peer coach was effective in self-assessment, one of them in peer assessment, two of them in developing different perspectives in the structuring of the portfolio, two of them in planned study, one of them in changing the teaching philosophy, and finally one of them in producing original work. Teachers also stated that feedbacks supported them in the use of technology (f = 5), provided an improvement in their psychological well-being (5), strengthened peer communication (f = 4).

All the teachers emphasized that they made changes in their studies based on the feedback. These changes are exemplified as the type of documents to be included in the portfolio,

portfolio design, sorting the portfolio products, correcting grammatical errors, and supporting the study with quotes about education. A teacher's statement about feedback from a peer coach is as follows:

> I was in a pretty good communication with my colleague coach. We often consulted with each other and exchanged ideas. I think I gave and received useful feedback. Thanks to the feedback, the change I put in there was at the point of design. When we presented the final version of the assignment to each other, I said that I was not sure about the shape and colour, and the colleague offered me several options from different programs, and I researched and created a new design. At this point I expressed my thanks to my colleague. I can truly say that I have undergone a quality collegial coaching process at every single point. (T3)

Discussion, Conclusion and Implications

Teacher portfolios direct teachers to make a comprehensive self-assessment on different aspects of their job. Working with a collegial in this process could be a beneficial factor for a more qualified development (Richards & Farrell, 2005). In this study, exploring the views of the participants on the process of preparing an electronic teacher portfolio through peer coaching is aimed. The results of the study are framed in two parts within the scope of research questions. In the first part," teachers' views on the electronic portfolio preparation process" was examined.

Teachers indicated that teacher portfolios had a number of benefits and challenges. They emphasized that the teacher portfolio contributed to their professional development and enabled them to reflect. Similarly, many studies in the literature (Aras, 2021; Ayan & Seferoğlu, 2011; Beal, 2017; de Jager, 2019; Pennington, 2011; Pitts & Ruggirello, 2012; Taş & Cengizhan, 2013; Wray, 2007a) highlight professional development and reflection among the benefits of teacher portfolios. It can be stated that these two features feed each other in a reciprocal relationship. Milman and Kilbane (2005) also reached a similar finding in their study and when explaining the reason, they emphasized the chain relationship between reflection and professional development. According to them, development a portfolio naturally leads teachers to a reflection process by compelling them to critically analyse and think about their teaching practices. Reflecting also acts as a catalyst for professional development by enabling them to see and better understand the importance of their professional studies regarding development as teachers. At this point, it seems important that portfolios provide enough evidence to allow teachers in order to reflect over time and to see how their professional competencies have changed in terms of significant benefits in the aforementioned fields (Pitts & Ruggirello, 2012). It was also observed that teachers realized the benefits in the process, which they foresaw at the beginning of the study and in addition, it was seen that they encountered different benefits of the teacher portfolio. This is confirmed by the responses given by the teachers whereby benefits of planning and documenting professional development were added to the motivating, directing and evaluative effect stated in the pre-questionnaire forms.

There are also perceived challenges to the portfolio preparation process by teachers. All the participants stated that developing a portfolio is very time-consuming. They also have concerns about finding documents, performing the reflection process and organizing the portfolio.

When the literature is examined, it is seen that similar concepts are expressed. It has often been emphasized that portfolio development process is time-consuming (Atay, 2003; Avan & Şahin, 2020; Taş & Cengizhan, 2013; Wray, 2007a). Wray (2007a), in his overall evaluation of his research, states that the obligation to complete portfolios in a certain period of time, the uncertainties about the purpose and target group of the portfolio, and the lack of information regarding the content and organizational strategies specific to portfolio development have emerged as a matter. In fact, if anyone who is involved in the change process in schools were asked the question, "what is the most basic component of this process?", the first answer to be taken would be time. If change is to be achieved, the time for collaborative work for teachers would perhaps be more important aspect than all other components (Raywid, 1993).

Besides the benefits and challenges of portfolio preparation process, the skills developed by portfolio preparation is also important. Teachers mostly emphasized the skills of reflection, self-assessment and coaching. The positive effect of portfolio on reflection skills is frequently emphasized in the literature (de Jager, 2019; Pennington, 2011; Pitts & Ruggirello, 2012; Taş & Cengizhan, 2013; Wray, 2007b). Milmane and Kibane (2005) have also found in their studies that portfolio development process improves teachers' reflection skills and accordingly, it supports their self-evaluation and communication with their peers. "The portfolio process leads the teachers to a comprehensive self-assessment of different aspects of their work. By reviewing the portfolio, a teacher can make decisions about goals and areas for future development. This process will improve the cooperation between teachers" (Richards & Farrell, 2005, p. 99). It can be also stated that collaboration created a supportive and interactive environment that motivated participants to become more reflective. In this respect, it can be stated that the skills expressed by the teachers are in line with the literature. In addition, teachers emphasized the improving effect of presenting the portfolio and sharing it with their colleagues, as well as developing a portfolio. This finding was also evaluated as a result of the collaborative culture created with colleagues and interpreted as portfolio conversations have a positive effect on the development of teachers.

In this study, the teachers prepared electronic portfolios. "E-portfolios provide a comprehensive way to document personal progress, to reflect on work activities, to support learning and to serve as a tool for feedback and evaluation" (Totter & Wyss, 2019, p. 69). Teachers emphasized the ease of carrying, storing and updating stood out as the most positive feature of electronic portfolios. Teachers also stated expensive costs of portfolio applications. Ledoux and McHenry (2006) state that if the portfolio system is to be used constantly, then, it will be necessary to subscribe to current internet-based applications for storage, support and licensing, and this is a costly process. This situation makes us think that schools do not provide enough opportunities for teachers to access to such applications.

In the second part of the research, "teachers' views on the process of preparing the teacher portfolio with peer coaching" are examined. Teachers stated that carrying out the process through peer coaching relieved them and reduced their anxiety levels. They also expressed that peer coaching enabled the portfolio development process to be in a more positive atmosphere. It is known that coaching is an element that reduces stress in a teacher's life (Barkley & Bianco, 2010). At the end of the process, in addition to the opinions expressed at the beginning of the process, the teachers emphasized the dimensions of trust in colleagues and the dimension of contribution to professional development. In this context, it can be concluded that teachers

began to realize the benefits of peer coaching beyond portfolio development and to see the actual meaning of peer coaching. It is often emphasized in the literature that the first step in the coaching process is to build trust and that this is one of the ways to ensure professional development (Diaz-Maggioli, 2004; Farrell, 2005; Foord, 2009; Patti et al., 2012). Further, the literature (Kato, 2018; Sung et al., 2009; Taş & Cengizhan, 2013; Wray, 2007a) also points out the importance of collaborative forms of participation in the portfolio development process. Then, it would not be wrong to say that receiving peer support in the process of developing a teacher portfolio reduces teachers' anxiety in this process, contributes to a more qualified process and enables them to produce more successful products.

Teachers also found the feedback they received positive and that they paid attention to it. Similarly, Göker (2006); Pearce et al. (2019) emphasized that teachers are satisfied with the feedback they receive during the coaching processing their research. This finding is noteworthy, because feedback is an important component of the coaching process (Showers & Joyce, 1996). Teachers stated that the feedback they received supported them especially in terms of professional development, use of technology, psychological well-being and communication. Feedback is seen as an important component in making peer learning-based studies effective and productive (Thurlings & den Brok, 2018). It is stated that this component is also effective in the portfolio preparation process, and that teachers get information about the technical and visual aspects of their portfolios through feedback, share their professional knowledge, and tend to talk about their professional practices (Milman & Kilbane, 2005). Emphasizing the effect of feedback on professional development, as well as on teachers' communication and psychological well-being, demonstrate that feedback helps teachers flee from social isolation and feel emotionally good. Upon considering that the prominent feature of a coaching relationship is that two people work together in a collaborative and trust-based environment (Barkley & Bianco, 2010), teachers' emphasis on psychological well-being becomes even more meaningful. Teachers' meaningful emphasis on peer coaching and the feedback they receive from their coaches show once more how important it is to organize the arranged and fixed times for teachers to come together and cooperate in the development of collaborative cultures. Since allotting a specific time is usually a problem (Many, 2009), it is thought that it would be useful to underline the importance of this dimension once more.

The results of this study underline the impact of developing and presenting electronic portfolios on professional development, they also highlight the opportunities offered to teachers through conducting the electronic portfolio development process via peer coaching. In this context, apart from the traditional teacher development ways, with this result, the research also emphasizes the importance of professional learning community practices that focus on the development of the teacher through cooperative dialogues with one another.

Based on the results of the research, the following suggestions can be made for practitioners, administrators, policy makers and researchers:

- In this study, teachers' opinions on teacher portfolios prepared through peer coaching within the scope of a course in a graduate program were examined. Regarding the portfolio development process, it can be stated that longer-term studies could reveal different results in real working conditions in the educational institutions where teachers are employed.

- Teachers stated that the feedback they received supported them especially in terms of professional development, use of technology, psychological well-being and communication. This finding is considered as an indicator that teachers need environments where they can receive feedback from colleagues in collaborative dialogue. It can be concluded that the evolution of group teachers' boards into learning communities by making them functional in schools can meet this need.
- It was observed that the most expressed difficulty was allocating time in the portfolio preparation process. The needs of teachers regarding time when they can make professional sharing should also be considered and fixed time arrangements should be made for such collaborative work in their timetables.
- Teachers emphasized the importance of colleague support. Except for the portfolio development process, research in which peer coaching is examined in depth will also contribute to the field.
- Providing professional development of teachers through both peer coaching and teacher portfolios can also be supported by the Ministry of National Education as a way of professional development. It is recommended to ensure the continuity of the path opened by the Ministry of National Education with the understanding of professional development communities with different development strategies.
- In addition, the results of the research have revealed that the process contributed significantly to the teachers' reflections. These reflections could not be examined in detail in the current study, though. It is thought that considering this factor in future studies will contribute to filling the gap in the field.
- The importance of distance education and technology use has increased due to the recent pandemic (COVID-19). In this context, considering that only the PowerPoint program was used in the current study, it can be said that the use of multiple application software in the electronic portfolio development process will be beneficial in the professional development of teachers and in transforming learning environments into a dynamic structure. In the study, teacher emphasized that they could not access internet-based applications for economic reasons, supporting the teachers in the use of technology by their institutions and increasing their opportunities to carry out an effective and productive process are thought to be significant.
- This research showed that portfolio can be a powerful instrument for professional development apart from the traditional teacher development ways. In the context of the professional learning community, it can be stated that examining portfolios through peer review during and at the end of the process will contribute to the evaluation of the qualities of portfolios from different perspectives. Finally, seminars that will introduce teachers to different teacher development strategies that center on the understanding of the professional learning community and research on these issues will provide an opportunity for both practitioners and researchers to rethink teacher professional development from a different perspective.

Author Contributions

The authors contributed equally to all phases of the study and confirm all responsibility for the study.

References

Abrami, P. C., & Barrett, H. (2005). Directions for research and development on electronic portfolios. *Canadian Journal of Learning and Technology, 31*(3). Retrieved from https://www.learntechlib.org/p/43165

Aras, S. (2021). A case study on teacher portfolio with early childhood teachers. *International and Multidisciplinary Perspectives, 22*(2), 219-232.

Atay, D. (2003). Öğretmen adaylarına yansıtmayı öğretmek: Portfolyo çalışması. *Kuram ve Uygulamada Eğitim Yönetimi, 36*(36), 508-527.

Avan, Y., & Şahin, S. (2020). Akran koçluğu ve portfolyo kullanımı: Etkili öğretim denetiminde iki yöntem. *OPUS Uluslararası Toplum Araştırmaları Dergisi, 16*(28), 1028-1053. https://doi.org/10.26466/opus.676497

Ayan, D., & Seferoğlu, G. (2011). Using electronic portfolios to promote reflective thinking in language teacher education. *Educational Studies, 37*(5), 513-521. https://doi.org/10.1080/03055698.2010.539782

Barkley, S. G., & Bianco, T. (2010). *Quality teaching in a culture of coaching.* Rowman & Littlefield.

Beck, R. J., Livne, N. L., & Bear, S. L. (2005). Teachers' self-assessment of the effects of formative and summative electronic portfolios on professional development. *European Journal of Teacher Education, 28*(3), 221-244. https://doi.org/10.1080/02619760500268733

Bokiev, U., Bokiev, D., Othman, M., Lilliati, I., & Aralas, D. (2017). Online teaching portfolio as a catalyst for professional development. *International Journal of Academic Research in Business and Social Sciences, 7*, 440-452. https://doi.org/10.6007/IJARBSS/v7-i14/3680

de Jager, T. (2019). Impact of ePortfolios on science student-teachers' reflective metacognitive learning and the development of higher-order thinking skills. *Journal of University Teaching & Learning Practice, 16*(3), 1-15.

Diaz-Maggioli, G. (2004). *Teacher-centered professional development.* Association for Supervision and Curriculum Development.

Fogarty, R., & Pete, B. (2007). *From staff room to classroom: A guide for planning and coaching professional development*. Corwin Press.

Foord, D. (2009). *The developing teacher: Practical activities for professional development.* Delta Publishing.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* McGraw-Hill.

Garmston, R. J. (1987). How administrators support peer coaching. *Educational Leadership, 44*(5), 18-26.

Göker, S. D. (2006). Impact of peer coaching on self-efficacy and instructional skills in TEFL teacher education. *System, 34*(2), 239-254. https://doi.org/10.1016/j.system.2005.12.002

Harun, R. N. S. R., Hanif, M. H., & Choo, G. S. (2021). The pedagogical affordances of e-portfolio in learning how to teach: A systematic review. *Studies in English Language and Education, 8*(1), 1-15.

Hazar, R. G. (2020). *Okul öncesi öğretmenleri için mesleki gelişim aracı olarak öğretmen portfolyosu kullanımı (Using teaching portfolio as a profesional development tool for early childhood teachers).* (Thesis No: 657192) [Doctoral Dissertation, Hacettepe University]. Turkish Council of Higher Education Theses Center.

Huff, S. (2006). *Teachers' perceptions of the teacher portfolio process* (Publication No: 3213877) [Doctoral Dissertation, State University of New York]. ProQuest Dissertations and Theses Global.

Kato, Y. (2018). Effects of the peer mentoring process in the development of a teaching portfolio. *The Journal of Information and Systems in Education, 17*(1), 50-55. https://doi.org/10.12937/ejsise.17.50

Kilbane, C. R., & Milman, N. B. (2017). Examining the impact of the creation of digital portfolios by high school teachers and their students on teaching and learning. *International Journal of ePortfolio, 7*(1), 101-109.

Kloser, M., Edelman, A., Floyd, C., Martínez, J. F., Stecher, B., Srinivasan, J., & Lavin, E. (2021). Interrogating practice or show and tell?: Using a digital portfolio to anchor a professional learning community of science teachers. *Journal of Science Teacher Education, 32*(2), 210-241.

Ledoux, M. W., & McHenry, N. (2006). Electronic portfolio adoption for teacher education candidates. *Early Childhood Education Journal, 34*(2), 103-116. https://doi.org/10.1007/s10643-006-0111-1

Many, T. W. (2009). Make time for collaboration. 8-9. Retrieved from https://www.allthingsplc.info/files/uploads/make_time_for_collaboration.pdf

Milman, N. B., & Kilbane, C. R. (2005). Digital teaching portfolios: Catalysts for fostering authentic professional development. *Canadian Journal of Learning and Technology, 31*(3). https://doi.org/10.21432/T2CC87

Öner, D., & Adadan, E. (2013). Web tabanlı portfolyo oluşturarak öğretmen olmak: Öğretmenlik uygulamaları için pedagojik bir model. *Gazi Eğitim Fakültesi Dergisi (GEFAD), 33*(3), 475-493.

Patti, J., Holzer, A. A., Stern, R., & Brackett, M. A. (2012). Personal, professional coaching: Transforming professional development for teacher and administrative leaders. *Journal of Leadership Education, 11*(1), 263-275.

Patton, M. Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri* (M. Bütün & S. B. Demir, Eds. & Trans.). Pegem Akademi.

Pearce, E., de la Fuente, Y., Hartweg, B., & Weinburgh, M. (2019). Peer-coaching as a component of a professional development model for biology teachers. *School Science and Mathematics, 119*, 117–126.

Pennington, R. (2011). Reflective thinking in elementary preservice teacher portfolios: Can it be measured and taught? *Journal of Educational Research and Practice, 1*(1), 37-49. https://doi.org/10.5590/JERAP.2011.01.1.03

Pitts, W., & Ruggirello, R. (2012). Using the e-portfolio to document and evaluate growth in reflective practice: The development and application of a conceptual framework. *International Journal of ePortfolio, 2*(1), 49-74.

Raywid, M. A. (1993). Finding time for collaboration. *Educational Leadership, 51*(1), 30-34.

Richards, J. C., & Farrell, T. S. C. (2005). *Professional development for language teachers: Strategies for teacher learning.* Cambridge University Press.

Richert, A. E. (1990). Teaching teachers to reflect: A consideration of programme structure. *Journal of Curriculum Studies, 22*(6), 509-527. https://doi.org/10.1080/0022027900220601

Samuels, J. E. P. (2006). *Teacher candidate perceptions of electronic academic portfolios* (Publication No: 3244638) [Doctoral Dissertation, Kansas State University]. ProQuest Dissertations and Theses Global.

Showers, B., & Joyce, B. (1996). The evolution of peer coaching. *Educational Leadership, 53*(6), 12-16.

Sung, Y. T., Chang, K. E., Yu, W. C., & Chang, T. H. (2009). Supporting teachers' reflection and learning through structured digital teaching portfolios. *Journal of Computer Assisted Learning, 25*(4), 375-385. https://doi.org/10.1111/j.1365-2729.2009.00312.x

Taş, S., & Cengizhan, L. (2013). Teacher portfolios are on stage for professional development: A qualitative case study. *Social Sciences Research Journal, 2*(2), 1-14.

Thurlings, M., & den Brok, P. (2018). Student teachers' and in-service teachers' peer learning: A realist synthesis. *Educational Research and Evaluation, 24*(1-2), 13-50. https://doi.org/10.1080/13803611.2018.1509719

Totter, A., & Wyss, C. (2019). Opportunities and challenges of e-portfolios in teacher education. Lessons learnt. *REM-Research on Media Education, 11*(1), 69-75. https://doi.org/10.2478/rem-2019-0010

Tucker, P. D., Stronge, J. H., & Gareis, C. R. (2002). *Handbook on teacher portfolios for evaluation and professional development.* Eye On Education.

Vorotnykova, I. P., & Zakhar, O. H. (2021). Teachers' readiness to use e-portfolios. *Information Technologies and Learning Tools, 81*(1), 327-339.

Wray, S. (2007a). Teaching portfolios, community, and pre-service teachers' professional development. *Teaching and Teacher Education, 23*(7), 1139-1152. https://doi.org/10.1016/j.tate.2006.10.004

Wray, S. (2007b). Electronic portfolios in a teacher education program. *E-Learning, 4*(1), 40-51. https://doi.org/10.2304/elea.2007.4.1.40

Yao, Y., Aldrich, J., Foster, K., & Pecina, U. (2009). Preservice teachers' perceptions of an electronic portfolio as a tool for reflection and teacher certification. *Journal of Educational Research & Policy Studies, 9*(1), 25-43.

Yıldırım, A., & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştırma yöntemleri.* Seçkin Publishing.

Zepeda, S. J. (2017). *Instructional supervision applying tools and concepts.* Taylor & Francis.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13*(1),* 2023, 200-223
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Öğretmenlerin Elektronik Öğretmen Portfolyosu Hazırlama Sürecine İlişkin Görüşleri

Giriş

Öğretmen portfolyosu, öğretmenin çalışmasının farklı yönleri hakkında bilgi sağlayan; yeterliğini ve gelişimini gösteren eserlerin yapılandırılmış koleksiyonudur (Richards & Farrell, 2005; Tucker ve diğerleri., 2002) ve son yirmi yılda eğitimciler tarafından mesleki gelişime ilişkin kanıt sağlamak amacıyla sistematik olarak kullanılmaktadır (Diaz-Maggioli, 2004). Alan yazın incelendiğinde, özellikle elektronik portfolyo ve görev başındaki öğretmenlerin portfolyo hazırlama süreci hakkında daha fazla araştırma ihtiyacı olduğu görülmektedir (Kilbane & Milman, 2017).

Bu çalışmada öğretmenlerin portfolyo hazırlama sürecinde yaşadıkları problemler, karar vermekte zorlandıkları durumlar veya tartışmak istedikleri konular olduğunda paylaşımda bulunabilecekleri benzer deneyimi yaşayan bir öğretmenle koçluk ilişkisi içinde portfolyolarını hazırlamalarının süreci zenginleştireceği düşünülmüştür. Portfolyo hazırlama sürecinin işbirlikli gerçekleşmesinin paylaşım ve tartışma ortamı sağlayarak mesleki gelişim açısından nitelikli bir ortam oluşturacağına yönelik vurgular da (Richert, 1990; Wray, 2007a; Zepeda, 2017) bu tür çalışmalara ihtiyaç duyulduğunun göstergesi olabilir.

Çalışmanın temel amacı, öğretmenlerin meslektaş koçluğu yoluyla elektronik öğretmen portfolyosu hazırlama sürecine ilişkin görüşlerini belirlemektir. Bu temel amaç altında aşağıdaki problemlere yanıt aranmıştır:

1. Öğretmenlerin elektronik portfolyo hazırlama sürecine ilişkin görüşleri nelerdir?

2. Öğretmenlerin meslektaş koçluğu yoluyla portfolyo hazırlama sürecine ilişkin görüşleri nelerdir?

Yöntem

Çalışmada, portfolyo hazırlama sürecine ilişkin görüşlerin derinlemesine incelenmesi amacıyla nitel araştırma yöntemlerinden durum çalışması kullanılmıştır.

Katılımcılar, amaçlı örnekleme yöntemlerinden tipik örnekleme stratejisi ile belirlenmiştir. Bu bağlamda, Eğitim Programları ve Öğretim alanında yüksek lisans programına devam eden ve aldıkları bir ders kapsamında öğretmen portfolyosu hazırlayan gönüllü 10 öğretmen araştırmanın katılımcılarını oluşturmuştur. Katılımcılar "Bilgilendirilmiş Gönüllü Onam Formu"nu

imzalamışlardır. Çalışmanın yürütüldüğü üniversitenin Sosyal ve Beşerî Bilimler Araştırma ve Yayın Etiği Kurulu izni 16.02.2021 tarih ve E-60750483-050.01.03-4845 sayılı resmî yazıyla alınmıştır.

Veriler, araştırmacılar tarafından hazırlanan ve çalışmanın başında uygulanan Ön Anket Formu ve çalışmanın sonunda uygulanan Son Anket Formu ile toplanmış; içerik analizi yöntemiyle çözümlenmiştir. Verilerden yola çıkılarak kodlar üretilmiştir. İlişkili kodlar bir tema altında toplanmıştır. Araştırmanın geçerlik ve güvenirliğini sağlamak için Yıldırım ve Şimşek'in (2013) açıkladığı kavramlar (inandırıcılık, aktarılabilirlik, tutarlık, teyit edilebilirlik) çerçevesinde, bazı önlemler alınmıştır. İnandırıcılık için katılımcılarla yaklaşık bir dönem boyunca uzun süreli etkileşim sağlanmıştır. Ulaşılan sonuçlar araştırmacılar tarafından sürekli olarak karşılaştırılmıştır. Açık ve örtük içerik birlikte değerlendirilmiş ve örtük içeriğin altında yatan anlama ulaşılmaya çalışılmıştır. Nitel araştırma konusunda uzman bir akademisyen ile görüşülerek verilerin ve elde edilen sonuçların karşılaştırılması sağlanmıştır. Katılımcılarla görüşülerek verilerin doğruluğuna ilişkin görüşleri alınmıştır. Aktarılabilirlik için elde edilen veriler detaylı bir şekilde betimlenmiş ve kod, kategori ve temalara göre yeniden düzenlenmiştir. Bu bağlamda doğrudan alıntılara da yer verilmiştir. Katılımcıların seçiminde amaçlı örnekleme yöntemi kullanılarak hem genel hem de özel bilgiler ortaya konulmaya çalışılmıştır. Tutarlılık için araştırmacıların yanı sıra nitel araştırma uzmanı da verilerin benzer süreçlerde toplanıp toplanmadığını, kodlama sürecinde kavramsallaştırma yaklaşımının tutarlığını ve verilerin sonuçlarla ilişkisinin kurulmasını incelemiştir. Teyit edilebilirlik için araştırmada kullanılan veri toplama araçları, ham veriler, analiz aşamasında yapılan kodlamalar araştırmacılar tarafından arşivlenmiş ve hem araştırmacılar hem de nitel araştırma uzmanı tarafından ulaşılan sonuçlar verilerle sürekli olarak karşılaştırılmıştır.

Bulgular

Bulgular, araştırma problemleri kapsamında sunulmuştur. Araştırmanın ilk problemi "öğretmen portfolyosu hazırlamanın faydaları", "öğretmen portfolyosu hazırlamanın zorlukları", "portfolyo hazırlama sürecinde geliştirilen beceriler", "portfolyo sunma sürecine ilişkin düşünceler" ve "elektronik portfolyonun avantajları ve dezavantajları" temaları kapsamında incelenmiştir.

Öğretmen portfolyosunun yararlarına ilişkin bulgular incelendiğinde öğretmenler hem ön hem de son anket formlarında portfolyonun, mesleki gelişime katkı yapan ve yansıtma yapmalarını sağlayan yönlerine vurgu yapmış, son anket formunda yansıtma yapmaya fırsat sağlayan yapısı yönünde görüş belirten öğretmenlerin sayısı artmıştır. Öğretmenlerin süreçte en zorlandığı nokta ise çalışmaya zaman ayırmak olarak belirlenmiştir. Portfolyolarını sunan öğretmenlere göre portfolyo hazırlamanın geliştirdiği beceriler; yansıtma, özdeğerlendirme, koçluk yapabilme, mesleki planlama ve teknoloji kullanma becerisidir. Ayrıca tüm öğretmenler portfolyolarını sunmaktan, paylaşmaktan mutlu olduklarını belirtmiştir. Öğretmenlerin portfolyolarını elektronik ortamda hazırlamalarıyla ilgili görüşleri incelendiğinde taşıma, saklama ve güncellemede sağladığı kolaylık en çok vurgulanan özelliktir. Bahsedilen sınırlı sayıdaki olumsuz özellikler, yanında taşıyamayacak olmak, teknoloji becerisindeki yetersizliğinin verdiği rahatsızlık, kullanılan teknolojilerdeki yavaşlık, güncel uygulamaların ücretli olması şeklindedir.

Araştırmanın ikinci problemi, "meslektaş koçluğunun yararları" ve "meslektaş dönütleri hakkındaki düşünceler" temaları kapsamında incelenmiştir. Öğretmenler sürecin bir öğretmen arkadaşlarının koçluğuyla yürütülecek olmasının endişelerini azaltan bir unsur olduğunu; bu sürecin meslektaşa güven duygularını artırdığını ve mesleki gelişimlerine olumlu katkı yaptığını belirtmiştir. Öğretmenler aldıkları meslektaş dönütlerini yararlı bulmuş ve bu dönütlere göre portfolyolarında değişiklikler yaptıklarını belirtmişlerdir. Dönütlerin özellikle mesleki gelişim, teknoloji kullanımı, psikolojik iyi oluş ve iletişim konularında öğretmenleri desteklediği belirlenmiştir.

Tartışma, Sonuç ve Öneriler

Araştırmanın ilk bölümünde öğretmenlerin elektronik portfolyo hazırlama süreci hakkındaki görüşleri incelenmiştir. Öğretmenler, portfolyo hazırlamanın birtakım yararları ve zorlukları olduğunu belirtmişlerdir. Yararları kapsamında, portfolyonun, öğretmenlerin mesleki gelişimlerine ve yansıtma yapmalarına sağladığı katkıya, algılanan zorluklar kapsamında ise portfolyo geliştirmenin çok zaman almasına vurgu yapılmıştır. Alan yazındaki pek çok çalışma da yararları kapsamında (Aras, 2021; Ayan & Seferoğlu, 2011; Beal, 2017; de Jager, 2019; Pennington, 2011; Pitts & Ruggirello, 2012; Taş & Cengizhan, 2013; Wray, 2007a) aynı noktaları vurgulamaktadır. Portfolyonun zaman alan bir süreç olması da alan yazındaki çalışmaları (Atay, 2003; Avan & Şahin, 2020; Taş & Cengizhan, 2013; Wray, 2007a) destekler niteliktedir. Belirlenen yararların sağlanmasında en büyük zorluklardan biri zaman ayırma konusu olarak görülmektedir. Bu sonuç, öğretmenlerin mesai saatleri içinde mesleki gelişim çalışmaları için ayırabilecekleri değişmez bir zaman aralığına ihtiyaç duydukları şeklinde yorumlanabilir. Portfolyo hazırlama sürecinin yararları bu sürecin öğretmenlerde geliştirdiği beceriler ile de kendini göstermektedir. Çalışmada özellikle vurgulanan yansıtma, öz değerlendirme ve koçluk becerileri bir öğretmenin mesleki yaşamında önemli görülen becerilerdir. Öğretmeni kapsamlı bir öz-değerlendirme yapmaya yönlendiren portfolyo hazırlama sürecini akran koçluğu sürecinin bir parçası haline getirmek, öğretmenler arasındaki işbirliğini geliştirecektir (Richards & Farrell, 2005). Bu bağlamda, çalışmada geliştirildiği düşünülen beceriler portfolyo hazırlama sürecinin doğal bir sonucu olarak değerlendirilebilir. Bu çalışmada öğretmenler elektronik portfolyo hazırlamışlardır. Öğretmenler elektronik portfolyoların olumlu özelliklerinin yanında, portfolyo uygulamalarının pahalı olduğunu belirtmişlerdir. Bu durum okulların öğretmenlere bu tür uygulamalara erişim için yeterince olanak sağlamadığını düşündürmektedir.

Araştırmanın ikinci problemi kapsamında meslektaş koçluğu ile öğretmen portfolyosu hazırlama sürecine ilişkin öğretmen görüşleri incelenmiştir. Öğretmenler, süreci bu yolla gerçekleştirmenin kaygılarını azalttığını, nitelikli ürünler geliştirmelerini sağladığını ve meslektaşlara duyulan güveni artırdığını belirtmişlerdir. Sonuçlar, koçluk sağlamanın portfolyo geliştirme sürecinin daha olumlu bir atmosferde gerçekleşmesine katkı yaptığı yönünde değerlendirilebilir. Alan yazın (Kato, 2018; Sung ve diğerleri., 2009; Taş & Cengizhan, 2013; Wray, 2007a) portfolyo geliştirme sürecinde işbirlikli katılım biçimlerinin önemine işaret etmektedir. O halde öğretmen portfolyosu geliştirme sürecinde meslektaş desteğinin öğretmenlerin daha nitelikli bir süreç geçirmelerine katkı sağladığı söylenebilir. Öğretmenlerin koçlarından aldıkları dönütlere verdikleri önemi belirtmeleri de işbirlikli kültürlerin öğretmenin gelişimindeki önemini hatırlatmaktadır.

Bulgular topluca değerlendirildiğinde bu çalışmanın sonuçları elektronik portfolyo hazırlamanın mesleki gelişim üzerindeki güçlü etkisinin altını çizerken, elektronik portfolyo hazırlama sürecinin bir meslektaşın koçluğuyla yürütülmesinin öğretmene sunduğu fırsatları da vurgulamaktadır.

Çalışma, yüksek lisans programındaki bir ders kapsamında yürütülmüştür. Öğretmenlerin görev yaptıkları eğitim kurumlarında, uzun süreli yapılacak çalışmalar farklı sonuçlar ortaya koyabilir. Araştırmada öğretmenlerin yansıtmalarının incelenmesi kapsama alınmamıştır. Yapılacak çalışmalarla bu boşluğun doldurulmasına katkı sağlanabilir. Zümre öğretmenler kurullarının öğrenme topluluklarına evrilmesinin öğretmenlerin birbirlerine koçluk yapmasına zemin hazırlayacağı söylenebilir. Elektronik portfolyo hazırlama sürecinde uygulama yazılımları kullanılmasının öğretmenlerin mesleki gelişimlerinde yarar sağlayacağı düşünülebilir. Öğretmenlerin hem meslektaş koçluğu hem de öğretmen portfolyoları yoluyla mesleki gelişimlerinin sağlanması, Millî Eğitim Bakanlığı tarafından da bir mesleki gelişim yolu olarak desteklenebilir.

International Journal of Curriculum and Instructional Studies
13*(1),* 2023, 224-248
www.ijocis.com

Investigation of the Learning Outcomes of the 2018 Middle School Mathematics Curriculum in Terms of Mathematical Communication Skills[3]

Emine Tuğçe Öztaş, Ministry of Education, tuce_aksy@hotmail.com, 0000 0002-2736-8126
Nihal Tunca Güçlü, Dumlupınar University, nihal.tunca@dpu.edu.tr , 0000 0002-8512-7478

Keywords
Mathematical
Communication skills
Mathematics curriculum
Learning outcomes

Article Info:
Received : 07-06-2022
Accepted : 15-05-2023
Published : 22-06-2023

DOI: *1*0.31704/ijocis.2023.010

Abstract

Mathematics includes elements of thinking and communication skills that are essential in a changing world. In this context, thinking and communication skills have a privileged place in the mathematics curriculum (Umay, 2004). This study aims to investigate the learning outcomes of the 2018 middle school mathematics curriculum in terms of mathematical communication skills. The current study employed the document analysis research method. The document analyzed in the study consists of the learning outcomes set in the middle school 5th-8th grade mathematics curriculum, which was updated in the 2018 school year by the Ministry of National Education and is still being implemented. In the study, the researchers developed a "Mathematical Communication Skills Rubric" to examine the learning outcomes set in the middle school 5th-8th grade mathematics curriculum regarding mathematical communication skills. The analysis of the data was carried out with the deductive content analysis approach. In the study, when the learning outcomes in the middle school mathematics curriculum were examined in terms of mathematical communication skills, it was determined that 70% of the total 275 learning outcomes were insufficient. The results show that the learning outcomes of the middle school mathematics curriculum should be rearranged to serve the improvement of mathematical communication skills and that mathematical communication should be structured in more detail regarding the reading, listening, speaking and writing dimensions.

To cite this article: Öztaş, E. T., & Tunca-Güçlü, N. (2023). Investigation of the learning outcomes of the 2018 middle school mathematics curriculum in terms of mathematical communication skills. *International Journal of Curriculum and Instructional Studies*, *13*(1), 224-248. https://doi.org/10.31704/ijocis.2023.010

[3]This article was produced from the master's thesis "Examination of Middle School Mathematics Curriculum in Terms of Mathematical Communication Skills".

Introduction

Mathematics includes elements of thinking and communication skills that are essential in a changing world. In this context, thinking and communication skills have a privileged place in the mathematics curriculum (Umay, 2004). When the mathematics curriculum was examined, communication skills were emphasized for the first time in the 2005 mathematics curriculum. The emphasis on the relevant skill increased in the 2013 curriculum. The mathematics curriculum was restructured in 2018 based on the skills determined by the Turkish Competences Framework. It is seen that there is a 27% increase in the field of communication skills in the general objectives of the 2018 curriculum (Uysal & İncikabı, 2018). Mathematical communication skills dimensions are included in the general goals of the 2018 mathematics curriculum. The dimensions of mathematical communication skills are expressed in the 2018 mathematics curriculum as follows: "Understanding mathematical concepts, using mathematical concepts in daily life, expressing their thoughts and reasoning easily in the problem-solving process, perceiving the deficiencies or gaps in the mathematical reasoning of others, using mathematical terminology and language correctly, expressing concepts with different forms of representation" (MoNE, 2018, s.9). Mathematical communication skill is the ability to use mathematical language clearly and convincingly in verbal and written expression of thoughts (National Council of Teachers of Mathematics [NCTM], 2000). Mathematical communication enables students to make connections between different representations of mathematics (between the language and symbols of mathematics). As may be seen in Table 1, mathematical communication skills have four main dimensions: reading, speaking, listening and writing (Thompson & Chappell, 2007).

Table 1

Mathematical Communication Skills Dimensions

Mathematical reading	Understanding the context and putting what is read into action, such as solving verbal problems, creating and interpreting graphics, answering open-ended and multiple-choice questions (Adams & Lowery, 2007).
Mathematical speaking	Explaining and justifying their solutions, associating their thoughts with others' explanations, and arranging them when necessary (Lo & Wheatley, 1994).
Mathematical listening	The primary purpose of listening is to evaluate the accuracy of what is said. Listening reproduces one's own, the teacher's, or canonical thinking. Opens up opportunities for hearing and responding by seeking to understand another's thinking through communication; focuses on seeking information and responding to it. Listening reproduces the speaker's thinking. (For example, "Could you say more about that?" "Can you say that in another way?") (Hintz & Tyson, 2015).
Mathematical writing	Writing one's mathematical ideas about mathematical concepts, definitions and problems; writing to explain the relationships between problems, concepts and definitions; writing about constructing arguments or other students' reasoning; writing math problems; writing their original solutions to problems; writing about mathematical structures or patterns (Bell & Bell, 1985; Miller, 1990; Van de Walle, Karp & Bay-Williams, 2014).

It is necessary and important to transform the targeted skills into learning outcomes in the curriculum to make them functional and to observe and evaluate their accomplishment. Thus, evaluating the curriculum learning outcomes aiming at the improvement of mathematical communication skills and their interaction with the other dimensions of the curriculum is of great importance to yield insights into the harmony among the elements of the mathematics curriculum. Studies on the learning outcomes of the 2018 mathematics curriculum show that the learning outcomes are mostly related to the cognitive domain, and the learning outcomes addressing higher-order skills in the curriculum are limited in number (Diker-Coşkun, 2017). Parallel to the results of these studies, the exams monitoring and assessing the mathematical competency level of students in different contexts also show that the skills aimed to be imparted to students by the mathematics curriculum cannot be mastered at a sufficient level (MoNE, 2019). For example, the PISA 2018 report shows the lowest mathematical proficiency score in the middle school type in Türkiye. In addition, with reference to the results of TIMMS 2019, in which 4th grade and 8th grade students participated, it is seen that the 8th grade score in mathematics in our country is lower than the 4th grade level and below the international average (Düşkün & Korlu, 2021). Within the scope of the Monitoring and Evaluation of Academic Skills Project aims to evaluate the students' high-level skills (MoNE, 2019). When the 2018 results are examined, 3% of the 8th grade students in the mathematics test are at the advanced proficiency level and 53% at the sub-basic and basic levels. Based on the skills included in advanced mathematical competence, it is seen that only 3% of 8th grade students have the skills to make decisions, show reasons/validation, solve original problems, pose/construct problems and produce/synthesize an original product/model (MoNE, 2019). These exam results are related to the mathematical communication skill levels of the students. Therefore, it is seen that only 3% of the students have reached advanced mathematical communication competence. Because mathematical communication skills cannot be considered without some of the higher-order thinking skills:

- from problem-solving skills in terms of sharing mathematical reasoning and reasons (Sfard, 2008);
- from modeling in terms of students' expressing concepts and problem-solving processes with different forms of representation, and thus their ability to relate (Zawojevski & Lesh, 2003);
- from critical thinking skills in terms of evaluating others' mathematical ideas, deficiencies in their reasoning and reasoning strategies, and organizing their ideas (Sfard, 2008);
- from metacognitive thinking skills in terms of using comprehension control strategies appropriately while interpreting or writing mathematical expressions, questions and images (Ernest, 1987);
- mathematical original ideas, expressions, tasks and creating explanations (Zwicky, 2008) cannot be considered independent of creative thinking skills.

Given the results of the national and international exams, which confirm each other and in which mathematical competencies are determined, there is a need to examine whether the middle school mathematics curriculum learning outcomes serve the function of developing mathematical communication skills. In line with this requirement, this study aims to investigate the learning outcomes of the 2018 middle school mathematics curriculum in terms of mathematical communication skills.

It is thought that the analysis results will indicate the extent to which the middle school mathematics curriculum is suitable for reflection on the mathematical communication skills emphasized in the goals of the curriculum. The research is limited to the learning outcomes of the middle school mathematics curriculum developed in 2018. Examining the learning outcomes regarding mathematical communication skills is limited to the rubric developed by the researchers.

Method

Research Design

The current study employed the document analysis research method. As a research method, document analysis is particularly applicable to qualitative case studies—intensive studies producing detailed descriptions of a single phenomenon, event, organization, or program (Yıldırım & Şimşek, 2006). This study used this method to investigate the learning outcomes of the 2018 middle school mathematics curriculum through the indicators of mathematical communication skills. In this study, the document analysis stages identified by Forster (1994) were adopted: 1. Accessing documents, 2. Checking the originality of documents, 3. Understanding documents 4. Analyzing the data. 5. Using data (as cited in Yıldırım & Şimşek, 2006).

Accessing Documents

The document analyzed in the study consists of the learning outcomes set in the middle school 5th-8th grade mathematics curriculum, which was updated in the 2018 school year by the Ministry of National Education and is still being implemented. The 2018 middle school mathematics curriculum was accessed from the official website of the Ministry of National Education (http://mufredat.meb.gov.tr).

Checking the Originality of Documents

The document used in the research is the middle school 5-8 mathematics curriculum. Evidence for the originality of the document used in the research is given below. The process of developing the mathematics curriculum, in which documents were used in the research, is as follows (MoNE, 2018):

- It has been prepared based on "General Objectives of Turkish National Education" and "Basic Principles of Turkish National Education" expressed in Article 2 of the Basic Law of National Education No. 1739.
- It has been prepared by the General Directorate of Basic Education within the Ministry of National Education, considering the program improvement processes.
- It is the official program put into practice in the 2017-2018 academic year in Türkiye. Therefore, the document is original.

Understanding Documents

When the learning outcomes of the middle school mathematics curriculum are examined, it is seen that there are 56 learning outcomes in the 5th grade mathematics curriculum, 59 in the 6th grade, 48 in the 7th grade, and 52 in the 8th grade. There are 215 learning outcomes in the middle school mathematics curriculum. When a preliminary analysis was conducted on

215 learning outcomes set in the 5th-8th grade mathematics curriculum regarding their structural features, it was determined that some learning outcomes contain more than one action. For example, "M.8.1.1.1. Finds positive integer factors of given positive integers, writes the prime factors of positive integers as the product of exponential expressions." (MoNE, 2018) learning outcome includes two action statements. Therefore, the learning outcome is structurally divided as follows: 1. "Finds positive integer factors of given positive integers", 2. Writes the prime factors of positive integers as the product of exponential expressions. In order to make the analyzes more qualified, the researchers structurally separated 60 learning outcomes containing more than one action statement, in line with the principles of goal writing. Thus, 275 learning outcomes were analyzed.

Analyzing the Data

When the literature was examined, it was determined that the indicators of mathematical communication skills were not determined. "Mathematical Communication Skills Rubric" was developed by the researchers to examine the learning outcomes, which is the aim of the research, in terms of mathematical communication skills. As a result of the review of the literature on mathematical communication skills, it was determined that mathematical communication skills have five dimensions which are "Reading", "Speaking", "Listening", "Writing" and "Effective use of the language of mathematics" (Ernest, 1987; Hubbard, 1990; Kabael & Ata Baran, 2016; MoNE, 2018; NCTM, 2000) and then dimensions were written to reflect mathematical language skills for each dimension. In order to determine the content validity of the 23-item rubric, the data collection tool was submitted to the review of two experts from the field of mathematics education and three experts from the field of curriculum and instruction. The experts were asked to evaluate each item in the rubric regarding its clarity-comprehensibility and whether it is an indicator/ dimension of the relevant dimension. The experts stated that items of the dimension "Effective use of the language of mathematics" overlap with the items of the other dimensions (Sample items: 1. Using the symbols and terms of mathematics effectively, 2. Using mathematical language effectively in different disciplines, 3. Using mathematical language effectively in life, 4. Problem posing (asking questions), and thus, it was suggested that the items under the dimension of "Effective use of the language of mathematics" could be written under the other related items. As a result of the feedback from the experts, the dimension of "Effective use of the language of mathematics" was removed from the rubric, its items were written under the relevant dimensions and two items similar to each other were also removed from the rubric. As a result, the rubric consists of 21 items and four dimensions.

The analysis of the data was carried out with the deductive content analysis approach. In this context, the researchers in the current study prepared a "Mathematical Communication Skills Rubric" (See Appendix 1). In this context, mathematical communication skills were conceptually understood due to the literature review and four dimensions, namely reading, speaking, listening and writing, were determined. Each dimension was divided into items arranged in line with expert feedback. The lowest 21 and the highest 105 points are taken from the rubric. The rubric is of the interval scale type. In the data analysis process, the learning outcomes of the middle school 5th-8th grade mathematics curriculum were coded as insufficient (1), partially sufficient (2), moderately sufficient (3), largely sufficient (4) and

sufficient (5). Their level of reflection mathematical communication skills was evaluated key to the below-given score ranges.

- 21-37: Insufficient
- 38-54: Partially Sufficient
- 55-71: Moderately Sufficient
- 72-88: Largely Sufficient
- 89-105: Sufficient

Mathematics learners need to perform mathematical thinking to make sense of mathematics. As mathematical communication reveals mathematical ideas (Lo & Wheatley, 1994; Sfard, 2008), all learning outcomes should be geared towards mathematical communication skills. For this reason, all learning outcomes are expected to be aimed at mathematical communication skills. For this reason, the word "absent" is not included in the rubric. The rubric uses "insufficient" instead of "absent".

The learning outcomes were analyzed altogether with their explanations. The rubric components were graded by considering what the outcome wanted to express directly and together with the explanations. Therefore, M.8.1.1.1 is divided considering its explanation in the learning outcome curriculum: 1. "Finds positive integer factors of given positive integers", 2. Writes the prime factors of positive integers as the product of exponential expressions). After examining the learning outcome structurally and observing that it contains a single action statement, it was examined in terms of the dimensions of mathematical communication skills. While examining the learning outcome in terms of dimensions, it was determined which dimension or dimensions were focused on in the learning outcome. For example, "Writes the prime factors of positive integers as the product of exponential expressions" learning outcome involves the act of “writing”. It is considered to be directly related to the “writing” dimension of mathematical communication skills. It is not possible to organize the learning environment in which this learning outcome, which focuses on the act of writing, is handled without reading, listening or speaking. For this reason, the phrase "insufficient" was used instead of "none" in the rubric. Since it requires primarily computational skill (use of prime multiplier algorithm or multiplier tree method) and conceptual understanding (the concept of prime factor), it was coded as sufficient (5) concerning the dimension of “writing/using mathematical terminology (concepts and symbols) appropriately and correctly” of the “writing” dimension of mathematical communication skills. It was coded as insufficient (1) in the other dimension and items. As a result, the total score of 25 was reached by analyzing it over the 21 items. Because the obtained 25 value is in the insufficient range (21-37 Insufficient), the learning outcome “M.8.1.1.1. Writes the prime factors of positive integers as the product of exponential expressions.” was determined to be insufficient in terms of mathematical communication skills. Table 2, the coding of this sample learning outcome is shown.

Table 2

Coding of a Sample Learning Outcome (M.8.1.1.1) Over the Mathematical Communication Skills Rubric

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	**1**	2	3	4	5
	Interpreting mathematical expressions, questions, ideas, tasks, or images	**1**	2	3	4	5
	Making sense of what they have read by making connections with their previous knowledge and experiences	**1**	2	3	4	5
	Determining mathematical reading strategies suitable for the purpose	**1**	2	3	4	5
	Using comprehension control strategies	**1**	2	3	4	5
Speaking	Using appropriate and correct mathematical language/ expressions when expressing mathematical thoughts;	**1**	2	3	4	5
	Sharing mathematical reasoning and justifications;	**1**	2	3	4	5
	Making statements that evaluate the mathematical thinking of others;	**1**	2	3	4	5
	Using mathematical expressions to make sense of the relationships between people and objects and the relationships of objects with each other;	**1**	2	3	4	5
Listening	Organizing mathematical ideas by discussing them with others	**1**	2	3	4	5
	Correctly understanding speech about mathematics;	**1**	2	3	4	5
	Seeing the deficiencies in the mathematical reasoning of others and evaluating the mathematical thinking and strategies of others;	**1**	2	3	4	5
	Constructing new knowledge and meanings by associating new ideas with existing ones;	**1**	2	3	4	5
	Making sense of the relationships between people and objects and the relationships of objects with each other by using the language of mathematics	**1**	2	3	4	5
Writing	Expressing/sharing mathematical ideas in writing using the language of mathematics;	**1**	2	3	4	5
	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions;	**1**	2	3	4	5
	Properly expressing mathematical ideas in writing with different representations;	**1**	2	3	4	5
	While expressing mathematical ideas in writing, using mathematical language to make sense of the relationships between people and objects and the relationships of objects with each other;	**1**	2	3	4	5
	Making use of strategies that will enable them to express their mathematical ideas more clearly and accurately;	**1**	2	3	4	5
	Using the mathematical writing process for different purposes	**1**	2	3	4	5
The total score of the learning outcome (M.8.1.1.1.) from the rubric/ comment			25/ Insufficient			

The analyzes of the learning outcomes were made by the researchers separately. Later, the researchers came together and agreed to analyze the learning outcomes. In addition, researchers and an expert in the relevant field (an academician who gives an expert opinion on

the creation of the rubric, who has studies on mathematics curriculum and in the field of curriculum and instruction) came together. They reviewed the analysis of all the learning outcomes together and reached a consensus on the analyses. In order to conduct the reliability study of the analyzed learning outcomes, 20% of the learning outcomes were analyzed by an expert in the field of curriculum and instruction who has studies on qualitative research. Afterward, the researcher compared their coding with the coding of the expert who did the reliability study. Afterward, the expert and the researchers came together and discussed the learning outcomes where there was a difference of opinion. The reliability of the study was calculated using the formula Reliability = Agreement / (Agreement + Disagreement) x 100, suggested by Miles and Huberman (1994). The agreement rate between the researchers was 83% and the data analysis process was completed.

Using Data

The document used in the research is the middle school mathematics curriculum developed by the Ministry of National Education and applied throughout Türkiye. In order to improve the quality of education, the most important task falls to educational institutions. All educational activities in formal education institutions are carried out within a curriculum framework. The training programs include which behaviors and how to gain an individual in the institution. Therefore, the quality of education largely depends on the curriculum implemented. In this context, it is necessary to eliminate the faults and deficiencies of the applied education programs, reorganize them in line with contemporary developments and changes, in other words, to improve the programs continuously. In this context, the study is thought to contribute to developing mathematics programs.

Results

Under the title of findings, the frequency distribution of the mathematical communication skills levels of the middle school mathematics curriculums' learning outcomes in accordance with the grade levels and the examples of mathematics lesson learning outcomes are given.

The Reflection Level of Mathematical Communication Skills in 5th Grade Mathematics Curriculum Outcomes

Under this title, the frequency distribution of the mathematical communication skills levels of the middle school 5th grade mathematics curriculum learning outcomes are given (Table 3).

When Table 3 is examined, 66 (85.71%) of the 77 learning outcomes at the 5th grade level are insufficient, while 11 (14.79%) are partially sufficient. It was determined that there is no learning outcome moderately, largely sufficient or sufficient in terms of mathematical communication skills at the 5th grade levels. Below is an insufficient 5th grade learning outcome example regarding mathematical communication skills.

Table 3

Frequency Distributions Regarding the Mathematical Communication Skill Levels of the 5th Grade Mathematics Curriculum Outcomes

Skill Levels	*Learning Outcomes*	
	f	*%*
Insufficient	66	85.71
Partially Sufficient	11	14.29
Moderately Sufficient	0	0
Largely Sufficient	0	0
Sufficient	0	0
Total	77	100

"Performs the multiplication operation of two three-digit natural numbers at most (M.5.1.2.4.)" is a sample learning outcome found insufficient in terms of mathematical communication skills at the 5th grade level. The levels of the learning outcome (M.5.1.2.4) across the dimensions of the reading and writing of mathematical communication skills are shown in Table 3.1.

Table 3.1

The Levels of the Insufficient Learning Outcome (M.5.1.2.4.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
The total score of the learning outcome (M.5.1.2.4.) from the rubric/ comment [(19 (number of insufficient items) x1)+(2 (number of sufficient items) x5)]		29/ Insufficient				

As the learning outcome aims to enable students to understand the concept of multiplication correctly and to apply its standard rules accurately, it was determined to be sufficient in terms of the skill of reading/understanding the meaning of mathematical expressions, questions and tasks in a way that reflects the relationships between them in the reading dimension and in terms of the skill of writing mathematical concepts and symbols appropriately and correctly in the writing dimension. It was found to be insufficient in the other skills of the reading and writing dimensions. It was determined to be insufficient in all the sub-skills of the listening and speaking dimensions. As a result of the sum of the scores in all the dimensions, it was seen that the level of this learning outcome in terms of reflection on mathematical communication skills is insufficient. It was determined to be insufficient in all the sub-skills of the listening and speaking dimensions, so they are not included in the table. Below is a partially sufficient 5th grade learning outcome example in terms of mathematical communication skills.

"Solves problems that require addition and subtraction with fractions with equal denominators (M.5.1.4.2.)" is a sample learning outcome found partially sufficient regarding mathematical communication skills at the 5th grade level. The levels of the learning outcome (M.5.1.4.2) across the dimensions of the reading and writing of mathematical communication skills are shown in Table 3.2.

Table 3.2

The Levels of the Partially Sufficient Learning Outcome (M.5.1.4.2.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
	Determining mathematical reading strategies suitable for the purpose	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions;	1	2	3	4	**5**
The total score of the learning outcome (M.5.1.4.2.) from the rubric/ comment [(15 (number of insufficient items) x1)+(6 (number of sufficient items) x5)]		45/ Partially sufficient				

The learning outcome aims to apply the skills of adding and subtracting fractions in the problem situation. In this learning outcome, students are expected first to understand the problem and then transfer it to mathematical expressions. In summary, students are expected to understand the verbal expressions in the problem and the numerical relations described in the problem and to create connections between them. Therefore, for this learning outcome, in the reading dimension of the rubric, "Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them"; "Interpreting mathematical expressions, questions, ideas, tasks, or images"; "Making sense of what they have read by making connections with their previous knowledge and experiences "; The items "Determining mathematical reading strategies suitable for the purpose" were coded sufficient. In the writing dimension, the items "Writing/using mathematical terminology (concepts and symbols) appropriately and correctly", "Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions" were coded sufficiently. In all other dimensions, they were coded insufficiently.

The Reflection Level of Mathematical Communication Skills in 6th Grade Mathematics Curriculum Outcomes

Under this title, the frequency distribution of the mathematical communication skills levels of the middle school 6th grade mathematics curriculum learning outcomes are given (Table 4).

Table 4

Frequency Distributions Regarding the Mathematical Communication Skill Levels of the 6th Grade Mathematics Curriculum Outcomes

Skill Levels	*Learning Outcomes*	
	f	*%*
Insufficient	51	68.92
Partially Sufficient	23	31.08
Moderately Sufficient	0	0
Largely Sufficient	0	0
Sufficient	0	0
Total	74	100

When Table 4 is examined, 51 (68.92%) of the 74 learning outcomes at the 6th grade level are insufficient, while 23 (31.08%) are partially sufficient. It was determined that there is no learning outcome moderately, largely sufficient or sufficient in terms of reflection mathematical communication skills at the 6th grade levels. Below is an insufficient 6th grade learning outcome example in terms of mathematical communication skills.

"It explains that the number of unit cubes placed in the rectangular prism in such a way that there is no space in the volume of that object (M.6.3.4.1)" is a sample learning outcome that was found to be insufficient in terms of mathematical communication skills at the 6th grade level. The coding for the reading sub-dimension of the mathematical communication skills of the learning outcome (M.6.3.4.1) is given in Table 4.1.

Table 4.1

The Levels of the Insufficient Learning Outcome (M.6.3.4.1.) Across the Reading Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
The total score of the learning outcome (M.6.3.4.1) from the rubric/ comment [(19 (number of insufficient items) x1)+(2 (number of sufficient items) x5)]		29/ Insufficient				

This learning outcome aims to connect the concept of volume and the number of cubes placed inside the rectangular prism. The student is expected to interpret the given image and switch to the expressions that make up the concept of volume. Therefore, for this learning outcome, in the reading dimension of the rubric, "Reading mathematical expressions, questions, tasks or visuals that reflect the meanings of the concepts and the relationships between them" and "Interpreting mathematical expressions, questions, ideas, tasks or pictures" were sufficiently coded. Below is a partially sufficient 6th grade learning outcome example regarding mathematical communication skills.

"Writes an algebraic expression suitable for a verbally given situation and a verbal situation suitable for a given algebraic expression (M.6.2.1.1)" is a sample learning outcome found to be partially sufficient regarding mathematical communication skills at the 6th grade level. The levels of the learning outcome (M.6.2.1.1) across the dimensions of the reading and writing of mathematical communication skills are shown in Table 4.2.

Table 4.2

The Levels of the Partially Sufficient Learning Outcome (M.6.2.1.1.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions;	1	2	3	4	**5**
	Properly expressing mathematical ideas in writing with different representations;	1	2	3	4	**5**
	While expressing mathematical ideas in writing, using mathematical language to make sense of the relationships between people and objects and the relationships of objects with each other;	1	2	3	4	**5**
The total score of the learning outcome (M.6.2.1.1) from the rubric/ comment [(14 (number of insufficient items) x1)+(7 (number of sufficient items) x5)]		49/ Partially sufficient				

While writing an algebraic expression suitable for a given situation or writing a verbal situation suitable for an algebraic expression, first of all, in the reading dimension, students are expected to read the meanings of the concepts in the given situation as follows: to reflect the relationships between them and to use their comprehension and interpretation skills by making a connection with the prior knowledge about the order of operations for the given situation. In the writing dimension, they are expected to express their ideas in writing using mathematical language, to write concepts and symbols appropriately and accurately, to use symbols or variables accurately, to express them in writing by making transitions between different representations, and to communicate and communicate between people and objects in this process. to make sense of the interaction between objects and objects. This learning outcome, considered sufficient for target skills, is partially sufficient to gain mathematical communication skills when coded in all dimensions. Since there is no action covering the listening and speaking dimensions of mathematical communication in this learning outcome, the skill levels in these dimensions were determined as insufficient and are not listed separately in Table 4.2.

The Reflection Level of Mathematical Communication Skills in 7th Grade Mathematics Curriculum Outcomes

Under this title, the frequency distribution of the mathematical communication skills levels of the middle school 7th grade mathematics curriculum learning outcomes are given (Table 5).

Table 5

Frequency Distributions Regarding the Mathematical Communication Skill Levels of the 7th Grade Mathematics Curriculum Outcomes

Skill Levels	*Learning Outcomes*	
	f	*%*
Insufficient	42	71.19
Partially Sufficient	17	28.81
Moderately Sufficient	0	0
Largely Sufficient	0	0
Sufficient	0	0
Total	59	100

When Table 5 is examined, 42 (68.92%) of the 59 learning outcomes at the 7th grade level are insufficient, while 17 (28.81%) are partially sufficient. It was determined that there is no learning outcome moderately, largely sufficient or sufficient level in terms of reflection mathematical communication skills at the 7th grade levels. Below is an insufficient 7th grade learning outcome example in terms of mathematical communication skills.

"Examines its properties by determining the congruent angles, reverse angles, interior reverse angles, and exterior reverse angles formed by a sac. (M.7.3.1.2)" is a sample learning outcome found to be insufficient in terms of mathematical communication skills at the 7th grade level. The coding for the reading dimension of the mathematical communication skills of the learning outcome (M.7.3.1.2) is given in Table 5.1.

Table 5.1

The Levels of the Insufficient Learning Outcome (M.7.3.1.2.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
The total score of the learning outcome (M.7.3.1.2) from the rubric/ comment [(18 (number of insufficient items) x1)+(3 (number of sufficient items) x5)]		33/ Insufficient				

With this learning outcome, the first thing expected from students is the classification of congruent angles, reverse angles, interior reverse angles and exterior reverse angles. Then, they are expected to distinguish the features of these concepts from each other. Finally, they must use these features to select and configure instances. Therefore, for this learning outcome, in

the reading dimension of the rubric, "Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them"; "Interpreting mathematical expressions, questions, ideas, tasks, or images" and "Making sense of what they have read by making connections with their previous knowledge and experiences were coded sufficient. In all other dimensions, they were coded as insufficiently. Below is a partially sufficient 7th grade learning outcome example regarding mathematical communication skills.

"Creates the relations between the area of the rhombus and the area of the trapezoid (M.7.3.2.4.)" is a sample learning outcome found to be partially sufficient regarding mathematical communication skills at the 7th grade level. The levels of the learning outcome (M.7.3.2.4.) across the dimensions of the reading and writing of mathematical communication skills are shown in Table 5.2.

Table 5.2

The Levels of the Partially Sufficient Learning Outcome (M.7.3.2.4.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions;	1	2	3	4	**5**
	Properly expressing mathematical ideas in writing with different representations;	1	2	3	4	**5**
The total score of the learning outcome (M.7.3.2.4) from the rubric/ comment [(15 (number of insufficient items) x1)+(6 (number of sufficient items) x5)]		45/ Partially sufficient				

In this learning outcome, it is necessary to benefit from the previously learned area relations of triangle, square and rectangle in creating rhombus and trapezoid area relations. The student is expected to establish relationships between images, create new mathematical expressions, and observe the variables of the area of the rhombus and trapezoid by using these relations. Therefore, for this learning outcome, in the reading dimension of the rubric, "Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them"; "Interpreting mathematical expressions, questions, ideas, tasks, or images"; and "Making sense of what they have read by making connections with their previous knowledge and experiences " were coded sufficient. In the writing dimension, the items "Writing/using mathematical terminology (concepts and symbols) appropriately and correctly", "Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions" and "Properly expressing mathematical ideas in writing with different representations" were coded sufficient. In all other dimensions, they were coded insufficiently.

The Reflection Level of Mathematical Communication Skills in 8th Grade Mathematics Curriculum Outcomes

Under this title, the frequency distribution of the mathematical communication skills levels of the middle school 8th grade mathematics curriculum learning outcomes are given (Table 6).

Table 6

Frequency Distributions Regarding the Mathematical Communication Skill Levels of the 8th Grade Mathematics Curriculum Outcomes

Mathematical Communication Skills Levels	*Learning Outcomes*	
	f	*%*
Insufficient	32	49.23
Partially Sufficient	23	35.38
Moderately Sufficient	9	13.85
Largely Sufficient	1	1.54
Sufficient	0	0
Total	65	100

When Table 6 is examined, 32 (49.23%) of the 65 learning outcomes at the 8th grade level are insufficient, 23 (35.38%) are partially sufficient, 9 (13.85%) are moderately sufficient, and 1 (1.54%) is largely sufficient. It was determined that there is no sufficient learning outcome in terms of mathematical communication skills at the 8th grade level. Below is an insufficient 8th grade learning outcome example in terms of mathematical communication skills.

"Calculates integer powers of integers (M.8.1.2.1.)" is a sample learning outcome found to be insufficient in terms of mathematical communication skills at the 8th grade level. The coding for the reading sub-dimension of the mathematical communication skills of the learning outcome (M.8.1.2.1.) is given in Table 6.1.

Table 6.1

The Levels of the Insufficient Learning Outcome (M.8.1.2.1.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
The total score of the learning outcome (M.8.1.2.1.) from the rubric/ comment [(19 (number of insufficient items) x1)+(2 (number of sufficient items) x5)]		29/ Insufficient				

The learning outcome aims to perform the mathematical operation by following the routine steps appropriately. In this learning outcome, what is expected from students is primarily to

remember the information and determine where and when they will use it. Then they are expected to answer the question or perform the task with appropriate steps. Therefore, for this learning outcome, only the item "Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them" was coded as sufficient in the reading dimension of the rubric. In the writing dimension, "Writing/using mathematical terminology (concepts and symbols) appropriately and correctly" was coded sufficiently. In all other dimensions and items, they were coded insufficiently. Below is a partially sufficient 8th grade learning outcome example in terms of mathematical communication skills.

"Determines the relationship between the squares of positive integers and the square roots of the squares of these numbers (M.8.1.3.1.)" is a sample learning outcome regarding mathematical communication skills at the 8th grade level. The levels of the learning outcome (M.8.1.3.1.) across the dimensions of the reading and writing of mathematical communication skills are shown in Table 6.2.

Table 6.2

The Levels of the Partially Sufficient Learning Outcome (M.8.1.3.1.) Across the Reading and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
Writing	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Properly expressing mathematical ideas in writing with different representations	1	2	3	4	**5**
The total score of the learning outcome (M.8.1.3.1.) from the rubric/ comment [(15 (number of insufficient items) x1)+(5 (number of sufficient items) x5)]		41/ Partially sufficient				

This learning outcome aims to determine the relationship between a number and its square root based on the relationship between the square root, the area of the square and the side of the square. In this learning outcome, students are expected to use the conceptual meaning of the square root and show it with a different representation (area of the square and the side of the square). Then, it is expected to reach an inference (the square root of integers is taught by relating the side length of a square given its area) by establishing a relationship between the two cases. Therefore, for this learning outcome, in the reading dimension of the rubric, "Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them"; "Interpreting mathematical expressions, questions, ideas, tasks, or images"; and " Making sense of what they have read by making connections with their previous knowledge and experiences" were coded sufficient. In the writing dimension, the items "Writing/using mathematical terminology (concepts and symbols) appropriately and correctly" and "Properly expressing mathematical ideas in writing

with different representations" were coded sufficiently. In all other dimensions, they were coded insufficiently. Below is a moderately sufficient 8th grade learning outcome example in terms of mathematical communication skills.

"Explains identities with models" (M.8.2.1.3) is a sample learning outcome found to be moderately sufficient regarding mathematical communication skills at the 8th grade level. The levels of the learning outcome (M.8.2.1.3.) across the dimensions of the reading, writing and speaking of mathematical communication skills are shown in Table 6.3.

Table 6.3

The Levels of the Moderately Sufficient Learning Outcome (M.8.2.1.3.) Across the Reading Speaking and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
	Determining mathematical reading strategies suitable for the purpose	1	2	3	4	**5**
	Using comprehension control strategies	1	2	3	4	**5**
Speaking	Using appropriate and correct mathematical language/ expressions when expressing mathematical thoughts	1	2	3	4	**5**
	Sharing mathematical reasoning and justifications	1	2	3	4	**5**
Writing	Expressing/sharing mathematical ideas in writing using the language of mathematics;	1	2	3	4	**5**
	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions	1	2	3	4	**5**
	Properly expressing mathematical ideas in writing with different representations	1	2	3	4	**5**
The total score of the learning outcome (M.8.2.1.3.) from the rubric/ comment [(10 (number of insufficient items) x1)+(11 (number of sufficient items) x5)]		65/ Moderately Suffic.				

In this learning outcome, the student is expected first to make sense of the given equation (read it) and then associate and interpret the mathematical expressions with the field topic. The student is also expected to determine reading strategies and benefit from comprehension control strategies during this process. In the written and oral explanation process, the student is expected to convey his thoughts correctly and appropriately with the help of mathematical language and to reflect on the reasoning process. At the same time, the writing skills of mathematical communication will be used to show the given identities with different forms of representation and create equations suitable for the representation shown. Therefore, for this learning outcome, all items were coded sufficiently in the reading dimension of the rubric. The items "Using appropriate and correct mathematical language/ expressions when expressing

mathematical thoughts" and "Sharing mathematical reasoning and justifications" were coded sufficient in the speaking dimension. In the writing dimension, the items "Expressing/sharing mathematical ideas in writing using the language of mathematics", "Writing/using mathematical terminology (concepts and symbols) appropriately and correctly", "Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions" and "Properly expressing mathematical ideas in writing with different representations" were coded sufficient. In listening to dimension, items were coded insufficiently. Below is a largely sufficient 8th grade learning outcome example in terms of mathematical communication skills.

"Expresses how one of the two variables that have a linear relationship between them changes depending on the other with a table and equation" (M.8.2.2.3.) is a sample learning outcome found to be largely sufficient in terms of mathematical communication skills at the 8th grade level. The levels of the learning outcome (M.8.2.2.3.) across the dimensions of the reading, writing and speaking of mathematical communication skills are shown in Table 6.4.

Table 6.4

The Levels of the Largely Sufficient Learning Outcome (M.8.2.2.3.) Across the Reading Speaking and Writing Dimensions

Dimensions	*Items*	*Insufficient*	*Partially S.*	*Moderately S.*	*Largely S.*	*Sufficient*
Reading	Reading mathematical expressions, questions, tasks or images in a way that reflects the meaning of the concepts and the relationships between them	1	2	3	4	**5**
	Interpreting mathematical expressions, questions, ideas, tasks, or images	1	2	3	4	**5**
	Making sense of what they have read by making connections with their previous knowledge and experiences	1	2	3	4	**5**
	Determining mathematical reading strategies suitable for the purpose	1	2	3	4	**5**
	Using comprehension control strategies	1	2	3	4	**5**
Speaking	Using appropriate and correct mathematical language/ expressions when expressing mathematical thoughts;	1	2	3	4	**5**
	Sharing mathematical reasoning and justifications;	1	2	3	4	**5**
	Using mathematical expressions to make sense of the relationships between people and objects and the relationships of objects with each other;	1	2	3	4	**5**
Writing	Expressing/sharing mathematical ideas in writing using the language of mathematics;	1	2	3	4	**5**
	Writing/using mathematical terminology (concepts and symbols) appropriately and correctly	1	2	3	4	**5**
	Using symbols, variables and mathematical equations accurately and clearly to model mathematical ideas with mathematical expressions;	1	2	3	4	**5**
	Properly expressing mathematical ideas in writing with different representations;	1	2	3	4	**5**
	While expressing mathematical ideas in writing, using mathematical language to make sense of the relationships between people and objects and the relationships of objects with each other;	1	2	3	4	**5**

Table 6.4. *(Cont.)*

Making use of strategies that will enable them to express their mathematical ideas more clearly and accurately;	1	2	3	4	**5**
The total score of the learning outcome (M.8.2.2.3.) from the rubric/ comment [(7 (number of insufficient items) x1)+(14 (number of sufficient items) x5)]	77/ Largely Sufficient				

When analyzed, considering that the action in this learning outcome is "to express" (TDK, 2015), it is inferred that it is related to the components of reading, speaking and writing of mathematical communication. The learning outcome includes the sub-skills of reading mathematical expressions in a way that reflects the relationships between them; making sense of and interpreting what they have read by associating them with previous knowledge and experiences; analyzing/reading mathematical expressions with the awareness that he/she will create a table or graph and using comprehension control strategies in this process. While expressing what they have read in writing or orally requires sub-skills of using mathematical terminology correctly and appropriately, expressing mathematical thoughts using mathematical language, justifying mathematical ideas and making sense of mathematics by associating it with daily life. In addition to these, this learning outcome also aims to enable students to create appropriate and correct writing strategies (planning, defining the scope of the subject and deciding on its boundaries, determining and organizing the logical sequence of ideas, reviewing and checking what they have written) while expressing their thoughts in writing with tables and graphics. Along with the aforementioned sub-skills, it has been determined that the learning outcome makes the most significant contribution to mathematical communication skills.

Discussion, Conclusion and Implications

In the study, when the learning outcomes in the middle school mathematics curriculum were examined regarding mathematical communication skills, it was determined that 70% of learning outcomes were insufficient. Moreover, the relevant findings showed that the learning outcomes of the 8th grade mathematics curriculum make a greater contribution to the learning outcome of mathematical communication skills by students than the learning outcomes of the other grade levels. In addition, as the grade level increases, it was observed that the learning outcomes reflected mathematical communication skills more. This result can be explained by the fact that, due to the cumulative nature of mathematics, the formation of basic conceptual meanings occurs in the first years of middle school.

The current study's findings revealed that the learning outcomes are more concentrated on certain items of mathematical communication's reading and writing dimensions. Of course, these skills also have a significant role in developing mathematical communication skills, but they are insufficient for improving mathematical communication skills. Writing and reading skills do not only consist of using mathematical terminology appropriately and correctly, as assumed in the middle school mathematics curriculum. Writing allows the individual to restructure his/her thoughts and create individual meanings by taking control of his/her learning into his/her own hands (Emig, 1977). The middle school mathematics curriculum does not have any learning outcome to address not only this skill of reflecting thoughts, which is one of the critical points of mathematical thinking and communication but also the skills of writing for the mathematical writing process, writing about mathematics and creative writing

about mathematics (problem posing, story writing). When the learning outcomes are considered guides for other curriculum elements, it will be inevitable for middle school mathematics teachers to organize teaching situations focusing on the one-way dimension of reading and writing. This result is supported by the research findings of the study conducted by Kabael and Ata Baran (2016), indicating that middle school mathematics teachers try to impart mathematical communication skills by emphasizing the meaning of symbols, using approaches for teaching mathematical concepts and using written or reading.

Another remarkable result of the study is that the indicators for the listening and speaking dimensions of mathematical communication are included in the learning outcome set in the middle school mathematics curriculum at a meager rate compared to the other dimensions. It has been determined that there are implicit expressions for listening in the action statements of some learning outcomes. However, there are no learning outcomes directly aiming at the improving of listening skills. Parallel to the result obtained in the current study, Özpınar and Arslan (2017) also found that middle school mathematics teachers emphasized understanding mathematical expressions, explaining symbols in writing, writing symbols correctly and appropriately, and addressing the listening dimension indirectly.

The results show that the learning outcomes of the middle school mathematics curriculum should be rearranged to serve the improving of mathematical communication skills and that mathematical communication should be structured in more detail regarding the reading, listening, speaking and writing dimensions.

Author Contributions

This article was produced from the master's thesis "Examination of Middle School Mathematics Curriculum in Terms of Mathematical Communication Skills. The authors contributed equally to the conversion of the thesis into an article.

References

Adams, T. L., & Lowery, R. M. (2007). An analysis of children's strategies for reading mathematics. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 23*(2), 161-177. https://doi.org/10.1080/10573560601158479

Bell, E. S., & Bell, R. N. (1985). Writing and mathematical problem solving: arguments in favor of synthesis. *School Science and Mathematics*, *85*(3), 210–221. https://doi.org/10.1111/j.1949-8594.1985.tb09614.x.

Diker Coşkun, Y. (2017). *Öğretim programları arka plan raporu*. http://www.academia.edu/download/55270428/Ogretim_Programlari_Arka_Plan_Raporu.pdf

Düşkün, Y., & Korlu, Ö. (2021). *Eğitim izleme raporu 2020: Eğitimin çıktıları. Eğitim Reformu Girişimi.* https://www.egitimreformugirisimi.org/egitim-izleme-raporu-2020-egitimin-ciktilari

Emig, J. A. (1977). Writing as a mode of learning. *College Composition and Communication, 28*(2), 122-128. https://files.eric.ed.gov/fulltext/ED474209.pdf

Ernest, P. (1987). A model of the cognitive meaning of mathematical expressions. *The British Journal of Educational Psychology 57*, 343-370. https://doi.org/10.1111/j.2044-8279.1987.tb00862.x

Hintz, A., & Tyson, K. (2015). Complex listening: Supporting students to listen as mathematical sense-makers. *Mathematical Thinking and Learning, 17*(4), 296-326, https://doi.org/10.1080/10986065.2015.1084850

Hubbard, R. (1990). Teaching mathematics reading and study skills. *International Journal of Mathematical Education in Science and Technology, 21*(2), 265–269. https://doi.org/10.1080/0020739900210212

Kabael, T., & Ata Baran. A. (2016). Matematik öğretmenlerinin matematiksel iletişim becerilerinin gelişimine yönelik farkındalıklarının incelenmesi. *Elementary Education Online*, *15*(3), 868-881. http://dx.doi.org/10.17051/io.2016.78518

Lo, J. J., & Wheatley, G. H. (1994). Learning opportunities and negotiating social norms in mathematics class discussion. *Educational Studies in Mathematics, 27*(2), 145-164. https://www.jstor.org/stable/3482795

Ministry of National Education (MoNE). (2018). *İlköğretim matematik dersi (1-8. Sınıflar) öğretim programı.* MoNE Publications.

Ministry of National Education (MoNE). (2019). *Akademik becerilerin izlenmesi ve değerlendirilmesi (ABİDE) 8. sınıf raporu.* MoNE Publications. http://eskisehirodm.meb.gov.tr/www/abide-2018-turkiye-raporlari/icerik/85

National Council of Teachers of Mathematics (NCTM). (2000). *Principles and standards for school mathematics*. NCTM.

Özpınar, İ., & Arslan, S. (2017). Ortaokul matematik öğretmenlerinin matematiksel iletişim becerisine yönelik görüşlerinin incelenmesi. *Turkish Studies (Electronic)*, *12*(17), 337-356. http://dx.doi.org/10.7827/TurkishStudies.11930.

Sfard, A. (2008). *Thinking as communicating: Human development, the growth of discourses, and mathematizing*. Cambridge University Press.

Thompson, D. R., & Chappell, M. F. (2007). Communication and representation as elements in mathematical literacy. *Reading & Writing Quarterly, 23*(2), 179–196. https://www.tandfonline.com/loi/urwl20

Umay, A. (2004, Kasım, 6). *Matematik eğitiminde değişim*. Matematikçiler Derneği. http://www.matder.org.tr/matematik-egitiminde-degisim/

Uysal, R., & İncikabı, L. (2018). Son dönem matematik dersi öğretim programlarının genel amaçları üzerine bir araştırma. *Ondokuzmayis University Journal of Education*, *37*(1), 223-247. https://doi.org.10.7822/omuefd.358121

Yıldırım, A., & Şimşek, H. (2006). *Sosyal bilimlerde nitel arastirma yöntemleri*. Seçkin Publishing.

Zawojevski, S. J., & Lesh, R. (2003). A models and modeling perspective on problem solving. In R. Lesh & H. M. Doerr (Eds.), *Beyond constructivism: A models and modeling perspective on mathematics problem solving, learning and teaching* (pp.317-336). Lawrence Erlbaum Associates.

Zwicky, J. (2008). *The shape of content: Creative writing in mathematics and science*. CRC Press.

Uluslararası Eğitim Programları ve Öğretim Çalışmaları Dergisi
13(1), 2023, 224-248
www.ijocis.com

TÜRKÇE GENİŞ ÖZET

Ortaokul Matematik Dersi Öğrenme Kazanımlarının Matematiksel İletişim Becerileri Açısından İncelenmesi

Giriş

Matematiksel iletişim becerisi, düşüncelerin sözlü ve yazılı ifadesinde matematiksel dili açık ve inandırıcı bir şekilde kullanma becerisidir (National Council of Teachers of Mathematics [NCTM], 2000). Matematiksel iletişim, öğrencilerin matematiğin farklı temsilleri arasında (matematiğin dili ve sembolleri arasında) bağlantılar kurmasını sağlar. Matematiksel iletişim becerilerinin okuma, konuşma, dinleme ve yazma olmak üzere dört ana boyutu vardır (Thompson & Chappell, 2007).

Hedeflenen becerilerin öğretim programlarında kazanımlara dönüştürülerek işlevsel hale getirilmesi, başarılarının gözlemlenmesi ve değerlendirilmesi gerekli ve önemlidir. Bu nedenle, matematiksel iletişim becerilerinin geliştirilmesine yönelik program kazanımlarının ve bunların programın diğer bileşenleriyle etkileşiminin değerlendirilmesi, matematik öğretim programının öğeleri arasındaki uyumun anlaşılması açısından büyük önem taşımaktadır. Halihazırda uygulanmakta olan matematik öğretim programının kazanımları üzerine yapılan araştırmalar, kazanımların çoğunlukla bilişsel alanla ilgili olduğunu ve müfredatta üst düzey becerilere yönelik kazanımların sınırlı sayıda olduğunu göstermektedir (Diker-Coşkun, 2017). Bu çalışmaların sonuçlarına paralel olarak öğrencilerin matematiksel yeterlilik düzeylerini farklı bağlamlarda izleyen ve değerlendiren sınavlar da matematik öğretim programı ile öğrencilere kazandırılması amaçlanan becerilerin yeterince kazanılamayacağını göstermektedir (MEB, 2019). Örneğin PISA 2018 raporu ortaokul türünde en düşük matematik yeterlilik puanını gösteriyor. Ayrıca 4. sınıf ve 8. sınıf öğrencilerinin katıldığı TIMMS 2019 sonuçlarına göre ülkemizde 8. sınıf matematik puanının 4. sınıf seviyesinin altında ve uluslararası ortalamanın altında olduğu görülmektedir (Düşkün & Korlu, 2021). Akademik Becerileri İzleme ve Değerlendirme Projesi kapsamında öğrencilerin üst düzey zihinsel becerilerinin değerlendirilmesi amaçlanmaktadır (MEB, 2019). 2018 sonuçları incelendiğinde matematik testinde 8. sınıf öğrencilerinin %3'ü ileri yeterlilik düzeyinde, %53'ü alt temel ve temel düzeydedir. İleri matematik yeterliğinin içerdiği becerilere bakıldığında, 8. sınıf öğrencilerinin sadece %3'ünün karar verme, neden gösterme/doğrulama, orijinal problem çözme, problem kurma/kurma ve orijinal bir ürün/model üretme/sentezleme becerilerine sahip olduğu görülmektedir. (MEB, 2019). Bu sınav sonuçları öğrencilerin matematiksel iletişim beceri düzeyleri ile ilişkilidir. Matematiksel yeterliklerin belirlendiği ve birbirini doğrulayan ulusal ve uluslararası sınav sonuçları dikkate alındığında, ortaokul matematik dersi öğretim programı

kazanımlarının matematiksel iletişim becerilerini geliştirme işlevine hizmet edip etmediğinin incelenmesine gereksinim duyulmaktadır.

Bu gereksinim doğrultusunda gerçekleştirilen bu çalışmada, ortaokul matematik dersi öğretim programı kazanımlarının matematiksel iletişim becerileri açısından incelenmesi amaçlanmaktadır.

Yöntem

Araştırmada, doküman analizi yöntemi kullanılmıştır. Çalışmada ortaokul 5-8. sınıf matematik dersi öğretim programı kazanımlarının matematiksel iletişim becerileri açısından incelenebilmesi için araştırmacılar tarafından "Matematiksel İletişim Becerileri Rubriği" geliştirilmiştir. Rubrik, 21 madde ve dört boyuttan oluşmaktadır: Okuma, Yazma, Konuşma, Dinleme. Rubrik, aralık ölçeği türündedir. Verilerin analizi, tümdengelimsel içerik analizi yaklaşımı ile gerçekleştirilmiştir. Verilerin analizi sürecinde ortaokul 5-8. sınıf matematik öğretim programı kazanımları yetersiz (1), kısmen yeterli (2), orta düzeyde yeterli (3), büyük ölçüde yeterli (4) ve yeterli (5) şeklinde kodlanmıştır. Matematiksel iletişim becerilerini yansıtma düzeyleri aşağıda verilen puan aralıklarına göre değerlendirilmiştir.

- 21-37: Yetersiz
- 38-54: Kısmen Yeterli
- 55-71: Orta Derecede Yeterli
- 72-88: Büyük ölçüde Yeterli
- 89-105: Yeterli

Öğrenme kazanımların kodlama aşamasında; eylem ifadesinin öncelikle matematiksel iletişim becerilerinin hangi bileşenine yönelik olduğu belirlenmiş ardından eylem ifadesinin bilişsel beceri düzeyi belirlenerek matematiksel iletişim becerilerinin alt bileşenlerine göre kodlaması gerçekleştirilmiştir. Örneğin "M.8.1.1.1. Pozitif tam sayıların asal çarpanlarını üslü ifadelerin çarpımı şeklinde yazar." kazanımı "yazma" eylemini içermesinden dolayı doğrudan matematiksel iletişim becerilerinin yazma bileşenine yönelik olduğu görülmektedir. Daha çok işlemsel beceri (asal çarpan algoritması veya çarpan ağacı yöntemi kullanımı) ve kavramsal anlama (asal çarpan kavramı) gerektirmesinden dolayı matematiksel iletişim becerilerinin yazma bileşeninin "matematiksel terminolojiyi (kavram ve sembolleri) uygun ve doğru bir şekilde yazma/kullanma" alt bileşeni açısından yeterli (5) olarak kodlanmıştır. Diğer bileşenlerde ve alt bileşenlerinde yetersiz (1) olarak kodlanmıştır. Sonuçta 21 bileşen üzerinden analiz edilerek toplam değer olan 25'e ulaşılmıştır. Elde edilen 25 değerinin yetersiz aralığında olmasından dolayı (21-37 Yetersiz), "M.8.1.1.1. Pozitif tam sayıların asal çarpanlarını üslü ifadelerin çarpımı şeklinde yazar." kazanımı matematiksel iletişim becerilerini kazandırmaya hizmet etme düzeyi açısından yetersiz olarak belirlenmiştir.

Bulgular

5-8. sınıf matematik dersi öğrenme kazanımlarının 191'i (69.46) yetersiz düzeyde, 74'ü (%26.91) kısmen yeterli düzeyde, 9'u (%3.27) orta düzeyde yeterli, 1'i (%0.36) büyük ölçüde yeterli düzeydedir. Dolayısıyla büyük bir kısmının matematiksel iletişim becerileri açısından orta düzey ve altında bir yeterliğe sahip olduğu görülmektedir. Bu kapsamda 5. sınıf düzeyinde 77

kazanımdan 66 tanesi (%85.71) yetersiz iken, 11 tanesi (%14.79) kısmen yeterli düzeydedir. 6. sınıf düzeyinde 74 kazanımdan 51 tanesi (%68.92) yetersiz, 23 tanesi (%31.08) kısmen yeterli düzeydedir. 7.sınıf düzeyinde 59 kazanımdan 42 tanesi (%71.19) yetersiz, 17 tanesi (%28.81) kısmen yeterli düzeydedir.

Tartışma, Sonuç ve Öneriler

Araştırmada matematiksel iletişim becerileri açısından ortaokul matematik öğretim programında yer alan kazanımlar incelendiğinde toplam 275 kazanımın %70'inin yetersiz olduğu belirlenmiştir. Ayrıca elde edilen bulgular, 8. sınıf matematik öğretim programı kazanımlarının öğrencilerin matematiksel iletişim becerileri kazanımlarına diğer sınıf seviyelerindeki kazanımlara göre daha fazla katkı sağladığını göstermiştir. Ayrıca sınıf düzeyi yükseldikçe matematiksel iletişim becerilerinin kazanımlara daha fazla yansıdığı görülmüştür. Bu sonuç, matematiğin birikimli doğası gereği temel kavramsal anlamların oluşumunun ortaokulun ilk yıllarında gerçekleşmesi ile açıklanabilir.

Mevcut çalışmanın bulguları, öğrenme çıktılarının daha çok matematiksel iletişimin okuma ve yazma boyutlarının (okuma, konuşma, dinleme, yazma) belirli alt bileşenlerinde yoğunlaştığını ortaya koymuştur. Bu maddeler, "Kavramların anlamlarını ve aralarındaki ilişkileri yansıtacak şekilde matematiksel ifadeleri, soruları, görevleri veya görselleri okuma" ve "Matematiksel terminolojiyi (kavramlar ve semboller) uygun ve doğru bir şekilde yazma/kullanma" şeklindedir. Elbette bu becerilerin matematiksel iletişim becerilerinin gelişmesinde de önemli bir rolü vardır, ancak yetersizdirler.

Araştırmanın bir diğer dikkat çekici sonucu ise, matematiksel iletişimin dinleme ve konuşma boyutlarına yönelik göstergelerin diğer boyutlara göre yetersiz oranda yer almasıdır. Bazı kazanımların eylem ifadelerinde dinlemeye yönelik örtük ifadelerin olduğu tespit edilmiştir. Ancak doğrudan dinleme becerilerinin geliştirilmesini amaçlayan herhangi bir kazanım bulunmamaktadır. Bu çalışmada elde edilen sonuca paralel olarak Özpınar ve Arslan (2017) da ortaokul matematik öğretmenlerinin matematiksel ifadeleri anlamaya, yazıda sembolleri açıklamaya, sembolleri doğru ve uygun yazmaya ve dolaylı olarak dinleme boyutuna değinmeye önem verdiklerini bulmuşlardır.

Elde edilen sonuçlar, ortaokul matematik öğretim programı kazanımlarının matematiksel iletişim becerilerinin gelişimine hizmet edecek şekilde yeniden düzenlenmesi ve matematiksel iletişimin okuma, dinleme, konuşma ve yazma boyutlarına göre daha detaylı yapılandırılması gerektiğini göstermektedir.

Appendix

Matematiksel İletişim Becerileri Rubriği

Boyutlar	Maddeler	Yetersiz	Kısmen yeterli	Orta Düzeyde	Büyük ölçüde yeterli	Yeterli
Okuma	Matematiksel ifadeleri, soru, görev veya görselleri kavramların anlamını,aralarındaki ilişkileri yansıtacak şekilde okuma	1	2	3	4	5
	Matematiksel ifade, soru, fikir, görev veya görselleri yorumlama	1	2	3	4	5
	Okuduklarını önceki bilgi ve deneyimleri ile bağlantılar kurarak anlamlandırma	1	2	3	4	5
	Okuma amacını belirleme	1	2	3	4	5
	Anlama kontrol stratejileri kullanma	1	2	3	4	5
Konuşma	Matematiksel düşüncelerini ifade ederken uygun ve doğru matematiksel dil/ ifadeler kullanma	1	2	3	4	5
	Matematiksel muhakemelerini ve gerekçelendirmelerini paylaşma	1	2	3	4	5
	Başkalarının matematiksel düşüncelerini değerlendirecek ifadelerde bulunma	1	2	3	4	5
	Matematiksel ifadelerini insan ve nesneler arasındaki ilişkileri ve nesnelerin birbirleriyle ilişkilerini anlamlandırmak için kullanma	1	2	3	4	5
	Başkalarıyla tartışarak matematiksel fikirlerini düzenleme	1	2	3	4	5
Dinleme	Matematik ile ilgili konuşmaları doğru anlama	1	2	3	4	5
	Başkalarının matematiksel akıl yürütmelerindeki eksiklikleri veya boşlukları görme ve başkalarının matematiksel düşüncelerini ve stratejilerini değerlendirme	1	2	3	4	5
	Yeni düşünceler ile var olan düşünceleri ilişkilendirerek yeni bilgiler ve anlamlar inşa etme	1	2	3	4	5
	Başkaları tarafından matematiksel bir dil kullanılırken matematiğin anlam ve dilini kullanarak insan ile nesneler arasındaki ilişkileri ve nesnelerin birbirleriyle ilişkilerini anlamlandırma	1	2	3	4	5
Yazma	Matematiksel düşüncelerini matematiksel dil kullanarak yazılı ifade etme/ paylaşma	1	2	3	4	5
	Matematiksel terminolojiyi (kavram ve sembolleri) uygun ve doğru bir şekilde yazma	1	2	3	4	5
	Matematiksel düşünceleri matematiksel ifadelerle modellemek için sembol, değişken ve matematiksel denklemleri doğru ve açık şekilde kullanma	1	2	3	4	5
	Matematiksel fikirleri farklı temsillerle uygun şekilde yazılı ifade etme	1	2	3	4	5
	Matematiksel düşüncelerini yazılı ifade ederken matematiksel dil kullanarak insan ile nesneler arasındaki ilişkileri ve nesnelerin birbirleriyle ilişkilerini anlamlandırma	1	2	3	4	5
	Matematiksel düşüncelerini daha açık ve doğru yazılı ifade etmeyi sağlayacak stratejilerden yararlanma	1	2	3	4	5
	Matematiksel yazma sürecini farklı amaçlar için kullanma	1	2	3	4	5