# INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

ISSN: 2618-6209

IJONMES

Volume 6
Number 1

2022

*International Journal of Modern Education Studies [IJONMES]*
*ISSN: 2618-6209*

**June, 2021**
**Volume 5, No 2**
**http://www.ijonmes.net**
**dergipark.gov.tr/ijonmes**

The IJONMES is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the IJONMES is reviewed by at least two international reviewers with expertise in the relevant subject area.

The IJONMES is published twice a year in the June and December months.

**Publisher:**
Dr. Mevlüt AYDOĞMUŞ
Necmettin Erbakan University
Konya, Turkey
maydogmus@erbakan.edu.tr

International Journal of Modern Education Studies [IJONMES] is indexed in Ulrichsweb & Ulrich's Periodicals Directory, Worldcat, Proquest Exlibris, Bielefeld Academic Search Engine, MLA International Bibliography and international scientific indexes and ERIC.

| Volume 6 - No 1 - June 2021 - ISSN 2618-6209 |

## International Journal of Modern Education Studies

### Reviewers of this Issue

Dr. Thomas Bechard, Slippery Rock University, United States.
Dr. Michael F. Shaughnessy, Eastern New Mexico University, United States
Dr. Yuan Xue, Edgewood College, United States.
Dr. Sarah Wieckert, TU Dortmund University, Germany.
Dr. Kelly Olson Stewart, University of Arizona Global Campus, United States.
Dr. Ali Rezaei, CSULB, United States.
Dr. Katharina Neuber, University of Duisburg-Essen, German.
Dr Emilia Alaverdov, Georgian Technical University, Georgia.
Dr. Michael Adarkwah, Southwest University, China
Dr. Michael Pfeifer, Friedrich Schiller University Jena, Germany
Dr. Theodoto Ressa, Wayne State University, United States.
Dr. Oscar Nuñez Enriquez, Autonomous University of Chihuahua, Mexico.
Dr. Lisa Andrus, Tusculum University, United States.
Dr. Stephanie Atchley, Tarleton State University, United States.
Dr. Cathy D. MacDonald, Rankin School of Nursing, Canada.
Dr. Linda Pavitola, Liepaja University, Latvia.
Dr. Gary Marshall, Walden University, United States.
Dr. Lindsey Brown, Arizona State University, United States.
Dr. Elizabeth Sparks, Boston College., United States.
Dr. Kelly Olson Stewart, University of Arizona Global Campus, United States.
Dr. Ana Luísa Torres, Instituto Politécnico de Santarém, Portugal.
Dr. Michelle Parker, Sam Houston State University, United States.
Dr. Ghosne el bane Rahali, Dalhousie University, Canada.
Dr. Constantine Andoniou, Abu Dhabi University, UAE.
Dr. Syed Zaidi, University of Windsor, Canada.
Dr. Amanda Fulford, Edge Hill University, United Kingdom.
Dr. Ashley Coughlin, Arizona State University, United States.
Dr. Magdalini Vitsou, University of Thessaly, Greece.
Dr. Asao Inoue, Arizona State University, United States.
Dr. A. Suzie Henning, Eastern Washington University, United States.
Dr. Kübra Karakaya Özyer, Eskişehir Osmangazi University, Türkiye

| Volume 6 - No 1 - June 2021 - ISSN 2618-6209 |

| Volume 6 - No 1 - June 2021 - ISSN 2618-6209 |

| Volume 6 - No 1 - June 2021 - ISSN 2618-6209 |

| Volume 6 - No 1 - June 2021 - ISSN 2618-6209 |

| Volume 6 - No 1 - December 2022 - ISSN 2618-6209 |

| | CONTENTS | Pages |
|---|---|---|
| | Inside cover | i |
| | Generics Page | ii |
| | Contents | v |
| | **Articles:** | |
| 1. | Emergency Remote Teaching (ERT) in multilingual contexts: A Mixed Methods Case Study | 1 |
| 2. | Implementation and Evaluation of a Media Literacy Skills Curriculum: An Action Research Study | 20 |
| 3. | Collective Teacher Self-Efficacy and Burnout: The Mediator Role of Job Satisfaction | 51 |
| 4. | An Analysis of the Relationship among Teachers' Team Learning, Moral Commitment, and Career Commitment Using Structural Equation Modeling | 70 |
| 5. | Decision-making in the physical education curriculum: an analysis of the student voice in English secondary state-schools | 88 |
| 6. | The same, but different? Learning activities, perceived learning success, and social support during the practical term of teacher education in times of COVID-19 | 108 |

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# Emergency Remote Teaching (ERT) in multilingual contexts: A Mixed Methods Case Study

**Christina Gkougkoura [1] Sevasti Paida [2] Magdalini Vitsou [3] Nektaria Palaiologou [4]**

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 1-20

**Article Info:**

Received : 20.07.2021
Revision : 27.07.2021
Accepted : 28.09.2021

**Abstract:**

*In recent years, a significant number of students with a multilingual background have attended Greek educational institutions, mainly because of migration and the refugee crisis. In March 2020, due to the Novel Coronavirus (COVID-19), Greek educational institutions started organizing emergency remote teaching on online educational platforms. This paper describes a case study (through intervention) conducted in a digital multilingual elementary classroom, that aimed to explore strategies for facilitating remote lesson engagement and establishing inclusive pedagogy under emergency situations. The main aim of this study was to explore to what extent task-based language teaching (TBLT) activities grounded on the migrant students' needs analysis and supported by computer-assisted language learning (CALL) features contribute to active lesson participation during emergencies and their effect on migrant students' social inclusion in a formal educational context. Results established the most critical factors required for differentiated multilingual distance education. This is an original research work on how diversity and inclusion in emergency remote teaching may be achieved.*

**Keywords:** Multilingual education, language appropriate practices, language-diverse classroom, emergency remote teaching (ERT), social inclusion, students with migrant backgrounds.

**Citation:**

Gkougkoura, C., Paida, S., Vitsou, M. & Palaiologou (2022). Emergency Remote Teaching (ERT) in multilingual contexts: A Mixed Methods Case Study. *International Journal of Modern Education Studies, 6*(1), 1-20. http://dx.doi.org/10.51383/ijonmes.2022.115

1 MA, Department of Humanities Hellenic Open University, Patras, Greece. std502092@ac.eap.gr,
Orcid ID: 0000-0001-7098-8884

2 PhD, Department of Humanities Hellenic Open University, Patras, Greece. paida.sevasti@ac.eap.gr,
Orcid ID: 0000-0001-7181-072X

3 PhD. Department of Humanities Hellenic Open University, Patras, Greece vitsou.magdalini@ac.eap.gr,
Orcid ID: 0000-0002-7447-4634

4 Prof. Dr. Department of Humanities Hellenic Open University, Patras, Greece nekpalaiologou@eap.gr,
Orcid ID: 0000-0001-9647-4507

## INTRODUCTION

Emergency distance learning explicitly applies to occasions when schools buildings are closed because of emergencies, and learning is conducted off-site with the help of teachers in the classroom and the cooperation of parents and students (Irvine Unified School District, 2020). On days of emergency-distance learning, learners work on line in educational experiences that reinforce and maintain current learning in the classroom. Hodges et al. (2020) provide a significant clarification about the definition and formally suggest a specific term for the instruction provided in such urgent conditions: emergency remote teaching.

In typical language classrooms, some homogeneity among learning objectives may be noticed. Classrooms consisted of refugees and migrants, though, are characterized by significant heterogeneity regarding goals and communicative needs. Several reports have shown that task-based language teaching (TBLT) provides students with sources of meaningful content, suitable for communicative practices in the second language (L2), and positive input to create even greater incentives for language usage (Jeon & Hahn, 2006). TBLT is a pedagogical strategy to language teaching aiming at preparing learners to realize real-world tasks linked to their needs (González-Lloret & Nielson, 2015). As González-Lloret and Nielson (2015) state, TBLT programs are developed according to defined methodological principles, starting with an analysis of needs, using tasks as units of study to include just-in-time grammatical guidance where it applies to the correspondence needs of learners (Doughty & Long, 2003).

A strong relationship between computer-assisted language learning (CALL) and TBLT has been reported in Greek primary education (Manousou, 2004; Pozidis et al., 2015; Psallidas & Manousou, 2016; Papanikolaou & Manousou, 2019; Papadela et al., 2020). However, very little was found in the literature on the interaction of TBLT, CALL, and second language acquisition (SLA) (e.g., Chappelle, 2001). In reviewing the Greek literature, no data was found on the association between TBLT, CALL and SLA applied remotely in Greek primary education, as in Greece, no distance education school is aimed at primary school students (Manousou, 2004; Miminou & Spanaka, 2016; Fakoulas, 2020).

The COVID-19 lockdown in Greece during the 2020-2021 school year, drove the researchers to examine the effectiveness of emergency remote teaching over migrant primary school pupils. The research questions of this study were:

(1) Do TBLT activities, grounded in the school curriculum and supported by CALL, enhance migrant students' language learning?

(2) What are the crucial factors that affect migrant students' active lesson participation remotely?

## ERT in multilingual contexts

Regarding the importance of ERT due to emergencies, Di Pietro et al. (2020) claim that it plays a vital role in encouraging children to continue studying as a result of the deterioration in education institutions triggered by the closing of schools and universities. However, they noticed that physical school closing and distance education may have a detrimental impact on students' performance across four main channels: reduced time spent studying, anxiety signs, a shift in the way students communicate, and loss of enthusiasm for learning. In their report on the impact that Coronavirus and physical school closure have on education and learning, they also argue that there are significant socio-economic gaps in student exposure to new technology at home. Students with higher socioeconomic status are more likely to have a suitable device at home than students with lower socioeconomic status (Di Pietro et al., 2020). Similarly, they highlight a learning deficit between native students and migrant students, as the latter could be more likely to experience poor parental support when studying at home due to their parents' low familiarity with the digital learning world or the home-country language and to their outdoor occupations.

Yi and Jang (2020) argue that, despite the possible sustained effect of the pandemic and remote teaching on students and instructors, teachers should implement quality education (e.g., translingual and interactive pedagogies) to provide some promising benefits. Aguliera and Nightengale-Lee (2020) proposed the creation of an equity working group to explore equity concerns which may involve instructors, staff, educators, parents, and community stakeholders, working periodically to further identify the obstacles posed by ERT, the approaches used by communities to overcome these challenges, and what organizations can do to further improve these methods to make schooling sensitive, interactive and impactful.

## Remote learning, CALL, and SLA

Distance, remote or online learning is already one of the most widely recognized methods of providing a curriculum for many fields of education (Wakil et al., 2019). The literature on distance education, upon which the ERT relies, has highlighted several benefits of learning. According to Lionarakis (2011) distance education encourages and allows students to study on their own and to work individually on a heuristic learning and knowledge course. Niari et al. (2017) underline the need to implement and apply distance learning approaches and frameworks at all stages of collaborative learning because the criteria and roles of distance collaborative learning will improve learners' involvement in the learning process and will ensure good learning performance, analytical and innovative thinking, and satisfaction regarding their studies. Similarly, Pozidis et al. (2015) claim that the school implements programs in "innovative" institutions that will, to a small extent, lead to the shift of the teacher-centered, cognitive-oriented approach and serve as a tool to enhance the student-centered character and flexibility in using new teaching approaches.

Psallidas and Manousou (2016) state that students in learning communities interact with the educational material with the teacher and their co-educated classmates. Thus, learning becomes a social process in which it takes place: interaction with discussions about the subject, exchange and negotiation of ideas, attitude processing, encouraging learners to participate in the educational process, and overcoming obstacles. Sampson and Yoshida (2021) suggest that teachers could assist students in recognizing their improvement over the teleconference, possibly by urging chatters to notice their skills during the first meeting and relating them to another later in return.

As regards the technology applications in second language acquisition, Beatty (2013) argues that computer-assisted language learning (CALL) enables students, educators, and researchers to identify suitable resources and strategies and adjust them to diverse teaching and learning styles. Chappelle (2001) focuses on the interaction of CALL, task-based learning (TBL), and second language acquisition. He asserts that the study of the aspects of computer-based tasks that engage learners should be a goal of education and also for SLA researchers who try to contribute to the understanding of qualified second language acquisition. Thomas and Reinders (2010) given the high level of task-based approaches, this is an intriguing inclusion in that TBLT is focusing on enhancing real-world authentic tasks in target languages at a period when 1.5 billion people worldwide have access to international forms of technology-based interaction, from laptops to Smartphones. However, as theory has traditionally ignored CALL, the TBLT method usually focuses mainly on face-to-face classroom study (Chappelle, 2003; Thomas, & Reinders, 2010). It has to be taken into consideration that many children, especially from the non-Western world, are deprived of Information and Communication Technologies (ICTs) and Web technology (Palaiologou, 2009).

### CALL and distance education in Greek Primary Education

Pozidis, Manousou, and Koutsoumpa (2015) report on cooperative learning in the framework of supplementary environmental distant learning. In their empirical research, they aimed at implementing an environmental program with activities focusing on educational material provided to schools, which formed a collaborative network of primary schools of Corfu. They concluded that the application of networks is an opportunity in education that should be further used and extended to the whole range of operation of the school since it is a perspective that is not limited to communication benefits but deepens and strengthens the achievements of collaborative learning (Pozidis et al., 2015).

Papanikolaou and Manousou (2019) discuss the potentiality of the supplementary distance education application in primary education for lessons replenishment by students occasionally absent from school. They notice that the use of such web 2.0 tools has provided the basis on which the traditional system of education can be linked to an open distance learning one. They suggest that CALL facilitates originality and creativity and supports the critical thinking of students.

To develop an assessment model for video as a means for learning in distance polymorphic primary education, Papadela et al. (2020) carried out bibliographic research which formed the foundation of the axes and criteria of the assessment framework. She concludes that video is a rich and powerful tool used over time in distance education at all levels to present, transfer, and represent educational information, but also to support teaching and learning processes as it presents the information attractively and consistently.

In the same vein, Aggeli (2017) reviews the contribution of video to the achievement of the corresponding pedagogical goals in terms of knowledge, skills, and attitudes. She concludes that the use of video in distance learning in a second/foreign language promotes the enhancement in language teaching experience in terms of content, materials, and pedagogical approaches by enhancing interdisciplinarity, student-centeredness, and collaboration, through active student engagement, initiative, creativity, critical and creative thinking, and the connection of personal experiences with education and with real-life situations.

Collectively, these studies outline a critical role for utilizing CALL features and web 2.0 tools on cooperative learning in face-to-face education or supplementary distance education in primary institutions. However, very little is known about collaborative education in a diverse primary educational context using web 2.0 tools.

This study tried to investigate

(1) If TBLT activities, grounded in the school curriculum and supported by CALL, enhance migrant students' language learning

(2) What are the crucial factors that affect migrant students' active lesson participation remotely.

## METHOD

İn order to answer these research questions, the contribution of enrichment-related activities supported by computer-assisted language learning (CALL) method, to migrant students' active Greek language learning, under emergencies, was explored. Data were collected from a multicultural classroom of a Greek public elementary school in the center of Athens. Additionally, an e-survey was designed and distributed to primary school educators working in the city centre of Athens.

### *ii. The target group The school children*

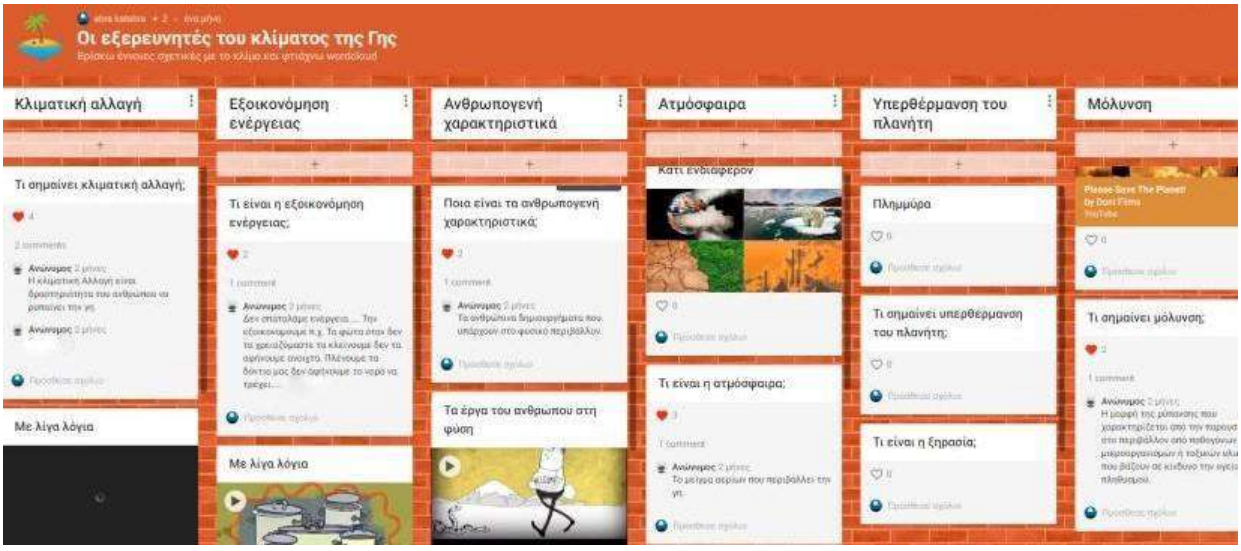
Six 11-year-old pupils participated in the study. They were all attending a mainstream primary school in the city centre of Athens. They were all in the same classroom, along with 12 more native speakers. A total of eighteen children, with a mixed ethnic background attended the 5th grade of that school in downtown Athens.

All the classroom children had the same online tutoring, but the researchers followed the participation and progress of the six non native Greek speakers only. Van Geel et al.

(2019) claim that educators should not use a unique common basis but might intentionally differentiate teaching activities so that learners receive instruction that meets their needs. The teacher of the classroom initially conducted an interview with the receiving class's teacher regarding her students' educational needs and the reception class curriculum. To further specify their academic level in Greek, students were assigned a self-assessment table on the first lesson of our online intervention, based on the European Framework of Reference for Languages (Council of Europe, n.d.).

According to the records, and a several-month interaction with the students in the class, three out of six students with a migrant background are of level A1-A2 in Greek language proficiency (Council of Europe, n.d.). Thus, the separated Greek language virtual class aimed at them, considering their needs analysis and their mutual proficiency in Greek. They would be instructed on the same activities as the rest of their classmates. However, the lessons' learning objectives would be differentiated as their language learning needs are. The rest of the six students with a migrant background would also be assigned the same tasks concerning their acquired discrete language skills (Cummins, 2001), and their estimated B1-B2 proficiency in the Greek language.

As this study realized online, a research diary is grounded on the web platforms' archives. All the assignments, the students' deliverables, their posts, and peer- and self-evaluations, and their evaluation of the remote teaching procedure constitute the main data collected for the case study.




***Picture 1.*** Texts produced by a students' team on Padlet.

### i. Working with teachers

This study aimed at exploring:

(1) If TBLT activities, grounded on the school curriculum and supported by CALL features, enhance migrant students' language learning.

(2) What are the crucial factors that affect migrant students' active lesson participation remotely.

To examine the second research question, an e-survey was designed. The e-survey was targeted to teachers and can be found in the link https://forms.gle/uAmPhVCN7UZfXs4y7. İt was send to all teachers working in the neighbourhood, where the children attended. All the schools in the area resemble demografically, in the sence that the majority of the children are of working class background and there is also a significant number of migrant and refugee background children among thw school population. 57 educators participated in the research, by filling in the questionaire.

#### *Ethical considerations*

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

Ethical review board name: Sevasti Paida, Magda Vitsou, Nektaria Palaiologou

Date of ethics review decision: 2020-09-05

Ethics assessment document issue number: registered at apothesis portal at HOU

## RESULTS

### The case study results

#### *i. Students' attendance and accessibility*

The goal of the TBLT intervention was to improve students' reading and speaking skills to expand their awareness, encourage them to navigate the web for valuable data to make them more responsible as their virtual wall would become public. However, this part was covered with many practical issues. The project was inextricably linked with the teleconferences. Via Webex, the researcher, who was also the teacher of the classroom, shared her screen to show students how they could use the suggested web 2.0 tools (Padlet and Canva) to complete their group's assigned tasks, along with further clarification for the

task-based procedure. Regarding the students' attendance on the remote courses, many problems emerged sporadically due to the Covid-19 situation and the students' first acquaintance with distance learning methods.

To overcome these issues, the teacher addressed the school's director to determine whether the Ministry of Education had already sent any tablets or personal computers to improve students' accessibility during our lessons [1]. His answer was negative. The next step was attempting to guide the students on the telephone. The researcher decided then to create four (4) asynchronous videos with step-by-step instructions.

### *i. The students' evaluation of the ERT procedure*

According to the last evaluation of the course, the students commented they did not expect the distance learning to be that way because they believed we would keep following the book material. However, they liked the task-based project concerning the climate, feeling proud of their effort, without providing the researcher with any proposal for changes.

## The e-survey results

The major problems the educators dealt with concerned the poor or no internet connection in their students' houses, the lack of a suitable device, and the knowledge on handling the required online platforms. The educators claimed at a rate of 31,6% that they overcame these problems, while 61,2% did not overcome them on their entity or a part of them. Most of them who overcame the emerged issues did it on their own (66.7%) or with the assistance of their director (47,4%) or/and their colleagues (35.1%) (table 1).

**Table 1**

*Problems encountered by educators*

| | | | |
|---|---|---|---|
| **Connecting issues** | 31,6% overcame the problems | 61,2% did not overcome them | |
| **Ability to overcome the emerged issues** | on their own (66.7%) | with the assistance of their director (47,4%) | with the assistance of their colleagues (35.1%) |

Concerning the problems their students with refugee or migrant backgrounds encountered on the ERT procedure, these extend to a great range, with most popular among

them linguistic barriers (75.4%) and inability in understanding the instructions on the platform tasks (63.2%). Other issues concern the psychological situation of these students during curfew, such as lack of interest in the lessons and assignments (31.6%), refusing to take part in the remote assignments (22.8%), and/or even expressing signs of sadness and grief (21.1%) (table 2).

**Table 2**

*Participants' Judgements of the Order of Fear-type Emotion Verbs on the Scale*

| **Problems encountered by students** | **%** |
|---|---|
| **Linguistic barriers** | 75.4 |
| **Inability on understanding the instructions** | 63.2 |
| **Lack of interest for the lessons and assignments** | 31.6 |
| **Refusing to take part in the remote assignments** | 22.8 |
| **Expressing signs of sadness and grief** | 21.1 |

Data from the section concerned with the synchronous remote teaching procedure shows great declination on the bilingual students' participation rate in asynchronous against the synchronous form of distance education. The non-participation of students with a refugee or migrant background in the synchronous teleconferences was noted at a total rate of 45.8% compared to their 8.8% absence of the asynchronous teaching procedure. No significant increase was noted in the bilingual students' participation rate in the remote teaching procedure (15.4%). Contrariwise, it either marked a decrease of 40.4% or remained stable at a rate of 42.1%. The referred problems emerged in connecting the students with refugee or migrant backgrounds on the scheduled teleconferences. Most of the responses concerned connection disabilities, while a smaller rate refers to psychological issues.

As regards the educators' efforts on providing interesting lessons that correspond to their students with migrant and refugee background needs, most of those who responded to this item (26 respondents) stated that they used a variety of multimedia (images, videos, presentations, etc.). As they note, their lessons were created in a playful manner and they were adjusted to their language proficiency levels or their assignments were even applied personalized. These educators stated they managed overcame, to a great extent, the problems that emerged in their communication with their bilingual students.

In the last part of the survey, respondents were asked to evaluate the emergency remote teaching procedure as it applied in the school year 2019-2020 due to the COVID-19 quarantine. The respondents stated that the migrant and refugee students' lesson participation was much limited (42.1%), non-existent (19.3%), or the same (29.8%) as their monolingual students' attendance rate. Only 3.5% mentioned that it was larger. No significant differences were found in the effectiveness between the asynchronous or synchronous distance education concerning the specific vulnerable student population which, according to the respondents, was limited. The most striking result to emerge from the data is that most educators (61.4%) believe that the students with refugee or migrant backgrounds are excluded from the ERT procedure, as it has been applied during the particular period in Greece. They also believe at a great rate (64.9%) that the migrant and refugee children lack equal opportunities compared with their native schoolmates (table 3).

**Table 3**

*Evaluation of the emergency remote teaching procedure as it applied in the school year 2019-2020 due to the Covid-19 quarantine*

| **the migrant/refugee students' lesson participation** | **the migrant/refugee students' exclusion from the ERT** | **the migrant/refugee children's lack of equal opportunities** |
|---|---|---|
| was much limited (42.1%) | 61.4% | 64.9% |
| non-existent (19.3%) | | |
| the same (29.8%) | | |

## DISCUSSION

The remote TBLT intervention of our case study focused on improving students' L2 skills grounded in their educational needs and linked to real-life tasks. The students became researchers and journalists while they acquired knowledge in an autonomous and captivating way. As Macalister and Nation (2010) highlight, encouraging learner autonomy is a particularly important goal in curriculum design. Nevertheless, since the beginning of the first lesson interventions in the TBLT procedure, the bilingual students' attendance was limited. The researcher organized quantitative research to check these findings with educators' similar situations. It was designed to further determine the crucial factors that affect migrant students' active lesson participation remotely.

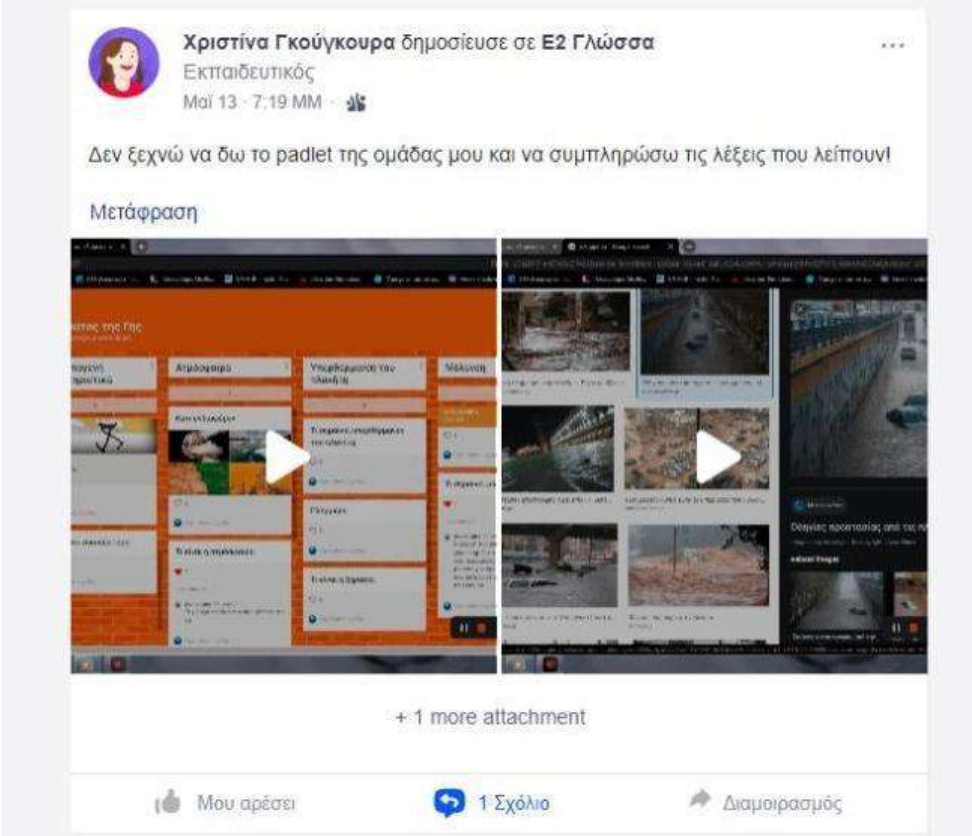
Consistent with the quantitative results, the bilingual students' attendance on the synchronous forms of the emergency remote teaching was greatly reduced compared to the asynchronous methods. Only two of the six (2/6) students with migrant backgrounds took part in the scheduled classroom teleconferences via the Webex platform. There are, however, other explanations for the inconsistency in their participation. For instance, the second part coincided with the lifting of the curfew, and the weather improved following the Easter period in Greece. The students also stated at the teleconferences that they had lost their prior excitement about distance learning because they had many tasks in different fields and separate platforms according to their teachers' preferences. While learners were aware of the digital dimension of their studying in the project, it appeared to some that communicating with the online tool solely was not the desired option (Guo et al., 2020). All these factors, along with the non-obligatory nature of ERT during this period, substantially affected their participation rate. These results corroborate the findings of the quantitative research where the educators stated that as time passed by, their students' attendance was decreasing.

As regards the issues that the educators faced in communicating with their students and their families, the charts indicated they confronted many problems to stay in touch with their non-native students compared to their native ones. The educators mentioned as major problems the lack of accessibility on the internet or on a suitable electronic device, linguistic barriers, and inability in understanding the instructions on the platform tasks. Other issues concern the psychological situation of these students during the lockdown, such as lack of interest in the lessons and assignments, refusing to take part in the remote assignments, and/or expressing signs of sadness and grief. As Di Pietro et al. (2020) notice, physical school closing, and distance education have a detrimental impact on students' performance across four main channels: reduced time spent studying, anxiety signs, a shift in the way students communicate, and loss of enthusiasm for learning. Interestingly, the respondents also noticed the absence of the interaction that makes the lesson comprehensible and motivates the children, making them feel more confident. Guo et al. (2020) assert that, for the support teachers, the lack of educator awareness of students and their contexts is a matter of concern with the application of technology. All these issues also accord with our earlier qualitative observations, which showed that the lack of the appropriate device on the scheduled time of the teleconferences, students' psychological statements during the quarantine, and the absence of face-to-face teacher-student interaction led to reduced rates of students' attendance remotely.

Concerning the educators' efforts on overcoming the above issues, these reflect our earlier observations, which first showed that the accessibility of the students finally did not solve with the promising devices donated by the Ministry of Education. They also showed that the written instructions (even the translated ones) could not efficiently help the bilingual students to fulfill the assigned tasks asynchronously. Unfortunately, the written instructions aiming at asynchronous remote methods are possibly too difficult for students

of level A in Greek. On the other hand, the educators who stated that adjusted their lessons' content according to their students' language proficiency level claimed that they somewhat dealt with such issues. Teachers are not only key players in the distribution of life opportunities to their students, but they are also themselves engaged in these challenges, with their personal stories, their encounters with the complexities of social borders, and their need for acknowledgment and inclusion (Helsper et al. 2001; Helsper 2002; Mantel, 2020).

Despite the initial observations on the limited attendance rate of the bilingual students in our case study, the researcher insisted on providing alternative ways of integrating these four students into the environmental project. The results showed that there was not just one method applied to all the students effectively. One way that assisted one girl to fulfill the tasks was the instructor-made step-by-step videos uploaded on the Edmodo platform. This girl has advanced her writing; however, her emotional condition and her shy profile are affecting her oral progress. For her, observing her teacher sharing her screen and giving instructions in simple Greek language worked effectively. This finding corroborates the idea of Aggeli (2017) and Papadela et al. (2020) who suggest that a video is a powerful tool used in distance education at all levels to support teaching and learning processes in second language acquisition as it presents the information attractively and consistently.




***Picture 2.*** Video with step-by-step instructions on how to create a post on Padlet.

One girl could not connect on the Webex platform via her smartphone, so we arranged two (2) weekly afternoon meetings on Viber that she found much easier to handle. Via screen sharing and instructions on using the suggested web 2.0 tools, she completed some tasks. As she was facing personal and family health problems, she could rather not be consistent with the tasks in their entirety. However, she did her best according to her efforts. One boy cooperated with the educator via telephone calls. He did not take part in the group work on Padlet, but he completed efficiently the relative assignments on Edmodo and the article for our environmentally friendly magazine.

The above differences in the tasks can be explained in part by students' individual preferences on the way of learning. Mantel (2020) states that all students should be regarded as equal in the perspective of equal access to education, regardless of their ethnic or socioeconomic status, gender, or religion. However, as she notices, securing equal opportunities does not always mean equal treatment, since differentiated treatment can be essential to establish equal rights. Contrary to expectations, five of the six (5/6) students with migrant backgrounds finally took part in this TBL as they provided their effort on the plenary's outcome, the common magazine. It could be argued that the positive results are in agreement with those of the quantitative research indicating that the educators, who mentioned that they struggled to keep their students' interest in the emergency remote teaching procedure, considering their linguistic needs and trying multiple methods for communicate with them, finally overcame the initial obstacles at a great rate. Our TBLT magazine was finally published on the website issue and in a collective action organized by the Heads of Environmental Education and School Activities with the theme "No plastics in my sea" in the context of the Environment Day on June 5 and the Day of the Oceans on June 8. This outcome further supports the idea that the use of web 2.0 tools can contribute to the reorientation of education with the possibilities it provides for the opening of the school to society and the world, with the first step being the organization of models of cooperation between schools and classes (Pozidis et al., 2015).

Regarding the students' remote teaching experience and evaluation, some children seemed to struggle with distance learning, whereas, for others, it was a highly suitable educational path. Interestingly, the girl from Moldavia seemed to be more actively learning online than when in class because her inability to speak was no longer an obstacle to creating artful posts, signaling likes, and commenting on tasks by typing. Such an outcome demonstrates the well-known assumption that each child acquires knowledge individually according to his/her abilities and interests.

Turning once again on the quantitative results, on the last part of the research, the respondents generally believe that, either asynchronous or synchronous, distance education is not as effective to a socioeconomically vulnerable student population. Their majority also believe that the students with refugee or migrant backgrounds are excluded from the

emergency remote teaching procedure, as it has been applied during the particular period in Greece. This inconsistency to the above results may be because just 24% answered the question of providing us with information regarding their efforts on communicating effectively with their students. A probable explanation might be that all these educators could not struggle on discovering the most efficient ways of distance learning without adequate guidance and training from the Ministry of Education in such a sudden emergency condition. Another explanation for this is that the accessibility issues concerning the internet connection and the lack of proper devices of such an economically vulnerable population, as the migrant and refugee students and their families are, remained unsolved until the lockdown ended. These results, therefore, need to be interpreted with caution.

Most educators seemed discouraged and afraid of the distance education implications drought that it could empower migrant and refugee students' learning if used in conjunction with face-to-face education. These findings are rather disappointing and are far below those observed by Papanikolaou and Manousou (2019) who suggest that supplementary distance education may be efficiently applied in primary education for lessons replenishment by students occasionally absent from school.

## LIMITATIONS AND RECOMONDATIONS

The present research has been one of the first attempts to examine thoroughly the interaction of TBLT, CALL, and second language acquisition in primary education. However, being limited to bilingual students' attendance and inclusion on the ERT, this paper lacks a thorough report on migrant students' performance in the Greek language, as the case study does not focus on their rate of grammatical or syntactical error occurrence. Despite its limitations, this study certainly adds to our understanding of students' capacity for detecting their errors and shortcomings and to evaluating themselves, a process that increases their autonomous and critical learning ability.

Further studies regarding the role of the interaction of basic linguistic errors with other variables linked to the remote TBLT procedure would be worthwhile. Continued efforts are needed to make distance education more accessible to every student in need. A key policy priority should also be to plan for comprehensive training of the educators regarding second language acquisition on distance education to prevent the vulnerable student population from the exclusion of such a crucial educational procedure.

## CONCLUSION

This research has identified many issues on the connection and attendance asynchronously but mainly synchronously of elementary students with migrant and refugee background comparison with the native students. The results show that the emergency remote teaching, as it was applied in March 2020 lockdown because of COVID-19, excluded at a great rate the participation of this vulnerable student population. The

condition of emergency in such a sudden situation left the Greek Ministry of Education with limited available time to organize adequate training on distance education for the teachers and to offer efficient solutions on the accessibility issues that emerged. Initial observations suggest that emergency remote teaching also contributes to the reproduction of social inequalities in education (Di Pietro et al., 2020). However, another major finding was that the educators who were more flexible on the communication methods applied and those who were taken into consideration their students' linguistic needs and interests finally managed to overcome many of the emerged issues. As Tour et al. (2021) argue, though experiential digital projects were beneficial in their research, their effectiveness primarily depends on educators.

As Lee et al. (2019) assert, L2 teachers' motivational techniques are the guiding principle that triggers, leads, and empowers goal-oriented learners' behavior either in or out of the classroom.

As regards the TBLT method applied, the most obvious finding to emerge here is that this process is linked to the bilingual students' needs and interests and connected to real-life activities. Its remote application also increases their autonomous and critical learning ability, enhancing their computer skills while practicing their second language. For Guo et al. (2020) the scope for effectiveness is only increased when inter-elementary interventions are implemented, accompanied by productive collaborations and a strong engagement from the group. However, being limited to bilingual students' attendance and inclusion on the emergency remote teaching, this research lacks a thorough report on migrant students' performance in the Greek language, as the case study does not focus on their rate of grammatical or syntactical error occurrence. Despite its limitations, this study certainly adds to our understanding of students' capacity for detecting their errors and shortcomings and to evaluating themselves, a process that increases their autonomous and critical learning ability.

Overall, this mixed-methods case study strengthens the idea that the public school may operate as a mechanism for empowering the socioeconomically vulnerable population of society. Schools are crucial sites for these challenges, as in schools, life chances for acknowledgment and interaction are being spread and supported (Mantel, 2020). As Portera (2020) argues, education should treat difference and change as a universal axiom in all places around the world and in every context. The exchange of cultural information online becomes a meaningful and authentic activity for communication in a second language (Okumura, 2020). The learners showed the capacity to maintain cross - cultural interactions and collaborative work outside of the real classroom, which is a critical contribution of emergency remote teaching to language education (Ruan, & Medwell, 2019). Further studies regarding the role of the interaction of basic linguistic errors with other variables linked to the remote TBLT procedure would be worthwhile. Continued efforts are needed to make distance education more accessible to every student in need. A key policy priority should also be to plan for comprehensive training of the educators regarding second language

acquisition on distance education to prevent the vulnerable student population from the exclusion of such a crucial educational procedure.

## REFERENCES


Aggeli, A. L. (2017). Distance teaching / learning Greek as a second / foreign language: the contribution of video. *International Conference on Open & Distance Education, 9*(3A), 120-128.

Aguliera, E., & Nightengale-Lee, B. (2020). Emergency remote teaching across urban and rural contexts: perspectives on educational equity. *Information and Learning Sciences*. 10.1108/ILS-04-2020-0100.

Aukerman, M. (2007). A culpable CALP: Rethinking the conversational/academic language proficiency distinction in early literacy instruction. *The Reading Teacher, 60*(7), 626-635.

Beatty, K. (2013). *Teaching & researching: Computer-assisted language learning*. Routledge.

Chapelle, C. A. (2003). *English language learning and technology: Lectures on applied linguistics in the age of information and communication technology* (Vol. 7). John Benjamins Publishing.

Chappelle, C. A. (2001). Computer applications in second language acquisition. *Cambridge Applied linguistics. New York.–2001.*

Collier, V. P. (1987). Age and rate of acquisition of second language for academic purposes. *TESOL Quarterly, 21*(4), 617-641.

Council of Europe (n.d.). The CEFR Levels. COUNCIL OF EUROPE. https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: qualitative, quantitative, and mixed methods approaches*. Sage publications.

Cummins, J. (2001*). Negotiating identities: Education for empowerment in a diverse society* (2nd ed.). California Association for Bilingual Education.

DEPPS—APS (2003). Government Newspaper. INTERACTIVE TEXTBOOKS. http://ebooks.edu.gr/new/ps.php

Di Pietro, G., Biagi, F., Costa, P., Karpiński, Z., & Mazza, J. (2020). *The likely impact of COVID-19 on education: Reflections based on the existing literature and recent international datasets* (No. JRC121071). Joint Research Centre (Seville site).

Doughty, C. J., & Long, M. H. (2003). Optimal psycholinguistic environments for distance foreign language learning. *Language Learning & Technology, 7*(3), 50-80.

Ellis, R. (2005). Principles of instructed language learning. *System, 33*(2), 209–224.

Ethnos (Apr 23, 2020). *Donation of 8,400 tablets and laptops to students and teachers.* ETHNOS. https://www.ethnos.gr/ellada/101713_dorea-8400-tamplet-kai-laptop-se-mathites-kai-ekpaideytikoys

Fakoulas, S. (2020). *Learning Management Systems: The case of utilization of four Learning Management Systems in primary educations* [Master's thesis, Aegean University]. HELLANICUS http://hdl.handle.net/11610/20971.

González-Lloret, M., & Nielson, K. B. (2015). *Evaluating TBLT: The case of a task-based Spanish program. Language Teaching Research, 19*(5), 525-549.

González-Lloret, M., & Ortega, L. (2014). Towards technology-mediated TBLT. *Technology-Mediated TBLT: Researching Technology and Tasks, 6*, 1–22.

Guo, K., Bussey, F., & Adachi, C. (2020). Digital learning across cultures: an account of activity theory. *Intercultural Education*, 1-15.

Helsper, W. (2002). Teacher professionalism as an antinomic structure of action. *Biographie und Profession, 1*, 64-85.

Helsper, W., Böhme, J., Kramer, R. T., & Lingkost, A. (2013). School culture and school myth: grammar schools between elitist education and higher elementary schools in the process of transformation. *Rekonstruktionen zur Schulkultur I* (Vol. 13). Springer-Verlag.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSEReview.* https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning?fbclid=IwAR06enKBAIRpgkNA62QEEnOmjNztxrxdrjvuLD5pMzIUi8iBkAYhOMDABOM.

Irvine Unified School District (2020). *Emergency distance learning plan*. IUSD https://iusd.org/emergency-distance-learning-plan.

Jeon, I. J., & Hahn, J. W. (2006). Exploring EFL teachers' perceptions of task-based language teaching: A case study of Korean secondary school classroom practice. *Asian EFL Journal, 8*(1), 123-143.

Lionarakis, A. (2011). Distance and conventional training: convergent or divergent forces?. In *PARALLEL TEXTS for the Thematic Unit "Open and Distance Education"*, EKP65. HOU.

Lee, T. S., Gardner, D., & Lau, K. (2020). The effects of L2 motivational strategies: within and beyond the L2 classroom. *Innovation in Language Learning and Teaching, 14*(5), 451-465.

Macalister, J., & Nation, I. S. P. (2010). *Language curriculum design*. Routledge.

Manousou, E. (2004). Distance education applications in primary education. In *1st Panhellenic Two-Day Conference with International Participation on: Lifelong and Distance Education in the Information Society*. University of Crete.

Mantel, C. (2020). Being a teacher with a so-called 'immigrant background': challenges of dealing with social boundaries. *Intercultural Education, 31*(2), 173-189.

Miminou, A., & Spanaka, A. (2016). Distance education primary and secondary schools and programs: A literature review. *International Conference on Open & Distance Education, 7* (2A).

Niari, M., Samaras, C., Koutsoukos, V., Lionarakis, A., & Verikios, V. (2017). Distance collaborative learning in technical vocational education. The case of vehicle control remotely. *Open Education: the magazine for Open and Distance Education and Educational Technology, 13*(1), 54-64.

Okumura, S. (2020). Design and implementation of a telecollaboration project for primary school students to trigger intercultural understanding. *Intercultural Education, 31*(4), 377-389, DOI: 10.1080/14675986.2020.17525

Palaiologou, N. (2009). Needs for developing culturally oriented supportive learning with the aid of information and communication technologies, *Pedagogy, culture and society. (1468-1366), 17*(2), p.189.

Papadela, C. V., Koutsoumba, M., & Mavroidis, H. (2020). Video as a mean for learning in distance pre-school polymorphic education: a proposed model for its assessment. *International Conference on Open & Distance Education, 10* (1A), 62-75.

Papanikolaou, K., & Manousou, E. (2019). Complementary distance education for Primary School Students. An Action Research on lesson compensation occasionally absent from the school class students. *International Conference on Open & Distance Education, 8*(1), 184-201.

Portera, A. (2020). Has multiculturalism failed? Let's start the era of interculturalism for facing diversity issues. *Intercultural Education, 31*(4), 390-406.

Pozidis, P., Manousou, E., & Koutsoumpa, M. (2015). Cooperative learning in the framework of supplementary environmental distant learning in the network of primary schools of Corfu. *International Conference on Open & Distance Education, 8*(1A).

Psallidas, V., & Manousou, E. (2016). The utilization of web 2.0 tools in the supplementary distance learning in Secondary Education. Case study: The design and organization course of Biology in the third class of High School in Sustainable Development Education program. *International Conference on Open & Distance Education, 6*(1A).

Ruan, J., & Medwell, J. (2020). Using social networking technology to develop intercultural communicative competence: a case of GCSE Mandarin. *Innovation in Language Learning and Teaching, 14*(4), 362-392.

Sampson, R. J., & Yoshida, R. (2021). L2 feelings through interaction in a Japanese-English online chat exchange. *Innovation in language learning and teaching, 15*(2), 131-142.

Snow, C. E., & Uccelli, P. (2009). The challenge of academic language. In D. R. Olson & N. Torrance (Eds.), *The Cambridge handbook of literacy* (p. 112–133). Cambridge University Press. 10.1017/CBO9780511609664.008

Sobre, M. S. (2017). Developing the critical intercultural classspace: theoretical implications and pragmatic applications of critical intercultural communication pedagogy. *Intercultural Education, 28*(1), 39-59. 10.1080/14675986.2017.1288984

Thomas, M., & Reinders, H. (2010). Deconstructing tasks and technology. *Task-based language learning and teaching with technology,* 1-16.

Tour, E., Gindidis, M., & Newton, A. (2021). Learning digital literacies through experiential digital storytelling in an EAL context: an exploratory study. *Innovation in Language Learning and Teaching, 15*(1), 26-41.

Van Geel, M., Keuning, T., Frèrejean, J., Dolmans, D., van Merriënboer, J., & Visscher, A. J. (2019). *Capturing the complexity of differentiated instruction. School Effectiveness and School Improvement, 30*(1), 51-67.

Wakil, K., Abdulfaraj, A., Sadula, A., Tofiq, D., & Nawzad, L. (2019). Performance of distance learning compared with face to face learning. *Journal of Educational Science and Technology (EST), 5*(1), 1-8.

Yi, Y., & Jang, J. (2020). Envisioning possibilities amid the COVID-19 pandemic: Implications from English language teaching in South Korea. *TESOL Journal, 11*(3).

## Biographical notes:

***Christina Gkougkoura:*** holds an MA on Multicultural Education from the School of Humanities at Hellenic Open University and she teaches at the Elementary School of Logga in Messinia.

***Dr Sevie Paida:*** is a PhD holder of Educational Studies, from the University of York, in United Kingdom. Her specialisation lays in the field of intercultural education, migrant and refugee education, second language acquisition. She is a tutor in Hellenic Open University.

***Dr Magda Vitsou:*** holds a Phd in Theater in Education. She is Laboratory Teaching Staff in the Department of Early Childhood Education, University of Thessaly. She has majored in "Puppetry in education and art therapy", in London School of Puppetry and she has been certified in the development of levels of certification of the knowledge of Greek language as foreign / second.

***Nektaria Palaiologou:*** is Associate Professor at the School of Humanities at Hellenic Open University (HOU), former Assoc. Professor at the School of Education at the University of Western Macedonia (UoWM) until 2020. Since 2001 until today she has taught

Intercultural Education, Migration and Refugee Education courses at six Greek and at two European Universities.



*Author(s)' statements on ethics and conflict of interest*

*Ethics statement:* We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

*Statement of interest:* We have no conflict of interest to declare.

*Funding:* None

*Acknowledgements:* None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# Implementation and Evaluation of a Media Literacy Skills Curriculum: An Action Research Study

**Cahit Erdem**[1] **Bahadır Erişti**[2]

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 20-50
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 18.12.2021
Revision : 22.01.2022
Accepted : 13.02.2022

**Abstract:**

*The literature highlights the significance of media literacy instruction in pre-service teacher education period, but there are few attempts to develop and implement curricula to this end. This action research study aimed to report the steps to adapt 'the media literacy skills curriculum design' for pre-service teachers, which was developed for face-to-face education environments, to an online learning management system in line with emergency remote teaching amid Covid-19 pandemic, and report the results of curriculum evaluation. The study adopted 'The Curriculum Development through Action Research Model'. The participants were pre-service teachers at an education faculty of a state university in Turkey. The quantitative data were collected through Media Literacy Skills Scale and qualitative data were collected using several forms, rubrics, and reflection tools. The study revealed that the implementation of the media literacy skills curriculum had a strong positive effect on pre-service teachers' levels of media literacy skills. The study also revealed changes in pre-service teachers' perceptions of media and media literacy, interactions with media, as well as certain areas for curriculum development in terms of contents, teaching-learning experiences, and assessment components of the curriculum. The study discusses the results and offers implications for media literacy education in pre-service teacher education.*

**Keywords:** Media literacy, Pre-service teacher education, Curriculum development through action research, Curriculum evaluation, Distance education

**Citation:**
Erdem, C., & Erişti, B. (2022). Implementation and evaluation of a media literacy skills curriculum: An action research study. *International Journal of Modern Education Studies, 6*(1), 20-50.
http://dx.doi.org/10.51383/ijonmes.2022.155

[1] Asst. Prof. Dr., Afyon Kocatepe University, Faculty of Education, Afyonkarahisar, Turkey. cahiterdem@gmail.com, Orcid ID: 0000-0001-6988-8122
[2] Prof. Dr., Anadolu University, Faculty of Education, Eskişehir, Turkey. beristi@anadolu.edu.tr, Orcid ID: 0000-0002-4092-3964

## INTRODUCTION

The rapid advancements in information and communication technologies (ICT) have not only affected individuals' job-related or daily life practices but also led to dramatic changes in construction, sharing, spread and consumption of information (Kellner & Share, 2007). Media tools and platforms have an intense role in this change. Media is now a global power shaping people's values, beliefs, behaviors, and decisions (Baran, 2014). As well as the advantages offered by new technologies and media, there are serious disadvantages of this fast-going process. Though it is now easier to attain information, the quality and credibility of the information that is bombarding people is a serious problem people confront today. Particularly new media offers a platform for the ones whose voices are unheard in the mainstream media, and it has the potential to enable social participation, equal society, and equal representation for all. However, there are also issues of privacy, security, bullying, addiction, or phishing (Burnett & Merchant, 2011).

The pervasive spread of media among individuals from all ages necessitates that individual should possess new sets of skills and knowledge. This sets of skills and knowledge gather under the umbrella of media literacy which is regarded as a 21st century skill (Finegold & Notabartolo, 2008; The Partnership for 21st Century Learning, 2009). This is particularly pivotal for the younger generation (Thoman & Jolls, 2004). Hence, media literacy education is now an obligation as opposed to a preference. The most important issue regarding equipping new generations with media literacy skills is related to teachers' skills and competencies with regard to media literacy. For effective media literacy education, it is imperative that not only teachers who teach media literacy but also all other teachers need to be media literate (Domine, 2011; Donohue & Kelly, 2016; Goetze et al., 2005). As well as teaching media literacy directly, teachers need media literacy skills to integrate new media in their courses (Tiede & Grafe, 2016). Despite the need for equipping teachers with media literacy skills, the literature highlights the lack of structured media literacy education in pre-service teacher education period (Baker, 2010; Cramer, 2015; Jolls & Wilson, 2014; Redmond, 2016).

There have been few attempts to develop a media literacy curriculum for pre-service teachers, particularly in Turkey. Although there are practices of media literacy education in pre-service teacher education in some developed countries and several institutions developed on media literacy, Turkey is quite limited in this regard. To this end, the researchers developed a media literacy skills curriculum (MLSC) design for pre-service teachers (Erdem, 2018a); however, the implementation practice coincided with the global Covid-19 pandemic. The curriculum design was developed for face-to-face education, and the online platform used in the implementation of the MLSC had certain limitations, requiring adaptation to the new context. Therefore, this action research study was aimed to implement the media literacy skills curriculum with pre-service teachers through adapting

it to an online learning management system (LMS) amid the Covid-19 pandemic and to reveal its effectiveness and areas for curriculum development.

## THEORETICAL FRAMEWORK

### Media Literacy and Teacher Education

The widespread interaction with media, particularly the new media lately, makes media literacy a current issue and a skill to be acquired. Although there are various differences between mass media and new media, Buckingham (2009) argued that new media was a type of media, and traditional media and new media were already integrated. Traditional or new, media is now an indispensible part of people's lives, making media literacy education pivotal. How to teach media literacy is a matter of discussion in the literature. Basically, there are two approaches in media literacy education. The first is the independent course approach which argues that media literacy should be taught as an independent lesson. The second is the integration into a curricula approach arguing that media literacy should be taught in various lessons through integrating media literacy contents to curricula of various lessons. Both have advantages and disadvantages, and both are needed for an integrative media literacy education (Baker, 2010; Tüzel, 2013). Media literacy education can be practiced with a media tools-based approach, thematic approach, media studies approach, or an integration approach (Wilson & Duncan, 2008).

The integration approach in media literacy education has gained acceptance lately. In Turkey, for example, there is an independent optional media literacy course at the lower secondary level; however, it was suggested to integrate these contents with the curricula of all related courses (Radio and Television Supreme Council, 2012). Undoubtedly, teachers need to be equipped with media literacy skills in pre-service or in-service periods to be able to teach media literacy to children while being a model for them. However, teachers' level of media literacy skills is a matter of question (Baker, 2010). For effective media education, media literacy education should be integrated into pre-service teacher education (European Conmission, 2006). For teachers to be able to teach media literacy skills to children, they should be first equipped with these skills, and they should understand and implement these skills (Jolls & Grande, 2005; Tiede & Grafe, 2016).

The literature stresses the contribution of media literacy skills to teachers. A media literate teacher encompasses media literacy pedagogy into one's instructional processes (Hobbs, 2010), better understands students' educational and social contexts (Goetze et al., 2005), can be a model for students, and finds new ways to involve students to media literacy education (Schwarz, 2001). Also, this teacher has an ability to teach critical thinking as well as media literacy (Flores-Koulish, 2006), knows how to teach in multi-model environments and to coordinate students' formal and informal learning (Resta & Carroll, 2010), and develops one's general teaching specialties (Redmond, 2016).

## Media Literacy Education in Turkey with a Specific Focus on Pre-service Teacher Education

Media literacy education started in Turkey with a delay when compared to Western countries. It started with the introduction of a media literacy course which was offered as an optional course for lower secondary level students. The Radio and Television Supreme Council in Turkey led the development of media literacy education. In coordination with the Ministry of National Education, this council organized various workshops and meetings and suggested such a course in schools. However, media literacy education was limited to this optional course at lower secondary schools. Some communication faculties at universities had media literacy courses, yet media literacy education was not offered to pre-service teachers at education faculties (Erdem, 2018b). Although there was a media literacy course in lower secondary schools, the education faculties did not have any related departments. A very limited number of teachers had in-service education for media literacy education.

The introduction of a media literacy course at lower secondary school was also a signal rocket for researchers in Turkey. As of this year, academic interest has focused on media literacy and a great deal of research has accumulated in the Turkish literature. With regard to research on pre-service teachers, the studies focused on identifying pre-service teachers' levels of media literacy, revealing their opinions and perceptions on media literacy and the media literacy course, developing media literacy scales, examining media literacy education in Turkey and in the world, and identifying the relationship between media literacy and some other related variables (Erdem, 2018a). Not many studies addressed media literacy education practices in pre-service teacher education (Barut et al., 2016). Recently, there have been some attempts to develop media literacy curriculum for pre-service teachers (Erdem, 2018a; Karataş & Sözer, 2018). After these attempts, the Higher Education Council added a media literacy course to the curricula of pre-service teacher education programs as an optional world knowledge course. To the researcher's best knowledge, there has not been any published research to report these experiences with the new course.

## Purpose & the Current Study

Despite the emphasis on the need for media literacy instruction in pre-service teacher education, teachers try to teach media literacy without receiving a media literacy course in the faculties of education (Scull & Kupersmidt, 2012) or in primary or secondary education (Robertson & Hughes, 2011). The studies refer to a lack of well-grounded media literacy education in teacher education programs (Donohue & Kelly, 2016; Manzoor, 2016; Stein & Prewett, 2009), leading to an incoherent, disorderly, and incomprehensible media literacy perspective (Jolls & Wilson, 2014). Similar to this problem across the world, teacher education programs in Turkey did not offer media literacy education to pre-service teachers until 2018. In this year, an optional media literacy course was introduced.

The researchers aimed to implement the media literacy skills curriculum developed for pre-service teachers (Erdem, 2018a); however, the Covid-19 pandemic broke out and the universities closed in Turkey and continued education through emergency remote teaching. The researchers had to implement the MLSC using an online LMS which had certain limitations as the country was not ready for distance education. Besides, the curriculum design to be implemented was developed for face-to-face education. Therefore, the researchers had to adapt the MLSC to the new learning environment, which led to this action research. Aiming to adapt the MLSC to the new learning environment, this study aimed to report the steps in this adaptation as well as reveal the effectiveness of the curriculum and highlighting areas for curriculum development. The research questions are listed below.

### *Research Questions*

1. What is the effectiveness level of the MLSC in equipping the pre-service teachers with media literacy skills?

2. How do the pre-service teachers' perceptions regarding media and media literacy differ before and after the curriculum implementation?

3. What are the pre-service teachers' opinions with regard to the effectiveness of the MLSC?

4. What is the quality of the learning products the pre-service teachers developed during the course?

5. What are the practitioner's perceptions regarding the MLSC, implementation process, and students' learning products?

## METHOD

### Research Design

This is an action research study. Action research is a process whereby participants explore their own practices in classroom systematically and carefully, making use of research techniques (Ferrance, 2000). It is a form of research that teachers use to solve problems and enhance their professional practice in their own classrooms (Parsons & Brown, 2002). The reason for using action research in the current study was that the study sought to implement a media literacy skills curriculum for pre-service teachers in a pandemic environment. The MLSC was originally developed to be implemented in a face-to-face classroom setting. However, due to the emergence of Covid-19 pandemic, the researchers needed to facilitate the curriculum through distance education. This unexpected case posed some problems and led the practitioner to make new decisions as to how to implement the curriculum within the limitations of learning platform. Action research aims to solve a particular educational problem, improve educational practice, and hence help make a decision at a single local site (McMillan, 2004). In parallel with this, it also aims to

enhance the teacher's professional judgment, and provide insights into better means of achieving intended educational outcomes (Mertler, 2017). The researchers needed to adapt the curriculum to the new learning environment. This process led the researchers to pursuit a curriculum development practice using action research. The study particularly adopted the Curriculum Development through Action Research (CD-AR) Model (Saban, 2021) the stages of which are explained below.

## Action Research and Curriculum Development

The term action research was first used by Kurt Lewin in 1946 and Stephen M. Corey was the first to adapt action research idea to education. As stated by Saban (2021), Corey (1949) thought that traditional research had little impact on school practices because they were conducted by out-of-school researchers while action research was conducted by the school staff to improve practices in the school. Since 1950s, action research has been used as a method to enhance curricula. Action research and curriculum development processes have a similar purpose/function (Saban, 2021). The current research study adopted the 'Curriculum Development through Action Research' (CD-AR) model proposed by Saban (2021), presented in Figure 1.

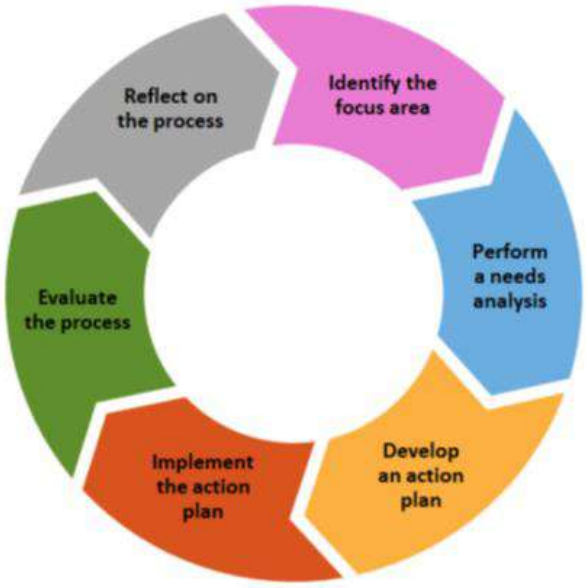



***Figure 1.*** The Curriculum Development through Action Research Model (Saban, 2021, p. 311)

Saban (2021) argued that he developed this model for practitioners to understand and improve the curriculum in practice. As in all action research models, this model also posits a cyclical problem-solving process. The model involves six interrelated stages, as visualized in Figure 1. What the researchers did in each stage of the CD-AR model is briefly explained below in line with the model.

## Procedure

### *Stage 1: Identify the Focus Area*

In this stage, a problem situation needs to be identified. The curriculum design to be implemented had been developed by Erdem (2018a). The media literacy skills curriculum was developed for pre-service teachers to enhance their media literacy skills, so that they could use these skills when they become teachers. The background aim was to be able to teach media literacy skills to K-12 students in an integrated way. There are two approaches in media literacy education: an independent course approach and integration to curricula approach. Both have advantages and disadvantages, and both should be used for an effective media literacy education (Baker, 2010). There was already an optional media literacy course at lower secondary level in Turkey. For ensuring an integrated approach, teachers and pre-service teachers needed to be media literate. To this end, the MLSC was developed. After a few years, the researchers had the chance to implement the curriculum; however, the Covid-19 Pandemic emerged and updates to the curriculum to fit in the new context required addressing. The distance education learning platform offered by the university had several limitations, which made things more complicated. The live lessons were limited to 50 minutes. The practitioner could not see the students' cameras all together, and the students could not attend a simultaneous discussion. The researchers needed to adapt the MLSC in the best way to implement it in this new learning platform. Therefore, action research was used, the CD-AR model in particular, to both implement and evaluate the curriculum.

### *Stage 2: Perform a Needs Analysis*

In this stage, students' needs should be analyzed to develop some strategic ideas to enhance the problem situation (Saban, 2021). First, the MLSC design had been developed based on an extensive needs analysis in the same education faculty. For the current practice, the researchers did not have the chance to meet students in person due to the pandemic. The researchers conducted the needs analysis online in two formats: quantitative and qualitative data collection. First, the pre-service teachers took the Media Literacy Skills Scale (MLSS) (Erişti & Erdem, 2017). This allowed the researchers to evaluate the students' overall media literacy skills levels, as well as the specific skills of *access*, *analyze*, *evaluate* and *communicate* to focus on. The adopted media literacy definition in the media literacy curriculum implemented in the current study belongs to National Leadership Conference on Media Literacy, which suggests that media literacy is "the ability to access, analyze, evaluate and communicate media in a variety of forms" (Aufderheide, 1993). Both the curriculum and the scale used for needs analysis were in line with these abilities of *access*, *analyze*, *evaluate* and *communicate*. In the qualitative part, the participants were asked to answer six questions before the lessons started. The questions were aimed to reveal what they already knew about media literacy, how they defined the media literacy, the reasons for selecting media literacy course, their expectations, their interaction with media, their

strategies in their interaction with media, and the metaphors they ascribed to media. The analysis of the qualitative data also led the way for adapting the media literacy curriculum.

### *Stage 3: Develop an Action Plan*

This is the stage where an action plan based on the needs analysis is developed, and a timetable is formed in line this with plan. Based on the needs analysis and limitations of the LMS, the weekly schedule was changed and adapted the contents. Therefore, the weekly schedule was changed into this plan presented in Table 1 below.

**Table 1**

Weekly Schedule for the Media Literacy Course

| Week | Skill | Subject |
|---|---|---|
| Week1 | Theoretical basis | Introduction to media literacy: Definition, skills, awareness in interaction with media, media ownership, media industry |
| Week2 | Theoretical basis | Communication models, media types, media and culture, effects of media |
| Week3 | Theoretical basis | Media literacy: basics, purpose, skills, principles, characteristics of a media literate person |
| Week4 | Access | Content types in media, media tools and platforms, web types, content search strategies |
| Week5 | Analysis | Analysis keywords and five key questions in media analysis |
| Week6 | Analysis | Exercise on analysis using images, specific propaganda techniques |
| Week7 | Analysis | Specific propaganda techniques (continued), analysis of videos such as advertisements |
| Week 8 | Midterm Week | A project homework on analysis |
| Week 9 | Analysis | Overall propaganda techniques, places of propaganda, asking questions in media interaction and tips |
| Week10 | Analysis & Evaluate | Analysis specific to new media platforms, psychological learning theories and their examples in media, strategies in interaction with social media; online manipulation techniques and examples, psycographic propaganda, |
| Week11 | Analysis & Evaluate | News analysis, process of creating news, factors in news making process, news types, problems seen in news, suggestions for news consumption |
| Week12 | Communicate | Media tools in content creation and sharing, issues to note in content creation and sharing, audience, |
| Week13 | Communicate | Ethical principles and issues, confirmation; potential outcomes of sharing in new media |
| Week14 | Communicate | Expressing oneself through media, participation to society through media, social campaigns |

The needs analysis led to an action plan in which only one week was allocated to 'access' skill, and the main focus was on the 'analysis' skill. While implementing the curriculum, the skill of evaluate was merged to the skill of analysis. While working on analysis, we had to also make reference to the evaluate skill. Finally, the last three weeks were allocated to 'communicate' skill.

### *Stage 4: Implement the Action Plan*

In this stage, the action plan was implemented with a flexible approach. The lesson started with live lessons, and the contents were introduced in these lessons. The practitioner (the first author) tried to be as interactive as possible, and urged the students to express their ideas using their voice or the chat box in the written form. The system did not allow for opening each student's voices. The students could ask for permission to talk and only one student could speak at a time. Therefore, the chat box was used mostly. Before the lesson, the procedure for getting permission from the Ethical Board of the related university for ethical approval for the study was already started. All the students were informed about the implementation of this new curriculum, and data would be collected from them as part of publishing this experience in a peer-reviewed journal. They could participate in any part of the data collection. They were informed that they had the opportunity to not take part in the research. They had the right to not provide data for certain questions. All the students gave their permission for data collection.

### *Stage 5: Evaluate the Process*

Every two weeks, the practitioner used some time in the last five minutes of the lessons to talk about how the lesson was going on according to students, and their suggestions for further contents were collected. In week 9, the pre-service teachers reported that although the course was effective, they needed more discussion on new media. Although the lesson included examples from online media, the analyses mostly depended on the use of specific propaganda techniques in advertisements. Therefore, these contents were added to Week 10: Analysis specific to new media platforms, psychological learning theories and their examples in media, strategies in interaction with social media; online manipulation techniques and examples, psycographic propaganda. Besides, a spare time was also allocated for news in the following week. The implementation of the action plan and the projects were reviewed within the course.

### *Stage 6: Reflect on the Process*

In each stage of the model, the researchers should reflect on the process. They reflected in each stage and designed the remaining weeks based on these reflections. Both to obtain the participants' reflections and reveal the effectiveness of the curriculum implementations, the participants answered some questions as to their expectations from the lesson, their interaction with media and whether their expectations were met or not, and whether there were some changes in their interaction with media.

## Participants

The participants were pre-service teachers studying in the faculty of education at a state university in Turkey. The participants included 78 sophomore and junior pre-service teachers who chose media literacy course as an elective course in the spring semester of 2020-2021 academic year. The participants were accrued through the convenience sampling

method. The students who opted for this course and who volunteered to provide data were the participants of this study. The number of the participants differed per data collection process based on their voluntariness. The quantitative part of the research involved 61 pre-service teachers. These participants completed the MLSS as a pre-test and post-test. In the qualitative part, the number of the participants changed as per data collection steps.

### Instruments

In the quantitative part of the study, the Media Literacy Skills Scale (MLSS) was used (Erişti & Erdem, 2017) as a pre-test and posttest. The MLSS was developed for measuring pre-service teachers' levels of media literacy skills in a similar context. The MLSS is a five-point Likert type scale. The scale was reported to be valid and reliable in its development report (Erişti & Erdem, 2017). In the current study, the Cronbach's Alpha value for the overall reliability of the MLSS was calculated as .923. These values for the factors of the scale were .759; .860; .773 and .851, respectively for the pre-test implementation. The overall reliability of MLSS was calculated as .939 for the post-test implementation. These values for the factors of the scale were .789; .886; .771 and .798, respectively. In the qualitative part, the participants provided data on written forms. They defined media literacy, provided metaphors for media, and answered other questions as to the curriculum enactment. The questions were offered to students after two independent educational specialists and media literacy specialists' approval. Rubrics for grading learning products (National Assocation for Media Literacy Education, 2007; Saban, 2000) and teacher reflection tool (Share & Thoman, 2007) were also used during data analysis that are explained in the findings section.

### Data Analysis

Descriptive statistics were used to examine students' levels of media literacy skills. For further analysis, distribution of the data was checked first. To this end, skewness and kurtosis values were calculated. These values were -.451 and 1.366 for the pre-test implementation and .456 and -.599 for the post-test implementation, respectively. Since these values range between -1.5 and 1.5, it is accepted that the data has a normal distribution (Tabachnick & Fidell, 2013). Therefore, parametric tests were preferred for further analysis. To be able to check whether the difference between pre-test and post-test was significant, paired samples t-test was used. Additionally, Cohen's d value was calculated to examine the effect size of the difference. The qualitative data were analyzed using content analysis, as offered by Green et al. (2007). For reliability and validity of the qualitative data, the researchers used constant comparison method for coding. The consistency between the coders was ensured. Besides, direct quotations were used in the study. The participants were coded as P1, P2, and so on in order not to reveal their identities.

### *Ethical considerations*

The students were informed about the research, and their consent was sought. They could participate in any part of the data collection. They were informed that they had the

opportunity to not take part in the research. They had the right to not provide data for certain questions. The quantitative data were collected online, and the students used a nickname they chose for matching pre-test and post-test data as well as ensuring anonymity. The participants were coded as P1, P2 and so on in the qualitative data for anonymity. All the data are hosted on the first researcher's personel computer and safeguarded by a password.

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

Ethical review board name: Afyon Kocatepe University Social and Human Sciences Scientific Research and Publication Ethics Committee

Date of ethics review decision: 19.03.2021

Ethics assessment document issue number: 2021/142

## RESULTS

### Results regarding the Effectiveness of the Curriculum in Equipping the Pre-service Teachers with Media Literacy Skills

The effectiveness of the curriculum in terms of providing pre-service teachers with media literacy skills was measured through quantitative instruments. The students took the MLSS before and after the course implementation. The descriptive statistics regarding the pre-test and post-test are provided in Table 2 below.

**Table 2**

Descriptive Statistics for the Pre-test and Post-test

| | Test | N | $\bar{x}$ | Sd |
|---|---|---|---|---|
| Pre-test | Access | 61 | 3.75 | .42 |
| | Analyze | | 3.78 | .40 |
| | Evaluate | | 3.77 | .54 |
| | Communicate | | 3.79 | .48 |
| | Overall | | 3.77 | .36 |
| Post-test | Access | 61 | 4.21 | .37 |
| | Analyze | | 4.21 | .40 |
| | Evaluate | | 4.16 | .44 |
| | Communicate | | 4.26 | .41 |
| | Overall | | 4.21 | .34 |

Table 2 demonstrates that the mean of the pre-service teachers in the overall MLSS was 3.77 in the pre-test. It increased to 4.21 in the post-test. Similar increases are observed in the factors of the scale. Whether this increase was significant or not was tested using paired samples t test. The results of the paired-samples t test are presented in Table 3.

**Table 3**

Paired-samples t Test Result for the Mean Scores of MLSS Pre-test and Post-test

| Measure (MLSS) | N | $\bar{x}$ | Sd | df | t | p |
|---|---|---|---|---|---|---|
| Pre-test | 61 | 3.77 | .36 | 60 | -7.959 | .000 |
| Post-test | 61 | 4.21 | .34 | | | |

The results of the paired-samples t test results show that the participants' scores increased in the post-test significantly, t(60), -7.959, $p<.05$. This suggests that the implemented curriculum affected students' media literacy skills levels positively. To examine the effect size of this difference, Cohen's d value was calculated. Cohen's d value was 1.24. This value indicates very strong effect size (Cohen, 1988; Sawilowsky, 2009). This result proves that the implementation of the MLSC had a strong positive effect on pre-service teachers' levels of media literacy skills.

## Participants' Perception of Media Literacy and Media

The participants' perceptions of media literacy and media, and the change before and after the course implementation were analyzed through their definitions of media literacy and metaphors about media.

### *Participants' Definitions of Media Literacy*

At the onset of the semester, some questions to the participants were posed to both for carrying out a needs analysis and enabling a comparison between students' ideas at the beginning and end of the course. Within this scope, the first question was on defining media literacy. The participants were asked to define media literacy and state what they know about it. 36 participants answered this question. Five categories emerged in the content analysis for these data. These categories and the participants' distribution are presented in Table 4.

**Table 4**

Participants' Definitions of Media Literacy at the Beginning of the Course

| Categories | f | Related media literacy skills |
|---|---|---|
| Being able to access media contents | 8 | Access |
| Using media effectively | 8 | Access |
| Understanding media contents | 11 | Access & Analyze |
| Questioning, confirming media contents & conscious use of media | 8 | Analyze & Evaluate |
| Content sharing | 4 | Communicate |

As is evident in Table 4, 27 participants referred to tasks related to the access skill. This indicates that the participants thought that media literacy is about being able to access media content through effective use of media tools. Some definitions of the participants related to access skills are listed below.

"Being able to read visual, textual and audial media contents" P4

"Having information about the use of the internet, mobile phones, tablets, and computers". P32

These definitions indicate that some of the participants' perceptions of media literacy were limited to access related tasks. Some of the participants combined both access and analyze skills in their definitions. For instance, P11 defined media literacy as "the skill needed to access information, images and videos on the internet and to understand them effectively and correctly". These participants emphasized accessing and understanding the contents. One of the participants said media literacy was "understanding the media terms in using media" (P16). In this group, eight participants focused on questioning the media contents, confirming the information in media and using media tools and platforms consciously. Therefore, their replies were associated with access and evaluate skills. P13 wrote:

> The internet allows us to access every opinion on any subject, today. In the world of internet, there is useful information but there is also much information that aims to lead us to wrong things by manipulating people. Thanks to media literacy, people can measure whether the information on social media is correct or not, and people can have the consciousness to change the wrong information.

There were no single definitions or explanation that focused solely on the skill of 'communicate'. After referring to 'access' or 'analyze' skills, four students also gave reference to tasks related to 'communicate'. For example, P30 wrote: "It is following events in our country and in the world through social media, examining the opinions, and expressing our opinion. Sharing contents on our areas of interest and making comments to others' sharing".

These results demonstrate that the participants had lack of awareness regarding the effects of media, and the functions of media that are related to the skills of analyze, evaluate, and communicate. The same question was asked after the course finished. A total of forty-two participants answered this question in this stage. Four categories emerged in the content analysis for these data. These categories and the participants' distribution are presented in Table 5.

**Table 5**

Participants' Definitions of Media Literacy at the End of the Course

| Categories | f | Related media literacy skills |
|---|---|---|
| Using media tools effectively | 2 | Access |
| Critical autonomy in interaction with media | 29 | Analyze & Evaluate |
| A means for claiming rights and expressing oneself | 5 | Communicate |
| Ability to access, analyze, evaluate and communicate media messages | 6 | Access & Analyze & Evaluate & Communicate |

As presented in Table 5, only two students defined media literacy as using media tools efficiently. Before the course, this number was eight, and 27 students' definitions were

related to 'access' skill. This time, 29 students associated media literacy with gaining critical autonomy in interaction with media. The students' definitions included emphasis on understanding the background of media messages; conscious use of media; knowing how media is constructed and analyzing media; understanding and interpreting media messages; being a conscious media consumer and producer; critical analysis of media messages; recognizing manipulations; making distinctions between correct and incorrect information; being aware of media effects; and identifying hidden meanings in media. Additionally, six participants provided the definition adopted in the course. Combining these two categories, 34 students associated media literacy with critical autonomy. Finally, five students emphasized the skill of communicate. They defined media literacy as a means for claiming rights and expressing oneself through creating and sharing one's own media messages. It should also be noted that communication is also a part of the adopted definition in the course. P43 stated: "Media literacy allows us to claim our rights and support our ideas. I realized that doing this on media will not end up with bad results. In contrast, it can help us develop ourselves".

When the definitions before and after the course are compared, we can see that the participants' perception of media literacy changed to an extent. Previously, the participants considered media literacy as a means for accessing the media messages and using media tools efficiently. However, after the course, they perceived media literacy as a means for establishing critical autonomy in their interactions with media as well as using media for expressing oneself and claiming rights. One-to-one comparison also supports this shift in the participants' perceptions.

### *Pre-service Teachers' Metaphors of Media*

The participants were asked to generate metaphors about media to be able to understand their perceptions towards media before and after the curriculum implementation. The aim was to see the difference in their perceptions. The participants' initial metaphors about media are listed in Table 6.

**Table 6**

Metaphors about Media before the Curriculum Implementation

| Positive | | Negative | | Neutral | |
|---|---|---|---|---|---|
| Metaphor | f | Metaphor | f | Metaphor | f |
| Amusement center | 3 | Blackhole | 3 | Space | 1 |
| Book | 2 | Swamp | 3 | Life | 1 |
| Water, Supermarket, Nutrition, Newspaper, Easy information, School, Discovery, Cushion, Friend, My life, Coffee, Travelling different cities, Toy | 1 | Mine field, Poisoned honey, Drug, Two-faced friend, Cactus | 1 | Sea | 1 |
| Total | 18 | | 12 | | 3 |

Table 6 presents the distribution of metaphors in terms of whether they are positive, negative or neutral metaphors. This was decided based on the explanation sentences about the metaphors provided after the word 'because'. Before the course, 18 metaphors out of 33 were positive, while 12 were negative. The explanations of the participants' positive metaphors demonstrated that they had positive perception about media because they had fun with media, and they perceived media as a means for accessing new information. Here are some example quotations:

"Media is like a supermarket because I can find the things I want". P 9

"Media is like a toy because we played with toys when we got bored in the past. We now cling to media when we are bored. We spend good time". P36

On the other hand, the explanations of negative metaphors emphasized spending too much time on media (addiction) and negative effects of media. Sample quotations include:

"Media is like poisoned honey because it tastes good and makes me happy momentarily but it damages me in the long run. It has a potential to turn into addiction". P25

"Media is like a mine field because people's lives fall apart due to a tiny mistake on media" P13

Three participants generated neutral metaphors. These metaphors involve both positive and negative aspects of media. For instance: "Media is like life because there are both good and bad things in it" P 28.

The same data were collected after the curriculum implementation. The distribution of the latter metaphors is presented in Table 7.

**Table 7**

Metaphors about Media after the Curriculum Implementation

| Positive | | Negative | | Neutral | |
|---|---|---|---|---|---|
| Metaphor | f | Metaphor | f | Metaphor | f |
| Life | 2 | Swamp | 2 | Meal | 2 |
| Amusement center | 2 | Desert, Cactus, Maze | 1 | A new fruit | 2 |
| Oman / ocean | 2 | | | Snowball | 1 |
| Space, Sky, Forest, Puzzle, Habitat, Playground, School, Tree, Pill, Idle class, Book, Night lamp, Light, Library, | 1 | | | Crowded city | 1 |
| | | | | Friend | 1 |
| Total | 20 | | 5 | | 7 |

After the course, the participants provided 20 positive, five negative, and seven neutral metaphors about media. Regarding the distribution, the number of negative

metaphors reduced while the number of neutral metaphors increased. The same themes emerged in the post-implementation data with the prior data in terms of positive metaphors. They had positive perception about media because they had fun with media, and they perceived media as a means for accessing new information. The main difference was in the negative and neutral metaphors. Some of the negative metaphors transformed into positive or neutral metaphors. The neutral metaphors emphasized that media is beneficiary for people, yet they need to be cautious for not spending too much time and thus protecting from negative effects. For example, P19 stated: "Media is like a snowball because a perception about something is introduced in media and then it gets really big. We should be able to keep track". Similar to this statement, the participants in this category emphasized the need for conscious use of media. P18 stated: "Media is like a meal because it gives you enjoyment and the body needs it, but if you eat too much it harms you. We should know what to eat and how much to eat".

## Pre-service Teachers' Views regarding the Effectiveness of the Media Literacy Course

### *Participants' Views before the Course Implementation*

The participants were asked some questions before the course was started to be able to understand their views after the course. Their views about the course curriculum after the implementation could be affected by some factors. The analysis of pre-implementation data revealed four categories and some codes which are presented in Figure 2.

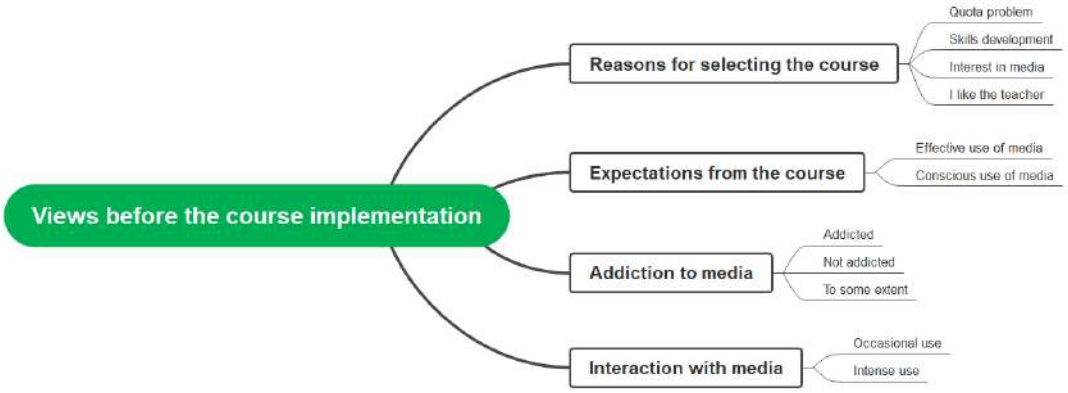



***Figure 2.*** The Participants' Views before the Course Implementation

The participants' views before the course implementation were examined and interpreted under four categories. The first category was the reasons for selecting media literacy course. Before the course started, the pre-service teachers were asked why they chose this optional course. Their responses were composed of four common codes: Quota problem, skills development (developing oneself in media and contributing to future students), enjoying media and having interest in media, and 'I like the teacher'. The most

frequent code was enjoying media and having interest in media. Nineteen students' responses included this code. The participants stated they were constantly using media, and therefore, the name of this new course attracted their attention. Ten students stated that they had intended to select another course, but its quota was full. Therefore, they had to select this course. There were five different optional courses in total in that semester. Some of these students also stated that this was the most interesting one among the other options. Nine students stated that they wanted to improve themselves in terms of media use and hence contribute to their future students because their students would be using the media too much. The last code was that they selected the course because they took other courses of the instructor and liked him.

The second category was their interaction with media. To this end, they were asked how much time they spent with media tools. None of the participants said s/he never used media. While eight students used media occasionally on a daily basis (1-3 hours), 23 students used media more than three hours a day, mostly 6-7 hours a day. Despite this intense interaction with media, the third category revealed that 22 students thought that they were not addicted to the media. Only five students reported addiction to media. Four students also thought that they demonstrated addiction behaviors from time to time. As for the final category, their expectations from the lesson included being an effective user of media tools and using media consciously.

### *Participants' Views after the Course Implementation*

The analysis of the pre-service teachers' views after the course implementation revealed two categories. The categories are presented in Figure 3.

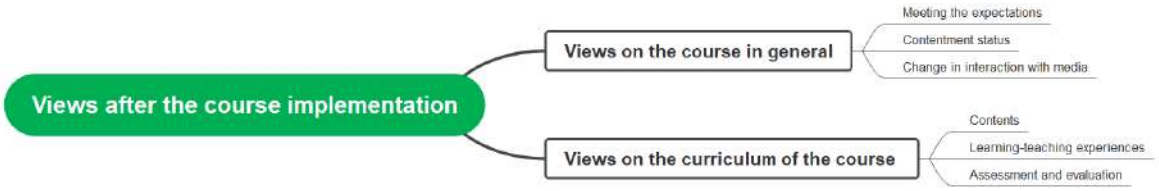



***Figure 3.*** The Participants' Views after the Course Implementation

The first category is their views on the course in general with the sub-categories of meeting the expectations, contentment status, and change in interaction with media. Thirty-three-participants participated to this data collection stage and all of them except for two participants stated that the course met their expectations. For instance, P29 stated:

> The course was beyond my expectations, actually. It provided surprising information about media and helped me recognize the hidden messages in the advertisements and understand the propaganda techniques. I started to approach more carefully to media messages, and I now question the media contents.

The two participants who stated that the course did not meet their expectations stated the reasons that the course needed to be face-to-face due to its contents, and it did not focus on the nonsense contents of the television series. These data suggest that the participants' expectations from the course were met in the general sense.

Given that nearly all the students were contended with the course, they were asked about the issues they were satisfied and dissatisfied with. The analysis of this second sub-category demonstrated that the issues they were not contended were again related to distance education. Two students said that they were not fully satisfied with the course due to the limitations of the online education. Another student mentioned that some of the examples provided by the instructor during the course could be more up-to-date. When it comes to the issues they were satisfied with, the participants provided a number of issues. They said that they were contended with the course because the teaching learning process was fun and enjoyable (8 participants), they acquired the needed skills in this course (7 participants), the assessment in the course helped them learn the contents (4 participants), the instructor exemplified detailed analyses (4 participants), and it was not a course for memorization (4 participants). The other issues of contentment included: the materials were adequate and accessible; the instructor took the students' opinions in each stage; the course involved critical thinking; this was the first time they initiated a social media campaign; everything about the media was included; they were not worried about grades; the instructor taught all the lessons; and the use of assignments instead of exams.

The third sub-category was the change in the participants' interaction with media after they took the course. The students were questioned if taking this course led to any changes in their interaction with media. Additionally, they were specifically asked what they did differently in their interaction with media when compared with their earlier experiences. Most of the participants (25) emphasized that they gained awareness particularly about the analysis skill and they started to analyze the media contents they encountered. P21 stated:

> This course changed my interaction with media. I can now analyze deeply the media contents, particularly the ones I see in the advertisements. I can now understand why they use some symbols in the series or advertisements. I recognized that I had not thought this way before I took the course.

Additionally, five students highlighted that they started to question the background of the media texts, and eight students emphasized they started to compare the media contents in different sources. There are also statements such as "I care about media security", or "I can recognize the effects of media". These changes are related to the media literacy skills of analyze and evaluate. Only one participant referred to access skill regarding the change after the course. He communicated that he now used efficient ways while accessing information on the internet. As for the skill of communicate, two participants told that they gained awareness about social campaigns and a few students highlighted that they started using media to solve their problems and initiating campaigns on media. Some

students started to create their own media contents. A participant underlined that she now shares media contents by considering the principles of communication in media.

Besides, six students said that they limited their interaction with media and started using media more consciously. A participant realized that staying completely away from media was not the solution. P15 stated: "Yes, this course changed my interaction with media because now I do not think that I should be completely avoid media to protect myself from its negative effects. Instead, I realized that I should use media properly. I try to protect myself from its negative effects and make use of its benefits". Finally, four students said that their interaction with media did not change at all.

The second category regarding the participants' views after the course was their views related to components of the course curriculum. They provided feedback for contents, learning-teaching experiences, and assessment and evaluation elements of the curriculum in practice. Regarding the contents of the course, most of the participants thought the contents were adequate for this course, but they also provided some issues after being asked what else could be covered in this course. The participants' suggestions for contents include more emphasis on printed media, on social media, news analysis, historical development of media tools, less known social media websites, series and movie analysis, more emphasis on social problems, the relationship between media and teacher, more emphasis on social media or media addiction, secure media applications, pre-school children's media experiences, shows on television, virtual money, online education websites, games, fraud on the internet, and cyber-bullying. While some of these contents are not related to the purpose of the course, some of them were not covered in detail due to time constraints. For instance, we mentioned about printed media, social media, news analysis, development of media tools and so on but our live lesson was limited to fifty minutes. Therefore, we did not have the chance to go deeper into all contents.

Most of the participants were contended with the learning-teaching experiences of the course. Quite a few students, however, emphasized the limitations of the online LMS we used, and they wished the course was face-to-face. Two participants maintained the need for more discussion during the live lessons. Indeed, the learning platform hindered this to some extent. It was hard for the students to speak during the lesson, because we could not open all participants' voice at the same time. A student had to click the button to speak, and after the instructor allowed the student to speak, s/he could speak but there were mostly connection problems in students' voices. Therefore, I mostly urged the students to use the chat box for instant comments and discussion. This hindered a classroom atmosphere. In addition, when asked about the positive aspects about the learning-teaching process, the students told that the instructor provided numerous examples, they easily understood the contents, the learning process was enjoyable, and the modeling of media analyses was effective. P18 stated: "The learning process was good in the general sense. We learned the

contents without getting bored. The instructor did everything that is possible in a distance education setting".

Regarding assessment and evaluation, most of the students thought that use of projects instead of examinations was good for this course and they said that the assessment technique helped them learn the contents better. When asked for further suggestions, they had some recommendations. The most frequent was giving more project homework throughout the semester. Projects such as creating a video or introducing a product like an influencer could be assigned to students in addition to the existing projects. Some students recommended that the students could make presentations regarding the course contents, or they could present their projects during the live lessons. However, the time constrains made this impossible. Besides, a few students also recommended examination measuring their content knowledge.

### The Quality of the Participants' Learning Products

The assessment and evaluation of the course included a midterm and a final exam. Instead of carrying out open ended or multiple-choice tests, participants were assigned two projects, one for the midterm and the other for the final grade. The midterm project was related to analysis skill. The students were expected to select a media content (advertisements, news, TV shows, and so on) and analyze this content based on the five core concepts (constructedness, content, format, audience, and purpose) and key questions provided by Thoman and Jolls (2005). Besides, they needed to identify and explain the propaganda techniques used in the media contents. Finally, the students were asked to write a reflection paragraph regarding the contributions of the course contents and the current project to their media literacy skills and provide recommendations for the following lessons. The project products were assessed based on a rubric. The rubric was adapted from "key questions to ask when analyzing media messages" grid provided by National Assocation for Media Literacy Education (NAMLE, 2007). This grid was used as a rubric and each criterion in the rubric was graded from 1 to 4, unsuccessful, basic level, successful, and very successful.

The second project was related to communicate skill. The students were expected to observe their social circle, identify a problem, and start a campaign to solve the problem using media tools and platforms. The students were supposed to report this process based on an adaptation of the problem-based learning steps proposed by Saban (2000). The steps included 'identify the problem, determine what is known and what is needed and data collection, define the problem, generate solutions, choose the best solution and apply, and reflection and reporting'. The students needed to explain what they did in each stage and provide proofs. These stages were also used as a rubric. Similar to the midterm project, each criterion in the rubric was graded from 1 to 4, unsuccessful, basic level, successful, and very successful.

All the participants submitted their projects. The projects were assessed and graded based on the rubrics explained above. The quality of the projects was satisfactory. The students used the five core concepts and key questions offered by Thoman and Jolls (2005) and identified and explained propaganda techniques such as symbols, exaggeration, humor, iteration or stigmatization. The mean of the students' grades in the midterm project was 3.65 which was within the range of "very successful". In the reflection part, students noted that they could apply the analysis techniques to media contents, and they were happy about this. They could identify the propaganda techniques in the media contents that were not very salient without a deep analysis. Similarly, the final project was also satisfactory. The students identified a social problem and initiated a social campaign on various sites such as change.org and then promoted this on social media. The mean of the students' grades in the final project was 3.70 which was within the range of "very successful".

### The Practitioner's Views about the Curriculum, Implementation of the Curriculum, and Learning Products

The media literacy skills curriculum design for pre-service teachers had been developed by the first author in his PhD thesis under the supervision of the second author, based on an extensive needs analysis and principles of curriculum development (Erdem, 2018a). However, this curriculum design was not implemented, and it was designed for face-to-face instruction. When the researchers had the chance to deliver media literacy course to pre-service teachers, the Covid-19 pandemic began, and we had to teach our courses online. The online LMS we were using had certain limitations. Within this context, modifications to the curriculum to fit in this new learning setting were facilitated. To this end, an action research approach was chosen. In addition to the data presented above, the practitioner (the first author) took some notes during the semester, asked the students for their opinions in every stage, implemented the course himself, and graded the students' projects (learning products). Therefore, the researchers had the chance to witness the entire research process. Besides, Teacher Reflection Tool (Share & Thoman, 2007) was also used as a self-evaluation rubric designed specifically for instructors teaching media literacy.

First, the curriculum covered all media literacy skills; however, the focus was on *analyze* and *communicate* skills because these are the least developed skills in the general sense. Particularly for the *analyze* skill, the students needed to gain critical autonomy in their interaction with media. The students' participation to online discussion was limited because participating to discussions in voice synchronously was a problem. Some of the students used the chat box for discussion, yet this was limited. This was one of the most prominent problems during the semester. With regard to the components of the curriculum, some of the contents in the *access* skill were skipped due to the fact that students already knew some of the contents. The contents of *evaluate* skill were merged with the contents of *analyze* skill because *evaluate* was complementary to *analyze*. Therefore, the researchers had to revise the contents of the curriculum throughout the semester.

With regard to assessment and evaluation, two projects were announced for midterm and final assessments at the beginning of the semester and administrative documents were arranged in line with this. It came out that although assigning projects for assessment was a good idea, the assessment component in the curriculum was not adequate. The projects focused on analyze, evaluate and communicate skills of media literacy. And the students had the chance to apply what they learned in the project. The theoretical knowledge on media and media literacy and contents related to *access* skill were not assessed.

The progress of the course was continuously checked using the Teacher Reflection Tool (Share & Thoman, 2007). After the course was completed, the practitioner filled in the form once again considering the whole semester. The mean of the total score was 2.5, out of 3. The items ticked as often included "Do my students read and analyze both print- and non-print-based texts?", "Do my students work collaboratively?", "Do my students analyze texts from different perspectives?", "Do my students attempt to solve real problems that affect them and their community?", "Does my curriculum emerge from student interest?" and "Is there an understood norm where everyone participates and is listened to?". During the course, the students were informed about both traditional and new media. We analyzed both news and columns from newspapers and contents from new media such as advertisements on Youtube, entries on Twitter or Instagram. The students worked collaboratively. The students were given the chance to form groups and create the projects together. Some of the students did the projects in groups. The students analyzed media texts from different perspectives. They analyzed the texts in terms of five core concepts and propaganda techniques. They considered themselves as the audience in some examples and analyzed the texts in that context. Particularly for the final project, the students identified a social problem and started a media campaign to solve that problem. Some of the students continued this behavior after the course finished. The curriculum design was originally developed in the same education faculty a few years before the implementation and the researchers had an extensive needs and interest analysis in this stage. In the implementation stage, the students' opinions were always asked, and the contents and processes were modified accordingly. We set an online classroom setting where students understood that there was not a correct answer in media analysis, and everyone felt free to speak their opinions.

The items ticked as often included "Do my students write and create texts using both print- and non-print-based media?", "Does student work have a real-world audience beyond the teacher?", and "Are issues of social justice discussed openly and critically?". The students created media contents in the final project. The midterm project was based on analysis. The course was online, and we did not have the chance to meet face to face due to the pandemic. Therefore, we did not have the chance to create print media. The students had a real-world audience beyond the teacher in the final project. They actually started their campaigns and promoted them on social media. We talked about issues of social justice, yet

the students were a bit reluctant to talk on these issues openly since the lessons were being recorded. The only item ticked as rarely was "Are my students talking more than I am?". This was a general problem due to some technical and student related issues experienced in all courses in the faculty. Some of the students were not very eager to talk and the platform did not allow for a synchronous discussion. No items were ticked as 'never'.

## DISCUSSION

This study reports the steps in the action research to adapt the media literacy skills curriculum design for pre-service teachers, which was developed for face-to-face educational environments, to an online LMS in line with emergency remote teaching amid Covid-19 pandemic. In addition, it reports the results of a curriculum evaluation process. The curriculum design had been developed, but not implemented. With this practice, the curriculum enactment process is also evaluated and results regarding the evaluation of curriculum components are also discussed based on the students' views, their scores in MLSS, learning products, and the instructor's reflections. The results are discussed in line with the research questions.

The pre-service teachers' mean score from the MLSS was at medium level before the curriculum enactment. Also considering the possibility of overrating oneself in self-assessment scales due to effects such as social desirability (Dunning et al., 2004), it was concluded that the participants were in need of media literacy education. The studies in the literature regarding Turkish pre-service teachers' media literacy levels also reported similar findings (Erdem & Erişti, 2018; Uslu et al., 2016; Yılmaz & Aladağ, 2015). This result also supported the theoretical arguments in the literature suggesting that media literacy education is needed in pre-service teacher education (Considine, 2002; Fleming, 2013; Jolls & Grande, 2005; Redmond, 2016). Their mean score in the post-test after the curriculum enactment was at high level. There was a significant positive difference between the pre-test and post-test, suggesting that the implemented curriculum affected students' media literacy skills levels positively. Besides, effect size analysis revealed a very strong effect size, proving that the implementation of the media literacy curriculum had a strong positive effect on pre-service teachers' levels of media literacy skills. This result demonstrates that the implemented curriculum was effective in equipping pre-service teachers with media literacy skills. As teachers need to first be media literates to be able to teach media literacy to their students and be a role model for them (Jolls & Grande, 2005), these pre-service teachers are expected to contribute to their future students in terms of media literacy.

To further analyze the effectiveness of MLSC, the participant pre-service teachers' perceptions of media literacy and media before and after the enactment of MLSC were analyzed. Before the course started, the participants' definition of media literacy referred to tasks related to *access* skill in media literacy. The participants thought that media literacy was about being able to access media content through effective use of media tools. References to other skills of media literacy such as *analyze* or *communicate* were very limited

or none at all, suggesting a lack of awareness regarding the effects of media, and the functions of media that are related to the skills of *analyze*, *evaluate* and *communicate*. After the curriculum enactment, most of the participants associated media literacy with gaining critical autonomy in interaction with media. And references to other skills of media literacy were more dominant this time. The content analysis revealed that that the participants' perception of media literacy changed to a great extent. As opposed to accessing media, after the course, they perceived media literacy as a means for establishing critical autonomy in their interactions with media as well as using media for expressing oneself and claiming rights. Media literacy is about gaining critical autonomy in interaction with media. It is the application of critical thinking to media, indeed (Jolls, 2008). Media literacy also involves creating media contents, sharing them with people, and getting into action using media (Hobbs, 2010; Schmidt, 2013). This result indicates a change in the participants' perception of media literacy in terms of skills such as analyze or communicate thanks to enactment of MLSC. The metaphor analysis also revealed a positive change in the participants' perceptions of media after the MLSC enactment. The positive metaphors in the pre-and post-implementation had similar themes; however, some of the negative metaphors transformed into positive or neutral metaphors. The participants emphasized making use of media but also being cautious for not spending too much time and protecting from negative effects. These findings also support the effectiveness of MLSC.

The participants were asked some questions before and after the MLSC enactment to evaluate the effectiveness of MLSC and also define areas for curriculum development. The participants' views before the course implementation resulted in four main categories. These data helped in understanding their answers after the course implementation. The first category, reasons for selecting the course, demonstrated that they had not made a conscious selection. The most common answer was that they liked media and used media in their daily lives and since there were also quota problems in other courses, they just chose this course. Some students also referred to sympathy for the instructor. Few students told that they wanted to improve themselves in terms of media literacy and contribute to their future students. Teachers are not very conscious about 21st century skills and how to teach them (Donohue & Kelly, 2016). Regarding the finding in the question as well as the participants' responses of media literacy definitions and media metaphors in the beginning of the course, we can argue that pre-service teachers lack consciousness about the significance of media literacy. This lack of consciousness is even more evident in their responses regarding interaction with media and addiction to media. Although the participants reported 6-7 hours of media interaction, few students accepted addiction to media. People now live in a digital balloon (Pérez Tornero & Varis, 2010) due to the extensive interaction with media on first, second, and third levels (Masterman, 2005). Yet, just like fish in the sea, people are not aware of media since they are absorbed in it. The participants' responses regarding their media interaction supports this argument.

The participants provided their views on the course in general and on MLSC after the course. The analysis demonstrated that the participants were contended with the course and their expectations were met. The reason for discontentment in few students was related to distance education. Yet, they were satisfied with the course in terms of several issues including enjoyable learning process, equipping with media literacy skills, assessment procedures and being a conscious media consumer and producer. The participants reported that the course led them to change their interaction with media. They gained awareness about analyzing media contents, media background and effects, media use, fact-checking, and using media to participate to social life and solve problems. Besides, some students changed their interaction with media in terms of usage/screen time. They reported less media use.

The students also stated their opinions as to the components of MLSC. Most of the participants were contended with the course but when asked what else could be addressed, their responses included contents related to more emphasis on printed media and social media, news analysis, historical development of media tools, less known social media websites, series and movie analysis, more emphasis on social problems, the relationship between media and teacher, more emphasis on social media or media addiction, secure media applications, pre-school children's media experiences, shows on television, virtual money, online education websites, games, fraud on the internet, and cyber-bullying. While some of these contents are not related to the purpose of the course, some of them were not covered in detailed due to time constraints. These contents items note for curriculum development in terms of content development.

As for the teaching-learning process, most of the students reported contentment, except for complaints regarding online learning. The time for discussions on the contents was limited due to constraints in both time and LMS. This also refers to an area of curriculum development. In the assessment and evaluation component of MLSC, as opposed to written knowledge tests, the students were assigned projects for the midterm and final examinations. The students also reported positive feedback regarding the assessment and evaluation system of the course. This is also supported by the assessment scores of the learning products (project homework). The students' projects were within the range of "very successful" based on the related rubrics. The participants reported that the projects gave them the opportunity to apply what they learned in the course to real media contents, and hence improved their learning. However, the analysis of their responses revealed that two projects were not adequate for assessing the whole semester. The projects were related to *analyze* and *communicate* skills. Although all skills are related, skills of *access* and *evaluate* were not directly assessed, as well as theoretical basis of media literacy, indicating some problems in content validity of the assessment component. Accordingly, some students recommended more project homework throughout the semester as well as other suggestions such as written exams or presentations.

The first researcher was also the instructor of the course. This researcher's reflections also referred to lack of adequate and elaborate discussions, which was mainly due to the constraints of the LMS. The researchers had to make some arrangements in the curriculum such as skipping some of the contents in access skill or merging analyze and evaluate skills. These actions also indicated areas for curriculum development. He also referred to inadequacy of projects in the assessment component of the course. The analysis of the Teacher Reflection Tool (Share & Thoman, 2007) also emphasized the problems due to the LMS.

## LIMITATIONS

This study had certain limitations that should be considered in interpreting the research results. First, this study reports the results of the evaluation of the media literacy skills curriculum based on an implication in an online learning system. Implication of the curriculum may yield different results in face-to-face learning environments since some of the problems were related to the constraints in the LMS. A more comprehensive LMS could cultivate in better results. Second, the data were collected online. The participants were not in the campus due to the Covid-19 pandemic, so the researchers did not have the chance to conduct interviews in person. The students were reluctant to meet in online meetings, so their views were obtained using written forms. Elaborate in-person interviews could yield deeper data.

## CONCLUSION AND IMPLICATIONS

This study revealed that the media literacy skills curriculum (Erdem, 2018a), which was developed for face-to-face education, had a positive strong effect in equipping pre-service teachers with media literacy through enactment in an online LMS amid Covid-19 pandemic. Both the quantitative and qualitative findings support this result. Therefore, this study demonstrated that the MLSC can be used in pre-service teacher education period for teaching media literacy skills to prospective teachers. Given the peculiarities of the new century, media literacy is a must for all students. Teaching media literacy requires media literate teachers, and pre-service teacher education is an ideal starting point in equipping teachers with media literacy skills. This curriculum designed specifically for pre-service teachers effectuated good results despite an emergency remote teaching environment due to the unexpected pandemic.

In addition, the study reported the steps taken in the action research to adapt the MLSC to a new online learning environment. The adaptation and enactment of the curriculum culminated in good student performance, yet it also revealed certain areas for curriculum development. The study put forth the need for some arrangements in the components of the curriculum. First, the skills-based structure of the curriculum should be elasticized since the students may be knowledgeable in *access* skill and the skills of *analyze* and *evaluate* need to be merged in practice. Besides, the participants offered some ideas for

contents of the curriculum, which should be regarded in line with the aims of the curriculum. An important problem was related to lack of elaborate discussions on the issues which were due to the constraints of the LMS. If taught in similar environments, plans for improving a discussion atmosphere are needed. Another significant drawback of the curriculum enactment was about assessment. Although the projects were good in both assessing and improving learning, they were not adequate. More assessment techniques should be used for assessing theoretical base of media literacy, and skills of *access* and *evaluate*. There are valuable assessment options in the curriculum, which were not used at this time due to time constraints. They should be utilized in further implementations. The curriculum needs to be revised using the data that emerged in the current study. Further studies are needed which enact the curriculum in also face-to-face education. Besides, operability of the curriculum should be tested by enacting the curriculum in different context with different participants.

## REFERENCES


Aufderheide, P. (1993). *Media literacy: a report of the national leadership conference on media literacy.*

Baker, F. W. (2010). Media literacy: 21st century literacy skills. In H. H. Jacobs (Ed.), *Curriculum 21: Essential education for a changing world* (pp. 133–152). ASCD.

Baran, S. (2014). *Introduction to mass communication: Media literacy and culture*. McGraw Hill Companies.

Barut, E., Demirer, V., Erbaş, C., Dikmen, C. H., & Sak, N. (2016). Media literacy training for prospective teachers: Instructional design process and its evaluation. *Çukurova University Journal of Education Faculty*, *45*(1), 49–70.

Buckingham, D. (2009). The future of media literacy in the digital age: Some challanges for policy and practice. *Medienimpulse-Online*. http://medienimpulse.erz.univie.ac.at/articles/view/143

Burnett, C., & Merchant, G. (2011). Is there a space for critical literacy in the context of social media? *English Teaching: Practice and Critique*, *10*(1), 41–57.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. L. Erlbaum Associates.

Considine, D. (2002). *Media literacy across the curriculum* (Cable in the Classroom: Thinking Critically about Media). http://www.medialit.org/sites/default/files/551_CIC_ML_Report.pdf

Corey, S. M. (1949). Curriculum development through action research. *Educational Leadership*, *7*(3), 147–153.

Cramer, L. M. (2015). Teaching the foundations of media literacy in the basic communication course. *The Forensic of Pi Kappa Delta*, *100*, 13–32.

Domine, V. (2011). Building 21st century teachers: An intentional pedagogy of media literacy

education. *Action in Teacher Education*, *33*, 194–205.

Donohue, P., & Kelly, K. (2016). Transforming digital literacy with culturally diverse, personalized learning. In M. Yıldız & J. Keengwe (Eds.), *Handbook of research on media literacy in the digital age* (pp. 161–185). IGI Global.

Dunning, D., Heath, C., & Suls, M. (2004). Flawed self-assessment: Implications for health, aducation and workplace. *Psychol Sci Public Interest*, *5*(3), 69–106.

Erdem, C. (2018a). *Designing a media literacy curriculum for pre-service teachers*. Anadolu University.

Erdem, C. (2018b). Media literacy education across the world and in Turkey. In G. Mıhladız (Ed.), *Academic research in educational sciences* (pp. 403–418). Gece.

Erdem, C., & Erişti, B. (2018). Paving the way for media literacy instruction in preservice teacher education: Prospective teachers levels of media literacy skills. *International Journal of Instruction*, *11*(4), 795–810.

Erişti, B., & Erdem, C. (2017). Development of a media literacy skills scale. *Contemporary Educational Technology*, *8*(3), 249–267.

European Conmission. (2006). Recommendation of the european parliement and of the council of december 2006 on the pretection of minors and human dignity and on the right of reply in relation to the competitiveness of the european audiovisual and on-line information services industry. *Official Journal of the European Union*, *49*. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006H0952&from=EN

Ferrance, E. (2000). *Themes in education: Action research*. Northeast and Islands Regional Educational Laboratory At Brown University.

Finegold, D., & Notabartolo, A. S. (2008). *21st century competencies and their impact: an interdisciplinary literature review*. https://www.hewlett.org/library/21stcentury-%0Acompetencies-impact-interdisciplinary-literature-review/

Fleming, L. (2013). Expanding learning opportunities with transmedia practices: Inanimate alice as an exampler. *Journal of Media Literacy Education*, *5*(2), 370–377.

Flores-Koulish, S. (2006). Media literacy: An entree for pre-service teachers into ciritical pedagogy. *Teachiing Education*, *17*(3), 239–249.

Goetze, S. K., Brown, D. S., & Schwarz, G. (2005). Teachers need media literacy, too! In G. Schwarz & P. Brown (Eds.), *Media literacy: Transforming curriculum and teaching*. National Society for the Study of Education.

Green, J., Willis, K., Hughes, E., Small, R., Welch, N., Gibbs, L., & Daly, J. (2007). Generating best evidence from qualitative research: The role of data analysis. *Australian and New Zealand Journal of Public Health*, *31*(6), 545–550.

Hobbs, R. (2010). *Digital and media literacy: a plan of action*. The Aspen Institute.

Jolls, T. (2008). *Literacy for the 21st century: an overview & orientation guide to media literacy education (edition 2)*. Center for Media Literacy. www.medialit.org/medialitkit

Jolls, T., & Grande, D. (2005). Project smartart: a case study in elementary school media literacy and arts education. *Arts Education Policy Review*, *107*(1), 25–31.

Jolls, T., & Wilson, C. (2014). The core concepts: Fundemental to media literacy yesterday, today and tomorrow. *Journal of Media Literacy Education*, *6*(2), 68–78.

Karataş, A., & Sözer, M. A. (2018). Media literacy training program for faculties of education. *Kırıkkale University Journal of Social Sciences*, *8*(2), 593–606.

Kellner, D., & Share, J. (2007). Critical media literacy, democracy and the reconstruction of education. In *Media literacy: A reader* (pp. 3–23). Peter Lang Publishing.

Manzoor, A. (2016). Media literacy in the digital age: Literacy projects and organizations. In M. Yıldız & J. Keengwe (Eds.), *Handbook of research on media literacy in the digital age* (pp. 249–276).

Masterman, L. (2005). *Teaching the media*. Taylor & Francis e-Library.

McMillan, J. H. (2004). *Educational research: Fundamentals for the consumer*. Allyn & Bacon.

Mertler, C. A. (2017). *Action research: Improving schools and empowering educators*. Sage Publications.

National Assocation for Media Literacy Education. (2007). *Core principles of media literacy education in the United States*. https://namle.net/wp-content/uploads/2020/09/Namle-Core-Principles-of-MLE-in-the-United-States.pdf

Parsons, R. D., & Brown, K. S. (2002). *Teachers as reflective practitioner and action researcher*. Wadsworth/Thomson Learning.

Pérez Tornero, J. M., & Varis, T. (2010). *Media literacy and new humanism*. UNESCO Institute for Information Technologies in Education.

Radio and Television Supreme Council. (2012). *Media literacy workshop final decleration*. http://www.medyaokuryazarligi.org.tr/cal9.html

Redmond, T. (2016). Learning to teach the media: Pre-service teachers articulate the value of media literacy. In M. Yıldız & J. Keengwe (Eds.), *Handbook of research on media literacy in the digital age* (pp. 31–52). IGI Global.

Resta, P., & Carroll, T. (2010). *Redefining teacher education for digital age learners*. University of Texas Press.

Robertson, L., & Hughes, J. M. (2011). Investigating pre-service teachers' understandings of critial media literacy. *Language and Literacy*, *13*(2), 37–53.

Saban, A. (2000). *New theories and approaches in learning and teaching process*. Nobel Press.

Saban, A. (2021). Curriculum development through action research: A model proposal for practitioners. *Pegem Journal of Education and Instruction*, *11*(1), 299–354. https://doi.org/10.14527/pegegog.2021.009

Sawilowsky, S. (2009). New effect size rules of thumb. *Theoretical and Behavioral Foundations of Education Faculty Publications*, *8*(2), 597–599.

Schmidt, H. C. (2013). Media literacy education from kindergarten to college: A comparison of how media literacy is addressed across the educational system. *Journal of Media Literacy Education*, *5*(1), 295–309.

Schwarz, G. (2001). The role of media literacy in teacher education. *Teacher Education Quarterly*, *28*(2), 111–119.

Scull, T. M., & Kupersmidt, J. B. (2012). An evaluation of media literacy program training workshop for late elementary teachers. *Journal of Media Literacy Education*, *2*(3), 199–208.

Share, J., & Thoman, E. (2007). *Teaching democracy: A media literacy approach*. The National Center for Preservation of Democracy.

Stein, L., & Prewett, A. (2009). Media literacy education in the social studies: teacher perceptions and curricular changes. *Teacher Education Quarterly*, *36*(1), 131–148.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics*. Pearson.

The Partnership for 21st Century Learning. (2009). *Framework for 21st century learning*. http://www.p21.org/our-work/p21-%0Aframework

Thoman, E., & Jolls, T. (2004). Media literacy: A national priority for a changing world. *American Behavioral Scientist*, *48*(1), 18–29.

Thoman, E., & Jolls, T. (2005). *Literacy for the 21st century: An overview & orientation guide to media literacy education*. Center for Media Literacy Education. www.medialitkit.org/medialitkit

Tiede, J., & Grafe, S. (2016). Media pedagogy in German and U.S. teacher education. *Comunicar*, *49*(14), 19–28.

Tüzel, S. (2013). The analysis of L1 teaching programs in England, Canada, the USA and Australia regarding media literacy and their applicability to Turkish language teaching. *Educational Sciences: Theory & Practice*, *13*(4), 2310–2316.

Uslu, S., Yazıcı, K., & Çetin, M. (2016). Sosyal bilgiler öğretmen adaylarının medya okuryazarlık düzeyleri. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *8*(23), 756–778.

Wilson, C., & Duncan, B. (2008). Implementing mandates in media education: the Ontaria experience. *Communicar*, *32*, 97–107.

Yılmaz, E., & Aladağ, S. (2015). Relationship between primary school teaching prospective

teachers' habits of reading periodical publications and media literacy. *Uşak University Journal of Social Sciences*, *8*(4), 1–15.

## Biographical notes:

***Cahit Erdem:*** He works as an assitant professor in the department of foreign language education at Afyon Kocatepe University. His academic interests include media literacy, curriculum, instruction, foreign language education, predictors of academic achievement, and internationalization of higher education.

***Bahadır Erişti:*** He works as a professor in the department of educational sciences at Anadolu University. He is the director of graduate school of educational sciences at Anadolu University. His research interests include curriculum development, teacher training, instructional strategies, teaching models, and values education.



***Author(s)' statements on ethics and conflict of interest***

***Ethics statement:*** We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

***Statement of interest:*** We have no conflict of interest to declare.

***Funding:*** None

***Acknowledgements:*** None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# Collective Teacher Self-Efficacy and Burnout: The Mediator Role of Job Satisfaction

**Eyüp Yurt** [1]

**Article Type**
Original Research

*International Journal of Modern Education Studies*
2022
Volume 6 No 1
Pages: 51-69
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 06.02.2022
Revision : 23.02.2022
Accepted : 08.03.2022

**Abstract:**

*This study examined the predictive relationships between collective teacher efficacy, job satisfaction, and burnout. In addition, the mediating role of job satisfaction in the relationship between collective teacher efficacy and burnout was tested. Three hundred fifty teachers participated in the research in which the correlational research design was used. Collective Teacher Efficacy Scale, Short Form Minnesota Satisfaction Questionnaire, and Maslach Burnout Inventory were used as data collection tools. Pearson Correlation Coefficients were calculated to examine the relationships between collective teacher efficacy, job satisfaction, and burnout. Structural equation model analysis was applied to test the mediating role of job satisfaction in the relationship between collective efficacy and burnout. The results indicated that collective teacher efficacy predicts job satisfaction positively and burnout negatively. Collective teacher efficacy and job satisfaction have a large effect on burnout. Evidence has been obtained that teachers' job satisfaction can increase and, accordingly, burnout can be prevented when collective teacher efficacy is achieved.*

**Keywords:** Collective teacher self-efficacy, teacher job satisfaction, teacher burnout, mediation analysis.

**Citation:**
Yurt, E (2022). Collective teacher self-efficacy and burnout: the mediator role of job satisfaction. *International Journal of Modern Education Studies, 6*(1), 51-69. http://dx.doi.org/10.51383/ijonmes.2022.168

[1] PhD. Assistant Professor, Bursa Uludağ University, Education Faculty, Bursa, Turkey. eyupyurt@gmail.com, Orcid ID: 0000-0003-4732-6879

## INTRODUCTION

Teachers are the most important actors that ensure the success of education and training activities. The efficiency and effectiveness of educational institutions depend on the performance of teachers. One of the most critical factors affecting teachers' performance negatively is burnout (Hughes, 2001). The sense of burnout causes teachers to feel physically and emotionally exhausted at school (Kyriacou, 2000). It has been observed that teachers' organizational commitment decreases due to the sense of burnout (Akdemir, 2019; Nagar, 2012). Teachers' self-efficacy and professional engagement are negatively affected by burnout (Herman, Hickmon-Rosa & Reinke, 2018; Skaalvik & Skaalvik, 2014). Teachers experiencing burnout have lower perceptions of self-confidence, motivation, self-esteem, and productivity (Larivee, 2012; Gold & Roth, 2013; Marek, Schaufeli & Maslach, 2017). The perception of burnout in teachers was found to be associated with low academic achievement and a lack of motivation in students (Madigan & Kim, 2021). The teaching profession is not a stand-alone profession. Every teacher is part of a professional organization. In this direction, ensuring collective teacher efficacy and increasing job satisfaction may prevent teachers from experiencing burnout.

Studies in the literature have focused more on the relationship between job satisfaction and burnout and teacher self-efficacy. There are limited studies examining the relationship of collective teacher efficacy with job satisfaction and burnout (Aydogmus & Serce, 2021). Collective teacher efficacy was examined more closely together with the school leadership (Cansoy & Parlar, 2018; Flood & Angelle, 2017; Goddard, Goddard, Sook Kim & Miller, 2015; Prelli, 2016). In this study, unlike the studies in the literature, the predictive relationships between collective teacher efficacy, job satisfaction and burnout were examined. In addition, it was tested whether job satisfaction has a mediating role between collective efficacy and burnout. The results obtained can guide practices that will increase cooperation and satisfaction to prevent teacher burnout.

### Burnout

Rapid changes in business life increase expectations for employees. This situation causes employees to experience more stress and burnout over time. Burnout negatively affects the performance of employees (Hughes, 2001). Employees who feel burnout begin to lose their ideals about their work and become alienated from their work (Dworkin, Saha & Hill, 2003). To reduce the negative impact of burnout on employees, it is crucial to understand the symptoms of burnout and the factors associated with it.

Constant fatigue due to overwork, inability to reach the targeted reward, and thus disappointment are the indicators of burnout (Freudenberg, 1980). Excessive demands, an unsuitable work environment, a lack of a fair reward system, and unhealthy relationships in the work environment cause the feeling of burnout. Maslach, Jackson, and Leiter (1997) defined burnout as a syndrome consisting of emotional exhaustion, depersonalization, and

decreased personal accomplishment. Maslach (1982) suggested that not being rewarded for efforts, increased feelings of stress, and frequently encountering unexpected results cause burnout in service sector employees.

There are physical, emotional, and psychological indicators of burnout (Pines, Aronson & Kafry, 1981). Low energy, chronic fatigue, and feelings of exhaustion are indicators of physical burnout. Somatic symptoms of physical burnout include headache, neck and shoulder pain, muscle tension, rapid weight change, eating disorders, and sleep problems. The emotionally exhausted individual believes he is in a dead-end. Anger and frustration are common among individuals experiencing emotional exhaustion (Stanley, 2004). Negative attitudes and behaviors towards one's job, other people, and life, in general, are among the symptoms of psychological exhaustion. The self-esteem of the psychologically depleted individual decreases, and he feels alienated in society. In addition, the person begins to think of himself as a troubled, unsuccessful, and unskilled person who pursues ideals (Powell, 1993).

### *Teacher Burnout*

Employees in the service sector, where human relations are more intense, are more likely to experience burnout (Maslach, 1982). Teachers constitute the most crucial human power that ensures the continuation of the education service. Teachers establish long-term intensive interaction with students, administrators, and parents to continue their education and training activities. In addition, technological developments and changes in education policies require teachers to renew themselves constantly. The increase in expectations for teachers, the excess of extracurricular workload, and unrequited efforts can cause teachers to be closed to the feeling of burnout. In addition, factors such as conflicts with parents, students, and administrators, crowded classrooms and related disciplinary problems, excessive bureaucratic procedures, inadequate physical conditions, political and social pressures, not being able to take part in decision-making bodies, and inability to reward teachers may cause teachers to experience a sense of burnout over time (Kyriacou, 2000).

Increasing demands, failure to meet needs, and the endangerment of physical and mental health due to failures cause teachers to experience burnout (Kyriacou, 2001). The burnout experienced by teachers is manifested in emotional, behavioral, and physical fatigue. Teachers with a sense of burnout show less satisfaction and commitment to their work. He loses interest in his work, duties, and students. Tendency to quit his job. Teachers who experience a sense of burnout feel physically exhausted and tired at school (Kyriacou, 2000).

The feeling of burnout negatively affects the performance of teachers (Hughes, 2001). The fact that teachers feel physically and emotionally exhausted in school indicates burnout (Kyriacou, 2000). The feeling of burnout causes a decrease in teachers' emotional, normative, and continuance commitment (Akdemir, 2019; Nagar, 2012). The sense of professional competence and professional engagement levels of teachers experiencing burnout decrease

(Herman, Hickmon-Rosa & Reinke, 2018; Skaalvik & Skaalvik, 2014). Burnout negatively affects teachers' self-confidence, motivation, self-esteem, and productivity levels (Larivee, 2012; Gold & Roth, 2013; Marek, Schaufeli & Maslach, 2017). Teacher burnout also affects students' academic performance. Low academic achievement and lack of motivation observed in students are associated with teacher burnout (Madigan & Kim, 2021).

### Collective Self-Efficacy

Self-efficacy is an individual's belief in their capacity to complete a task (Bandura, 1997) successfully. When individuals believe in self-efficacy in a particular subject, they tend to make more effort and continue to strive to achieve challenging tasks related to that subject (Kreitner & Kinichi, 2009). When a task is essential to the individual and does not have self-efficacy beliefs for that task, that task turns into a source of anxiety for the individual (Nie, Lau, & Liau, 2011). Because the individual will think that he does not have enough capacity to accomplish the task, not achieving the gains achieved by performing the task will cause anxiety. When the individual believes in self-efficacy for a task that he deems essential, that task is perceived by the individual as a winnable challenge (Bandura, 1997). In this case, the individual is more willing and diligent to complete that task.

An individual becomes an essential part of a group or organization in business life. Individuals within the group cannot work in isolation and social isolation. Group members combine knowledge and skills to achieve common goals (Bandura, 1997). By providing mutual support, members aim for the group to achieve its goals and be successful. The efficacy belief of the members with their duties determines the achievement of the group's goals. According to the social-cognitive theory, efficacy belief occurs both individually and collectively (Bandura, 1993). Successful experiences gained as a group, in-group observations, verbal persuasion, and psychological situations form collective efficacy belief. Collective efficacy reflects the shared belief that a group can effectively organize and implement the thoughts and actions necessary to achieve specific goals (Goddard, Hoy & Woolfolk, 2004).

#### *Teacher Collective Self-Efficacy*

Teachers are the most critical human resources that ensure the progress of education and training services. Teachers and administrators collaborate to train students according to the needs and expectations of society. Collective competence gained in school has the power to affect teachers' motivations, behaviors, and attitudes (Schechter & Tschannen-Moran, 2006). Collective teacher efficacy positively affects students' academic achievement (Bandura, 1993). Teachers who gain collective competence hold themselves more responsible for the success of their students (Schechter & Tschannen-Moran, 2006).

Collective efficacy affects teachers' classroom management skills, teaching methods, and how they motivate students (Tschannen-Moran & Barr, 2004). The success of the common understanding, attitudes, and consultations developed to increase the quality of teaching in the school depends on the belief of collective efficacy. Collective efficacy and

student achievement are in mutual interaction; as one increases, the other increases (Bandura, 2001). Collective efficacy is an important variable that predicts the success differences of schools. In schools with high collective efficacy, students' reading and math achievements are higher (Goddard, Hoy & Hoy, 2000).

Bandura (1997) argued that there are four primary sources of efficacy belief. These sources are personal experiences, vicarious experiences, verbal persuasions, and emotional states. Personal experiences are directly related to the lives of the individual. Successful experiences in a subject strengthen the belief of efficacy on that subject. This situation is also actual for social groups (Goddard, Hoy & Woolfolk, 2004). Teachers can have successful and unsuccessful experiences with their colleagues. The successful results of the school, the placement of students in an excellent high school or a job, the achievement of the school's end-of-year goals, and the successful completion of joint projects can strengthen teachers' belief in collective efficacy. The decrease in student success, increase in disciplinary problems, and disruption of teaching activities can weaken teachers' collective efficacy belief. Collective efficacy belief is influenced by indirect experiences (Bandura, 1997). Observing the successful experiences of different groups with similar characteristics can increase the belief in collective efficacy. The results of a successful school can strengthen the belief that it can be successful in other schools with the same status as itself. Another source that affects collective efficacy belief is verbal persuasions (Bandura, 1997). Motivational talks and in-service training can increase teachers' collective competence. Encouraging speeches appropriate to the abilities of group members can support a belief in collective efficacy. Psychological states are another source that affects collective efficacy belief (Bandura, 1997). The anxiety and stress of the group may weaken the collective efficacy belief.

It has been stated that teachers' self-efficacy beliefs are influential on promotion opportunities, working conditions, job quality, and satisfaction levels with interpersonal relationships (Türkoglu, Cansoy & Parlar, 2017). In a study conducted on teachers working in America, Canada, and Korea, it was observed that teachers' collective efficacy for instructional strategies and student discipline factors positively predicted job satisfaction (Klassen, Usher & Bong, 2010). It has been stated that the attitudes and behaviors of the individuals who make up the school culture (administrators, teachers, parents, staff) affect teachers' job satisfaction through collective teacher efficacy (Caprara et al., 2003). It has been stated that when teachers feel successful in their daily duties at school, their job satisfaction increases (Collie, Shapka & Perry, 2012; Aldridge & Fraser, 2016). Teaching is not a stand-alone profession; every teacher is part of a professional group. Teachers must establish and maintain the necessary relationships with other teachers, administrators, parents, and students to perform effectively and experience job satisfaction (Buonomo, Fiorilli & Benevene, 2020). In this respect, the perception of collective teacher efficacy lays the groundwork for job satisfaction. As the perception of collective efficacy increases, the sense of trust in colleagues also increases (Ware & Kitsantas, 2007). In a school where an

environment of trust is established, it is highly probable that teachers enjoy working and do not experience burnout.

### Teacher Job Satisfaction and Its' Mediator Role

Job satisfaction is an attitude that an individual develops towards their job (Yarım, 2021). Job satisfaction has cognitive, affective, and dynamic indicators (Başaran, 2004). When talking about working conditions, wages, and work plans, the emotional reactions in the individual express job satisfaction (Luthans, 2011). Individuals with high job satisfaction create long-term plans about their job, express their positive feelings about their job, and increase job performance. Being interested in work-related tasks and enjoying the task makes intrinsic job satisfaction. External job satisfaction is the feeling of satisfaction due to the wage, promotion, and reward to be obtained at the end of the job.

As in every profession, job satisfaction in the teaching profession is essential for the profession's sustainability. Teachers feel positive emotions such as pleasure, pleasure, pride, and happiness while talking about their work shows that they experience job satisfaction. High job satisfaction can increase the prestige of the teaching profession. Job satisfaction contributes to the performance improvement of teachers (Wolomasi, Asaloei & Werang, 2019). Teachers act with a common purpose in educational organizations, participate in decision mechanisms, support each other and achieve successful results can make them feel satisfied on their jobs. Job satisfaction prevents teachers from psychological and physiological wear due to work-related stress (Shann, 1998).

Teachers' satisfaction with their jobs can positively affect all outputs related to educational activities. Teachers who experience job satisfaction are less sensitive to stress and burnout (Kyriacou & Sutcliffe, 1977; Skaalvik & Skaalvik, 2011). This situation can increase teachers' life satisfaction. Studies have shown that the students of teachers who are satisfied with their jobs also feel better in the school environment (Collie, Shapka & Perry, 2012; Spilt, Koomen & Thijs, 2011). Teachers with job satisfaction increase the quality of teaching at school and provide better learning support to students (Klusmann, Kunter, Trautwein, Lüdtke & Baumert, 2008; Kunter et al., 2013). Teachers who are satisfied with their jobs are more committed and have a lower tendency to leave the profession (Blömeke, Houang, Hsieh & Wang, 2017; Klassen & Chiu, 2011). Collaboration between teachers can increase student and school success. This situation causes teachers to experience job satisfaction, making them more resistant to stress and burnout.

### The Present Study

Studies have shown that collective teacher efficacy, job satisfaction, and burnout are related to each other (Aydogmus & Serce, 2021; Buonomo, Fiorilli & Benevene, 2020; Klassen, Usher & Bong, 2010). There are limited studies in the literature that deal with these variables together (Aydogmus & Serce, 2021). Aydogmus and Serce (2021) investigated the regulatory role of collective teacher efficacy in the effect of job satisfaction and satisfaction with life on professional burnout. In addition, it has been observed that studies in the

literature focus more on the relationship between job satisfaction and burnout and teacher efficacy (Hassan & Ibourk, 2021; Malinen & Savolainen, 2016; Sokmen & Kilic, 2019). More studies are needed to address the relationship of collective teacher efficacy with these variables. It is known that the perception of collective efficacy increases the cooperation among teachers on teaching and discipline (Tschannen-Moran & Barr, 2004). Depending on the collective efficacy, teachers can be more satisfied with the work environment, have less conflict with their colleagues, and increase their willingness to continue their profession. Teachers who are satisfied with their jobs have a higher organizational commitment and tendency to continue their profession (Klassen & Chiu, 2011). Teachers' satisfaction with their jobs can make them more resistant to feelings of stress and burnout related to their profession. Based on the research and institutional explanations, it is estimated that collective teacher efficacy increases job satisfaction and indirectly reduces burnout. In line with this expectation, the predictive effect of collective teacher efficacy on job satisfaction and burnout was investigated in this study. In addition, it was tested whether job satisfaction had a mediating role in the relationship between collective teacher efficacy and burnout. This way, a better understanding of the relationships between collective efficacy, job satisfaction, and burnout can be achieved. The results obtained can guide the practices to be developed to prevent teacher burnout. Three hypotheses were formulated based on prior studies.

H1: Collective teacher efficacy predicts teacher burnout negatively.

H2: Collective teacher efficacy predicts job satisfaction positively.

H3: Job satisfaction has a mediating role in the relationship between collective teacher efficacy and teacher burnout.

## METHOD

### Research Model

A correlational research design was used in this study. In correlational studies, the relationships between two or more variables are examined without intervention. In this research design, cause-effect relationships are not established between the variables, and the co-change of the variables is tried to be understood. The coefficients of the calculated relationships allow researchers to predict some results (Büyüköztürk et al., 2008). By the correlational research design, the predictive relationships between teachers' collective self-efficacy perceptions, job satisfaction, and professional burnout were examined in this study.

### Participants

Three hundred fifty teachers participated in this research. To reach the teachers, the convenience sampling method was preferred. Since it is challenging to collect face-to-face data during the Covid-19 pandemic, the data were obtained by online survey technique. Participants were informed about the study, and it was stated that volunteering was

essential in participating in the research. The teachers work at primary school (36.3%), secondary school (26.8%), and high school (36.9%). 50.6% of the teachers are female, and 49.4% are male. The rate of married teachers is 83.7%. 77.4% of the teachers are undergraduate, and 22.6% are postgraduate graduates. The ages of the teachers range from 27 to 62. The mean age was calculated as 39.41 (SD=8.17). The professional seniority of teachers varies between 3 and 35 years. Average seniority was calculated as 14.51 years (SD=8.10).

**Table 1**

*The Distribution of Participants by Demographic Characteristics*

| | f | % |
|---|---|---|
| Gender | | |
| Female | 177 | 50.6 |
| Male | 173 | 49.4 |
| School | | |
| Primary | 127 | 36.3 |
| Secondary | 94 | 26.8 |
| High | 129 | 36.9 |
| Marital status | | |
| Single | 57 | 16.3 |
| Married | 293 | 83.7 |
| Education level | | |
| Undergraduate | 271 | 77.4 |
| Postgraduate | 79 | 22.6 |

## Measures

Collective Teacher Efficacy Scale: The scale was developed by Tschannen-Moran and Barr (2004). The adaptation of the measurement tool to Turkish culture was carried out by Erdoğan and Dönmez (2015). Consisting of 12 items, the scale is 5-point Likert type (never=1, little=2, moderate=3, a lot=4, and totally=5). The scale has two dimensions: student discipline and teaching strategies. There are six items in both dimensions. High scores obtained from the scale indicate that the perception of collective teacher efficacy is high.

The compatibility of the two-factor structure of the collective teacher efficacy scale with the available data was investigated by applying the second-level confirmatory factor analysis. Calculated fit values ($\chi^2$=177.05, $\chi^2$/df=3.47, GFI=0.92, AGFI=0.87, TLI=0.93, CFI=0.95, IFI=0.95, SRMR=0.05, RMSEA=0.08) indicated perfect fit between the data and the two-factor model (Bollen, 1989; Browne & Cudeck, 1993; Jöreskog & Sörbom, 1984;

McDonald & Marsh, 1990). The factor loads of the items in the scale ranged from 0.62 to 0.84. Factor loadings were found to be significant at each 0.001 level. The alpha coefficients calculated for student discipline and teaching strategies were 0.89 and 0.85, respectively.

Short Form Minnesota Satisfaction Questionnaire (SFMSQ): The scale was developed by Weiss, Dawis, and England (1967). The scale, consisting of 20 items, is a 5-point Likert type (not at all satisfied=1, not satisfied=2, undecided=3, satisfied=2, very satisfied=1). The scale has two dimensions: internal and external job satisfaction. Internal job satisfaction consists of twelve items, and external job satisfaction consists of eight items. High scores from the scale indicate high job satisfaction.

The compatibility of the two-factor structure of the job satisfaction scale with the available data was investigated by applying the second-level confirmatory factor analysis. Calculated fit values ($\chi^2$=478.57, $\chi^2$/df=2.97, GFI=0.87, AGFI=0.85, TLI=0.90, CFI=0.91, IFI=0.91, SRMR=0.07, RMSEA=0.08) indicated acceptable fit between the data and the two-factor model (Bollen, 1989; Browne & Cudeck, 1993; Jöreskog & Sörbom, 1984; McDonald & Marsh, 1990). The factor loads of the items in the scale ranged from 0.48 to 0.81. Factor loadings were found to be significant at each 0.001 level. The alpha coefficients calculated for the internal and external job satisfaction were calculated as 0.87 and 0.85, respectively.

Maslach Burnout Inventory: The Inventory was developed by Maslach and Jackson (1985). The adaptation of the inventory to Turkish culture was carried out by Engin (1992). The 22-item scale is 5-point Likert type (never=1, very rarely=2, sometimes=3, often=4, and always=5). The inventory has three dimensions: emotional exhaustion, depersonalization, and reduced personal achievement. Emotional exhaustion consists of eight items, depersonalization consists of six items, and reduced personal achievement consists of eight items. High scores from the scale indicate a high sense of burnout.

The compatibility of the three-factor structure of the burnout inventory with the available data was investigated by applying the second-level confirmatory factor analysis. Calculated fit values ($\chi^2$=426.87, $\chi^2$/df=2.36, GFI=0.90, AGFI=0.87, TLI=0.92, CFI=0.93, IFI=0.93, SRMR=0.08, RMSEA=0.06) indicated acceptable fit between the data and the three-factor model (Bollen, 1989; Browne & Cudeck, 1993; Jöreskog & Sörbom, 1984; McDonald & Marsh, 1990). The factor loads of the items in the inventory ranged from 0.40 to 0.92. Factor loadings were found to be significant at each 0.001 level. The alpha coefficients calculated for emotional exhaustion, depersonalization, and reduced personal achievement were 0.92, 0.72, and 0.78, respectively.

### Procedure

The questionnaire form was prepared online. Necessary permissions and ethics committee approval were obtained for the application of the questionnaire. The questionnaire link was shared with the school administrators so that the teachers could access the questionnaire. Information about the purpose of the study is given on the first page of the questionnaire. It has been stated that the questionnaire data will be used for

scientific purposes and that participation in the survey is voluntarily. The completion time of the questionnaire takes approximately 10 minutes.

### Ethical Considerations

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

Ethical review board name: Bursa Uludağ University Ethics Committee

Date of ethics review decision: 25.02.2022

Ethics assessment document issue number: 02-2022/49

### Data Analysis

The skewness and kurtosis coefficients were used to examine the distribution of collective efficacy, job satisfaction, and burnout scores. The skewness and kurtosis coefficients in the range of ±1 indicate that the data are distributed close to normal (Tabachnick & Fidell, 2007). The calculated coefficients were within the specified range (Table 2).

**Table 2**

*Skewness and Kurtosis Coefficients*

| Variables | Skewness | | Kurtosis | |
|---|---|---|---|---|
| | Statistic | SD | Statistic | SD |
| Teaching strategies | -0.11 | 0.13 | -0.35 | 0.26 |
| Student discipline | -0.18 | 0.13 | -0.25 | 0.26 |
| Emotional exhaustion | 0.47 | 0.13 | -0.49 | 0.26 |
| Depersonalization | 0.81 | 0.13 | 0.43 | 0.26 |
| Reduced personal achievement | 0.29 | 0.13 | -0.01 | 0.26 |
| Internal job satisfaction | -0.58 | 0.13 | 0.51 | 0.26 |
| External job satisfaction | -0.30 | 0.13 | -0.40 | 0.26 |

Pearson Correlation Coefficients were calculated to examine the relationships between collective teacher efficacy, job satisfaction, and burnout scores. Structural equation model analysis was applied to test the mediating role of job satisfaction in the relationship between collective efficacy and burnout. The Bootstrap method was used to test the mediation role. For the mediating effect to occur in this method, i) the total effect of the independent variable on the dependent variable must be significant, ii) the indirect effect must be statistically significant, and iii) VAF (Variance Accounted For= indirect effect/total effect*100) value greater than 80%, in a range of 20% to 80%, and below 20% is considered full mediation, partial mediation, and no mediation, respectively (Hair et al., 2014).

Cook distance values were calculated, and it was examined whether there were outliers in the data set that made the normal distribution difficult. Cook distance >1 values

indicate that there are outliers in the data set (Steven, 2002). The results obtained showed that there were no extreme values in the data set. To control the assumption of multivariate normal distribution, Mardia's multivariate standardized kurtosis coefficient was calculated. The fact that this coefficient is less than 8 indicates that the data have a multivariate normal distribution (Mardia, 1970). The calculated coefficient (Mardia's multivariate kurtosis coefficient=6.13) showed that the assumption of multivariate normal distribution was met. In the next step, the existence of a multicollinearity problem between the factors was investigated by calculating the correlation coefficients. High-level relationships (r>0.90) indicate multicollinearity (O'brien, 2007). The calculated correlation coefficients were examined and it was determined that there was no multicollinearity between the factors. Analyzes were performed using SPSS 25.0 and AMOS 24.0 statistical package programs.

## RESULTS

### Correlation Analysis Results

Pearson Correlation Coefficients were calculated to examine the relationships between collective teacher efficacy, job satisfaction, and burnout scores. The results obtained are given in Table 3.

**Table 3**

*Pearson Correlation Coefficients*

| Variables | 1. | 2. | 3. | 4. | 5. | 6. | 7. |
|---|---|---|---|---|---|---|---|
| 1. Teaching strategies | 1 | | | | | | |
| 2. Student discipline | 0.79** | 1 | | | | | |
| 3. Emotional exhaustion | -0.28** | -0.33** | 1 | | | | |
| 4. Depersonalization | -0.15** | -0.22** | 0.50** | 1 | | | |
| 5. Reduced personal achievement | -0.11* | -0.13* | 0.32** | 0.21** | 1 | | |
| 6. Internal job satisfaction | 0.29** | 0.34** | -0.66** | -0.36** | -0.32** | 1 | |
| 7. External job satisfaction | 0.35** | 0.36** | -0.58** | -0.28** | -0.17** | 0.75** | 1 |
| M | 3.32 | 3.50 | 2.30 | 2.12 | 2.03 | 3.86 | 3.25 |
| SD | 0.61 | 0.60 | 0.84 | 0.49 | 0.45 | 0.62 | 0.83 |

**p<0.01, *p<0.05; N=350

Table 3 shows that collective teacher efficacy for teaching strategies was negatively correlated with emotional exhaustion (r=-0.28, p<0.01), depersonalization (r=-0.15, p<0.01), reduced personal achievement (r=-0.11, p<0.05). On the other hand, collective teacher efficacy for teaching strategies was positively correlated with internal job satisfaction (r=0.29, p<0.01) and external job satisfaction (r=0.35, p<0.01).

Collective teacher efficacy for student discipline was negatively correlated with emotional exhaustion (r=-0.33, p<0.01), depersonalization (r=-0.22, p<0.01), reduced personal achievement (r=-0.13, p<0.05). On the other hand, collective teacher efficacy for student discipline was positively correlated with internal job satisfaction (r=0.34, p<0.01) and external job satisfaction (r=0.36, p<0.01).

Emotional exhaustion was negatively correlated with internal job satisfaction (r=-0.66, p<0.01) and external job satisfaction (r=-0.58, p<0.01). Depersonalization was negatively correlated with internal job satisfaction (r=-0.36, p<0.01) and external job satisfaction (r=-0.28, p<0.01). Reduced personal achievement was negatively correlated with internal job satisfaction (r=-0.32, p<0.01) and external job satisfaction (r=-0.17, p<0.01).

## Mediator Analysis Results

Structural equation model analysis was performed to test the mediating role of job satisfaction in the relationship between collective teacher efficacy and burnout (Figure 1). In the model, collective teacher efficacy was the independent variable, burnout was the dependent variable, and job satisfaction was the mediating variable. The calculated fit values ($\chi 2$=34.15, $\chi 2$/df=3.10, GFI=0.97, AGFI=0.93, TLI=0.95, CFI=0.97, IFI=0.98, SRMR=0.04, RMSEA=0.08) indicated perfect fit between the data and the structural model. (Bollen, 1989; Browne & Cudeck, 1993; Jöreskog & Sörbom, 1984; McDonald & Marsh, 1990). Path coefficients for direct and indirect effects are displayed in Table 4.

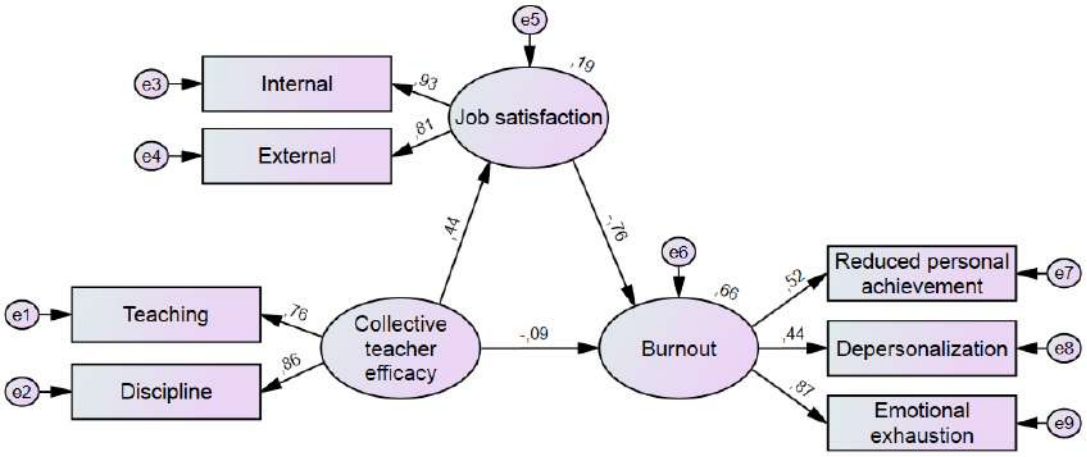



***Figure 1.*** The Structural Equation Model Tested to Examine the Mediator Role of Job Satisfaction

**Table 4**

*Total, Direct and Indirect Effects*

| | | | β | SE | p | LLCI | ULCI |
|---|---|---|---|---|---|---|---|
| Total Effect | | | | | | | |
| Collective teacher efficacy | ---> | Burnout | -0.44 | 0.04 | *** | -0.57 | -0.29 |
| Direct Effects | | | | | | | |
| Collective teacher efficacy | ---> | Job satisfaction | 0.44 | 0.08 | *** | 0.31 | 0.55 |
| Job satisfaction | ---> | Burnout | -0.76 | 0.04 | *** | -0.89 | -0.65 |
| Collective teacher efficacy | ---> | Burnout | -0.09 | 0.04 | 0.11 | -0.24 | 0.06 |
| Indirect Effect | | | | | | | |
| Collective teacher efficacy | ---> | Burnout | -0.35 | 0.06 | *** | -0.46 | -0.22 |

***p<0.001, LLCI= Lower limit of confidence interval, ULCI= Upper limit of confidence interval

When Table 4 is examined, it is understood that the total effect of collective teacher efficacy on burnout was statistically significant (β=-0.44, p<0.001, 95% CI [-0.57, -0.29]). Collective teacher efficacy negatively predicted burnout.

When the direct effects were examined, the direct effect of collective teacher efficacy on job satisfaction was found to be statistically significant (β=0.44, p<0.001, 95% CI [0.31, 0.55]). Collective teacher efficacy positively predicted job satisfaction. The direct effect of job satisfaction on burnout was statistically significant (β=-0.76, p<0.001, 95% CI [-0.89, -0.65]). Job satisfaction negatively predicted burnout. The direct effect of collective teacher efficacy on job satisfaction was not statistically significant (β=-0.09, p=0.11, 95% CI [-0.24, 0.06]). Collective teacher efficacy and job satisfaction explained 66% of the change in burnout.

When the indirect effects are examined, the indirect effect of collective teacher efficacy on burnout was statistically significant (β=-0.35, p<0.001, 95% CI [-0.46, -0.22]). Collective teacher efficacy negatively predicted burnout through job satisfaction. The results indicated that job satisfaction has a partial mediating role in the relationship between collective teacher efficacy and burnout (VAF= 80%).

## DISCUSSION

In this study, the predictive relationships between teachers' collective efficacy, job satisfaction, and feelings of burnout were examined. In addition, the mediating role of job satisfaction in the relationship between collective teacher efficacy and burnout was tested. It was determined that collective teacher efficacy predicted job satisfaction positively and burnout negatively. It has been observed that job satisfaction has a partial mediating role in the relationship between collective efficacy and burnout.

According to the results obtained in the research, collective teacher efficacy predicts job satisfaction positively. This result supported the studies stating that collective efficacy increases teachers' job satisfaction (Caprara et al., 2003; Klassen, Usher & Bong, 2010; Türkoglu, Cansoy & Parlar, 2017; Vatou & Vatou, 2019). Collective teacher efficacy is the sum of teachers' beliefs in their capacity to regulate and manage educational goals to increase student achievement (Goddard, Hoy & Woolfolk-Hoy, 2004). In schools with high collective teacher efficacy, teachers believe that their combined efforts can have a positive impact on students (Goddard, Hoy & Woolfolk Hoy, 2000). Teachers working in schools with a high responsibility for collective learning serve both to better the learning of students and to create a more socially just school environment (Lee & Smith, 1996). Collective teacher efficacy creates a working environment that increases parent-student interaction and school engagement (Brison & Steiner, 2007). It is known that collective efficacy increases cooperation among teachers on teaching and discipline (Tschannen-Moran & Barr, 2004). It can be said that a positive working environment is created in schools when collective teacher competence is provided to this information. In such an environment, teachers are satisfied with their work environment and their colleagues; job satisfaction is expected.

Another result obtained in the study is that collective teacher efficacy predicts burnout negatively. When teachers believe that their combined efforts can have a positive effect on students, they are less likely to experience burnout. This result is consistent with the results of studies stating that collective teacher efficacy reduces teachers' feelings of burnout (Aydogmus & Serce, 2021; Lim & Eo, 2014). Bandura (1997) stated that self-efficacy belief affects the way an individual perceives the elements that pose a threat to himself. When individuals believe that they can accomplish a task, that task is perceived by individuals as a struggle that can be won. When individuals think that they cannot achieve a task, that task turns into a source of stress and anxiety by individuals. Ensuring collective teacher efficacy in a school can enable teachers to perform their duties successfully without experiencing stress and anxiety. This situation reduces the possibility of teachers experiencing burnout. Collective teacher efficacy increases the feeling of trust in colleagues (Ware & Kitsantas, 2007). In a school where trust is created, it is highly probable that teachers will enjoy working and will seek to continue their profession.

In this study, it was observed that job satisfaction has a partial mediating role in the relationship between collective efficacy and burnout. Collective teacher efficacy negatively predicted the sense of burnout through job satisfaction. Evidence has been obtained that teachers' job satisfaction can increase and, accordingly, burnout can be prevented when collective teacher efficacy is achieved. Although teaching is seen as a stand-alone profession, every teacher is part of a professional group at school. For the school to achieve its goals, teachers, students, administrators, and parents act together. In schools with high collective teacher efficacy, teachers set vital goals. They make more effort and take more responsibility to achieve these goals (Goddard, 2001, Tschannen-Moran & Barr, 2004). Effective performance and job satisfaction of teachers depend on establishing and maintaining the necessary relationships with colleagues, administrators, parents, and students (Buonomo, Fiorilli & Benevene, 2020). When collective efficacy is achieved, teachers can perform their tasks more efficiently and collaborate with their colleagues to solve problems. Based on these explanations, it can be said that collective efficacy paves the way for teachers to do their jobs with pleasure and to increase their job satisfaction. Teachers who are satisfied with their jobs are more committed to their jobs and have a lower tendency to leave the profession (Blömeke, Houang, Hsieh & Wang, 2017; Klassen & Chiu, 2011). Teachers who experience job satisfaction are likely to minimize the negativities related to their profession. It can be expected that these teachers will be more resistant to feelings of stress, anxiety, and burnout related to their careers.

## CONCLUSION

Collective teacher efficacy and job satisfaction explained a large proportion of the variation in teacher burnout. These variables have a significant effect on teacher burnout. Increasing collective teacher efficacy in schools and providing working conditions that will create job satisfaction can prevent teacher burnout. For this, mutual support regarding the learning and teaching processes within the school should be increased; joint decisions

should be taken and implemented. The awareness of school administrators on collective teacher efficacy can be improved. STEM-like projects can be developed to increase the cooperation of teachers.

## LIMITATIONS AND RECOMONDATIONS

Primary, secondary, and high school teachers participated in this research. Similar studies can be conducted with a larger sample, including teachers from different branches, such as pre-school and special education. There is a limited number of studies in the literature examining the relationship between collective teacher efficacy and burnout. More studies can be conducted to examine the relationships between these variables. More complex models can be tested by considering different variables such as job stress, administrator feedback, school climate, social support, and student motivation, which can mediate the relationship between collective teacher efficacy and burnout levels.

## REFERENCES

Akdemir, Ö. A. (2019). The effect of teacher burnout on organizational commitment in Turkish context. *Journal of Education and Training Studies*, *7*(4), 171-179.

Aldridge, J. M., & Fraser, B. J. (2016). Teachers' views of their school climate and its relationship with teacher self-efficacy and job satisfaction. *Learning Environments Research*, *19*(2), 291-307.

Aydogmus, M., & Serce, H. (2021). Investigation of regulatory role of collective teacher efficacy in the effect of job satisfaction and satisfaction with life on professional burnout. *Research in Pedagogy*, *11*(1), 234-250.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.

Başaran, İ. E. (2004) *Yönetimde insan ilişkileri [Human relations in management]*. Nobel Yayın Dağıtım.

Blömeke, S., Houang, R., Hsieh, F. J., & Wang, T. Y. (2017). Effects of job motives, teacher knowledge and school context on beginning teachers' commitment to stay in the profession: A longitudinal study in Germany, Taiwan and the United States. In G. K. LeTendre & M. Akiba (Eds.), *International handbook of teacher quality and policy* (pp. 374–387). Routledge

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research*, *17*(3), 303-316.

Brinson, D., & Steiner, L (2007) *Building collective efficacy: How leaders inspire teachers to achieve*. Center for Comprehensive School Reform and Improvement.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions, 154*, 136-136

Buonomo, I., Fiorilli, C., & Benevene, P. (2020). Unravelling teacher job satisfaction: The contribution of collective efficacy and emotions towards professional role. *International Journal of Environmental Research and Public Health*, *17*(3), 736.

Büyüköztürk, S., Kılıç Çakmak, E., Akgün, O. E., Karadeniz, S., & Demirel, F. (2008). *Bilimsel araştırma yöntemleri [Scientific research methods]*. Pegem Akademi.

Cansoy, R., & Parlar, H. (2018). Examining the relationship between school principals' instructional leadership behaviors, teacher self-efficacy, and collective teacher efficacy. *International Journal of Educational Management*, *32*(4), 1-22.

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Steca, P. (2003). Efficacy beliefs as determinants of teachers' job satisfaction. *Journal of Educational Psychology*, *95*(4), 821.

Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology*, *104*(4), 1189.

Dworkin, A. G., Saha, L. J., & Hill, A. N. (2003). Teacher burnout and perceptions of democratic school environment. *International Education Journal, 4*(2), 108-120.

Flood, L. D., & Angelle, P. S. (2017). Organizational influences of collective efficacy and trust on teacher leadership. *International Studies in Educational Administration, 45*(3), 85-99.

Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, *30*(1), 159-165.

Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of the schools and student achievement. *Journal of Educational Psychology, 93*(3), 467-476.

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37* (2), 479-507

Goddard, R. G., Hoy, W. K., & Woolfolk Hoy, A. (2004). Collective efficacy: Theoretical development, empirical evidence, and future directions. *Educational Researcher, 33*(3) 3-13.

Goddard, R., Goddard, Y., Sook Kim, E., & Miller, R. (2015). A theoretical and empirical analysis of the roles of instructional leadership, teacher collaboration, and collective efficacy beliefs in support of student learning. *American Journal of Education, 121*(4), 501-530.

Gold, Y., & Roth, R. A. (2013). *Teachers managing stress & preventing burnout*. Routledge.

Hassan, O., & Ibourk, A. (2021). Burnout, self-efficacy and job satisfaction among primary school teachers in Morocco. *Social Sciences & Humanities Open, 4*(1), 100-148.

Herman, K. C., Hickmon-Rosa, J. E., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions*, *20*(2), 90–100.

Hughes, R. E. (2001). Deciding to leave but staying: teacher burnout, precursors and turnover. *International Journal of Human Resource Management*, *12*(2), 288-298.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Scientific Software International, Inc.

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741-756.

Klassen, R. M., Usher, E. L. & Bong, M. (2010). Teachers' collective efficacy, job satisfaction, and job stress in cross-cultural context. *The Journal of Experimental Education, 78*(4), 464-486.

Klusmann, U., Kunter, M., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Teachers' occupational wellbeing and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology, 100*(3), 702-715.

Kreitner, R., & Kinichi, A. (2009). *Organizational behavior* (9th ed.). Mc Graw-Hill International Edition.

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*(3), 805-820.

Kyriacou C (2000) *Stress-busting for teachers*. Nelson Thornes.

Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review, 53*(1), 27-35.

Kyriacou, C., & Sutcliffe, J. (1977). Teacher stress: A review. *Educational Review, 29*(4), 299-306.

Larrivee, B. (2012). *Cultivating teacher renewal: Guarding against stress and burnout*. R&L Education.

Lee, V. E., & Smith, J. B. (1996). Collective responsibility for learning and its effects on gains in achievement for early secondary school students. *American Journal of Education, 104*(2),103-147.

Lim, S., & Eo, S. (2014). The mediating roles of collective teacher efficacy in the relations of teachers' perceptions of school organizational climate to their burnout. *Teaching and Teacher Education*, *44*, 138-147.

Luthans, F. (2011). *Organizational behavior: An evidence-based approach*. The McGrow-Hill Companies.

Madigan, D. J., & Kim, L. E. (2021). Does teacher burnout affect students? A systematic review of its association with academic achievement and student-reported outcomes. *International Journal of Educational Research, 105*, 1-12.

Malinen, O. P., & Savolainen, H. (2016). The effect of perceived school climate and teacher efficacy in behavior management on job satisfaction and burnout: A longitudinal study. *Teaching and Teacher Education, 60*, 144-152.

Mardia K. V. (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika*, *57*, 519–30.

Marek, T., Schaufeli, W. B., & Maslach, C. (2017). *Professional burnout: Recent developments in theory and research*. Routledge.

Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs. Prentice Hall.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). *Maslach burnout inventory*. Scarecrow Education.

McDonald, R. P., & Marsh, H. W. (1990). Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin, 107*(2), 247.

Nagar, K. (2012). Organizational commitment and job satisfaction among teachers during times of burnout. *Vikalpa*, *37*(2), 43-60.

Nie, Y., Lau, S., & Liau, A. K. (2011). Role of academic self-efficacy in moderating the relation between task importance and test anxiety. *Learning and Individual Differences, 21*(6), 736-741.

Pines, A. M., Aronson, E., & Kafry, D. (1981). *Burnout: From tedium to personal growth*. Free Press.

Powell, K. (1993). *Burnout: What happens when stress gets out of control and how to regain your sanity*. Harpers Collins.

Prelli, G. E. (2016). How school leaders might promote higher levels of collective teacher efficacy at the level of school and team. *English Language Teaching, 9*(3), 174-180.

Schechter, C., & Tschannen-Moran, M. (2006). Teachers' sense of collective efficacy: An international view. *International Journal of Educational Management, 20*(6), 480-489.

Shann, M. H. (1998). Professional commitment and satisfaction among teachers in urban middle schools. *The Journal of Educational Research*, *92*(2), 67-73.

Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education, 27*(6), 1029-1038.

Skaalvik, E. M., & Skaalvik, S. (2014). Teacher self-efficacy and perceived autonomy: Relations with teacher engagement, job satisfaction, and emotional exhaustion. *Psychological Reports*, *114*(1), 68-77.

Sokmen, Y., & Kilic, D. (2019). The relationship between primary school teachers' self-efficacy, autonomy, job satisfaction, teacher engagement and burnout: A model development study. *International Journal of Research in Education and Science, 5*(2), 709-721.

Spilt, J. L., Koomen, H. M., & Thijs, J. T. (2011). Teacher wellbeing: The importance of teacher-student relationships. *Educational Psychology Review, 23*(4), 457–477.

Stanley, T. L. (2004). Burnout: A manager's worst nightmare. *Supervision, 65*(5), 11-13.

Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools, 3*(3), 189-209.

Türkoglu, M. E., Cansoy, R., & Parlar, H. (2017). Examining relationship between teachers' self-efficacy and job satisfaction. *Universal Journal of Educational Research, 5*(5), 765-772.

Vatou, A., & Vatou, A. (2019). Collective teacher efficacy and job satisfaction: Psychometric properties of the CTE scale. *Journal of Contemporary Education Theory & Research, 3*(2), 29-33.

Ware, H., & Kitsantas, A. (2007). Teacher and collective efficacy beliefs as predictors of professional commitment. *The journal of Educational Research, 100*(5), 303-310.

Wolomasi, A. K., Asaloei, S. I., & Werang, B. R. (2019). Job satisfaction and performance of elementary school teachers. *International Journal of Evaluation and Research in Education, 8*(4), 575-580.

Yarım, M. A. (2021). The mediating effect of job satisfaction on the impact of organizational spirituality on job performance. *European Journal of Education Studies, 8*(8), 22-37.

## Biographical notes:

***Eyüp Yurt:*** He works as a researcher at Bursa Uludağ University, Faculty of Education. He is married and has three children. He is interested in education statistics. His research interests include teacher education, self-efficacy, spatial ability, academic motivation, expectancy-value theory.



***Author(s)' statements on ethics and conflict of interest***

***Ethics statement:*** We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

***Statement of interest:*** We have no conflict of interest to declare.

***Funding:*** None

***Acknowledgements:*** None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research Article

# An Analysis of the Relationship among Teachers' Team Learning, Moral Commitment, and Career Commitment Using Structural Equation Modeling

**Taner ATMACA** [1]

**Article Type (Select one and remove others)**
Original Research

*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 70-87
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 15.11.2021
Revision : 25.12.2021
Accepted : 09.02.2022

**Abstract:**

*The primary purpose of this study is to shed light on the direct correlation found between team learning skills and teachers' moral commitment and to use moral commitment as a tool to reveal the indirect effect of these team learning skills on teachers' career commitment. Keeping this purpose in mind, three different scales (the Learning School Scale, Moral Commitment Scale, and Career Commitment Scale) obtained data via Google Forms from 448 teachers working in the province of Düzce in northwest Turkey during the spring semester 2020-2021 academic years. The SPSS 25 and AMOS21 statistical software programs analyzed the data gathered in this study, and structural equation modeling was used to test hypotheses generated from the data. Results obtained from programs show that while team learning doesn't directly predict teachers' career commitment, it indirectly predicts career commitment due to moral commitment. Moral commitment is the mediator variable that uncovers the relationship between team learning and career commitment (indicating complete mediation).*

**Keywords:** Team learning, moral commitment, career commitment

**Citation:**
Atmaca, T. (2022). An analysis of the relationship among teachers' team learning, moral commitment, and career commitment using structural equation modeling. *International Journal of Modern Education Studies, 6*(1), 70-87. http://dx.doi.org/10.51383/ijonmes.2022.146

[1] Assoc. Prof. Dr., Duzce University, Faculty of Education, Duzce, Turkey. taneratmaca@duzce.edu.tr,
Orcid ID: 0000-0001-9157-3100

## INTRODUCTION

Although approaches to learning organizations have been articulated by various theorists, these approaches became a subject of widespread interest and then started to be seen as important, a topical idea that directly impacted organizations following the release of Peter Senge's (2011) book The Fifth Discipline (Edmondson & Moingeon, 1998; Garvin et. al., 2008; Jerez-Gómez et al., 2005). This learning aspect of organizations constitutes an essential part of a dynamic environment that fosters creativity, aids the organization in comparing previous information with newly-acquired information to make any necessary changes or modifications, and allows workers to acquire new skills relating to said changes (Senge, 2011). The reason that approaches to learning organizations are given so much attention in academic research and the ongoing process of strengthening organizations' management practices is that it will contribute to solving organizations' administrative and bureaucratic issues. That is to say; organizational learning is a particular set of behaviors that leads people to learn current practices and up-to-date information related to their field and helps them to implement these practices effectively (Huysman, 2000; McGill et al., 1992).

The concept of a learning organization is commonly used in the relevant academic literature, especially for organizations trying to survive in an increasingly competitive environment (Zare et al., 2001). Accordingly, learning organizations embrace the idea of constant learning and dynamic progress in their respective field to retain a competitive advantage over similar organizations (Appelbaum & Gallagher, 2000; Bierley & Hämäläinen, 1995). There are many significant benefits to establishing a learning organization; they include developing strategies to cope with complex situations and acquiring the flexibility to operate under ever-changing circumstances (Hannah & Lester, 2009; Robinson, 2002). The interactions within learning organizations include sharing information and experience, benefiting and learning from each other's strengths, the transfer of expertise, and the drive to constantly learn and improve oneself (Saadat & Saadat, 2016). In addition, other hallmarks of learning organizations include their creation of an organizational climate and policies which engender positive outcomes and the formation of a learning culture that is seamlessly integrated into company life and becomes an inseparable part of the organization (Garavan, 1997). Every organization establishes its own culture and values. Organizations that possess a culture and climate based on learning, encourage information sharing, advocate open communication among their stakeholders, and create a culture that supports learning as one of their primary values are considered learning organizations (Sudharatna & Li, 2004).

Just as learning organization culture imparts a skill set to leaders and their subordinates, which helps them figure out how to react in complex and unpredictable circumstances, it also encourages organizational leaders and workers. It provides them with the opportunity to learn new skills (Sheaff & Pilgrim, 2006). Individual development of stakeholders is, alongside the acquisition of new skills and information per organizational

goals, a sine qua non for a learning organization. This culture provides both organizations and their employees with the opportunity to change (Farrukh & Wahed, 2015); it also leads to positive outcomes such as increased organizational and individual performance (Power & Waddell, 2004; Watkins & Marsick, 1996). A review of the considerable body of literature on this topic identifies the ability to cope with and quickly adapt to changes and transfer knowledge effectively as two distinguishing characteristics of learning organizations (Skuncikiene et al., 2009). Also, Senge (2011) suggests that another essential characteristic of a learning organization is its ability to turn learning into an integral part of its culture to achieve its long-term goals. Garvin (1993) also touches on this topic, saying that the culture fostered by the presence of these long-term goals leads to employees acquiring new and valuable skills, transforming knowledge into skills, and gaining insight into an organization's vision. Learning organizational culture includes effective dialogue and a continual process of inquiry within the organization, continuous and collaborative team-teaching links among organizational subunits, and leadership skills that support and encourage personnel (Hussein et al., 2016).

There are a variety of organizational learning models currently found in the literature. A model prepared by Pedler et al. (1989) emphasizes certain factors such as internal transformation, learning environment/climate, individual development, and participation in organizations' decision-making processes. On the other hand, strategic thinking, vision, passion for the job, leadership qualities, effective communication, advancement, innovation, change management, and intellectual capital are some of the concepts frequently referred to in the definition of learning organizations in Phillips's model (2003). Slater and Narver (1995) developed a model that designated climate and culture as the two principal components of a learning organization. Kerka's model (1995) suggests that conceiving learning as a continuous action and promoting actions that encourage the adoption of this mindset are the hallmarks of a learning organization. Senge (2011) designed five disciplines for learning organizations in his model: personal mastery, mental models, shared vision, team learning, and systems thinking. Senge (2011) also notes that organizations only learn when individuals learn. However, individual learning may not be enough on its own for an organization to become a learning organization. People who have attained a high level of personal mastery have an innate drive to learn continuously. These people possess a shared vision which enables them to internalize a sense of shared responsibility. Another vital component of a learning organization is team learning; according to Senge (2011), team learning is a collective discipline that involves various essential elements such as open inquiry, collaborative thinking, and establishing dialogue.

Garvin et al. (2008) maintain that several indicators reveal whether or not an organization is a learning organization. The indicator at the top of the list is the presence of an organizational climate that promotes and encourages learning. In such a corporate climate, stakeholders feel comfortable holding different opinions from their colleagues, taking responsibility for their mistakes, producing diverse views on issues, taking risks, and

setting aside time to contribute to the organization's development. Another important indicator is leaders' readiness to urge their workers to learn. In organizations where such an environment exists, workers are enthusiastic and willing to learn; they also use new information and the sum of what they've learned to help the company and actively listen and question assumptions during team learning. Table 1 compares the typical characteristics of both traditional and learning organizations.

**Table 1**

*Typical Characteristics of Traditional and Learning Organizations*

| Characteristics | Traditional Organization | Learning Organization |
|---|---|---|
| General values | Utility | Excellence and mastery, Organizational renewal |
| Style of management | Control | Assistance training |
| Structure | Hierarchy | Flat structure, Dynamic networks |
| Characteristics of personnel | People who know (experts), knowledge is power | People who learn mistakes are tolerated as an inseparable part of learning |
| Exceptional skills of personnel | Applicable learning | Generative learning |
| Evaluation system | Financial performance measures | Financial and non-financial performance measures |
| Teams | Workgroups in separate functional departments | Cross-functional teams |

**Source**: Skuncikiene, Balvociute & Balciunas, 2009:65

Organizational learning is a subject of particular concern to schools as they are organizations where intensive learning occurs. As schools are large organizations of great societal importance, it is imperative that school personnel exhibit both individual and team learning behaviors. In learning schools, team learning is widespread, and teams generally collaborate with other groups on projects; in this way, each individual will feel valued and consider themselves an essential part of the system (Memduhoğlu & Kuşci, 2012). Senge (2011) believes that team learning is critical for an organization to function correctly. In educational organizations, team learning includes establishing a constructive dialogue among team members, working together, sharing information, and benefiting from the experiences and expertise of others. Thus, learning in teams carries more weight than learning by individuals (Kaçmaz & Barutçu, 2016). According to Decuyper et al. (2010), there are also various obstacles to team learning within organizations, such as team members' lack of participation in a team project, their tendency to take credit for the success of a group project that they did not actively contribute to, a sense of aimlessness and disorderliness in the team, a lack of proper delegation of responsibilities among all team members, and a shortage of opportunities for team members to express their true thoughts. Having shared goals, possessing a shared vision, developing practical communication skills, feeling like part of the team, taking responsibility as a team, having team spirit, and creating an environment where everyone can communicate freely are some of the conditions required for team learning to take place (İnce et al. 2004).

### Moral Commitment as a Component of Organizational Commitment

The relevant body of literature includes many definitions and classifications related to organizational commitment. Balay (2000) defines organizational commitment as an employee's partiality towards and embracing their organization's goals and values. One of the most widely used classifications of organizational commitment in the literature belongs to Etzioni (1961). The classification done by Etzioni encompasses three main commitment types within organizations: Moral commitment, calculative commitment, and alienation commitment. Moral Commitment constitutes an integral part of organizational commitment. According to Etzioni's classification, it refers to pursuing aims that are beneficial for both the organization and society; moral commitment also enables personnel to more deeply internalize organizational goals and ambitions (Hornung, 2010; Penley & Gould, 1988). Morally committed individuals will devote themselves more fully to their jobs due to this deeply-felt moral commitment.

Calculative (utilitarian) commitment refers to situations where employees remain committed to their organization because they contain various benefits (Güney, 2001). Alienation commitment, on the other hand, occurs when an individual cannot cut ties with an organization for various reasons even though they no longer have a psychological attachment to it (Bayram, 2005; Doğan & Kılıç, 2008). However, Etzioni's model identifies a third type, moral commitment, as the most crucial type of commitment; calculative (utilitarian) comes second in terms of importance while alienating (forced) commitment is seen as the most minor. In addition, alienation commitment is associated with negative organizational attachment while moral commitment is, in contrast, related to positive passion; calculative/utilitarian commitment falls somewhere in between (Ergün and Çelik, 2019). Morally committed individuals consider organizations' goals and values more important than their personal, professional interests (Starling, 1968).

### Career Commitment

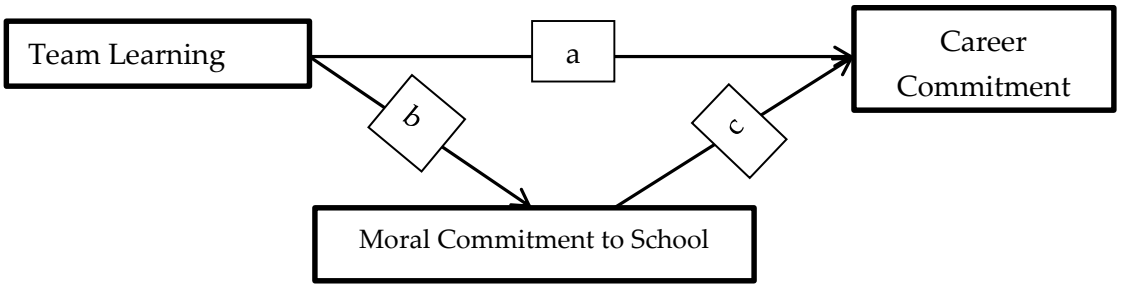
Career commitment can be defined as the desire to act per the goals and values prescribed by one's chosen profession and the ability to actively perform one's professional roles (Eroğlu, 2007). Khan (1992) further defines career commitment as an employee's complete and absolute commitment to their professional roles. Career commitment is an important variable that directly affects employees' work performance and the quality of products they create (Turhan et al., 2012). Like this, career commitment is closely related to employees' sense of professional dedication. Many studies in the current body of literature draw attention to the positive correlation between organizational commitment and a number of variables, including career commitment, productivity, performance, and job satisfaction, and also emphasize the negative correlation between organizational commitment and several other variables such as job burnout (Albdour & Altarawneh, 2014; Demerouti et al., 2001; Khalid et al., 2015; Nazir & Islam, 2017). Hence, career commitment can be considered a significant factor in supporting many kinds of employee development.

Career commitment also produces positive outcomes for teachers and employees working in other sectors. Some of the essential effects include marked improvements in students' cognitive, emotional, and behavioral development, increased academic performance, and a greater degree of socialization (Butucha, 2013). Kozikoğlu and Senemoğu (2018) suggest that to obtain these outcomes, teachers must value being a teacher, have a desire to remain in the teaching profession, and be proud of being a teacher. Furthermore, teachers who perceive a high level of professional dedication will value their students' progress as much as they value their development (Picard & Kutsyuruba, 2017). Findings from various studies in the literature show a link between teachers' organizational learning and their organizational commitment (Nguni et al., 2006; Moloi, 2010; Rahman & Awang, 2013; Tibet, 2015).

Various studies investigating the relationship between organizational commitment and career commitment and their findings related to this subject are also encountered frequently (Ahuja & Gupta, 2018; Masese, 2017; San & Tok, 2017). However, no studies that examined the relationship among team learning (within the framework of organizational learning), moral commitment, and career commitment were found. Therefore, the main fo us of this study is to determine the exact relationship among these three variables. The fundamental research questions that led to the development of this study are listed below:

1. Is there any type of correlation among teachers' team learning behaviors, moral commitment, and career commitment?
2. Are teachers' team learning behaviors and moral commitment to their school significant predictors of career commitment?
3. Does teachers' moral commitment to a school play a mediating role in the relationship between their team learning and career commitment?

Figure 1 contains the model used in this study.




## METHOD

### *Research model*

A subtype of quantitative research design known as a relational survey model investigated the relationship among teachers' team learning levels, moral commitment to school, and career commitment, as it dovetails rather nicely with the aim of the study. This type of model aims to determine whether or not there is a relationship between two or more variables and, if there is, determine the extent of that relationship (Karasar, 2009).

### *Sample*

This study used the convenience sampling method. The sample consisted of 433 teachers working in the province of Düzce in northwest Turkey. Out of the 433 teachers, 240 (55.4%) of the teachers who participated in this study were women, and 193 (44.6%) were men. Furthermore, 71 (16.4%) of the teachers had 1-5 years of teaching experience, 57 (13.2%) had 6-10 years of teaching experience, 92 (21.2%) had 11-15 years of teaching experience, and 213 (49.2%) had 16 or more years of teaching experience. In addition, 195 (45%) of the participants were elementary school teachers, while 119 (27.5%) were middle school teachers, and the remaining 119 (27.5%) were high school teachers. The branch distribution of teachers was as follows: 180 (41.6%) were classroom teachers, 163 (37.6%) were teachers of social sciences (includes history, social studies, geography, and literature), 53 (12.2%) were science and math teachers, and 37 (8.5%) were fine arts and physical education teachers.

## Data Collection Tools

Three different scales collected data for this study: The Team Learning Scale, the Moral Commitment Scale, and the Career Commitment Scale. More details regarding these data collection tools are below.

### *Team Learning Scale*

The Team Learning Scale is the first of four sub-dimensions, or sub-scales, of the Learning School Scale developed by Uğurlu et al. (2014) and includes eight sites. The overall reliability coefficient of the original version of the scale was found to be 0.92, while it was calculated to be 0.89 for the team learning scale sub-dimension. Based on the analysis, Cronbach's alpha value found for the entire scale was 0.94; the alpha value of the Team Learning Scale sub-dimension was 0.3. The full-scale accounts for 63.76% of the total variance, while the team learning scale sub-dimension accounts for 21.46% of the variance.

### *Moral Commitment Scale*

The Moral Commitment Scale is the first of three sub-dimensions, or sub-scales, of the Organizational Commitment Scale, initially created by Penley and Gould (1988) and updated and adapted by Ergün and Çelik (2019); the moral commitment scale sub-dimension consists of five different items while the entire organizational commitment scale has fifteen items in total. The Cronbach's alpha value of the adapted version of the Moral Commitment Scale sub-dimension was found to be 0.92, while the overall alpha value found for this study was 0.5. The Moral Commitment Scale sub-dimension accounts for 23.61% of the total variance, while the full scale accounts for 79.99%.

### *Career Commitment Scale*

The Career Commitment Scale was developed by Kozikoğlu and Senemoğlu (2018) to measure teachers' levels of career commitment. After conducting exploratory factor analysis

(EFA) and confirmatory factor analysis (CFA), a total of 20 items and three dimensions were created. These dimensions are job commitment, dedication to students, and occupational dedication, and they account for 52.27% of the total variance. The reliability coefficients of these three sub-dimensions were found to be 0.92, 0.86, and 0.70, respectively, while the reliability coefficient of the scale in its entirety was 0.90. In this study, the reliability coefficient was 0.94 for the first sub-dimension (profession commitment), 0.90 for the second sub-dimension (dedication to students), and 0.79 for the third sub-dimension (occupational commitment). The reliability coefficient for the full scale in this study was 0.93.

### *Data Collection and Analysis*

Research data were collected digitally via Google Forms due to social distancing measures implemented during the COVID-19 pandemic. The digital forms were sent as links to administrators and teachers working in various schools in the province of Düzce, Turkey, via WhatsApp groups; the data was collected in March and April of the 2020-2021 academic years. The data gathered from 448 teachers contained fifteen extreme values; they were removed from the data set altogether, leading to a data loss rate of approximately 3.5% for this study. The SPSS 25 and AMOS statistical software programs were used to analyze the remaining data. Pearson's correlation coefficient was used to analyze correlation(s) between and among variables. The stepwise regression method was used to build the model by adding team learning first and moral commitment second. The final step consisted of using structural equation modeling (SEM) to find the mediation effect.

### *Ethical Considerations*

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were observed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics," which is the second part of the directive, was not taken.

Ethical review board name: Düzce University Scientific Publication Ethics Board

Date of ethics review decision: 21.04.2021

Ethics assessment document issue number: 2021/127

## RESULTS

### Findings of Correlation and Stepwise Regression Analysis

At this stage, stepwise regression analysis was conducted to determine the extent of the correlation among variables and to what degree team learning behaviors and moral commitment to school predict career commitment. Before looking at this data, the results of the correlation analysis can be found below.

**Table 2**

*Measures of Correlation among Variables*

| Variables | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| 1-Team Learning | r | 1 | ,381** | ,146** | ,057 | ,105* | ,164** |
| | p | | ,000 | ,002 | ,233 | ,029 | ,001 |
| | n | | 433 | 433 | 433 | 433 | 433 |
| 2-Moral Commitment | r | | 1 | ,452** | ,289** | ,425** | ,384** |
| | p | | | ,000 | ,000 | ,000 | ,000 |
| | n | | | 433 | 433 | 433 | 433 |
| 3-Career Commitment (Average) | r | | | 1 | ,731** | ,838** | ,886** |
| | p | | | | ,000 | ,000 | ,000 |
| | n | | | | 433 | 433 | 433 |
| 4-Selfless Working (sub-dimension of career commitment) | r | | | | 1 | ,571** | ,476** |
| | p | | | | | ,000 | ,000 |
| | n | | | | | 433 | 433 |
| 5-Dedication to students (sub-dimension of career commitment) | r | | | | | 1 | ,545** |
| | p | | | | | | ,000 |
| | n | | | | | | 433 |
| 6-Commitment to the job (sub-dimension of career commitment) | r | | | | | | 1 |
| | p | | | | | | |
| | n | | | | | | |
| **p<.01; *p<.05 | | | | | | | |

As indicated in Table 2, the correlation between team learning and moral commitment was found to be positive, moderate, and statistically significant (r=0.38, p<0.01), the correlation between team learning and career commitment was positive, low, and statistically significant (r=0.15, p<0.01), and the correlation between moral commitment and career commitment was found to be positive, low, and statistically significant (r=0.29, p<0.01). Table 3 displays findings detailing the extent to which the independent variables predict the dependent variable.

**Table 3**

*Results of Stepwise Regression Analysis*

| Variable | B | $SH_B$ | β | R | $R^2$ | t | F | p | VIF |
|---|---|---|---|---|---|---|---|---|---|
| Constant | 4.071 | 0.110 | | 0.146 | 0.021 | 37.072 | 9.430 | 0.000 | 1.00 |
| Team Learning | 0.091 | 0.030 | 0.146 | | | 3,071 | | 0,002 | |
| Constant | 2.926 | 0.152 | | 0.452 | 0.201 | 19.274 | 55.343 | 0.000 | 1.17 |
| Team Learning | -0.019 | 0.029 | -0.030 | | | -0.646 | | | |
| Moral Commitment | 0.368 | 0.037 | 0.463 | | | 9.955 | | 0.000 | |
| *Durbin-Watson: 2.014* | | | | | | | | | |

In the first step of stepwise regression analysis, team learning alone accounted for 2% of the total variance [F (1-431) = 9.430, p<0.01]. In the second step, the moral commitment variable was added to the model; both team learning and moral commitment accounted for 20% of the total variance [F (2-430) = 55.343; p<0.00]. β coefficients of the analysis show that moral commitment is the most significant predictor of career commitment (β=0.463), while team learning on its own predicts career commitment with a beta value of 0.146 (β = 0.14). However, in the second step of the analysis, the β coefficient of team learning started to

decrease. This decrease can be interpreted as an indicator that moral commitment (added to the model in the second step) plays the mediator variable between team learning and career commitment. The fact that the p-value from the Sobel test was 0.00 corroborates the idea that moral commitment is the mediator variable. Thus, it is evident that path analysis is required to determine the extent to which the independent variable (team learning) predicts the dependent variable (career commitment), using moral commitment as the mediator variable.

### Results of Path Analysis

Path analysis effectively determines the predicted variable's direct and indirect predictive strength of predictor variables on the predicted variable. In this study, the path analysis was conducted using the AMOS statistical software program to determine the extent to which the predictor variables accounted for the predicted variable (career commitment) in light of the mediator variable. The path analysis model can be found in Figure 2.

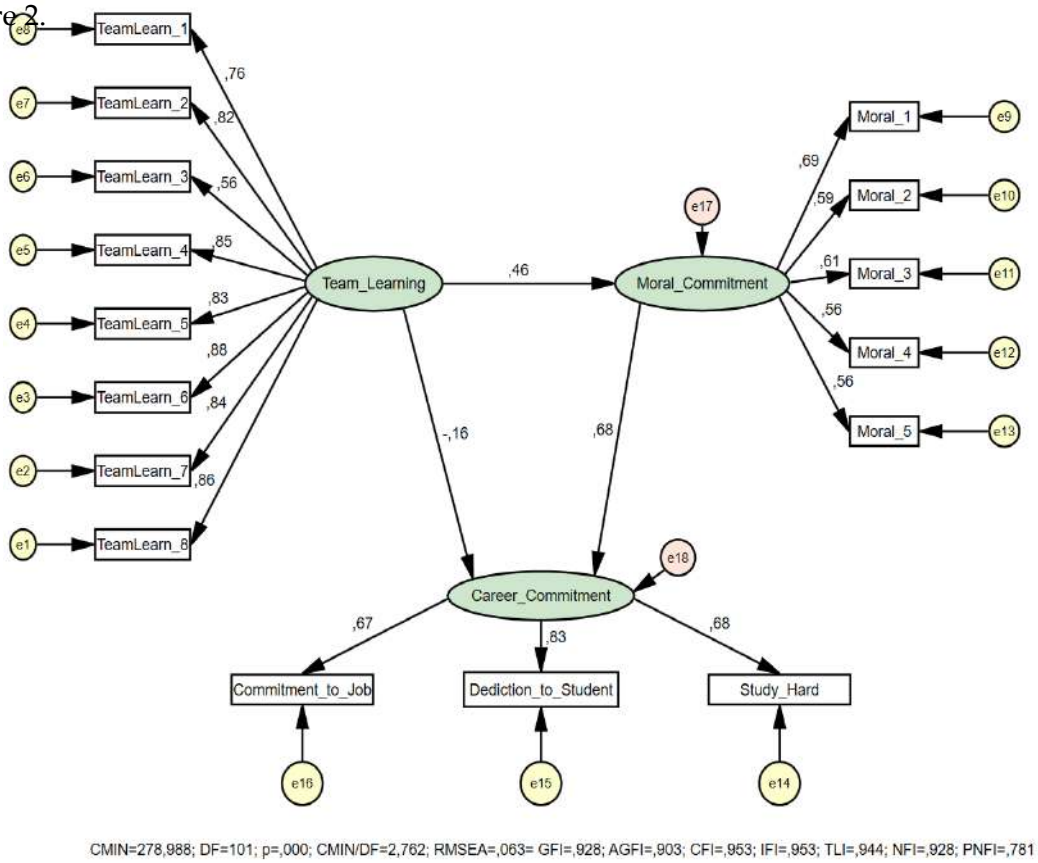



**Figure 2:** *Standardized Path Coefficients and Structural Equation Modeling for Team Learning, Moral Commitment, and Career Commitment*

**Table 4**

| Fit Indices | Perfect Fit | Acceptable Fit | Model Results | Evaluation |
|---|---|---|---|---|
| $\chi^2$/df | $0 \leq \chi^2 \leq 3df$ | $4 \leq \chi^2 \leq 5df$ | 2.762 | Perfect fit |
| RMSEA | RMSEA ≤ 0.05 | 0.06 ≤ RMSEA ≤ 0.08 | 0.063 | Perfect fit |
| CFI | 0.95 ≤ CFI ≤ 1.00 | 0.90 ≤ CFI ≤ 0.95 | 0.95 | Perfect fit |
| GFI | 0.95 ≤ GFI | 0.85 ≤ GFI ≤ 0.89 | 0.93 | Acceptable Fit |
| AGFI | 0.90 ≤ AGFI | 0.85 ≤ AGFI ≤ 0.89 | 0.90 | Perfect fit |
| IFI | 0.95 ≤ IFI | 0.90 ≤ IFI ≤ 0.94 | 0.95 | Perfect fit |
| SRMR | SRMR ≤ 0.05 | 0.05 ≤ SRMR ≤ 0.10 | 0.04 | Perfect fit |
| NFI | 0.95 ≤ NFI ≤ 1.00 | .90 ≤ NFI ≤ 0.95 | 0.93 | Acceptable Fit |
| PNFI | 0.95 ≤ PNFI ≤ 1.00 | .50 ≤ PNFI ≤ 0.95 | 0.78 | Acceptable Fit |

*Goodness-of-Fit Indices for the Model*

Given the standardized path coefficients in Figure 2, it can be seen that team learning negatively and directly predicted career commitment with a β value of -0,16. Team learning also predicted moral commitment with a β coefficient value of 0.45, while moral commitment itself predicted career commitment with a β coefficient value of 0.66. Multiple fit indices were used to determine the validity and sufficiency of the model. In this study, the chi-square goodness-of-fit test, the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the comparative fit index (CFI) were used. The normed fit index (NF), the incremental fit index (IFI), and the root mean square error of approximation (RMSEA) were also calculated. The final step consisted of analyzing the standardized root mean square residual (SRMR), the parsimony normed fit index (PNFI), and the parsimony goodness-of-fit index (PGF). The results of these goodness-of-fit tests can be found in Table 4.

The results of the goodness-of-fit tests show that all test scores fell within the acceptable range ($\chi$2=278,988; df=101; $\chi$2/df = 2.762, RMSEA= 0.063, CFI= 0.95, GFI= 0.93, AGFI= 0.90, IFI= 0.95, SRMR= 0.046, NFI= 0.93, PNFI= 0.78). The goodness-of-fit indices reveal that the model fit is either perfect or acceptable, which proves that the fit indices for the model lie within acceptable ranges (Hu and Bentler, 1999; Schermelleh-Engel et.al, 2003; Sun, 2005). Table 5 shows the extent to which independent variables predict the dependent variable through standardized path coefficients.

**Table 5**

*Predictive Strength of Independent Variables on the Dependent Variable*

| Dependent Variables | Independent Variables | Estimates | Standard Error (SE) | Critical Ratio *(CR)* | Significance (p-value) |
|---|---|---|---|---|---|
| Moral Commitment | Team Learning | 0.226 | 0.032 | 6.987 | 0.000 |
| Career Commitment | Team Learning | -0.084 | 0.032 | -2.672 | 0.008 |
| | Moral Commitment | 0.686 | 0.095 | 7.225 | 0.000 |

*p<.01

The direct, indirect, and total predictive levels and effects of the independent variables on the dependent variable can be found in Table 6.

**Table 6**

*Effects of Independent and Mediator Variables on the Dependent Variable*

| Variables | Predictive Levels | | |
|---|---|---|---|
| | Direct | Indirect | Total |
| Team Learning | -0.159 | 0.309 | 0.150 |
| Moral Commitment | 0.679 | 0.000 | 0.679 |

As indicated in both Table 5 and 6, team learning indirectly predicts teachers' career commitment through mediator variable: moral commitment. In conjuction with the mediator variable team learning predicts the dependent variable (β= 0.309) at a higher level than it predicts directly (β= -0.15). On the other hand, moral commitment now signifies career commitment at a high level (β= 0.679).

## DISCUSSION, CONCLUSIONS, and RECOMMENDATIONS

The study's findings indicate a positive and statistically significant correlation between team learning and teachers' moral commitment to their school. Having teachers who are in proper pedagogical practices at school and with their students, work collectively and in a disciplined manner, and collaborate with their colleagues to pursue a shared vision and set of goals is an optimal and highly desirable situation for any school. Team learning doesn't require team members to be similar, but accommodation and adaptation are essential. Team members' ability to think and act together as a living system is a fundamental component of team learning (Senge et al., 2014). In addition, the ability to learn as a team is also an indispensable component of learning organizations. A review of the considerable body of literature on this topic reveals that learning school culture and team learning positively affect many organizational processes and improve both the quality and the permanence of learning within schools (Doğan & Yiğit, 2014; Keefe & Howard, 1997; Kools et al., 2020). Tolwinska (2019) suggests that teachers need to have high levels of trust in each other and maintain high levels of inter-and intra-departmental contact to learn from each other and learn as a team. However, many schools need to strengthen this aspect of their school culture. Park et al. (2005) found that collaboration among team members enhances organizational reliability and commitment to both the team and the school. Similarly, Dee et al. (20 6) also pointed out that attitudes toward team learning and teaching and concrete shows of support from the school administration positively affect teachers' level of Commitment to the school.

Another important finding of the study is a positive and statistically significant correlation between teachers' moral commitment to their school and their overall career commitment. As teachers' moral commitment increases, their career commitment increases in kind. According to Etzioni's theory (1961), moral commitment to an organization is a robust type of commitment that requires internalizing organizational values and norms and

committing fully to one's professional role. Studies highlighting the link between teachers' drive to learn and moral commitment are present in the literature (Kwo, 2010). Beyer (1991) examined the association between teachers' ability to become more professional and their levels of moral commitment and suggests that there should be more of a focus on moral commitment during teacher training and education to increase the quality of teaching practices. In addition, teachers' possession of a strong sense of the moral commitment constitutes a substantial component of professionalism (Santoro, 2011). Teachers' strong commitment to a school is accompanied by a positive effect on many organizational processes. Several studies in the literature corroborate this claim by revealing a positive relationship between moral commitment and teachers' organizational commitment and organizational citizenship (Karacaoğlu & Güney, 2010; Tekin, 2019), administrative efficiency (Kaya et al., 2014), occupational motivation (Çınar, 2016; Memişoğlu, & Kalay, 2017; Uzunpınar, 2019), and job satisfaction (Gedik & Üstüner, 2017).

The findings also reveal that teachers' team learning behaviors predict their career commitment through the influence of the mediator variable (moral commitment) instead of expecting it directly. The moral commitment was identified as a mediator variable based on the direct, indirect, and total effects of independent variables on the dependent variable, the decrease in the beta score in the second step of stepwise regression analysis, and the significance level of the Sobel test, all of which indicate complete mediation. This strong sense of commitment and belonging, brought about by teachers' experiences with team learning, is thought to increase teachers' levels of career commitment. Full commitment to the values and norms of the profession has been shown to create a strong mediator effect which strengthens teachers' levels of career commitment. Consequently, teachers' moral commitment, one of the positive organizational outcomes that arise from team learning skills used in a corporate learning context, is an indirect and statistically significant predictor of their career commitment. This study sample consists of teachers working in Turkey; awareness practices and studies that focus on social aspects of schools such as teamwork, collaboration among different departments, cooperation amongst colleagues, and intergenerational solidarity and learning are believed to contribute to various school processes positively. Enhancing the culture of cooperation, solidarity, team learning, and production within a school and creating an ecosystem in line with these goals will generate many favorable outcomes. Effective leadership and the ability of school leaders to govern may play an essential role in creating a team learning culture. Teachers becoming part of a culture of team learning and production is a process that can be expected to enhance professional motivation, dedication, job satisfaction, and the overall success rate of students. The sample of this study is limited to teachers working in different schools in one city of Turkey. Therefore, collecting data from several other regions and provinces around Turkey would provide researchers with a more significant number of data sets to analyze to make comparisons among schools and enable them to make inter-regional comparisons, both of which are fruitful avenues for further research.

## REFERENCES


Albdour, A., & Altarawneh, I. (2014). Employee engagement and organization commitment: Evidence from Jordan. *International Journal of Business*, *19*(2), 192-212.

Appelbaum, S., & Gallagher, J. (2000). The competitive advantage of organizational learning. *Journal of Workplace Learning*, *12*(2), 40-56. https://doi.org/10.1108/13665620010316000

Balay, R. (2000). *Örgütsel bağlılık [Organizational commitment].* Nobel Yayınları.

Bayram, L. (2005). Yönetimde yeni paradigma: Örgütsel bağlılık [A new paradigm in management: Organizational commitment]. *Sayıştay Journal*, *59*, 125-139.

Beyer, L. E. (1991). Schooling, moral commitment, and the preparation of teachers. *Journal of Teacher Education*, *42*(3), 205-215. https://doi.org/10.1177/0 2248719104200306

Bierly, P., & Hämäläinen, T. (1995). Organizational learning and strategy. *Scandinavian Journal of Management*, *11*(3), 209-224. https://doi.org/10.1016/0 56-5221(95)00011-J.

Butucha, K. (2013). Teachers' perceived commitment as measured by age, gender, and school type. *Greener Journal of Educational Research*, *3*(8), 363-372.

Çınar, İ. (2016). *Öğretmenlerin örgütsel bağlılık ve iş motivasyonlarının yapısal eşitlik modellemesi ile incelenmesi: Çay ilçesi örneği [Examining structrual relationship between organizational commitments and motivation and application pn teachers: Çay province example]*. Unpublished Master Thesis, Afyon Kocatepe University.

Decuyper, S., Dochy, F., & Bossche, P. (2010). Grasping the dynamic complexity of team learning: An integrative model for effective team learning in organizations. *Educational Research Review*, *5*(2), 111-133. https://doi.org/10.1016/j edurev.2010.02.002

Dee, J., Henkin, A., & Singleton, C. (2006). Organization commitment of teachers in urban schools: Examining the effects of team structure. *Urban Education*, *41*(6), 630-627. https://doi.org/10.1177/0 42085906292512.

Demerouti, E., Bakker, A., Nachreiner, F., & Schaufeli, W. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499–512. https://doi.org/10.1037/0021-9010.86.3.499

Doğan, S., & Kılıç, S. (2007). Örgütsel bağlılığın sağlanmasında personel güçlendirmenin yeri ve önemi [The situation and importance of empowerment in obtaining organizational comitment]. *Erciyes University Journal of Faculty of Economics and Administrative Sciences 29*, 37-61.

Doğan, S., & Yiğit, Y. (2014). Okul yöneticileri ve öğretmenlerin bilgi yönetimi tutumları ile öğrenen okul algıları arasındaki ilişki [Relationship between information management attitudes and learning school perceptions of school administrators and teachers]. *Ondokuz Mayıs University Journal of Education Faculty*, *33*(1), 159-171.

Edmondson, A., & Moingeon, B. (1998). From organizational learning to a learning organization. *Management Learning*, *29*(1), 5-20. https://doi.org/10.1177/1 50507698291001

Ergün, H., & Çelik, K. (2019). Örgütsel bağlılık ölçeği Türkçe uyarlaması [Adaptation of organizational commitment scale into Turkish language]. *Pamukkale University Journal of Social Sciences Institue, 34*, 113-121.

Eroğlu, F. (2007). *Davranış bilimleri [Behavioral sciences].* Beta Yayınları.

Etzioni, A. (1961). *A comparative analysis of complex organizations.* Free Press.

Farrıkh, M., Waheed, A. (2015). Learning organization and competitive advantage-an integrated approach. *Journal of Asian Business Strategy*, *5*(4), 73-79. https://doi.org/10.18488/ournal.1006/2015.5.4/1006.4.73.79.

Garavan, T. (1997). The learning organization: A review and evaluation. *The Learning Organization* *4*(1), 18-29.

Garvin, D. (1993). Building a learning organization. *Harvard Business Review*, *1*(4), 78-91.

Garvin, D., Edmondson, A., & Gino, F. (2008). Is yours a learning organization? *Harvard Business Review*, *6*(3),109-116.

Gedik, A., & Üstüner, M. (2017). Eğitim örgütlerinde örgütsel bağlılık ve iş doyumu ilişkisi: Bir meta analiz [Correlation between organizational commitment and job satisfaction in educational organizations: A meta analysis]. *E-international Journal of Educational Sciences, 8*(2), 41-57.

Güney, S. (2001). *Yönetim ve organizasyon [Management and organization].* Nobel Yayınları.

Hannah, S., & Lester, P. (2009). A multilevel approach to building and learning organizations. The Leadership Quarterly, *20*(1), 34-48. https://doi.org/10.1016/j leaqua.2008.11.003.

Hornung, S. (2010). Alienation matters: Validity and utility of Etzioni's theory Commitmentent in explaining prosocial organizational behavior. *Social Behavior and Personality*, *38*(8), 1081-1096. https://doi.org/10.2224/s p.2010.38.8.1081.

Hu, L., & Bentler, P. (1999). Cutoff criteria for fit i dices in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modelling*, *6*, 1-55. https://doi.org/10.1080/1 705519909540118

Hussein, N., Omar, S., Noordin, F., & Ishak, A. (2016). Learning organization culture, organizational performance and organizational innovativeness in a public institution of higher education in Malaysia: A preliminary study. *Procedia Economics and Finance*, *37*, 512-519. https://doi.org/10.1016/S 212-5671(16)30159-9.

Huysman, M. (2010). An organizational learning approach to the learning organization. *European Journal of Work and Organizational Psychology*, *9*(2), 133-145. https://doi.org/10.1080/1 5943200397905.

İnce, M., Bedük, A., & Aydoğan, E. (2004). Örgütlerde takım çalışmasına yönelik etkin liderlik nitelikleri [Effective leadership qualities for teamwork in organizations]. *Selçuk University The Journal of Institute of Social Sciences*, *11*, 423-446.

Jerez-Gómez, P., Céspedes-Lorentea, J., & Valle-Cabrerab, R. (2005). Organizational learning capability: A proposal of measurement. *Journal of Business Research*, *58*(6), 715-725. https://doi.org/ 10.1016/ .jbusres.2003.11.002.

Kaçmaz, R., & Barutçu, E. (2016). Takım halinde öğrenme ve takım temelli proje çalışmaları üzerine eğitim kurumlarında alan araştırması [A filed research on team learning and team-based project works in educational institutions]. *Suleyman Demirel University The Journal of Faculty of Economics*, *21*(2), 362-382.

Karacaoğlu, K., & Güney, Y. (2010). Öğretmenlerin örgütsel bağlılıklarının, örgütsel vatandaşlık davranışları üzerindeki etkisi: Nevşehir ili örneği [The effect of teachers' organizational commitment on their organizational citizenship behaviors: Case of Nevsehir]. *Öneri*, *9*(34), 137-153.

Karasar, N. (2009). *Bilimsel araştırma yöntemleri [Scientific research methods].* Nobel Yayınları.

Kaya, A., Balay, R., & Tınaz, S. (2014). Yönetici ve öğretmenlerin yönetsel etkililik ve örgütsel bağlılık algıları arasındaki ilişki [The relationship between managerial effectiveness and organizational commitment perceptions of teachers and principals]. *Ahi Evran University Kırsehir Journal of Faculty of Education*, *15*(2), 79-97.

Keefe, J., & Howard, E. (1997). The school as a learning organization. *School Environment*, 35-44.

Kerka, S. (1995). The learning organization myths and realities. Ohio ERIC Clearinghouse in Adult, Career, and Vocational Education.

Khalid, A., Khalid, S., Waseem, A., Farooqi, Y., & Nazish, A. (2015). Relationship between organizational commitment, employee engagement, and career satisfaction: A case of University of Gujrat. *European Journal of Business and Social Sciences*, *3*(11), 172-183.

Khan, A. (1992). To be fully there: Psychological presence at work. *Human Relations*, *45*, 321-349.

Kools, M., Stoll, L., George, B., Stejin, B., Bekkers, V., & Gouëdard, P. (2020). The school as a learning organization: The concept and its measurement. *European Journal of Education*, *55*, 24-42. https://doi.org/10.1111/ejed.12383.

Kozikoğlu, İ., & Senemoğlu, N. (2018). Öğretmenlik mesleğine adanmışlık ölçeğinin geliştirilmesi: Geçerlik ve güvenirlik çalışması [Development of teachers' professional engagement scale: A study on validty and reliablity]. *International Journal of Human Sciences*, *15*(4), 2614-2625. https://doi.org/ 10.14687/jhs.v15i4.5389.

Kwo, O. (2010). Teachers as learners: A moral commitment. In *Teachers as Learners* (O. Kwo, Ed.) (pp. 313-333). Springer.

Mcgill, M., Slocum-Jr, J. & Lei, D. (1992). Management practices in learning organization *Organizational Dynamics*, *2*(1), 5-17. https://doi.org/10.1016/00 0-2616(92)90082-X.

Memduhoğlu, H., & Kuşci, E. (2012). Yönetici ve öğretmenlerin algılarına göre ilköğretim okullarında örgütsel öğrenme [Organizational learning in primary schools in the views of school administrators and teachers]. *Elemantary Education Online*, *11*(3), 748-761.

Memişoğlu, S., & Kalay, M. (2017). İlkokul ve ortaokullarda görev yapan öğretmenlerin örgütsel bağlılık ve motivasyonları arasındaki ilişki (Bolu ili örneği). [The relationship between organizational commitment and motivation among primary and elementary school teacher]. *Turkish Studies*, *12*(4), 367-392.

Moloi, K. (2010). How can schools build learning organizations in difficult education contexts? *South African Journal of Education*, *30*, 621-633.

Nazir, O., & Islam, J. (2017). Enhancing organizational commitment and employee performance through employee engagement: An empirical check. *South Asian Journal of Business*, *6*(1), 96-114. https://doi.org/10.1108/SA BS-04-2016-0036.

Nguni, S., Sleegers, P., & Denessen, E. (2006). Transformational and transactional leadership effects on teachers' job satisfaction, organizational commitment, and organizational citizenship behavior in primary schools: The Tanzanian case. School Effectiveness. *School Effectiveness and School Improvement*, *17*(2), 145-147. https://doi.org/10.1080/09 43450600565746.

Park, S., Henkin, A., & Egley, R. (2005). Teacher team commitment, teamwork, and trust: Exploring associations. *Journal of Educational Administration*, *43*(5), 462-479.

Pedler, M., Burgoynei, J., & Boydell, T. (1989). The learning company: A strategy for sustainable development. *Studies in continuing education*, *11*(2), 91-101.

Penley, L., & Gould, S. (1988). Etzioni's model of organizational involvement: A perspective for understanding commitment to organizations. *Journal of Organizational Behavior*, *9*, 43-59.

Picard, K., & Kutsyuruba, B. (2017). Teachers' engagement in professional development: A collective case study. *Educational Policies and Current Practices*, *2*(2), 89-100. https://doi.org/10.15340/2 473501221011.

Phillips, B. (2003). A four-level learning organization benchmark implementation model. *The Learning Organization*, *10*(2), 98-105.

Power, J., & Waddell, D. (2004). The link between self-managed work teams and learning organizations using performance indicators. *The Learning Organization*, *11*(3), 244-259. https://doi.org/10.1108/09 96470410533003.

Rahman, A., & Awang, M. (2013). Learning organization and organization commitment in primary school. *International Proceedings of Economics Development & Research*, *60*, 55-59.

Robinson, V. (2002). Organizational learning, organizational problem solving, and models of mind (A. Kenneth Leithwood & P. Hallinger; Ed). In *Second international handbook of educational leadership and administration* (pp. 775-812). Springer.

Santroro, D. (2011). Good teaching in difficult times: Demoralization in the pursuit of good work. *American Journal of Education*, *118*, 1-23.

Saadat, V., & Saadat, Z. (2016). Organizational learning as a key role of organizational success. *Procedia-Social and Behavioral Sciences*, *230*, 219-225. https://doi.org/10.1016/j. bspro.2016.09.028.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the Fit of Structural Equation Models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research*, 8(2), 23–74.

Senge, P. (2011). *Beşinci disiplin* (Ayşegül İldeniz ve Ahmet Doğukan, *Translators.*) [*Fifth discipline*]. YKY.

Senge, P., McCabe, N., Lucas, T., Smith, B., Dutton, J., & Kleiner, A. (2014). *Öğrenen okullar* (Münevver Çetin, *Translator Editor.*) [*Learning schools*]. Nobel Yayıncılık.

Sheaff, R., & Pilgrim, D. (2006). Can learning organizations survive in the newer NHS? *Implementation Science*, *27*, 1-11. https://doi.org/10.1186/1748-5908-1-27.

Skuncikiene, S., Balvociute, R., & Balciunas, S. (2009). Exploring characteristics of a learning organization as a learning environment. *Social Research*, *1*(15), 64 75.

Slater, S., & Narver, J. (1995). Market orientation and learning organization. *Journal of Marketing*, *59*(3), 63-74. https://doi.org/10.2307/12 2120.

Starling, J. (1968). Organization and the decision to participate. *Public Administration Review*, *28*(5), 453-461.

Sudhartana, Y., & Li, L. (2004). Learning organization characteristics contributed to its readiness-to-change: A study of the Thai mobile phone service industry. *Managing Global Transition*, *2*(2), 163-178.

Tekin, S. (2019). *Öğretmenlerin örgütsel bağlılıkları ile örgütsel vatandaşlık davranışları arasındaki ilişkinin incelenmesi [An examination into the relationship between the organizational commitment and organizatonal citizenship behavior of teachers]*. Unpublished Master Thesis, Balıkesir University.

Tibet, B. (2015). *Predictors of organization learning capability in primary and secondary schools.* Unpublished Doctoral Dissertation, METU, Ankara.

Tolwinska, B. (2019). *Teachers' team learning in the context of creating learning schools: Implications for teacher education*. In Rethinking Teacher education for the 21st century: Trends (Marta Kowalczuk-Waledziak, Ed.), pp. 269-282. Verlag Barbara Budrich.

Turhan, M., Demirli, C., & Nazik, G. (2012). Sınıf öğretmenlerinin mesleğe adanmışlık düzeyine etki eden faktörler: Elazığ örneği [Factors impacting class teachers' job commitment: The case of Elazig]. *İstanbul Commerce University Journal of Social Sciences*, *21*, 179-192.

Uğurlu, C. T., Doğan, S. & Yiğit, Y. (2014). Öğrenen okul ölçeği geçerlik ve güvenirlik çalışması [Validity and reliability study of learning school scale]. *The Journal of Turkish Eudcational Sciences*, *12*(1), 35-45.

Uzunpınar, H. (2019). *İlkokul yöneticileri ve sınıf öğretmenlerinin örgütsel bağlılık ve mesleki motivasyonları arasındaki ilişkinin incelenmesi [an analiysis of the relationship between organizational commitment and profesional motivations of primary school and primary school teachers]*. Unpublished Master Thesis, İstanbul Sabahattin Zaim University.

Watkins, K. E., & Marsick, V. J. (1996). *In action: Creating the learning organization.* ASTD Press.

Zare, R., Jaja mizadeh, M., & Abbasi, N. (2010). Relation between job characteristics model (JCM) and learning organization (LO ). *World Applied Sciences Journal*, *8*(10), 1253-1259.

## Biographical notes:

***Name and Surname of the Author 1:*** Taner Atmaca was born in Sivas in 1984. Nowadays works at Duzce University Faculty of Education at the Department of Education Sciences as an Associate Professor.



***Author(s)' statements on ethics and conflict of interest***

***Ethics statement:*** We now declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of a dispute.

***Statement of interest:*** We have no conflict of interest to declare.

***Funding:*** None

***Acknowledgements:*** None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022- ISSN 2618-6209 |

Research

# Decision-making in the physical education curriculum: an analysis of the student voice in English secondary state-schools

**Jack Hardwicke**[1] **Joseph Reed**[2] **Eric Anderson**[3] **John Batten**[4] **Adam J. White**[5]

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 88-107
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 02.02.2022
Revision : 20.02.2022
Accepted : 01.03.2022

**Abstract:**

*Debates surrounding youth participation in governance have permeated a range of fields in the last two decades. This commentary is predominately situated in education and civic participation domains, with sporting domains remaining largely under researched. Indeed, this research becomes sparser when considered in school physical education and sport. In this paper we consider the position of the student within decision-making in the physical education curriculum in English secondary state-schools. The study draws on survey data from 288 English secondary state-schools exploring physical education administrator's knowledge and practice of engaging with student's decision-making related to the PE curriculum. Findings reveal considerable numbers of the schools reported no contribution from students to the physical education curriculum (n=54), and processes that were in place were problematic. Drawing on the legal framework of The UN Convention on the Rights of the Child, we argue that the lack of student voice in the physical education curriculum presents a contemporary policy concern within the English education system that requires further investigation.*

**Keywords:** Physical Education Curriculum; Student Voice; Sports Governance; Child Rights; Decision making.

**Citation:**
Hardwicke, J., Reed, J., Anderson, E., Batten, J & White, A.J. (2022) Decision-making in the physical education curriculum: an analysis of the student voice in English secondary state-schools. *International Journal of Modern Education Studies, 6*(1), 88-107.

[1] PhD, Centre for Physcial Activity and Life Sciences, University of Northampton, UK. Jack.Hardwicke@Northampton.ac.uk,
Orcid ID: 0000-0002-1152-0920
[2] MSc, Department of Sport, Exercise and Health, University of Winchester, UK. j.reed1.17@unimail.winchester.ac.uk,
Orcid ID: 0000-0002-1810-2692
[3] Prof., Department of Sport, Exercise and Health, University of Winchester, UK. Eric.Anderson@winchester.ac.uk ,
Orcid ID: 0000-0002-2601-4385
[4] PhD, Department of Sport, Exercise and Health, University of Winchester, UK. John.Batten@winchester.ac.uk,
Orcid ID: 0000-0001-7499-7817
[5] PhD, Department of Sport, Health Science and Social Work, Oxford Brookes University, UK. Adamwhite@brookes.ac.uk,
Orcid ID: 0000-0002-6865-8197

## INTRODUCTION

The governance structures in secondary education institutions within the United Kingdom have instigated debate concerning the role of the student, and their lack of agency specifically, in decision-making processes (Mitra, 2006, 2018). In response, the past two decades have seen calls for reform to educational governance, largely due to students citing experiences of schools being a space in which they have little autonomy, respected voice, or influence (Cook-Sather, 2015; Earls, 2003; Heath & McLaughlin, 1993; Pope, 2001). This marginalisation within the governance structures has been associated with consequences of student-disengagement within secondary education (Cothran & Ennis, 2000; Quinn & Owen, 2016). This is problematic as research suggests that disengaged students will attend school less, achieve lower academic results, have lower self-perception of ability, as well as an elevated rate of dropping out of school (Fullan, Quinn & McEachen, 2017; Lukes, 2015; Noguera, 2007).

The expectation of public organisations (e.g., secondary state schools) to be representative of their stakeholders is a widely accepted responsibility of such organisations (Campbell, Eden & Miller, 2011). Therefore, all stakeholders should be included and engaged with governance and decision-making processes. This should also be the case in sport (Dowling, Leopkey & Smith, 2018). However, akin to students in education, the lack of user-representation within sporting organisations has been a salient issue amongst academic enquiry, with much previous work focusing on the lack of gender representation in sport governance (Inglis, Danylchuk, & Pastore, 2000; Sykes, 1998; Elling, Hovden & Knoppers, 2018; Burton & Leberman, 2019). Here, a lack of female representation in governance is confounded with the dominance of men in sport (Cunningham & Sagas, 2007; Burton & Weiner, 2016; Acosta & Carpenter 2014). As such, women are under-represented in positions of leadership, suffer marginalisation, and are remunerated at lower rates for their work compared to men (Hower & Hums, 2013; Whisenant et al. 2002).

This lack of representation is not solely a gendered issue, as scholars have highlighted the absence of the athlete in sporting governance, too (Thibault, Kihl & Babiak, 2010). Athletes, regardless of sex, can be marginalised by a lack of influence or power, with 'tokenistic' structures implemented by organisations to address athlete participation in decision-making (Thibault et al. 2010).

At the same time, there remains a lack of literature on age representation in sport governance. This is germane as youth inclusion in governance in sport has been cited as having positive benefits for child development (Gould & Voelker, 2012). Due to a dearth of literature, legislation needs to be examined in order to understand youth participation in decision-making processes, as related to youth sport. The United Nations Convention on the Rights of the Child (UNCRC - 1989) offers a legal structure to frame such debates.

Specifically, the UNCRC provides children the right to have input on decisions that impact them.

Nevertheless, there have been some concerns around this in the education system, with initiatives addressing youth participation not complying with this legal framework (Lundy, 2007). Furthermore, school councils are often the primary method to ensure student input to decision-making in education which have been problematised in the literature (Andersson, 2019). In addition, an area seemingly absent from academic enquiry concerns youth participation in decision-making within school physical education (PE). This is an area of growing academic interest (for an overview of recent literature see O'Sullivan and McPhail, 2010; Aarskog et al. 2019, 2021; Aurtun et al. 2020; Nuñez Enriquez et al. 2021) There is, however, limited academic work related to this intersection in the English educational setting. Therefore, we begin by discussing the application of the UNCRC in this context, arguing that it applies to the PE setting, too.

### The UN Convention on the Rights of the Child

Youth participation within an authority, or organisation, is not only a democratic process, but also a legal imperative in many countries (United Nations, 1989). The UNCRC is an international, and widely supported (Alderson, 2000) human rights treaty with 195 state signatories. Germane to this paper is that the UK government ratified the UNCRC in 1991. The convention consists of 54 articles, with the focus being on the best interests of the child (United Nations, 1989). The rights fall into four broad categories: 'rights to survival, protection, development, and participation' (Limber & Flekkøy, 1995, P.4). In an examination of sport governance and youth participation, we focus on the participation aspects of the UNCRC.

Here, Article 12 of the convention is most salient for this analysis because it explicates for the right of children to have input in decisions that affect them. The article is important as it positions the child as having the ability to participate in society (Freeman, 1998). It reads:

> State Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child (United Nations, 1989).

The article has instigated discussion among politicians and academics due to its ambiguous and subjective nature (Bentley, 2005; Limber & Flekkøy, 1995). Yet, despite concerns around the vague nature of the article, Lundy (2007) posits: 'Implicit within the

notion of due weight is the fact that children have a right to have their views listened to (not just heard) by those involved in the decision-making processes' (P. 935).

In the UK, Article 12 has been implemented in various areas of society, most notably within education. This has not been without controversy, with the Committee on Human Rights of the Child (CHRC) criticising the UK's initial report, in 1995, stating:

> Greater priority to be given to incorporating the general principles of the conventions, especially … article 12, concerning the child's right to make his/her views known and to have these views given due weight (CHRC, 1995).

Further, in 2002, the Committee on Human Rights of the Child expressed concern: 'In education, schoolchildren are not systematically consulted in matters that affect them' (CHRC, 1995). As a response, under the Education Act (2002), schools were required to include students in decision-making on matters affecting them, with Ofsted inspectors having an additional criterion to examine such relationships in governance (Shier, 2001).

### *The Student Voice*

The term 'student voice' encapsulates a range of processes in which youth may participate within the governance of their school (Mitra, 2018). This may be through having space to express their opinions, working with adults to address issues within their school, or taking a lead on seeking refined change (Cook-Sather 2006; Fielding 2001; Pekral & Levin, 2007; Mitra, 2007; Lac & Cummings, 2018). In the education environment, school councils are the dominant provision to ensure a student voice in decision-making (Flutter & Rudduck, 2005; Robinson & Taylor, 2007; Andersson, 2019). These platforms aim to 'provide a formal, democratic, transparent, accountable, whole-school policy forum' (Alderson, 2000. P. 124) for students to express their views.

The concept of the student voice has been central to much critical debate, with frameworks that allow for youth participation in decision-making being cited as ineffective (Alderson, 2000; Kilkelly et al., 2005; Ruddock & Fielding, 2006). Spaces for students to formally participate have been criticised for being tokenistic, without tangible power or influence; and not affording students the opportunity to discuss matters important to them (Alderson, 2000; Morrow & Richards, 1996; Lundy, 2007). Hence, students are often marginalised in the decision-making process, their input not taken seriously and, sometimes, entirely overlooked (Shier, 2001; Nelson, 2019).

This issue is often compounded by an environment that is ill-equipped to invoke honest and open feedback (Kilkelly et al., 2005; Ruddock, 2006). Indeed, Robinson and

Taylor (2007) commented on the need for schools to progress from the simple collation of student perspectives, to a more concerted effort to engage students in the process as 'active agents of change' (P. 14). The position of youth in decision-making processes has been theorised by multiple academics (see; Hart, 1992; Lundy, 2007; Shier, 2001). However, we find Lundy's (2007) work particularly important here. This is because Lundy recognises the influence of adult concern in the outcomes of youth participation:

> Adult concerns tend to fall into one of three groups: scepticism about children's capacity (or a belief that they lack capacity) to have a meaningful input into decision making; a worry that giving children more control will undermine authority and destabilise the school environment; and finally, concern that compliance will require too much effort which would be better spent on education itself (Lundy, 2007, P.929-930).

Systems in place to allow for children's agency are often problematic. Wyse (2001) recognises that school youth councils, or youth forums, do not necessarily align with children's rights legislation, as they are often run by junior staff as opposed to the 'decision-makers' in management positions (Alderson & John, 2008).

While educational environments infrequently account for children's capacity to be involved with decision-making processes (Alderson & Goodwin, 1993; De Winter, 1997; Forde et al., 2018), in other domains, this is not the case. Health professionals, for example, use and engage with children's views during medical procedures (Alderson, 2000). Indeed, Flutter and Ruddock (2004) found the inclusion of children's views to improve teaching quality within democratic cultures.

Concerns from adults, however legitimate, should also not prevent youth participation in decision-making processes. Framing this, Lundy (2007) suggests that the practice of allowing a student voice should not be thought of as a process at the discretion of adults, but a legal imperative and right of the child. Lundy's (2007) work on the UNCRC offers an understanding of what participation means regarding the convention and legislation, negating many perceived barriers that adults construct (Detrick, Doek & Cantwell, 1992). Lundy (2007) argues that young people need tangible 'influence', where their views are respected and acted upon. Unfortunately, however, many platforms allowing for a student voice continue to limit students to offering an opinion, with little influence. Yet, a greater focus is needed on involving students with decision-making, with their views holding both power and influence.

Lundy (2007) suggests four key areas to allow for such influence: space, voice, audience, and influence. For young people to participate in decision-making, a space to freely discuss their views and opinions is necessary. Here, young peoples 'voice' must be met with respect and value, allowing the opportunity to express perspectives and opinions: a human right for all people, not only children (Universal Declaration on Human Rights, 1948). Lundy (2007) notes: 'Children's right to express their views is not dependent upon their capacity to express a mature view; it is dependent only on their ability to form a view, mature or not' (P.935). Without engagement from decision-makers, and those with power, a young person's voice is easily lost. As such, an appropriate 'audience' is required for young people's voices to be heard (Lundy, 2007).

### *Children's participation in Physical Education decision-making*

The UNCRC (1989) and Lundy's (2007) theoretical framework of youth participation recognise young people as having a legal right to involvement in decision-making processes where they are impacted by those decisions; and this applies to all areas of their lives. Sport is one such area. David (2004) argues that there should be a requirement to ensure that young people's rights are protected according to Article 31, which affords children the right to engage in cultural activities, such as sport, meaning they should be involved in sport governance structures.

Sport within the English PE curriculum is particularly contentious, namely because of participation being compulsory. The UK's government Department of Education state: 'Physical education (PE) is a compulsory part of the curriculum for all pupils at every Key Stage, from age four to 16. '(DoE, 2022). Numerous issues arise, here, which outline the importance of youth participation in the decision-making process of curriculum development in PE. One area of concern suggests children simply want different things to what adults impose upon them within a sporting environment (Witt & Dangi, 2018). Much of this ideology stems from adult aspirations being imposed on children (Anderson & White, 2018; Sánchez-Miguel et al., 2018), without consultation or sufficient consideration for children's views or opinions.

This top-down approach to sports governance also carries significant safeguarding concerns; again, particularly salient within the compulsory environment of PE. Sport takes place within an environment where injury is commonplace, and often normalised (Pike & Scott, 2015). Thus, the inclusion of contact sports, particularly tackle forms of rugby, in English school's PE, places participating children at a comparatively high risk of injury (Abernethy & MacAuley, 2001). A risk of injury that is likely to be significantly lower should non-contact forms of rugby be played instead (Griffin et al., 2020). Indeed, there has been calls from academics for a ban of contact Rugby in schools PE due to concerns over the health risks (BBC, 2020).

Instead, cultural tradition and adult agendas likely drive decisions around activity inclusion within PE curriculums (Anderson & White, 2018; Whigham et al., 2019). In addition, it would appear as though children's views are given little consideration in this process - a process that directly impacts them, and their health - which could be in contradiction to article 31 of the UNCRC. There are also contentious issues around consent (Anderson & White, 2018), with some scholars suggesting children are compelled to participate in these activities without informed consent being a requirement (White & Robinson, 2018).

Unfortunately, there is a paucity of research on the governance of sport within education, and a child's legal entitlement for representation in PE. Thus, this study sought to address this through a preliminary investigation of how English state-schools manage youth participation in the decision-making processes within the PE curriculum.

## METHOD

### *The Freedom of Information Act (FOIA)*

Public institutions, such as state funded schools and hospitals, are important bodies to examine and research, yet data and information is often concealed from the public domain. The Freedom of Information Act, 2000 (FOIA) is essential to allow for transparency within these publicly funded institutions. All public bodies are required by the FOIA to respond to requests for data within 20 working days. If the request is declined the institution must provide a valid reason for the refusal. An FOIA was deemed an appropriate method in order to obtain this public data. Schools were requested to return information on PE and school sport activities offered, both inside and outside of curriculum time, and what the students' contributions in decision-making were on the selection of these activities.

### *Sample*

Pupils aged from 11 to 16 were of interest to this study, with 3408 state funded schools educating this age group in 2016-2017 (Department for Education, 2017). England has 48 counties outlined by territorial divisions with each having local administrations. For this study, 11 out of the 48 counties in England were randomly selected through the use of https://www.random.org/lists/, resulting in a total of 788 schools being eligible for inclusion in the study.

The 788 selected schools were then also input into random list software with the first 400 schools produced being the sample contacted. Of the 400 requests, 296 responses were returned, with 8 duplicates identified through IP address and school name. Duplicates were subsequently removed, leaving a final sample size of 288 schools.

The 288 schools sampled accounted for 8.43% of secondary schools in England and 9.1% of secondary school pupils (293,414). While data for school type is unavailable nationally, the present sample was predominantly Academy Converters ($n$ = 160, 55.5%), followed by Academy Sponsor-Led ($n$ = 49, 17.0%), Community ($n$ = 32, 11%), Foundation ($n$ = 15, 5.2%), Voluntary Aided ($n$ = 14, 4.9%), and other school types ($n$ = 13, 4.5%). The present sample of schools had a larger average pupil size (mean pupils per school = 1018 ± 461) than that of the national average (mean pupils per school = 946). National data is unavailable for Ofsted's categorization of schools, however the present sample consisted of 8 schools that were rated as 'inadequate' (3%), 31 schools as 'requiring improvement', 168 schools rated good (58%), and 55 schools classified as 'outstanding'.

### *Procedures*

Data were obtained between the 9th of January 2017 and the 21st of July 2017, with schools being identified with the above random sampling strategy. Schools were then emailed a FOIA request. Responses were submitted via a pre-populated online survey or via post. Postal entries were uploaded to an online database upon arrival to ensure data was collected in a timely and organised manner. Paper copies were then destroyed in line with university guidelines. The online survey captured information on the PE curriculum (e.g., detailing the differences and options the male and female students had throughout their years of study), school demographics (e.g., number of teachers, number of pupils, OFSTED rating, type of school and FSM provision), as well as student participation in curriculum activity selection.

Understanding student participation in decision-making in the PE curriculum was the aim of this study. Schools were asked: *How do students get to contribute to the decision-making concerning which activities are compulsory in the physical education curriculum?* Responses were coded in an inductive framework, with categories agreed across researchers, resulting in total co-verification of codes (1.0) by at least two researchers. The 288 responses from schools were grouped under each theme for analysis, with responses per theme presented.

### *Ethics*

The University of Winchester Faculty Ethics Board granted ethical approval prior to the start of the study. The use of FOIA requests means the data reported on is public data. While it is not necessary to anonymise data in accordance with the FOIA, it was deemed ethical to do so, and as such school names have been removed from the data set.

## RESULTS

Data on the inclusion of students in governance and decision-making in the PE curriculum in English secondary state schools is presented below. In total, 288 responses

were returned to the question about student contributions to decision-making, with six clear themes from the data, as shown in Table 1.

Responses varied greatly, with some consisting of brief phrases such as 'Student Survey', while others provided more detail 'Via Student voice - termly. More formal questionnaires/survey monkey bi-yearly'. Although brief responses limit the scope of this study in developing a holistic understanding of student engagement in curriculum decisions, a number of the responses given demonstrated that students had minimal involvement in decision making related to the PE curriculum.

**Table 1.** Student contributions to decision-making concerning compulsory activities in the PE curriculum.

| Theme | Responses (%) |
|---|---|
| Student Voice | 78 (26.8) |
| Informal feedback | 55 (20) |
| No contribution | 54 (18.6) |
| Some input at KS4 | 47 (16.2) |
| Sports/Student Council | 43 (14.8) |
| Pre-determined Pathway Options | 11 (3.8) |

*n per themed response*

Table 1 details 26.8% ($n = 78$) of schools referred to the 'student voice' as the framework allowing students to contribute to PE curriculum decisions. This theme was defined through any explicit reference to student voice. Common responses were that of 'student voice' and 'student voice questionnaires', with some responses detailing the frequency of the questionnaires as 'termly' or 'annually'.

Overall, student voice initiatives were the primary method to include students in governance. Yet, the literature suggests student voice initiatives are ineffective vehicles to invoke change (Ruddock, 2006). One of the school's demonstrated this with the following

response: 'Student voice surveys allow us to gather information on the activities that students enjoy, but they have no say in what they can and can't do.' The response is poignant in demonstrating the tokenistic nature of such initiatives, something cited in the literature (Alderson, 2000).

'Informal feedback' returned as 20% ($n$ = 55) of the total responses. This was defined as any response that suggested student involvement but not within any official frameworks. Most responses had a high level of ambiguity making it difficult to understand the role or impact the students had within the process. Examples of these include: 'feedback sometimes' and 'some feedback annually'. The lack of detail and information about the processes in the institutions suggests student engagement in decision-making is not a key school policy in these cases.

'No contribution' accounted for 18.6% ($n$ = 54) of responses. This theme was easily defined as any responses stating students had no contribution to decision-making processes. These responses are particularly concerning and may contradict legal frameworks. We see students' views are not provided due weight and students do not have the ability to freely express their views on matters impacting them, something mandated through the UNCRC (United Nations, 1989).

Some input at KS4 made up 16.2% ($n$ = 47) of the responses. This theme was defined through responses suggesting students were not provided with any platform to engage in governance until KS4. However, there was a degree of ambiguity with regards to the extent of engagement at KS4 not explicitly stated, with the suggestion that the choice consisted of a predetermined set of activities or pathways that the student could choose from, but no mention of the process to input into decision-making around these activities or pathways. As such, responses were vague and varied. Common responses included 'KS4 there is an option system' and 'In KS4 they have options'. The responses demonstrated that a choice is offered for students in KS4, but few detailed the extent of choice or variety of the options on offer.

Furthermore, no school stated why the implementation of choice was brought in at KS4, with an example in this response 'They do not get any contribution in the decision making regarding the activities they participate in until Key Stage 4 when all but 1 term of their activities is options based'. The responses under this theme suggest minimal differences in terms of choice compared to that of the 'No contribution' theme. Although the students may have the option of a pathway, these are predetermined without flexibility to meet the needs of the individual (Flutter & Ruddock, 2004). It must be noted, however, this choice may be indicative of the transition to GCSE where PE becomes optional as an extended subject.

'Sports councils' accounted for 14.8% ($n$ = 43) of total responses. Any reference to democratic groups or council-type set ups, some specific to sport, formed the definition of

this theme. Again, responses here were often vague and ambiguous, such as 'sports council' and 'we have a School Council to air views'. No responses detailed the impact of the sports councils or the changes enacted, making interpretation of these processes somewhat difficult.

It is also important to note the responses did not detail how the sports councils are formed; for example, if they are formed from selected programmes or using a democratic voting system. It is possible that the Sports Councils are made up from individuals who have benefited from the current construction of the PE programme and thus reproduce the status quo (Anderson & White, 2018). Therefore, the use of Sports Councils could be suggested to enable the continuation of the top-down approach that exists within the PE curriculum, as students that have benefited from the existing programmes are unlikely to be active agents for change (Anderson & White, 2018; Pike & Scott, 2015).

'Pre-determined Pathway Options' accounted for 3.8% ($n$ = 11) of total responses. This theme was defined through a choice being provided from a predetermined pathway or activity list. Importantly, there was no mention of the student involvement in the production of such options, or at which stage of schooling this occurred as per the 'Some input at KS4' theme. Responses here delivered slightly more detail in comparison to the responses in the 'Some input at KS4' theme, allowing for a better understanding of the child's role within the decision-making process. Example responses include 'each class chooses sports that they would like on their curriculum map, from a table of choices'. This demonstrates that - although the choices are predetermined - the students are given more autonomy to decide the shape of each term. Yet, some responses were still ambiguous in nature: 'they sometimes have a choice of three activities in lessons'. Responses here suggest occasional choice was provided; yet the frequency of this choice is not determined. The data suggests most students are provided a restricted choice, in which the students are often given tokenistic opportunities to express their opinions to satisfy the perception of choice, facilitated through predetermined pathways. Again, responses did not indicate at which stages of schooling these choices are offered and how this relates to national curriculum requirements.

## DISCUSSION

Lundy (2007) frames children as active agents that should be included, consulted, and listened to in decision-making processes that impact them. Historically, however, students have not been systematically consulted on matters that affect them (CHRC, 1995), resulting in the inclusion of an assessment of this in Ofsted remits under the Education Act (2002). Yet, there remains limited research on how child rights manifest in education (Holzscheiter et al., 2019), and fewer still studies relating to youth governance and children's rights in formal sport (Eliasson, 2015; Lang & Harthill, 2015; Rhind et al., 2017). Thus, we

extend this line of research inquiry to explore the question of viewing children as active agents in their own domains as applied to the school PE context.

Analysing FOIA requests on 288 state-funded secondary schools in England, we found that large numbers of schools did not recognise student capacity to make informed decisions on the activities they would partake in. As such, the results from this study suggests that students may not be systematically consulted on matters that affect them, which is particularly contentious within the PE domain with the elevated risk for physical and psychological harm present in sporting domains (Fitzgerald & Deutsch, 2016; Anderson & White, 2018). This leads to several points of policy concern regarding children and their own agency.

First, the results suggest students within English secondary state education are not provided sufficient platforms to allow for engagement in the governance of the PE curriculum. Indeed, where issues of participation and choice are concerned, robust and defined procedures are not in place to enable students to enact their views. This highlights the barriers that face students in relaying and actualizing change within their PE curriculum (Kilkelly et al., 2005; Ruddock, 2006).

This finding also presents an issue when examined in line with the literature on the problematic nature of student voice initiatives in education more broadly (Alderson, 2000; Kilkelly et al., 2005). Indeed, Ruddock highlights that such initiatives can often lead to compliance as opposed to action: ''doing student voice' might come to be seen by some teachers as just another burden rather than a significant opportunity to review the capabilities and identities of children and young people in schools and in society' (2006, P.133).

However, we acknowledge that this study was limited by the data gained not always being as comprehensive as it might be when it comes to how student voice initiatives manifest in school PE. Future research, and something we plan on undertaking, would consist of follow-up interviews and focus groups with PE teachers and pupils to gain greater insight to these processes. Still, we argue the ambiguity in many of the responses is indicative of this area not being of key concern to school policy. In addition, those delivering PE demonstrated a lack of clarity on the official procedures in place to ensure the student voice amongst governance.

Second, in line with these concerns, a substantial number ($n$ = 54) of English state-schools revealed that students are not involved in governance and decision-making, despite research showing the positive influence of student inclusion in curriculum development and positive impact on teacher pedagogy (Flutter & Ruddock, 2004). Further, El-Sherif (2014) demonstrates how participation and student-experience are both improved when physical educators engage with students, allowing a true student voice to be heard. Thus, not including students in decision-making fails to capitalise on the positives for both the teachers' and students' experiences.

Third, Anderson and White (2018) suggest adult agendas, along with cultural traditions, often determine activity inclusion within the PE curriculum. This is demonstrated in the data where it is evidenced that large proportions of students are not provided any opportunity for contribution. Further, participants regularly cited taking decisions on activity delivery on behalf of students. This finding highlights an adult-centric decision-making process in the PE curriculum that warrants further investigation in the literature.

This adult-centred approach is problematic, particularly in consideration of health implications of riskier forms of PE activity delivery (Abernethy & MacAuley, 2001). Sport takes place within an environment where injury is common, and often normalised (Pike & Scott, 2015). More so, the potential psychological harm of young people underperforming or overperforming in sporting domains (Anderson & White, 2018) and the research suggesting children's desires in sport differing from adult agendas (Sánchez-Miguel et al., 2013), further problematise an adult-centric approach to PE activity delivery. This is particularly pertinent as sport and PE are often conflated, with sport-based activities dominating PE activity delivery (Gerdin and Pringle, 2015).

A final overarching theme from the data concerns the importance of the overall ambiguity of responses. All themes outside of 'No Contribution' contained responses that were vague and non-descript. Physical educators showing a lack of clarity on the provisions to allow for student engagement in decision-making in the PE curriculum demonstrates an absence of effective and adhered to policy in place within these institutions. However, we acknowledge this may also be a limitation in the methodology, and future research should explore this further.

This prevailing attitude aligns with previous research on student-informed decision making, which cites student marginalisation and input not being respected or taken seriously (Shier, 2001). Other researchers suggest that spaces that are provided for students to be involved in decision-making are tokenistic, with limited capacity to actualise any real change (Alderson, 2000; Morrow, 1999; Lundy, 2007). Our data aligns with the idea of tokenistic structures, which compounded by the ambiguity of responses, represents a lack of engagement or concern with the process in discussion. The purpose of this study was to gain a wide insight to the area, which was the rationale for the methodological design. Further research, such as policy reviews or interviews with students and teachers, may capture in more detail how the student voice manifests in English secondary-state schools. However, data from this study suggests that a significant number of English state-school students are not consulted on decisions affecting them. This conflicts with Article 12 of the UN Rights of the Child (United Nations, 1989) and requires further investigation. In turn, this becomes not only a contemporary cultural issue within the English education system, but perhaps a legislative one, too.

## CONCLUSION

Overall, data from this study addresses a contemporary and important issue within the English education system. Legally, students should be consulted within decision-making processes in the PE curriculum, with provisions in place to 'capture' the student voice. This becomes ethically paramount too; particularly considering the compulsory nature of PE in English state-schools; the fact that contact rugby for boys is made compulsory in 88% of those schools (White et al., Forthcoming), yet Rugby Football Union endorsed research states that contact rugby union has a higher injury and concussion incidence rate relative to other sports (Griffins et al., 2020). Therefore, we outline the lack of student involvement in decision-making within PE delivery as an area of concern and need of further academic inquiry, cultural focus, and policy reform

## REFERENCES


Aarskog, E., Barker, D., & Borgen, J. S. (2019). What were you thinking? A methodological approach for exploring decision-making and learning in physical education. Sport, Education and Society, 24(8), 828–840. https://doi.org/10.1080/13573322.2018.1491836

Aarskog, E., Barker, D., & Borgen, J. S. (2021). 'When it's something that you want to do.' Exploring curriculum negotiation in Norwegian PE. Physical Education and Sport Pedagogy, 0(0), 1–14. https://doi.org/10.1080/17408989.2021.1934660

Aartun, I., Walseth, K., Standal, Ø. F., & Kirk, D. (2020). Pedagogies of embodiment in physical education – a literature review. Sport, Education and Society, 0(0), 1–13. https://doi.org/10.1080/13573322.2020.1821182

Abernethy L & MacAuley, D (2001) Impact of school sports injury. British Journal of Sports Medicine, 37:354-355.

Acosta & Carpenter. "Women in Intercollegiate Sport. A Longitudinal, National Study, Thirty Seven Year Update. 1977-2014". Unpublished manuscript. Available for downloading at www.acostacarpenter.ORG

Alderson, P. (2000). UN Convention on the Rights of the Child: some common criticisms and suggested responses. Child Abuse Review, 9(6), 439–443.

Alderson, P., & Goodwin, M. (1993). Contradictions within concepts of children's competence. The International Journal of Children's Rights, 1(3–4), 303–313.

Alderson, P., & John, M. (2008). Young Children's Rights: Exploring Beliefs, Principles and Practice - Second Edition (Children in Charge) (2nd ed.). Jessica Kingsley.

Anderson, E., & White, A. (2018). Sport, Theory and Social Problems: A Critical Introduction (2nd ed.). Routledge.

Andersson, E. (2019). The school as a public space for democratic experiences: Formal student participation and its political characteristics. Education, Citizenship and Social Justice, 14(2), 149–164. https://doi.org/10.1177/1746197918776657

Anne Bentley, K. (2005). Can there be any universal children's rights? The International Journal of Human Rights, 9(1), 107–123.

BBC Sport (2020) Calls for tackling ban in school rugby. Available at: https://www.bbc.co.uk/sport/rugby-union/55356802

Bower, G. G., & Hums, M. A. (2013). The Impact of Title IX on Career Opportunities in Intercollegiate Athletic Administration. Journal of Intercollegiate Sport, 6(2), 213–230.

Burton, L. J., & Leberman, S. (2019). Women in Sport Leadership: Research and practice for change (Routledge Research in Sport Business and Management) (1st ed.). Routledge.

Burton, L. J., & Weiner, J. M. (2016). "They Were Really Looking for a Male Leader for the Building": Gender, Identity and Leadership Development in a Principal Preparation Program. Frontiers in Psychology, 141 (7).

Campbell, J. T., Eden, L., & Miller, S. R. (2011). Multinationals and corporate social responsibility in host countries: Does distance matter? Journal of International Business Studies, 43(1), 84–106.

Committee on Human Rights of the Child (1995). Joint Committee On Human Rights - Tenth Report. Parliament UK. https://publications.parliament.uk/pa/jt200203/jtselect/jtrights/117/11708.htm

Cook-Sather, A. (2006). Sound, Presence, and Power: "Student Voice" in Educational Research and Reform. Curriculum Inquiry, 36(4), 359–390.

Cook-Sather, A. (2015). Dialogue across differences of position, perspective, and identity: Reflective practice in/on a student-faculty pedagogical partnership program. Teachers College Record, 117(2), 1–29.

Cothran, D. J., & Ennis, C. D. (2000). Building bridges to student engagement: Communicating respect and care for students in urban high schools. Journal of Research & Development in Education, 33(2), 106–117.

Cunningham, G. B., & Sagas, M. (2007). Gender and Sex Diversity in Sport Organizations: Introduction to a Special Issue. Sex Roles, 58(1–2), 3–9.

Daniel Gould & Dana K. Voelker (2012) Enhancing Youth Leadership Through Sport and Physical Education, Journal of Physical Education, Recreation & Dance, 83:8, 38-41, DOI: 10.1080/07303084.2012.10598828

David, P., & Robinson, M. (2004). Human Rights in Youth Sport: A Critical Review of Children's Rights in Competitive Sport (Ethics and Sport) (1st ed.). Routledge.

De Winter, M. (1997) Children as Fellow Citizens: Participation and Commitment, Oxford and New York: Radcliffe Medical Press.

Department for Education. (2017, September 28). Schools, pupils and their characteristics: January 2017. GOV.UK. https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2017

Department of Education (2022). Statutory curriculum. Gov.UK. Available at: https://www.education-ni.gov.uk/articles/statutory-curriculum#:~:text=Physical%20education%20(PE)%20is%20a,from%20age%20four%20to%2016

Detrick, S., Doek, J. E., & Cantwell, N. (1992). The United Nations Convention on the Rights of the Child. Springer Publishing.

Dowling, M., Leopkey, B., & Smith, L. (2018). Governance in Sport: A Scoping Review. Journal of Sport Management, 32(5), 438–451.

Earls, F. (2003) Age Segregation and the Rights of Children. Ann Arbor, MI: Society for Research in Child Development.

Eliasson, I. (2015). The gap between formalised children's rights and children's real lives in sport. International Review for the Sociology of Sport, 52(4), 470–496. https://doi.org/10.1177/1012690215608516

Elling, A., Hovden, J., & Knoppers, A. (2018). Gender Diversity in European Sport Governance. Taylor & Francis.

El-Sherif, J. L. (2014). Student Voice: Student Choice and Participation in Physical Education. Strategies, 27(5), 8–11.

Fielding, M. (2001). Beyond the Rhetoric of Student Voice: new departures or new constraints in the transformation of 21st century schooling? FORUM, 43(2), 100.

Fitzgerald, A., & Deutsch, J. (2016). Limiting the risk of injury through safety guidelines in a physical education setting. Journal of Human Sciences, 13(2), 2856–2859. Retrieved from https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/3783

Flutter, J., & Ruddock, J. (2005). Pupil voice: purpose, power and the possibilities for democratic schooling. British Educational Research Journal, 31(4), 533–540.

Flutter, J., & Rudduck, J. (2004). Consulting Pupils: What's In It For Schools? (1st ed.). Routledge.

Forde, C., Horgan, D., Martin, S. et al. Learning from children's voice in schools: Experiences from Ireland. J Educ Change 19, 489–509 (2018). https://doi.org/10.1007/s10833-018-9331-6

Freeman, M. (1998). The Right to Be Heard. Adoption & Fostering, 22(4), 50–59.

Fullan, M., Quinn, J., & McEachen, J. J. (2017). Deep Learning: Engage the World Change the World (First ed.). Corwin.

Gerdin, G., & Pringle, R. (2015). The politics of pleasure: an ethnographic examination exploring the dominance of the multi-activity sport-based physical education model. Sport, Education and Society, 22(2), 194–213. https://doi.org/10.1080/13573322.2015.1019448

Griffin SA, Kanthi Panagodage Perera N, Murray A, et al. (2020) The relationships between rugby union, and health and well-being: a scoping review. British Journal of Sports Medicine. Published Online First: 28 October 2020. doi: 10.1136/bjsports-2020-10208

Haahr, M. (2017). RANDOM.ORG - List Randomizer. RANDOM.ORG. https://www.random.org/lists/

Hart, R. (1992) Children's Participation: From Tokenism to Citizenship, Florence: UNICEF.

Hartill, M., & Lang, M. (2015). "I Know People Think I'm a Complete Pain in the Neck": An Examination of the Introduction of Child Protection and "Safeguarding" in English Sport from the Perspective of National Governing Body Safeguarding Lead Officers. Social Sciences, 3(4), 606–627.

Heath, S. B., & McLaughlin, M. W. (1994). Learning for anything everyday. Journal of Curriculum Studies, 26(5), 471–489.

Holzscheiter, A., Josefsson, J., & Sandin, B. (2019). Child rights governance: An introduction. Childhood, 26(3), 271–288.

Inglis, S., Danylchuk, K. E., & Pastore, D. L. (2000). Multiple Realities of Women's Work Experiences in Coaching and Athletic Management. Women in Sport and Physical Activity Journal, 9(2), 1–26.

Kilkelly, U. , R.Kilpatrick, L.Lundy, L.Moore, P.Scraton, C.Davey, C.Dwyer, and S.McAlister . (2005). "No Title." Children's Rights in Northern Ireland (Belfast, Northern Ireland Commissioner for Children and Young People)

Lac, V. T., & Cumings Mansfield, K. (2018). What Do Students Have to Do With Educational Leadership? Making a Case for Centering Student Voice. Journal of Research on Leadership Education, 13(1), 38–58. https://doi.org/10.1177/1942775117743748

Limber, S. P., & Flekkoy, M. G. (1995). The U.N. Convention on the Rights of the Child: Its Relevance for Social Scientists. Social Policy Report, 9(2), 1–16.

Lukes, M. (2015). Latino immigrant youth and interrupted schooling: dropouts, dreamers and alternative pathways to college (Vol. 100). Multilingual Matters.

Lundy, L. (2007). 'Voice' is not enough: conceptualising Article 12 of the United Nations Convention on the Rights of the Child. British Educational Research Journal, 33(6), 927–942.

Mitra, D. (2006). Increasing Student Voice and Moving toward Youth Leadership. Prevention Researcher, 13 (1), 7-10.

Mitra, D. (2007) Student Voice in School Reform: from Listening to Leadership. In: Thiessen D., Cook-Sather A. (eds) International Handbook of Student Experience in Elementary and Secondary School. Springer, Dordrecht.

Mitra, D. (2018). Student voice in secondary schools: the possibility for deeper change. Journal of Educational Administration, 56(5), 473–487.

Morrow, V., & Richards, M. (1996). The Ethics of Social Research with Children: An Overview1. Children & Society, 10(2), 90–105.

Nelson, E. (2021) Student voice in pedagogical decision-making: nexus of transformation and problematic alliance. Aust. Educ. Res. https://doi.org/10.1007/s13384-020-00419-3

Noguera, P. A. (2007). How Listening to Students Can Help Schools to Improve. Theory Into Practice, 46(3), 205–211.

Nuñez Enriquez, O., & Oliver, K. L. (2021). 'The collision of two worlds': When a teacher-centered facilitator meets a student-centered pedagogy. Sport, Education and Society, 26(5), 459–470. https://doi.org/10.1080/13573322.2020.1738374

Osullivan, M. & McPhail, A (2010). Young People's Voices in Physical Education and Youth Sport (Routledge Studies in Physical Education and Youth Sport) (1st ed.). Routledge.

Pekrul, S., & Levin, B. (2007). Building Student Voice for School Improvement. International Handbook of Student Experience in Elementary and Secondary School, 711–726.

Pike, E & Scott, A (2015) Safeguarding, injuries, and athlete choice. In: Lang, M, Hartill, M (eds) Safeguarding, Child Protection and Abuse in Sport: International Perspectives in Research, Policy and Practice. London: Routledge, p. 172

Pope, D. C. (2003). Doing School: How We Are Creating a Generation of Stressed-Out, Materialistic, and Miseducated Students (unknown ed.). Yale University Press.

Quinn, S., & Owen, S. (2016). Digging deeper: Understanding the power of 'student voice.' Australian Journal of Education, 60(1), 60–72. https://doi.org/10.1177/0004944115626402

Rhind, D. J. A., Kay, T., Hills, L., & Owusu-Sekyere, F. (2017). Building a System to Safeguard Children in Sport: The Eight CHILDREN Pillars. Journal of Sport and Social Issues, 41(2), 151–171.

Robinson, C., & Taylor, C. (2007). Theorizing student voice: values and perspectives. Improving Schools, 10(1), 5–17.

Rudduck, J. (2006). The past, the papers and the project. Educational Review, 58(2), 131–143.

Rudduck, J., & Fielding, M. (2006). Student voice and the perils of popularity. Educational Review, 58(2), 219–231.

Sánchez-Miguel, P. A., Leo, F. M., Sánchez-Oliva, D., Amado, D., & García-Calvo, T. (2013). The Importance of Parents' Behavior in their Children's Enjoyment and Amotivation in Sports. Journal of Human Kinetics, 36(1), 169–177.

Shier, H. (2001). Pathways to participation: openings, opportunities and obligations. Children & Society, 15(2), 107–117.

Sykes, H. (1998). Turning the Closets Inside/Out: Towards a Queer-Feminist Theory in Women's Physical Education. Sociology of Sport Journal, 15(2), 154–173. https://doi.org/10.1123/ssj.15.2.154

The United Nations Human Rights. (1989). OHCHR | Convention on the Rights of the Child. Convention on the Rights of the Child. https://www.ohchr.org/en/professionalinterest/pages/crc.aspx

Thibault, L., Kihl, L., & Babiak, K. (2010). Democratization and governance in international sport: addressing issues with athlete involvement in organizational policy. International Journal of Sport Policy and Politics, 2(3), 275–302.

Whigham, S., Hobson, M., Batten, J., & White, A. J. (2019). Reproduction in physical education, society and culture: the physical education curriculum and stratification of social class in England. Sport, Education and Society, 25(5), 493–506.

Whisenant, W. A., Pedersen, P. M., & Obenour, B. L. (2002). Success and Gender: Determining the Rate of Advancement for Intercollegiate Athletic Directors. Sex Roles, 47(9/10), 485–491.

White, A. Batten, J. , Anderson, E., Magarth, R., Piggin, J et al. (2020) Imposing compulsory, tackle rugby on school children: an analysis of English state-funded secondary schools. Manuscript submitted for publication.

White, A., & Robinson, S. (2018). Consent and Brain Trauma in Schools. Journal of Physical Education, Recreation & Dance, 89, 5 - 6.

Witt, P. A. (2018). Why Children/Youth Drop Out of Sports. Journal of Park and Recreation Administration, 36(3), 191–199.

Wyse, D. (2001). Felt tip pens and school councils: Children's participation rights in four English schools. Children & Society, 15, 209–218.

## Biographical notes:

*Jack Hardwicke:* Lecturer in Health Sociology in the Department of Science at The University of Northampton

*Joseph Reed*: Postgraduate Research Student in the Department of Sport, Exercise and Health at the University of Winchester.

*Professor Eric Anderson:* Professor of Sport Studies in the Department of Sport, Exercise and Health at the University of Winchester.

*Dr John Batten*: Senior Lecturer in Sport and Exercise Psychology in the Department of Sport, Exercise and Health at the University of Winchester.

*Dr Adam J. White*: Senior Lecturer in Sport & Coaching Sciences in the Department of Sport, Health Science and Social Work at Oxford Brookes University.



*Author(s)' statements on ethics and conflict of interest*

*Ethics statement:* We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

*Statement of interest:* We have no conflict of interest to declare.

*Funding:* None

*Acknowledgements:* None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research Article

# The same, but different? Learning activities, perceived learning success, and social support during the practical term of teacher education in times of COVID-19

**Katharina Neuber** [1] **Kerstin Göbel** [2]

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 108-132

**Article Info:**

Received : 14.02.2022
Accepted : 04.03.2022

**Abstract:**

*The practical phases of teacher education programs are of high relevance for pre-service teachers and their professional development. The challenges posed by the COVID-19 pandemic and the resulting changes in schools might have affected pre-service teachers' learning experiences during the long-term internships of initial teacher education programs in various ways. This article focuses on pre-service teachers' experiences during their practical term during the COVID-19 pandemic. We will address three questions: first, how did pre-service teachers experience different kinds of learning activities in school (e.g., the delivery of and reflection on teaching); second, how did they perceive social support and their learning success associated with the implementation of learning activities in different areas of teaching; and third, which types of learning activities and social support were predictive of their perception of learning success? To this end, we will present findings from a cross-sectional survey which was conducted in the academic year 2020/21. A total of 164 pre-service teachers from different universities in North Rhine-Westphalia, Germany, participated in the online survey after having completed their practical term. The results of the study illustrate heterogeneous experiences concerning the preparation and implementation of remote teaching scenarios during the internship. Despite changes in schools due to the pandemic, pre-service teachers perceived a high level of social support and learning success during their practical term. Own teaching experiences and social support from mentors have proved to be relevant predictors for the perception of learning success.*

**Keywords:** COVID-19, practical terms during teacher education, learning experiences, online survey

**Citation:**
Neuber, K. and Göbel, K. (2022). The same, but different? Learning activities, perceived learning success, and social support during the practical term of teacher education in times of COVID-19. *International Journal of Modern Education Studies, 6*(1), 108-132. http://dx.doi.org/10.51383/ijonmes.2022.171

[1] Dr. Katharina Neuber, University of Duisburg-Essen, Faculty of Educational Sciences, Germany.
katharina.neuber@uni-due.de, Orcid ID: https://orcid.org/0000-0002-7421-0823

[2] Prof. Dr. Kerstin Göbel, University of Duisburg-Essen, Faculty of Educational Sciences, Germany.
kerstin.goebel@uni-due.de, Orcid ID: 0000-0003-2319-3194

## INTRODUCTION

During the practical phases of teacher education programs, pre-service teachers experience the demands, challenges, and difficulties, as well as the joys of the teaching profession. Therefore, practical phases are considered to have a high impact on the development of professional competencies of pre-service teachers (Arnold et al., 2014; Cohen et al., 2013; Kidd & Murray, 2020; Lawson et al., 2015). However, the development of competencies during these practical phases is not an automatic process. The yield of the internship in terms of professional development depends on pre-service teachers' uptake of different opportunities to learn, i.e. their implementation of learning activities in terms of teaching practice activities and reflection, and on the contextual and institutional conditions of the practical term, e.g. school type and intensity of social support (König & Rothland, 2018; Kunter et al., 2013; Tabachnick & Zeichner, 1987).

Due to the outbreak of COVID-19 in the spring of 2020, measures were taken worldwide to contain the spread of coronavirus, and the education sector was not exempt (Education International, 2020; Flores & Gago, 2020). The repeated closure of educational institutions due to the pandemic—for the first time in the spring and then again in the fall of 2020—required the reorganization of (high) school teaching and learning. This process posed challenges for all stakeholders at the beginning of the pandemic and also during its progression. In Germany, the impact of the pandemic on education, in particular on teachers (e.g., Eickelmann & Drossel, 2020; König et al., 2020b) and students (e.g., Hammerstein et al., 2021; Tannert & Gröschner, 2021), has received special attention, whereas higher education has been less of a focus (Hahn et al., 2021). Student surveys conducted during the first lockdown were intended to provide a general insight into the given learning situation at the respective universities. Related research focused especially on students' evaluation of remote teaching, the availability of technological infrastructures and media equipment, and the perceived advantages and disadvantages of digitalized teaching and learning settings (e.g., Karapanos et al., 2021; Zierer, 2020). In contrast, little is known about the experiences of pre-service teachers completing the practical phases of teacher education during the COVID-19 pandemic.

This article presents the findings of an explorative, cross-sectional survey study conducted with pre-service teachers from different universities in North Rhine-Westphalia, Germany, who completed their long-term internship in the academic year 2020/21. The study examines the implementation of pre-service teachers' learning activities, the social support and the learning success related to the implementation of various learning activities. For this purpose, participants were asked which different kinds of activities in terms of the delivery of and reflection on teaching they had conducted during their practical term (learning activities), how they perceived social support from mentors and peers (social support) and in which school practice areas they were able to improve their competencies (learning success). It can be assumed that the partial school closures and the remote teaching

situation due to the COVID-19 pandemic led to changes in the experiences that pre-service teachers made during their long-term internships. Accordingly, this present study focuses on the specific learning experiences of pre-service teachers during their practical term during the pandemic-related lockdown in German schools in the fall of 2020.

### Teaching and learning in times of COVID-19

COVID-19 strongly affected education settings worldwide in many ways, including the sudden transition from face-to-face instruction to remote teaching (Education International, 2020; Carrillo & Flores, 2020). Since the beginning of the pandemic, a large number of field reports and guidelines have been produced concerning the design of remote teaching scenarios, especially in higher education (e.g., Bao, 2020; Czerniewicz et al., 2020; Ferdig et al., 2020; Lowenthal et al., 2020; Moorhouse, 2020; Toquero, 2020; Zhu & Liu, 2020). Various surveys were conducted with university students and teachers, addressing their assessments of technical equipment, the quality of remote teaching, and the need for support (e.g., Almazova et al., 2020; Göbel et al., 2021; Karapanos et al., 2021; Kaqinari et al., 2021; Watermeyer et al., 2020; Zierer, 2020). Taken together, the findings illustrate that the digitalized courses offered during the first lockdown in the spring of 2020 were implemented mostly successfully and that various potential benefits of the transition to remote teaching were perceived, e.g., flexibility and autonomy in students' learning as well as the development of digital competencies. Nevertheless, the transition to remote teaching was a complex and stressful experience for many educators and students (see Göbel et al., 2021; Kaqinari et al., 2021; Kidd & Murray, 2020). Students in particular criticized the increased workload and the lack of contact with university teachers and fellow students (e.g., Karapanos et al., 2021; Zierer, 2020).

In schools, efforts to deal with the pandemic ranged from implementing hygiene precautions and wearing face masks to reducing the size of learning groups and switching from face-to-face to distance learning formats (Blume et al., 2021; Fickermann & Edelstein, 2021). It is possible that the challenges posed by the temporary school lockdown and the accompanying digitalization of teaching and learning in schools provided opportunities for redesigning traditional practices of instruction (Darling-Hammond & Hyler, 2020; Eickelmann & Gerick, 2020; Huber et al., 2020). However, recent findings illustrate that the changed circumstances significantly affected interactions between students and teachers, the design of instruction, and students' learning experiences. Even though most teachers were generally successful in maintaining communication with their students by, for example, introducing learning content and providing feedback remotely (Eickelmann & Drossel, 2020; König et al., 2020b), further studies found evidence of a negative effect of pandemic-related school closures on student achievement (Hammerstein et al., 2021) as well as students' emotions (Tannert & Gröschner, 2021). These findings emphasize the importance of good student–teacher relationships and communication for students' learning success and motivation in times of school closures, especially for socially

disadvantaged students (Eickelmann & Drossel, 2020; Hammerstein et al., 2021; Tannert & Gröschner, 2021).

At the beginning of the pandemic, empirical findings regarding schools in German-speaking countries revealed a high level of variation in the availability of digital resources, indicating that schools were likely to differ greatly in terms of their equipment for digital learning (Eickelmann & Drossel, 2020; Huber et al., 2020). The lack of equipment makes it difficult to prepare for and use digital tools for the virtual classroom and to maintain (remote) social contact with students (König et al., 2020b). This is true especially for beginning teachers, who usually have less experience of remote teaching or of general routines for planning, designing, and delivering distance-learning formats. Against this background, it is not surprising that in a qualitative survey of novice teachers, the respondents considered digitally supported distance learning during the school lockdown in the spring of 2020 as a substitute rather than a viable alternative for the future (Caruso & Bruns, 2021).

The pandemic confronted not only teachers and students with a novel situation, but also those pre-service teachers who were completing the practical phases of their initial teacher education program during this period (Flores & Gago, 2020; Zierer, 2020). For pre-service teachers, the pandemic presented a completely unknown setting for teaching and learning. The findings of an explorative study by Hase and Kuhl (2021), which focused on pre-service teachers' experiences during their long-term internship during the first school lockdown in the spring of 2020, show that pre-service teachers were involved in school and teaching processes to very different degrees. Although some positive learning experiences were reported, most pre-service teachers had fewer opportunities to teach and to reflect on their lessons with their school and university mentors, which in turn impacted the experiences gained during their long-term internship (Hase & Kuhl, 2021). Due to the temporary school closure, pre-service teachers lacked face-to-face interactions with mentors and their students (Caruso & Bruns, 2021). Therefore, opportunities for learning from experienced teachers through classroom observation or by attending conferences were rather limited. Nevertheless, the surveyed pre-service teachers also gained valuable impressions of developments at their schools during the pandemic and thus complemented the perspectives of teachers, students, parents, and other school actors (Caruso & Bruns, 2021; Hase & Kuhl, 2021).

## Developing professional competence during the practical phases of teacher education

The requirements of the teaching profession can be described as diverse and complex. The planning and delivery of teaching, including dealing with students in a way that promotes learning, as well as the reflection on and evaluation of teaching are considered core tasks (Kultusministerkonferenz, 2004). In order to be able to meet these demands, teachers require professional development of the corresponding competencies (Baumert &

Kunter, 2013; Desimone, 2009). Theoretical modeling of professional competence focuses primarily on those aspects that contribute to the success of teaching-learning processes in the classroom (König, 2016). The underlying assumption is that professional competence manifests in teaching performance (Blömeke et al., 2015), and that teachers with greater competence on average act more appropriately across different teaching situations than those with lesser competence. In German research, a widely accepted model for describing professional competence is the COACTIV model by Baumert and Kunter (2013). According to Weinert (2001), the theoretical construct of competence combines the prerequisites required for fulfilling the demands of a particular professional position; these prerequisites include cognitive as well as metacognitive individual dispositions. Consequently, the COACTIV model (Baumert & Kunter, 2013) focuses on the cognitive (i.e., knowledge and skills) as well as the motivational aspects of competence and self-regulatory orientations. In contrast, the competence model by Blömeke, Gustafsson and Shavelson (2015; see also Blömeke & Kaiser, 2017) suggests that beyond cognitive and affective-motivational dispositions, the professional performance of teachers is determined by situation-specific cognitive skills relating to the ability to perceive and interpret relevant classroom events and to decide how to react appropriately to these events. These situation-specific abilities (perception, interpretation, and decision-making) represent factors that mediate between individual dispositions and performance (Blömeke & Kaiser, 2017).

The practical phases of teacher education programs are considered as opportunities for supporting the development of the professional competence of pre-service teachers early in their professional careers (Arnold et al., 2014; Cohen et al., 2013; Klassen & Durksen, 2014; Tabachnick & Zeichner, 1987). During the practical phases, pre-service teachers experience school as a system and a workplace; they experience a wide range of teaching-related learning activities (e.g., the planning and delivery of teaching) and interactions with students and teachers that may increase their knowledge and skills. Accordingly, the implementation of different kinds of learning activities and the perceived learning success associated with these activities might occur in many different aspects of practice (Borko, 2004; Caires et al., 2012; Desimone, 2009). German research on the effectiveness of practical experiences in initial teacher education programs points to increases in pre-service teachers' self-assessed competencies. These increases are particularly evident in the area of teaching, i.e., the planning and delivery of lessons, as well as in pre-service teachers' career orientation and the development of their role as teachers (e.g., Festner et al., 2018; Moser & Hascher, 2000; Schubarth et al., 2014). International findings underline the potential impact of school-based internships on the development of pre-service teachers' competencies such as knowledge, teaching skills, or self-efficacy (e.g., Caires et al., 2012; Cohen et al., 2013; Klassen & Durksen, 2014).

The present study was conducted within the framework of pre-service teachers' long-term internship in the German teacher education program. The internship is intended to enable pre-service teachers to plan, implement, and reflect on fundamental elements of

teaching and learning, and to develop their own professional self-concept (MSW, 2010). The corresponding theory-based reflection on teaching and learning can be stimulated through the research activities that the pre-service teachers have to carry out during their internship as well as through their own teaching experiences. During their long-term internship, pre-service teachers are expected to teach 50 to 70 (partial) hours. It can therefore be assumed that pre-service teachers attribute a high degree of learning success regarding their professional development to the implementation of learning activities in teaching- and reflection-related areas of practice in particular. Recent findings from studies which focused on the effectiveness of this specific type of long-term internship for pre-service teachers' professional development show positive changes in self-assessed teaching skills (e.g., Caruso, 2019; Festner et al., 2018; Klingebiel et al., 2020; Kumschick et al., 2020). For pre-service teachers, the school-based part of the internship with its teaching-related learning activities is associated with a high learning effect (Mertens et al., 2018), while university-based learning opportunities appear to be less relevant for pre-service teachers' learning processes (Mertens et al., 2020; Schulz & Heinzel, 2020). In contrast, pre-service teachers' experiences of planning and conducting lessons as well as interacting with their students are attributed the highest importance for pre-service teachers' professional development, followed by classroom discussions with and classroom observations by experienced teachers (Bach, 2015; Mertens et al., 2020).

However, professional development does not solely occur through learning experiences; rather, a variety of different features of the practical term is important for pre-service teachers' learning success regarding their professional development (König & Rothland, 2018; Tabachnick & Zeichner, 1984). In particular, characteristics relating to how pre-service teachers utilize their internship to implement learning activities as well as external conditions like school type or the quality of social support seem to be relevant (Kunter et al., 2013). In long-term internships, the implementation of learning activities such as lesson planning, teaching, and reflecting on instruction are considered central goals. Empirical findings from Germany confirm the relevance of lesson planning and teaching for changes in pre-service teachers' affective-motivational competencies such as the enjoyment of school practice (Darge et al., 2018) and self-efficacy expectations (Seifert & Schaper, 2018). Smaller changes are evident concerning cognitive competencies, whereby an increase in pedagogical knowledge can be promoted above all through reflection-related activities during the practical term (König & Rothland, 2018; König et al., 2020a).

Furthermore, indicators of the structure of provision, such as the social support that pre-service teachers receive from mentors during their internship, are often highlighted in international literature as relevant for the effectiveness of the practical phases of teacher education (e.g., Beck & Kosnik, 2002; Clarke et al., 2014; Hobson et al., 2009; Izadinia, 2015; Lawson et al., 2015). Empirical findings from German studies hint at the importance of social support during the internship, especially from mentors at school, for pre-service teachers' development of pedagogical competencies like lesson planning or self-assessed competence

in teaching (Festner et al., 2018; Grassmé et al., 2018; Gröschner & Seidel, 2012). Furthermore, the perceived quality of social support from mentors is relevant for affective-motivational competencies such as the joy of school practice (Darge et al., 2018), for positive changes in self-efficacy expectations (Seifert & Schaper, 2018), and for intrinsic motivation (König et al., 2016). Pre-service teachers who report having received a higher amount of social support from a mentor improve their motivational competencies such as self-efficacy and intrinsic motivation for the teaching profession.

### Research questions

For pre-service teachers in the practical phases of their teaching education program, learning may occur in many different aspects of practice (Borko, 2004; Caires et al., 2012). As our study is explorative in nature, it is based on a broad definition of learning and does not provide an analysis of specific forms of professional competencies. Instead, we assume that pre-service teachers themselves are able to assess the knowledge and skills that they have acquired and developed during their internship (see Allen & Wright, 2014; Moser & Hascher, 2000). Against this background, we focus on the reported implementation of different kinds of learning activities as well as the associated learning success as an indicator of pre-service teachers' perception of their professional development during their practical term.

The present study was conducted at a time when schools were still in the process of adapting to the ongoing COVID-19 pandemic. Owing to the partial school closures in the fall of 2020, during the academic year 2020/21 pre-service teachers spent less time in school and thus had fewer opportunities to conduct their lessons and to interact with students, mentors, or peers in face-to-face situations. However, it is possible that participating in the adaptation process and experiencing a mix of remote teaching, hybrid settings, and face-to-face instruction proved beneficial for pre-service teachers. It is conceivable that the changed circumstances resulting from the pandemic influenced pre-service teachers' learning activities and thus the yield of their practical term in terms of their learning success. For this reason, the following questions appear to be of particular interest:

1. How did pre-service teachers experience their learning activities, the social support and the situation of remote teaching in schools?
2. How did pre-service teachers perceive their learning success in different areas of teaching? How did they rate the overall effectiveness of their practical term?
3. What kind of learning activities and social support were predictive for pre-service teachers' perceived learning success in the practical term?

## METHOD

### Design and sample

Data collection was based on a cross-sectional study design using an online survey which was addressed to pre-service teachers from different universities in North Rhine-Westphalia. The survey was conducted using LimeSurvey, which is licensed by the University of Duisburg-Essen. Participants were recruited by the university lecturers who were supervising the practical term of their students' initial teacher education program. Lecturers were informed about the study by email and were asked to forward the invitation to participate in the online survey to pre-service teachers completing the long-term internship during the academic year 2020/21. The internship lasted from September 2020 to February 2021, during which time schools were completely or partially closed. The questionnaire was available from February 1 to February 28, 2021, which means it was administered *after* the practical term.

Our analysis is based on a sample of $n$ = 164 pre-service teachers from nine North Rhine-Westphalian universities (127 female; 29 male; 8 unknown gender). Half of the respondents were aged between 24 and 26 years (50.6%), 33 respondents were between 27 and 29 years old (20.1%), another 33 reported being 23 years old or younger (20.1%), and 13 respondents were 30 years old or older (7.8%). 44 respondents completed their practical term at a primary school (26.8%), while 120 pre-service teachers were placed at secondary schools (73.2%).

### Measures

The online survey focused on different learning activities regarding face-to-face instruction and remote teaching, the perceived social support from mentors and peers, and the perception of learning success in different areas of the teaching profession. The learning activities and learning success of pre-service teachers focused on the first objective of the practical term in North Rhine-Westphalia in Germany, namely, to plan, deliver, and reflect on instruction in a well-founded manner (MSW, 2010). Hence the pre-service teachers' perceptions of different kinds of learning activities and their perceived learning success during the practical term were surveyed using a questionnaire.

*Learning activities*. In order to examine the implementation of pre-service teachers' learning activities, 53 items were introduced with the question "Did you conduct the following activities during your practical term?" (König et al., 2014). Pre-service teachers had to answer with "yes" (coded as 1) or "no" (coded as 0), which resulted in scale scores ranging from 0 to 1. The respective questionnaire items were summarized by averaging to the scales *teaching* (31 items, $\alpha$ = .85), *linking theories to situations* (11 items, $\alpha$ = .77) and *reflecting on practice* (11 items, $\alpha$ = .58).

*Use of digital tools.* In another section of the questionnaire, pre-service teachers were asked to indicate the extent to which digital tools were used for delivering remote teaching at their school. The extent of the use of digital tools was assessed using a four-point response scale (from 1 = "not at all" to 4 = "to a great extent"; Göbel et al., 2021). Furthermore, participants were asked to assess their experience of remote teaching in the school-based

part of their practical term, with answer choices ranging from "very positive and inspiring" to "mostly positive and encouraging", "time-consuming", "frustrating", and lastly to "overwhelming" in line with Göbel et al. (2021).

*Learning success and effectiveness*. In accordance with Moser and Hascher (2000), learning success was surveyed as an indicator of pre-service teachers' perception of their professional development based on the implementation of various learning activities in terms of planning and delivery of and reflection on their teaching during their practical term. For this purpose, participants were asked in which school practice areas (requirements and activities in the teaching profession) they learned something and were able to improve their competencies. The items reflected different areas such as lesson planning, delivering face-to-face instruction and remote teaching, evaluation and reflection on instruction, and interaction with students. These areas represent the main objectives of the practical term in North Rhine-Westphalia in Germany, namely to plan, deliver, and reflect on (parts of) lessons in a well-founded manner (MSW, 2010). A five-point scale was used to assess learning success in these areas (1 = very low; 5 = very high). The scale *learning success* was formed by averaging the nine questionnaire items; it shows sufficient internal consistency ($\alpha$ = .76). In order to consider the overall yield of the practical term, participants were asked to assess the perceived *effectiveness* of their practical term (one item) using a seven-point scale (1 = no learning effect, 7 = high learning effect; Mertens et al., 2018), whereby a distinction was made between the learning effect of the university itself, supervision by mentors at the Center for Practical Teacher Training, and the school-based part of the practical term.

*Social support*. Given the relevance of social support for the effectiveness of practical phases during teacher education, *social support from mentors* (9 items, $\alpha$ = .97, Kunter et al., 2017) and *social support from peers* (9 items, $\alpha$ = .94, Kunter et al., 2017) were surveyed. At the item level, a distinction can be made between emotional, informational, and instrumental support. All scales and their characteristics are presented in Table 1.

**Table 1**

*Scale descriptions and statistics*

| Scale | Item example | Range | Number of items | Cronbach's $\alpha$ | Source |
|---|---|---|---|---|---|
| Teaching | I have told students how to self-evaluate their learning. | 0–1 | 31 | .85 | König et al., 2014 |
| Linking theories to situations | I have observed teaching methods that I have learned at my university course. | 0–1 | 11 | .77 | König et al., 2014 |
| Reflecting on practice | I have drawn conclusions for future teaching. | 0–1 | 11 | .58 | König et al., 2014 |

| | | | | | |
|---|---|---|---|---|---|
| Experience of remote teaching at school | How would you describe your experience of remote teaching? | 1–6 | 1 | - | Göbel et al., 2021 |
| Use of digital tools at school | To what extent did you use the following tools for teaching at school? | 1–4 | 9 | .77 | Göbel et al., 2021 |
| Learning success | The role as a teacher (e.g., standing confidently in front of the class; leading the class; creating a positive learning atmosphere). | 1–5 | 9 | .76 | Moser & Hascher, 2000 |
| Social support from mentors/peers | I could talk to my mentors/peers about daily problems during the practical term. | 1–4 | 9 | .97/.94 | Kunter et al., 2017 |

### Data analysis

The collected data were descriptively analyzed at the level of individual items and at scale level. Multiple hierarchical linear regression was calculated to predict the perceived learning success in the practical term through learning experiences and social support. Stepwise regression equations were carried out to identify the respective explanatory power of the resulting models. In the analysis, the significance level was fixed at 5%. Given the exploratory nature of the present study, results with $p < .10$ are considered trends.

## RESULTS

### Experiences with learning activities, social support, and remote teaching

Concerning the different kinds of learning activities of pre-service teachers, the descriptive mean values signal the following picture: While pre-service teachers report quite extensive *teaching* activities (the mean value $M = 0.68$ illustrates that a third of all statements were answered with "yes"), the cognitively more demanding activities of *linking theories to situations* ($M = 0.61$) as well as *reflecting on practice* ($M = 0.58$) turn out to be somewhat more limited.

Despite the limitations due to the pandemic, the descriptive means illustrate a high overall level of perceived social support during the practical term. Perceived *social support from mentors* in school ($M = 3.39$, $SD = 0.74$) was rated slightly more positive than the perceived *social support from peers* ($M = 2.96$, $SD = 0.81$). Upon closer inspection, the descriptive means illustrate high values in the area of emotional and informational support ($M = 3.22–3.52$, $SD = 0.59–0.74$), whereas instructional support (e.g., sharing of materials for instruction) came out rather low, especially support from peers ($M = 2.50$, $SD = 1.02$).

Given the temporary closures of schools in the fall of 2020, pre-service teachers' experiences of remote teaching were of particular interest to this study. The results illustrate ambivalent assessments of the implementation of remote teaching at school. The statement that remote teaching was a predominantly positive and encouraging experience received the most support among respondents ($n$ = 119, 41.2%). At the same time, 33 of respondents (27.7%) perceived remote teaching as a complex or even frustrating experience that required an increased level of effort to master. Only a few respondents rated the experience of remote teaching as frustrating (8.4%) or overwhelming (5.9%) or, on the contrary, as nothing special (6.7%). For 12 respondents (10.1%), the experience of remote teaching was inspiring and even perceived as very positive.

With regard to the *use of digital tools* in the context of remote teaching, pre-service teachers most frequently used web conferencing systems (e.g., Zoom) for delivering their lessons (67.7%), followed by learning management systems platforms for delivering documents and bibliographies (49.7%), digital presentations (e.g., PowerPoint), YouTube videos, or other (48.4% each). Overall, a rather low level of utilization of different digital tools becomes apparent ($M$ = 2.09, $SD$ = .71). According to respondents, the reasons for not using digital tools for delivering their lessons were specifically: the great amount of time required to prepare digital teaching units (55.7%); the fact that digital tools were not used at the respective school (48.5%); or the fact that pre-service teachers did not feel sufficiently supported by school staff when preparing remote teaching using digital tools (43.9%).

### Perceived learning success and the effectiveness of the practical term

In order to measure *learning success* during the practical term, pre-service teachers were asked in which areas of the teaching profession they had learned something during the practical term and were therefore able to improve their competencies. The descriptive findings indicate the following picture (see Table 2): In all fields of activity except for the items concerning remote teaching, learning success in terms of professional development was rated high ($M_{items} > 3.0$; $M_{scale}$ = 3.91, $SD_{scale}$ = .60). The highest average learning success was perceived with regard to the role as a teacher. In addition, activities related to the preparation and delivery of face-to-face instruction were experienced as areas in which pre-service teachers improved their competencies, whereas learning success related to remote teaching was rated lower. Regarding the perception of learning success in the context of remote teaching, the standard deviations as well as the number of missing values ($n$ = 38) indicate divergent experiences by pre-service teachers in this specific area during the practical term and correspondingly ambivalent assessments.

In terms of the perceived effectiveness of the internship, further descriptive analyses highlight that the overall *effectiveness* of the practical term was rated as high ($M_{scale}$ = 5.03, $SD_{scale}$ = 1.03). Respondents attributed a high learning effect to the school-based part of the internship ($M$ = 6.40, $SD$ = 1.09), followed by supervision and support from mentors at the

Center for Practical Teacher Training ($M$ = 5.24, $SD$ = 1.55). In contrast, the university-based part of the practical term was attributed a lower learning effect ($M$ = 3.41, $SD$ = 1.68).

**Table 2**

*Descriptive characteristic values for learning success in different fields of activity in school practice*

| | Learning success | |
|---|---|---|
| **Item** | *M* | *SD* |
| The role as a teacher (e.g., establish a positive relationship with the class; lead the class). | 4.45 | .80 |
| General lesson planning (e.g., determine objectives and content for a series of lessons; become familiar with a topic). | 4.18 | .84 |
| Preparation of face-to-face instruction (e.g., structuring the course of a lesson; use of social formats). | 4.28 | .83 |
| Conducting face-to-face instruction (e.g., respond to and answer learner questions; activation and motivation of students). | 4.41 | .70 |
| Preparation of remote teaching (e.g., content design for the digital learning environment; procuring and providing tools). | 2.74 | 1.33 |
| Conducting remote teaching (e.g., be available to answer questions; use digital media). | 2.75 | 1.39 |
| Lesson evaluation and follow-up (e.g., derive conclusions for future lesson design; self-critically analyze own lessons). | 3.83 | 1.01 |
| Interact with students (e.g., observing, analyzing, and addressing learning disruptions; providing feedback). | 4.05 | 1.02 |
| Getting to know a school and everyday school life (e.g., interact with teachers; supervising) | 4.32 | .91 |

*References:* Statistics based on a scale from 1 = *very low* to 5 = *very high* ($n$ = 150–161).

## Relevance of learning activities and social support for perceived learning success

In order to examine the relevance of specific learning activities on the one hand and social support on the other hand for perceived *learning success*, a multiple stepwise regression was conducted. The first model included only person-related variables ($F$(2,142) = .506, $p$ = .604). Neither gender nor school type proved to be predictors, and the explanatory power was rather limited (see Table 3). Learning activities and the use of digital tools for remote teaching were integrated into the next regression model while controlling for person-related characteristics ($F$(6,138) = 3.264, $p$ = .005). The explained variance increased significantly (see Table 3), but only *reflecting on practice* was a significant predictor of *learning success* in the practical term. In the final model, the social support variables were integrated, and a significant increase in the explained variance emerged ($F$(8,136) = 6.481, $p$ < .001). While *reflecting on practice* turned out to be a significant predictor of *learning success*, the newly added variable *social support from mentors* also proved to be predictive of *learning success* in the practical term, whereas *peer support* had no influence. In addition, *teaching* turned out to be predictive of *learning success*, and a trend was depicted for the *use of digital tools* in remote teaching in school.

**Table 3**

*Regression analysis*

| | M1 | | M3 | | M4 | |
|---|---|---|---|---|---|---|
| | ***B*** | β | ***B*** | β | ***B*** | β |
| Gender[1] | .101 | .067 | .118 | .079 | .126 | .085 |
| School type[2] | .059 | .046 | .015 | .012 | -.108 | -.084 |
| Teaching | | | -.012 | -.005 | .025 | .010 |
| Linking theories to situations | | | .480 | .139 | .616 | .178* |
| Reflecting on practice | | | .682 | .228* | .518 | .174* |
| Use of digital tools in school | | | .095 | .116 | .107 | .131+ |
| Social support from mentors | | | | | .338 | .398*** |
| Social support from peers | | | | | -.028 | -.038 |
| Adjusted $R^2$ | -.007 | | .086 | | .233 | |
| Difference in $F$ | .506 | | 4.618** | | 14.250*** | |

*References:* dependent variable = learning success; [1]Coding: 0 = *male*, 1 = *female*; [2]*Coding: 0 = secondary school*, 1 = *primary school*; *+p<.10, *p<.05, **p<.01, ***p<.001; n = 145;* Durbin-Watson: 2.020.

## DISCUSSION

This paper presents the results of a cross-sectional survey study conducted with pre-service teachers who completed their practical term during the COVID-19 pandemic in the academic year 2020/21. Despite changes introduced at schools as a result of the pandemic, our findings show that the long-term internship is associated with high learning effects for pre-service teachers. This is true especially in terms of teaching-related activities during the school-based part of the internship. The extent of the perceived effectiveness of the school-based part of the practical term during COVID-19 is comparable to the findings of studies prior to the pandemic (Bach, 2015; Mertens et al., 2018).

Regarding different learning activities in terms of *teaching*, *linking theories to situations*, and *reflecting on practice*, the present sample shows frequencies comparable to the results of previous surveys on learning activities during the practical term conducted prior to COVID-19 (Doll et al., 2020; König et al., 2018). In particular, respondents reported quite extensive teaching activities during their practical term, which was expected given the structure of the long-term internship during which our study took place. Although the practical term occurred during a partial school closure due to the lockdown in the fall of 2020, learning success regarding the role as a teacher and learning success regarding the preparation and implementation of face-to-face instruction were rated as high by the surveyed pre-service teachers, while learning success regarding the preparation and implementation of remote teaching scenarios was perceived lower. Our study did not find evidence in support of the assumption that opportunities to learn from experienced teachers were as limited as the contact with peers due to pandemic-induced changes in schools. On the contrary, our

findings illustrate a high level of perceived social support during the practical term; especially the support provided by mentors was experienced as intense and highly relevant.

Pre-service teachers' learning activities during the practical term in times of COVID-19 might differ from those occurring in regular conditions, for example because lessons are less frequently conducted in face-to-face settings and instead more frequently designed for digitally supported formats (Caruso & Bruns, 2021; Flores & Gago, 2020). This assumption could be confirmed only to a limited extent and exclusively with regard to learning experiences relating to remote teaching. It was expected that pre-service teachers would be confronted with novel situations such as the preparation and implementation of remote teaching formats, which could be used as learning opportunities for rethinking traditional instructional practices (Darling-Hammond & Hyler, 2020; Eickelmann & Gerick, 2020). Pre-service teachers completing the practical term of their teacher training program during the pandemic would have witnessed this redesign of instruction and therefore might have had opportunities to acquire knowledge about digitally supported instructional practices (Flores & Gago, 2020; Hase & Kuhl, 2021). Our findings illustrate that pre-service teachers provided ambivalent assessments regarding their experience of distance learning and remote teaching. Although the majority of pre-service teachers who conducted remote teaching in schools rated the experience as positive and encouraging, remote teaching was also described as a complex experience which required effort beyond what was expected. This is in line with results from a qualitative study of novice teachers conducted during the first pandemic-related school lockdown in the spring of 2020, in which distance teaching was associated with both benefits and disadvantages. In terms of disadvantages, the workload as well as the lack of control over who used the learning material (e.g., used by parents and not by the student) were criticized in particular (Caruso & Bruns, 2021). In our data, the missing values of the corresponding questionnaire items further signal divergent experiences of remote teaching; obviously not all pre-service teachers had the opportunity to conduct distance learning during their practical terms. Overall, the learning success associated with remote teaching was perceived lower than the learning success regarding face-to-face instruction.

Regarding reasons for not using digital tools for delivering their own lessons, pre-service teachers reported that digital tools were not used at the respective school or that they did not feel sufficiently supported by school staff in planning remote teaching scenarios. The rare or non-use of digital tools in these schools is surprising given the fact that schools had been in the process of adapting to the circumstances of the pandemic for months and had already had to switch to alternative and/or digitally supported learning models during the school closures of the spring of 2020. However, this finding is in line with previous studies on digitalization in German schools which showed that the use of digital tools was comparatively rare prior to COVID-19 (Eickelmann et al., 2019; Drossel et al., 2019) and varied widely across schools at the beginning of the pandemic (Eickelmann & Drossel, 2020; Huber et al., 2020). In Hase and Kuhl's (2021) study focusing on pre-service teachers'

experiences during their internship during the first pandemic-related school closure, respondents also perceived the acquisition of and access to digital media in schools as a challenge. However, the availability of digital resources is essential for maintaining communication with students and successfully delivering online lessons (König et al., 2020b). As attitudes, knowledge, and competencies are also necessary for the actual use of digital media (e.g., Teo, 2009) and empirical evidence showed disadvantages in these areas especially for pre-service teachers (Senkbeil et al., 2020), an expansion of the technological infrastructure in German schools as well as the provision of support structures for developing positive attitudes and digital competencies is required. In the long term, an increased use of digital tools by experienced teachers may also enable these teachers to pass on their knowledge about digital media to prospective teachers during internships.

The findings of the regression analysis confirm the relevance of specific characteristics of utilization (in terms of the learning activities *reflecting on practice, teaching*) and of the offer structure (in terms of *social support*) of the practical term for perceived learning success during this phase of teacher education (König & Rothland, 2018; Kunter et al., 2013; Tabachnick & Zeichner, 1987). Reflection is not only assumed theoretically (e.g., Schön, 1983), but has also been empirically shown in previous studies to be relevant for professional development (König et al., 2020a; König & Rothland, 2018). Furthermore, own teaching experiences were found to be of high importance for pre-service teachers' professional development in previous studies (e.g., Bach, 2015; Mertens et al., 2020). However, in the sample of this present study, the strongest predictor for learning success was *social support from mentors*, which is also in line with previous research (e.g., Clarke et al., 2014; Festner et al., 2018; Hobson et al., 2009; Lawson et al., 2015). Overall, the results from the present regression analysis clearly support and confirm the previous state of research on practical phases in teacher education. Although the pandemic-related situation in schools and the switch to digital learning scenarios represented a new learning environment for pre-service teachers, these new circumstances did not affect the relevance of their own teaching experiences in face-to-face settings or perceived social support as predictive variables for learning success during the internship.

## LIMITATIONS AND RECOMONDATIONS

The present study entails some methodological limitations. One important aspect is its explorative nature and cross-sectional design. In order to make reliable statements about predictive variables and conditions for pre-service teachers' professional development during the practical term, longitudinal studies would be required, and even these would not be able to express causality accurately. Furthermore, no measures of (self-assessed) professional competencies such as pedagogical knowledge or self-efficacy were used. Instead, our study is based on a broad definition of learning, and we operationalized only learning success as the perceived development of knowledge and skills in different areas of teaching. Learning activities and development in non-teaching areas of the profession, such as cooperating with other colleagues, were not part of our questionnaire. As self-assessment

scales were implemented, little is known about pre-service teachers' actual behavior. Although our sample consists of pre-service teachers from different universities in North Rhine-Westphalia, the given sample might not be representative and response bias effects are possible due to the voluntary nature of participation in the online survey.

## CONCLUSION

Overall, the present study offers insights into the learning experiences of pre-service teachers during their practical term in times of COVID-19. Our explorative findings reveal that the changed circumstances at universities and schools due to COVID-19 did not substantially affect pre-service teachers' learning experiences, perceived social support, or the perceived learning success and effectiveness of the practical term. However, our cross-sectional study is limited to pre-service teachers' learning experiences in different areas of teaching; learning activities in non-teaching areas of the profession should be considered in further studies. For example, learning experiences could be examined in more depth through qualitative studies. Because in our sample the lowest learning success was perceived in regard to distance teaching, the preparation and implementation of distance learning and teaching scenarios during the practical phases of teacher education could be given more attention in the future. Further research is needed to obtain additional insights into the professional development of pre-service teachers during COVID-19, including a more comprehensive consideration of the different aspects of professional competencies such as affective-motivational and cognitive dimensions. Furthermore, the question of the effects of the COVID-19 pandemic on the well-being of pre-service teachers should be considered in further studies. Occupational well-being certainly appears to be of importance to the professional competence of teachers and the learning outcomes of students (Klusmann et al., 2016), and increased stress can certainly be expected given findings of other research on studying during the pandemic (e.g., Elmer et al., 2020; Odriozola-González et al., 2020).

## REFERENCES

Allen, J., & Wright, Elizabeth, S. (2014). Integrating theory and practice in the pre-service teacher education practicum. *Teachers and Teaching*, *20*(2), 136–151. DOI: https://doi.org/10.1080/1-3540602.2013.848568.

Almazova, N., Krylova, E., Rubtsova, A., & Odinokaya, M. (2020). Challenges and Opportunities for Russian Higher Education amid COVID-19: Teachers' Perspective. *Educ. Sci.*, *10*(12), 368. https://doi.org/10.3390/educsci10120368.

Arnold, K. H., Gröschner, A., & Hascher, T. (2014). Pedagogical field experiences in teacher education: Introduction to the research area. In K. H. Arnold, A. Gröschner, & T. Hascher (Eds.), *Schulpraktika in der Lehrerbildung / Pedagogical field experiences in teacher education. Theoretische Grundlagen, Konzeptionen, Prozesse und Effekte / Theoretical foundations, programmes, processes, and effects* (pp. 11-28). Waxmann.

Bach, A. (2015). *Das Praxissemester in der Lehrerinnen-und Lehrerbildung. Ergebnisse einer Evaluationsstudie zum Praxissemester an der Europa-Universität Flensburg*. [The practical semester in teacher education. Results of an evaluation study on the practical semester at the European University of Flensburg]. Zentrum für Lehrerinnen- und Lehrerbildung. https://www.uni-flensburg.de/file-admin/content/zentren/zfl/dokumente/presse/2015-bach-evaluationsbericht-praxis-semester-online-end.pdf.

Bao, W. (2020). COVID-19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, *2*(2), 113-115. https://online-library.wiley.com/doi/epdf/10.1002/hbe2.191.

Baumert, J., & Kunter, M. (2013). The COACTIV model of teachers' professional competence. In M. Kunter, J. Baumert, W. Blum, U. Klusmann, S. Krauss, & M. Neubrand (Eds.), *Cognitive Activation in the Mathematics Classroom and Professional Competence of Teachers* (pp. 25–48). Waxmann. https://doi.org/10.1007/978-1-4614-5149-5_2.

Beck, C., & Kosnik, C. (2002). Components of a Good Practicum Placement: Student Teacher Perceptions. *Teacher Education Quarterly*, *29*(2), 81-98. https://www.jstor.org/stable/234782-94.

Blömeke, S., & Kaiser, G. (2017). Understanding the Development of Teachers' Professional Competencies as Personally, Situationally and Socially Determined. In D. J. Clandini, & J. Husu (Eds.), *International Handbook on Research on Teacher Education* (pp. 783–802). Sage. https://doi.org/10.4135/9781526402042.n45.

Blömeke, S., Gustafsson, J.-E., & Shavelson, J. (2015). Beyond dichotomies: Competence viewed as a continuum. *Zeitschrift für Psychologie*, *223*, 3-13. https://doi.org/10.1027/2151-2604/a000194.

Blume, F., Schmidt, A. Kramer, A. C., Schmiedek, F., & Neubauer, A. B. (2021). Homeschooling during the SARS-CoV-2 pandemic: the role of students' trait self-regulation and task attributes of daily learning tasks for students' daily self-regulation. *Zeitschrift für Erziehungswissenschaft*, *24*, 367–391. DOI: 10.1007/s11618-021-01011-w.

Borko, H. (2004). Professional Development and Teacher Learning: Mapping the Terrain. *Educational Researcher*, *33*(8), 3–15. DOI: 10.3102/0013189X033008003.

Caires, S., Almeida, L., & Vieira, D. (2012). Becoming a teacher: student teachers' experiences and perceptions about teaching practice. *European Journal of Teacher Education*, *35*(2), 163-178. DOI: https://doi.org/10.1080/02619768.2011.643395.

Carrillo, C., & Flores, M. (2020). COVID-19 and teacher education: a literature review of online teaching and learning practices. *European Journal of Teacher Education*, *43*(4), 466-487. DOI: https://doi.org/10.1080/02619768.2020.1821184.

Caruso, C., & Bruns, M. (2021). (Medienbezogene) Lerngelegenheiten und Kompetenzbedarfe im Referendariat. Explorative Perspektiven von (angehenden) Lehrkräften angesichts der veränderten Rahmenbedingungen durch die Corona-Pandemie. [(Media-related) learning

opportunities and competence needs in teacher traineeships. Explorative perspectives of (prospective) teachers in view of the changed framework conditions due to the Corona pandemic]. In C. Reintjes, R. Porsch & G. im Brahm (Eds.), *Das Bildungssystem in Zeiten der Krise. Empirische Befunde, Konsequenzen und Potentiale für das Lehren und Lernen* (pp. 239–257). Waxmann.

Caruso, C. (2019). *Das Praxissemester von angehenden Lehrkräften. Ein Mixed-Methods-Ansatz zur Exploration ausgewählter Effekte*. [The practical semester of pre-service teachers. A mixed-methods approach to explore selected effects]. Springer VS.

Clarke, A., Triggs, V., & Nielsen, W. (2014). Cooperating Teacher Participation in Teacher Education. *Review of Educational Research*, *84*(2), 163–202.

Cohen, E., Hoz, R., & Kaplan, H. (2013). The Practicum in Preservice Teacher Education: A Review of Empirical Studies. *Teaching Education, 24*(4), 345-380.

Czerniewicz, L. et al. (2020). A Wake-Up Call: Equity, Inequality and COVID-19 Emergency Remote Teaching and Learning. *Postdigital Science and Education*, *2*, 946-967. https://-doi.org/10.1007/s42438-020-00187-4.

Darge, K., Valtin, R., Kramer, C., Ligtvoet, R., & König, J. (2018). Die Freude an der Schulpraxis: Zur differenziellen Veränderung eines emotionalen Merkmals von Lehramtsstudierenden während des Praxissemesters. [The joy of school practice: The differential change of an emotional characteristic of student teachers during the practical semester]. In J. König, M. Rothland & N. Schaper (Eds.), *Learning to Practice, Learning to Reflect? Ergebnisse aus der Längsschnittstudie LtP zur Nutzung und Wirkung des Praxissemesters in der Lehrerbildung* (pp. 241-264). Springer VS.

Darling-Hammond, L., & Hyler, M. (2020). Preparing educators for the time of COVID … and beyond. *European Journal of Teacher Education*, *43*(4), 457–465. DOI: 10.1080/02619768.-2020.1816961.

Desimone, L. M. (2009). Improving Impact Studies of Teachers' Professional Development: Toward Better Conceptualizations and Measures. *Educational Researcher, 38*(3), 181–199. DOI: 10.3102/0013189X08331140.

Doll, J., Jentsch, A., Meyer, D., Kaiser, G., & König, J. (2020). Zur Reflexion über praktische Lerngelegenheiten: reflexionsbezogene Tätigkeiten angehender Lehrpersonen in universitären und außeruniversitären Praxisphasen. [On reflection about opportunities to learn in field experience: Student teachers' reflection related activities in university und non-university practical situations]. *Herausforderung Lehrer*innen-bildung - Zeitschrift zur Konzeption, Gestaltung und Diskussion*, *3*(1), 1-17. DOI: 10.4119/HLZ-2558.

Drossel, K., Eickelmann, B., Schaumburg, H., & Labusch, A. (2019). Nutzung digitaler Medien und Prädiktoren aus der Perspektive der Lehrerinnen und Lehrer im internationalen Vergleich. [Use of digital media and predictors from the teachers' perspective in an international comparison]. In B. Eickelmann, W. Bos, J. Gerick, F. Goldhammer, H.

Schaumburg, K. Schwippert, K. Senkbeil & J. Vahrenhold (Eds.), *ICILS 2018 #Deutschland. Computer- und informationsbezogene Kompetenzen von Schülerinnen und Schülern im zweiten internationalen Vergleich und Kompetenzen im Bereich Computational Thinking* (pp. 205-240). Waxmann. DOI: https://doi.org/10.25656/01:18325.

Education International (2020). *Guiding Principles on the COVID-19 Pandemic*. https://www.ei-ie.org/en/detail/16701/guiding-principles-on-the-COVID-19-pandemic.

Eickelmann, B., Bos, W., & Labusch, A. (2019). Die Studie ICILS 2018 im Überblick. Zentrale Ergebnisse und mögliche Entwicklungsperspektiven. [The ICILS 2018 study at a glance. Key findings and possible development perspectives]. In B. Eickelmann, W. Bos, J. Gerick, F. Goldhammer, H. Schaumburg, K. Schwippert, M. Senkbeil & J. Vahrenhold (Eds.), *ICILS 2018 #Deutschland. Computer- und informationsbezogene Kompetenzen von Schüler-innen und Schülern im zweiten internationalen Vergleich und Kompetenzen im Bereich Computational Thinking* (pp. 7-31). Waxmann. DOI: 10.25656/01:18319.

Eickelmann, B., & Drossel, K. (2020). *Schule auf Distanz. Perspektiven und Empfehlungen für den neuen Schulalltag. Eine repräsentative Befragung von Lehrkräften in Deutschland.* [School at a distance. Perspectives and recommendations for the new everyday school life. A representative survey of teachers in Germany]. Vodafone-Stiftung.

Eickelmann, B., & Gerick, J. (2020). Lernen mit digitalen Medien. [Learning with digital media]. In D. Fickermann & B. Edelstein (Eds.), *"Langsam vermisse ich die Schule…". Schule während und nach der Corona-Pandemie* (pp. 153–162). Waxmann.

Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PloS one*, *15*(7), 1-22. DOI: 10.1371/journal.pone.0236337.

Ferdig, R. E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R., & Mouza, C. (2020). *Teaching, Technology, and Teacher Education During the COVID-19 Pandemic: Stories from the Field. Association for the Advancement of Computing in Education (AACE)*. https://www.learntechlib.org/p/216903/.

Festner, D., Schaper, N., & Gröschner, A. (2018). Einschätzung der Unterrichtskompetenz und -qualität im Praxissemester. [Assessment of teaching competence and quality in the practical semester]. In J. König, M. Rothland & N. Schaper (Eds.), *Learning to practice, learning to reflect? Ergebnisse aus der Längsschnittstudie LtP zur Nutzung und Wirkung des Praxissemesters in der Lehrerbildung* (pp. 163-193). Springer VS.

Fickermann, D., & Edelstein, B. (2021). *Schule während der Corona-Pandemie. Neue Ergebnisse und Überblick über ein dynamisches Forschungsfeld*. [Schooling during the Corona Pandemic. New results and an overview of a dynamic field of research]. Waxmann. DOI:10.25656/01:21511.

Flores, M., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal national, institutional and pedagogical responses. *Journal of Education for Teaching*, *46*(4), 507-516. DOI: https://doi.org/10.1080/02607476.2020.1799709.

Göbel, K., Makarova, E., Neuber, K., & Kaqinari, T. (2021). Der Übergang zur digitalen Lehre an den Universitäten Duisburg-Essen und Basel in Zeiten der Corona-Pandemie. [The transition to remote teaching at the Universities of Duisburg-Essen and Basel during the corona pandemic]. In U. Dittler & C. Kreidl, *Wie Corona die Hochschullehre verändert. Erfahrungen und Gedanken aus der Krise* (pp. 351-374). Springer Gabler. DOI: https://doi.org/10.1007/978-3-658-32609-8.

Grassmé, I., Biermann, A., & Gläser-Zikuda, A. (2018). Lerngelegenheiten in Schulpraktika und ihre Bedeutung für professionsbezogene Kompetenzen von Lehramtsstudierenden. [Learning opportunities in practical terms and their impact on professional competences of pre-service teachers]. In M. Rothland & I. Biederbeck (Eds.), *Praxisphasen in der Lehrerbildung im Fokus der Bildungsforschung* (pp. 8-23). Waxmann.

Gröschner, A., & Seidel, T. (2012). Lernbegleitung im Praktikum. Befunde und Innovationen im Kontext der Reform der Lehrerbildung. [Learning support in the internship. Findings and innovations in the context of the teacher education reform]. In W. Schubarth, K. Speck, A. Seidel, C. Gottmann, C. Kamm & M. Krohn (Eds.), *Studium nach Bologna: Praxisbezüge stärken?! Praktika als Brücke zwischen Hochschule und Arbeitsmarkt* (pp. 171-183). Springer VS.

Hahn, E., Kuhlee, D., & Porsch, R. (2021). Institutionelle und individuelle Einflussfaktoren des Belastungserlebens von Lehramtsstudierenden in der Corona-Pandemie. [Institutional and individual factors influencing the stress experience of pre-service teachers during the corona pandemic]. In C. Reintjes (Eds), *Das Bildungssystem in Zeiten der Krise: empirische Befunde, Konsequenzen und Potentiale für das Lehren und Lernen* (pp. 221-238). Waxmann.

Hammerstein, S. et al. (2021). *Effects of COVID-19 Related School Closures on Student Achievement – A Systematic Review*. https://psyarxiv.com/mcnvk/.

Hase, A., & Kuhl, P. (2021). Schule unter Corona-Bedingungen: Gelungenes, Herausforderungen, Handlungsbedarfe und Entwicklungen aus Sicht von Lehramtsstudierenden im Langzeitpraktikum. [Schooling under corona conditions: Successes, challenges, needs for action and development from the perspective of student teachers in long-term internships]. *k:ON -Kölner Online Journal für Lehrer*innenbildung*, *4*(2), 48-67. DOI: https://doi.org/10.18716/ojs/kON/2021.2.3.

Hobson, A. J., Ashby, P., Malderez, A., & Tomlinson, P. D. (2009). Mentoring beginning teachers: What we know and what we don't. *Teaching and Teacher Education, 25*(1), 207–216. DOI: 10.1016/j.tate.2008.09.001.

Huber, G., Günther, P., Helm, C., Pruitt, J., Schneider, N., Schneider, J., & Schwander, M. (2020). *COVID-19 und aktuelle Herausforderungen in Schule und Bildung*. [COVID-19 and current challenges in schools and education]. Waxmann. DOI: 10.31244/9783830942160.

Izadinia, M. (2015). A closer look at the role of mentor teachers in shaping preservice teachers' professional identity. *Teaching and Teacher Education*, 52, 1-10. DOI: https://doi.org/10.1016-/j.tate.2015.08.003.

Kaqinari, T., Makarova, E., Audran, J., Döring, A., Göbel, K., & Kern, D. (2021). The switch to online teaching during the first COVID-19 lockdown: A comparative study at four European univ opean universities. *Journal of University Teaching & Learning Practice*, *18*(5), 10-23. DOI: https://doi.org/10.53761/1.18.5.10.

Karapanos, M., Pelz, R., Hawlitschek, P., & Wollersheim, H. (2021). Hochschullehre im Pandemiebetrieb. Wie Studierende in Sachsen das digitale Sommersemester erlebten. [Higher education in pandemic mode. How students in Saxony experienced the digital summer semester]. *MedienPädagogik,* 40, 1–24. DOI: https://doi.org/10.21240/mpaed/40/2021.01.28.

Kidd, W., & Murray, J. (2020). The COVID-19 pandemic and its effects on teacher education in England: how teacher educators moved practicum learning online. *European Journal of Teacher Education*, *43*(4), 542-558. DOI: https://doi.org/10.1080/02619768.2020.18204-80.

Klassen, R., & Durksen, T. (2014). Weekly self-efficacy and work stress during the teaching practicum: A mixed methods study. *Learning and Instruction*, 33, 158-169. DOI: https://doi.org/10.1016/j.learninstruc.2014.05.003.

Klingebiel, F., Mähler, M., & Kuhn, H. P. (2020). Was bleibt? Entwicklung des subjektiven Kompetenzerlebens im Praktikum und darüber hinaus. [What remains? The development of perceived professional competence during practical internship and beyond]. In I. Ulrich & A. Gröschner (Eds.), *Praxissemester im Lehramtsstudium in Deutschland: Wirkungen auf Studierende* (Edition Zeitschrift für Erziehungswissenschaft: Vol. 9, pp. 179–207). Springer.

Klusmann, U., Richter, D., & Lüdtke, O. (2016). Teachers' emotional exhaustion is negatively related to students' achievement: Evidence from a large-scale assessment study. *Journal of Educational Psychology*, *108*(8), 1193–1203.

König, J., Tachtsoglou, S., Darge, K., & Lünnemann, M. (2014). Zur Nutzung von Praxis: Modellierung und Validierung lernprozessbezogener Tätigkeiten von angehenden Lehrkräften im Rahmen ihrer schulpraktischen Ausbildung. [On the use of practice: modeling and validating future teachers' learning process related activities during in-school opportunities to learn]. *Zeitschrift für Bildungsforschung*, 4, 3-22. DOI 10.1007/s35834-013-0084-2.

König, J., Rothland, M., Tachtsoglou, S., & Klemenz, S. (2016). Comparing the Change of Teaching Motivations among Preservice Teachers in Austria, Germany, and Switzerland: Do In-School Learning Opportunities Matter? *International Journal of Higher Education*, *5*(3), 91-103.

König, J. (2016). Lehrerexpertise und Lehrerkompetenz. [Teacher expertise and teacher competence]. In M. Rothland (Eds.), *Beruf Lehrer/Lehrerin. Ein Studienbuch* (pp. 127-148). Waxmann.

König, J., & Rothland, M. (2018). Das Praxissemester in der Lehrerbildung: Stand der Forschung und zentrale Ergebnisse des Projekts *Learning to Practice*. [The long-term practicum in teacher education: State of research and central results of the *Learning to Practice* project]. In J. König, M. Rothland and N. Schaper (Eds.), *Learning to Practice, Learning to Reflect? Ergebnisse aus der Längsschnittstudie LtP zur Nutzung und Wirkung des Praxissemesters in der Lehrerbildung* (pp. 1-62). Springer VS.

König, J., Darge, K., & Kramer, C. (2020a). Kompetenzentwicklung im Praxissemester: Zur Bedeutung schulpraktischer Lerngelegenheiten auf den Erwerb von pädagogischem Wissen bei Lehramtsstudierenden. [Competence development during long-term practicum: On the significance of practical opportunities to learn on the acquisition of pedagogical knowledge among student teachers]. In I. Ulrich & A. Gröschner (Eds.), *Praxissemester im Lehramtsstudium in Deutschland. Wirkungen auf Studierende,* (pp. 67-96). Springer Fachmedien.

König, J., Jäger-Biela, D., & Glutsch, N. (2020b). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, *43*(4), 608-622.

Kultusministerkonferenz (2004). *Beschlüsse der Kultusministerkonferenz: Standards für die Lehrerbildung: Bildungswissenschaften. Beschluss vom 16.12.2004.* [Resolutions of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany: Standards for Teacher Education: Educational Sciences. Resolution of 16.12.2004.]. https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2004/2004_12_16-Standards-Lehrerbildung-Bildungswissenschaften.pdf.

Kumschick, I. R., Böhnke, A., & Thiel, F. (2020). Welche Rolle spielen die Verarbeitung von Unterrichtsfehlern und die negative Stimmung für die subjektiv wahrgenommene Unterrichtskompetenz im Praxissemester? Eine Studie mit Lehramtsstudierenden der Sekundarstufe Master. [What impact do processing of teaching-related errors and negative mood have on the subjective perception of teaching skills during the internship?]. In I. Ulrich & A. Gröschner (Eds.), *Praxissemester im Lehramtsstudium in Deutschland: Wirkungen auf Studierende* (Edition Zeitschrift für Erziehungswissenschaft: Vol. 9, pp. 243–264). Springer.

Kunter, M., et al. (2017). *Dokumentation der Erhebungsinstrumente der Projektphasen des BilWiss-Forschungsprogramms von 2009 bis 2016: Bildungswissenschaftliches Wissen und der Erwerb professioneller Kompetenz in der Lehramtsausbildung (BilWiss). Die Bedeutung des bildungswissenschaftlichen Hochschulwissens für den Berufseinstieg von Lehrkräften (BilWiss-Beruf)*. [Documentation of the survey instruments of the project phases of the BilWiss research programme from 2009 to 2016: Educational science knowledge and the

acquisition of professional competence in teacher training (BilWiss). The importance of educational science knowledge in higher education for the career entry of teachers (BilWiss-Beruf).] Goethe-Universität Frankfurt.

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology, 105*(3), 805–820.

Lawson, T., Cakmak, M., Gündüz, M., & Busher, H. (2015). Research on teaching practicum – a systematic review. *European Journal of Teacher Education*, *38*(3), 392-407.

Lowenthal, P. R., Borup, J., West, R., & Archambault, L. (2020). Thinking Beyond Zoom: Using Asynchronous Video to Maintain Connection and Engagement During the COVID-19 Pandemic. *Journal of Technology and Teacher Education*, 28(2), 383-391. https://www.learntechlib.org/primary/p/216192/.

Mertens, S., Glock, S., & Gräsel, C. (2018). Lerneffekte und empfundene Arbeitsbelastung durch universitäre und schulpraktische Anforderungen im Praxissemester. [Learning effects and perceived workload due to university and practical school requirements during the internship semester]. In M. Rothland and I. Biederbeck (Eds.), *Praxisphasen in der Lehrerbildung im Fokus der Bildungsforschung* (pp. 95-104). Waxmann.

Mertens, S., Schellenbach-Zell, J., & Gräsel, C. (2020). Studentische Bewertungen von Lerngelegenheiten im Praxissemester – eine Analyse unter Berücksichtigung individueller Lernziele und Kompetenzwerte. [Student evaluations of learning opportunities in the practical semester – an analysis considering individual learning goals and competence values]. In I. Gogolin, B. Hannover & A. Scheunpfug (Eds.), *Evidenzbasierung in der Lehrkräftebildung* (pp. 217-242). Springer VS.

Moorhouse, B. (2020). Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic. *Journal of Education for Teaching*, *46*(4). https://doi.org/10.1080/02607476.2020.1755205.

Moser, P. & Hascher, T. (2000). *Lernen im Praktikum. Projektbericht.* [Learning in the internship. Project report]. Bern: Universität Bern, Forschungsstelle für Schulpädagogik und Fachdidaktik. https://boris.unibe.ch/52882/1/le-rnen%20im%20praktikum.pdf.

MSW (2010). *Ministerium für Schule und Weiterbildung des Landes NRW. Rahmenkonzeption zur strukturellen und inhaltlichen Ausgestaltung des Praxissemesters im lehramtsbezogenen Masterstudiengang*. [Ministry for School and Further Education of the State of NRW. Framework concept for the structural and content-related design of the practical semester in the teaching-related Masters degree programme]. Düsseldorf: MSW.

Odriozola-González, P., Planchuelo-Gómez, Á., Irurtia, M., & Luis-García, R. de (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry research*, 290. DOI: 10.1016/j.psychres.2020.11-3108.

Schön, D. (1983). *The reflective practitioner: How practitioners think in action*. Temple Smith.

Schubarth, W., Gottmann, C., & Krohn, M. (2014). Wahrgenommene Kompetenzentwicklung im Praxissemester und dessen berufsorientierende Wirkung. Ergebnisse der ProPrax-Studie. [Perceived competence development in the practical semester and its career-orientating effect. Results of the ProPrax study]. In K. Arnold, A. Gröschner & T. Hascher, Tina (Eds.), *Schulpraktika in der Lehrerbildung. Theoretische Grundlagen, Konzeptionen, Prozesse und Effekte* (pp. 201-219). Waxmann. https://elibrary.utb.de/doi/book/10.31244/9783830980575.

Schulz, C., & Heinzel, F. (2020). "Zu hoher Aufwand für zu wenig Nutzen" – Äußerungen von Studierenden im Praxissemester über universitäre Seminare. ["Too much effort for too little benefit" – statements by students in the practical semester about university seminars]. In K. Rheinländer and D. Scholl (Eds.), *Verlängerte Praxisphasen in der Lehrer*innenbildung. Konzeptionelle und empirische Aspekte der Relationierung von Theorie und Praxis,* (pp. 233-247). Klinkhardt.

Seifert, A., & Schaper, N. (2018). Die Veränderung von Selbstwirksamkeitserwartungen und der Berufswahlsicherheit im Praxissemester. Empirische Befunde zur Bedeutung von Lerngelegenheiten und berufsspezifischer Motivation der Lehramtsstudierenden. [The change in self-efficacy expectations and career choice certainty during the practical semester. Empirical findings on the significance of learning opportunities and profession-specific motivation of student teachers]. In J. König, M. Rothland & N. Schaper (Eds.), *Learning to Practice, Learning to Reflect? Ergebnisse aus der Längsschnittstudie LtP zur Nutzung und Wirkung des Praxissemesters in der Lehrerbildung* (pp. 195-222). Springer VS.

Senkbeil, M., Ihme, J., & Schöber, C. (2020). Schulische Medienkompetenzförderung in einer digitalen Welt: Über welche digitalen Kompetenzen verfügen angehende Lehrkräfte? [Promoting media competence in schools in a digital world: What digital competences do prospective teachers have?] *Psychologie in Erziehung und Unterricht*, *68*(1), 4–22. DOI: 10.2378/peu2020.art12d.

Tabachnick, B. R. & Zeichner, K. M. (1984). The Impact of the Student Teaching Experience on the Development of Teacher Perspectives. *Journal of Teacher Education*, 28-36.

Tannert, S. & Gröschner, A. (2021). Joy of distance learning? How student self-efficacy and emotions relate to social support and school environment. *European Educational Research Journal, 20*(4), 498 –519.

Teo, T. (2009). Modelling technology acceptance in education: A study of pre-service teachers. *Computers & Education*, *52*(2), 302–312. DOI: 10.1016/j.compedu.2008.08.006.

Toquero, C. (2020). Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context. *Pedagogical Research*, *5*(4). https://doi.org/10.29333/pr7-947.

Watermeyer, R., Crick, T., Knight, C., & Goodall, J. (2020). COVID-19 and digital disruption in UK universities: afflictions and affordances of emergency online migration. *Higher Education,* 81, 623-641. https://doi.org/10.1007/s10734-020-00561-y.

Weinert, F. E. (2001). Concept of Competence: A Conceptual Clarification. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 45-65). Hogrefe & Huber.

Zhu, X., & Lui, J. (2020). Education in and After COVID-19: Immediate Responses and Long-Term Visions. *Postdigital Science and Education,* 2, 695–699. DOI: https://doi.org/10.1007/s4243-8-020-00126-3.

Zierer, K. (2020). So viel Präsenz wie möglich. Einschätzungen von Studierenden zum Corona-Semester. [As much presence as possible. Students' assessments of the Corona semester]. *Forschung & Lehre,* 9, 755. https://wh2xhc1p6.homepage.t-online.de/.cm4all/upr-oc.php/0/forschung-und-lehre_9-2020.pdf.

## Biographical notes:

***Katharina Neuber:*** Researcher (PhD) at the Faculty of Educational Sciences at the University of Duisburg-Essen, Germany. Her research focuses on the use of student feedback, reflection on teaching, practical phases during teacher education as well as teacher well-being.

***Kerstin Göbel:*** Chair and full professor at the Faculty of Educational Sciences at the University of Duisburg-Essen, Germany. Her research covers intercultural and interlingual teaching/learning processes in classroom and school, reflection in teacher education, school engagement, and digital teaching/learning in higher education.



***Author(s)' statements on ethics and conflict of interest***
***Ethics statement:*** We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.
***Statement of interest:*** We have no conflict of interest to declare.
***Funding:*** None ***cknowledgements:*** None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# The Mediating Role of the Locus of Control in the Impact of Organizational Trust on Organizational Cynicism [1]

**Muhammet Bahadır** [2] **A. Faruk Levent** [3]

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 133-158
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 17.02.2022
Accepted : 06.03.2022

**Abstract:**

*This study aims to examine the mediating role of the locus of control in the effect of organizational trust on organizational cynicism in school organizations with latent variables, including all personnel who directly impact education and training in schools. In this study, the relational scanning model, which is one of the quantitative research methods, was used. The research started with a detailed literature review, and the information on the definitions and theories of the concepts of organizational cynicism, organizational trust, and locus of control were achieved; and a research model was created by developing hypotheses in line with this information. The data of the study were obtained from 385 participants who were selected by simple random sampling method among school personnel working in public schools. Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) analyses of the obtained data were performed using SPSS and AMOS statistical package programs. As a result of the analysis, it was determined that there is a negative relationship between organizational trust and organizational cynicism, and locus of control has a mediator role in the relationship between organizational trust and organizational cynicism.*

**Keywords:** Organizational trust; organizational cynicism; locus of control; mediation role

**Citation:**
Bahadir, M. & Levent, A. F. (2022). The mediating role of the locus of control in the impact of organizational trust on organizational cynicism. *International Journal of Modern Education Studies, 6*(1), 133-158. http://dx.doi.org/10.51383/ijonmes.2022.167

[1] This article is derived from Muhammet Bozkurt's PhD dissertation entitled "Investigation of the antecedents and consequences of organizational cynicism through various variables in school organizations" conducted under the supervison A.Faruk Levent.

[2] Dr., Ministry of National Education, Istanbul, Turkey. muhammetbahadir1980@hotmail.com,
Orcid ID: 0000-0001-9649-8349

[3] Assoc. Prof., Marmara University, Ataturk Educational Faculty, Istanbul, Turkey. faruk.levent@marmara.edu.tr,
Orcid ID: 0000-0003-3429-6666

## INTRODUCTION

Effective organizations and teams are characterized by high mutual trust among their members. In these organizations, members believe in each other's talent, character and integrity. But trust is fragile, takes a long time to build, and can be easily destroyed (Robbins & Coulter, 2002). The main idea in the concept of trust is to make inferences about the characteristics of the trusted person such as honesty, accuracy, reliability, and ability, and that these inferences have consequences that determine their work behavior and attitudes (Dirks & Ferrin, 2002). In schools which the quality of the relationships between individuals can affect the functioning of the organization relatively more is accepted, creating a climate based on an atmosphere of trust facilitates education to reach its goals (Akin, 2015).

Organizational trust concept; expresses the trust between the employees working together or affiliated with each other, the trust between the superiors and their subordinates, and the trust in the organization as a whole (Guinot, Chiva & Mallén, 2013). When the literature is examined, it appears that organizational trust have benefits or institutions on issues such as follows; organizational commitment for institutions (Fairholm, 1994; Fink, 1992; O'Reilly & Chatman, 1986; Pillai, Schriesheim & Williams, 1999; Diffie-Couch, 1984; Sonnenburg, 1994; Gilbert & Tang, 1998), productivity (Sonnenburg, 1994), morale (Sonnenburg, 1994; Fairholm, 1994; Diffie-Couch, 1984), organizational citizenship behavior (Pillai, Schriesheim & Williams, 1999; Kanovsky & Pugh, 1994; Nyhan & Marlowe, 1997; Podsakoff, MacKenzie, Moorman & Fetter, 1990; Deluga, 1995; Brockner, Siegel, Daly, Tyler & Martin, 1997) and job satisfaction (Cook & Wall, 1980; Blake & Mouton, 1982; Morgan & Hunt, 1994). Organizational insecurity causes employees to develop negative attitudes towards each other and their organization (Eisinger, 2000).

There are many variables that negatively affect organizational trust within the organization (Lewicki, McAllister & Bies, 1998). One of the variables is thought to negatively affect organizational trust is organizational cynicism (Akin, 2015; Nicholson, Leiter & Laschinger, 2014). Organizational cynicism, which includes negative and destructive emotions, beliefs and behaviors of teachers about the school they work in, negatively affects the school culture and the behaviors of the employees (Karadag, Kilicoglu & Yilmaz, 2014). When the literature is examined, it is revealed that cynicism reduces trust in management, communication within organizations (Stanley, Meyer & Topolnytsk, 2005), and altruistic behavior in organizations (Jordan, Schraeder, Feild & Armenakis, 2007). Andersson (1996) suggested that some personality traits of employees may increase their tendency to display negative behavior. The locus of control, one of these personality traits, explains the individual's beliefs about the level of control of situations and events (James, 2005).

Historically, cynicism is discussed in two different periods, Ancient cynicism and modern cynicism (Laursen, 2009). Ancient Greek cynicism was a school of thought, and lifestyle based on Socrates' thoughts, influenced by the ancient Chinese belief of cynicism (Luck, 1997). Modern cynics, on the other hand, have tried to isolate themselves from the values that society believes in (Vice, 2011). Cynicism today; a new disease of the twentieth century (Cutler, 2000), self-defense (Kanter & Mirvis, 1989), loss of faith in top management (Wanous, Reichers & Austin, 2000); is defined as a new paradigm specifying the pattern of relationships between employer and employee (Feldman, 2000).

Organizational cynicism is a multidimensional concept that emerges as a situational structure, arising from an environmental context, that can occur at any time for a specific goal (Dean, Brandes & Dharwadkar, 1998). Organizational cynicism is learned depending on the negative experiences within the organization (Johnson & O'Leary-Kelly, 2003) and negative thoughts can be generalized to cover all organizational elements (Wanous, Reichers & Austin, 2000). The concept of organizational cynicism is defined by James (2005) as *"negative beliefs, emotions; and the attitude of the employee towards the organization he/she works with in relation to the behaviors associated with these negative beliefs and feelings; a reaction to the history of social and personal experiences open to change by environmental factors"*.

Organizational cynicism considered as an attitude; and it is discussed in three dimensions as follows; the cognitive dimension that includes disbelief towards human behavior and the kindness and sincerity that these behaviors include (Brandes, 1997); the affective dimension consisting of negative emotions such as feeling anger towards the organization, feeling anxious and bored, and belittling the organization (Greenberg & Baron, 2003); and, the behavioral dimension (Dean, Brandes & Dharwadkar, 1998), which includes behaviors aimed at humiliating the organization, such as harsh criticism and pessimistic predictions.

Developments and changes such as adapting to rapidly changing and developing environmental conditions, competitiveness of organizations, teamwork, organizational structures based on cooperation have made trust an important concept for organizations (Tan & Lim, 2009). Employees when there is no trust in the organization; do not take the risk of taking the first action, and abstaining behavior is displayed towards increasing cooperation and efficiency (Sabel, 1993). Therefore, organizational trust plays an important role in the achievement of the goals of organizations, efficiency and success of the organization.

Trust is a psychological condition that includes positive expectations for employees' intentions and behaviors (Rousseau, Sitkin, Burt & Camerer, 1998). Trust among employees and groups within the organization is a crucial factor in ensuring long-term stability and peace of mind in the organization (Cook & Wall, 1980). Organizational trust is the belief and trust of employees in the integrity, fairness, honesty, rightfulness, friendship of each other in relationships and interactions in the organization (Louis, 2007).

Organizational trust is the belief of employees in achieving the goals of the organization and that organizational action will be beneficial for employees (Gilbert & Tang, 1998). According to Mishra (1996), organizational trust is defined as the desire of employees to be aware of the basic goals, norms and values of the organization.

Locus of control is a psychological concept that expresses an individual's beliefs about how much control they have over events (Grimes, Millea & Woodruff, 2004). Rotter (1966) explained the concept of locus of control in the social learning theory, which argues that the probability of occurrence of a behavior, that is, the potential of behavior, should take place in two variables such as expectation and reinforcement value. The concept of locus of control is a structure that consists of two dimensions, internal and external locus of control.

People who develop a strong belief that the events that occur in their lives and the achievement of the rewards that are valued depend more on chance, luck, and factors other than themselves are mostly externally controlled (Daft, 2000). In other words, people who believe that chance, fate and factors other than themselves have an important effect on events and incidents that happen to them are called people with a high external locus of control (Carlson, Heth, Miller, Donahoe & Martin, 2009). People with a high focus of internal control tend to see the consequences of the events they encounter in their lives directly as a result of their own efforts and behavior (Di Fabio & Saklofske, 2019).

Trust, which ranks third in Maslow's pyramid of needs, is an important concept that determines the quality of social relationships (Welch, Rivera, Conway, Yonkoski, Lupton & Giancola, 2005). With the theoretical view of Emile Durkheim, trust is accepted as the basic building block of social interactions, formations and thus organizations (Seligman, 1997). Employees in organizations with high trust feel more comfortable and do not hesitate to share their ideas (Shaw, 1997). Ensuring a trust atmosphere in schools facilitates school effectiveness, communication in the school, and collaboration of administrators, teachers, students and other stakeholders (Tschannen-Moran, 2001). The feeling of mistrust in the organization, on the other hand, causes negative feelings and behaviors among individuals such as alienation to work, not going to work frequently, decreased commitment to the organization, and poor performance (Brandes, 1997).

In their research, Stanley, Meyer, and Topolnytsky (2005) found that cynicism and trust in organizations are two variables that are highly correlated with each other. According to Abraham (2000), cynical employees who have negative feelings towards the organization think that the organization is far from integrity, honesty and sincerity. These employees think that the organization managers are more interested in protecting their own interests; thus, they do not trust the organization. According to Mirvis and Kanter (1989), cynics do not trust the management, they do not find the payment system fair, they think that not everyone has an equal chance to progress, they do not believe that the management will listen to them and value their work.

Many factors can be mentioned that may affect the relationship between organizational trust and organizational cynicism (Akin, 2009). One of these factors is the locus of control. School personnel differ from each other according to the way they perceive the reasons for the events that happened to them (Forte, 2005). School staff with predominant internal locus of control tend to see their successes and failures as a result of their own behavior by emphasizing the presence of skill-based aspects in their work (Klein & Wasserstein-Warnet, 1999). Individuals with dominant external locus of control tendencies, on the other hand, believe that their actions depend on factors outside of their control (Connolly, 1980; Landy & Contre, 2004; Martin, Thomas, Charles, Epitropaki & McNamara, 2005). It can be said that employees with dominant external locus of control tendencies are individuals with more negative attitudes (Arsenault, Dolan & Ameringen, 1991).

## Purpose of the research

When the literature is examined; there are not enough studies that deal with the relationship among organizational trust, organizational cynicism and locus of control and examine the level and direction of the relationship between these variables with implicit variables. It has been observed that a small number of studies have been carried out in organizations in various sectors other than school organizations. Besides, it has been noted that the studies conveyed are generally carried out to cover some of the personnel working in the organization. This study aims to examine the mediating role of the locus of control in the effect of organizational trust on organizational cynicism in school organizations with latent variables, including all personnel who directly impact education and training in schools. For this purpose, various hypotheses were created and answers were sought for these hypotheses.

### *Hypotheses of the study*

H1: There is a negative relationship between organizational trust and organizational cynicism.

H2: The change in the sub-dimensions of organizational cynicism becomes inconsistent with the indirect effect of organizational trust.

H3: There is a positive relationship between organizational trust and locus of control.

H4: The level of relationship between the indirect effect of organizational trust and the sub-dimensions of locus of control differs.

H5: There is a positive relationship between organizational cynicism and locus of control.

H6: The level of relationship between the indirect effect of organizational cynicism and the sub-dimensions of the locus of control differs.

H7: The locus of control has a mediating role in the effect of organizational trust on organizational cynicism.

## METHOD

### *Research Model*

In this study, the relational scanning model, which is one of the quantitative research methods, was used to examine the mediating role of locus of control in the effect of organizational trust on organizational cynicism. Screening models involve gathering information on attitudes, experiences, and characteristics among one or more groups of people through questions and answers (Leedy & Ormrod, 2015). The relational design of this research is a model determined by the researchers and the proposed model is tested with Structural Equation Modeling (SEM) analysis through latent variables (Stein, Morris & Nock, 2010). The model developed and tested within the scope of this research is given in Figure 1.

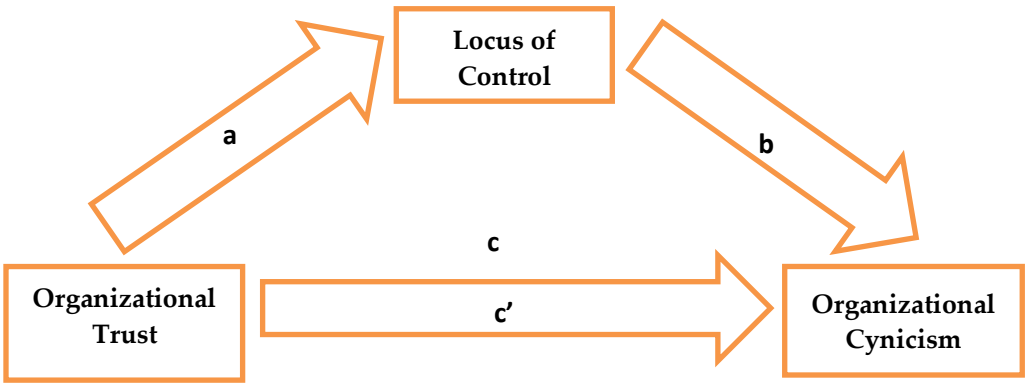



***Figure 1.*** Research Model

According to the research model in Figure 1, organizational trust is the leading variable of organizational cynicism, and the locus of control is analyzed as a mediator variable between organizational trust and organizational cynicism. Organizational trust and locus of control path coefficient was determined as "a", organizational cynicism path coefficient with locus of control as "b", organizational trust to organizational cynicism direct effect path coefficient "c", organizational trust to organizational cynicism total impact path coefficient "c' ". "a x b" indicates the indirect effect of organizational trust on organizational cynicism.

### *Participants*

The study population consists of 2800 people of which 207 administrators (66 school principals and 141 deputy principals), 2603 teachers, and 70 officials working in 4 official kindergartens, 20 primary schools, 19 secondary schools, and 17 high school level schools in Beylikduzu district of Istanbul province during the 2018-2019 academic year. The

participants of the study were determined using the simple random sampling method. In the simple random sampling method, each person's probability of being selected as sampling is equal; every person in the population is not affected by other people and is independent (Onwuegbuzie & Collins, 2007). A total of 1000 questionnaire forms were distributed to the sample representing the population. The participating school staff responded to 583 of the forms given. One hundred sixty-four questionnaires were excluded from the study due to incomplete answers, unfinished ones, ticking more than one answer option, and inconsistent answering of all items by giving the same answer. In the 419 questionnaires evaluated, box plot was examined to determine the extreme values. As a result of this examination, 34 of the questionnaires had extreme values, and these questionnaires were removed from the study; and analyzes were done with the remaining 385 questionnaires. According to this result, the sample size of the research was determined as 385. In SEM, which is a technique that requires a large sample size, there should be an ideal sample size (N) and parameter (q) ratio (N/q) 20/1 for each latent variable. Among the implicit variables used in this study, organizational cynicism implicit variable contains the most parameters (q=14). Thus, organizational cynicism parameters require a total of q=14 statistical estimates; an ideal minimum sample size should be 20x14, i.e., N=280 (Kline, 2011). According to this result, 385 sample size of the research is sufficient for using statistical analysis in SEM.

Information on the participants' demographic characteristics (school personnel) in the research sample is given in Table 1.

Table 1

*Distribution of Participants by Demographic Characteristics*

| **Gender** | **N** | **%** | **Seniority** | **N** | **%** |
|---|---|---|---|---|---|
| Female | 234 | 60.8 | 0-4 years | 27 | 7.0 |
| Male | 151 | 39.2 | 5-9 years | 68 | 17.7 |
| Total | 385 | 100.0 | 10-14 years | 72 | 18.7 |
| **Job Selection Status** | **N** | **%** | 15-19 years | 104 | 27.0 |
| Willingly | 339 | 88.1 | 20-24 years | 68 | 17.7 |
| Unwillingly | 46 | 11.9 | 25 years or more | 46 | 11.9 |
| Total | 385 | 100.0 | Total | 385 | 100.0 |
| **Education** | **N** | **%** | **Branch** | **N** | **%** |
| Bachelor's Degree | 319 | 82,9 | Pre-School Teacher | 15 | 3,9 |
| Master's (without Thesis) | 36 | 9.4 | Classroom Teacher | 82 | 21,3 |
| Master's (with Thesis) | 27 | 7.0 | Branch Teacher | 283 | 73.5 |
| PhD Degree | 3 | 8 | Civil Servant | 5 | 1.3 |
| Total | 385 | 100.0 | **School Type** | **N** | **%** |
| **Position** | **N** | **%** | Primary school | 104 | 27.0 |
| Teacher | 350 | 90.9 | Middle school | 135 | 35.1 |
| The principal | 9 | 2.3 | High School | 146 | 37.9 |
| Deputy Director | 26 | 6.8 | Total | 385 | 100.0 |
| Total | 385 | 100.0 | | | |

As shown in Table 1, 60.8% of the school personnel constituting the research sample are women, and 39.2% are men. 37.9% of the school personnel in the research sample work in high schools, 35.1% in secondary schools, and 27% in primary schools. When the school personnel's professional seniority in the sample is examined, 7% has seniority of 0-4 years, 17.7% 5-9 years, 18.7% 10-14 years, 27% 15-19 years, 17.7% 20-24 years, and 11.9% has seniority of 25 years or more. 82.9% of the sample's school personnel have undergraduate education, 9.4% master's degree without thesis, 7% master's degree with thesis, and 0.8% doctorate education. Of the school personnel in the sample, 90.9% are teachers, 2.3% are principals, 6.8% are vice-principals, and 1.3% are civil servants.

### *Data Collection Tools*

In examining the mediating role of locus of control in the relationship between organizational trust and organizational cynicism in school organizations, new scales have been developed within the scope of this study by blending the scales used in the literature by researchers. Within the framework of organizational cynicism, organizational trust, and locus of control theories, definitions, and explanations, which were reached through a detailed literature review, the scale items were determined by choosing the expressions that would best describe the content of organizational cynicism, organizational trust, and locus of control in school organizations, and enable them to differentiate from similar concepts. The sub-factors of the scales were determined by exploratory factor analysis. The validity analysis of the scales were examined by item and factor analysis. Item analyzes were carried out using two methods: item analysis based on the difference between the lower and upper group averages and item analysis based on correlation.

Whether the data has a normal distribution was determined by examining the Skewness-Kurtosis values of the data. After the data was determined to have a normal distribution, the Kaiser-Meyer-Olkin (KMO) criterion and Bartlett test results showing the suitability of the data for factor analysis were examined. Secondly, factor analysis was used to determine to construct validity. Factor analyzes were conducted using Confirmatory Factor Analysis (CFA). For scales, CFA was applied as a primary and secondary level. Structure validity in CFA has been examined with the model fit.

The scale used to determine the school personnel's organizational cynicism attitudes was developed in three dimensions: cognitive, affective, and behavioral cynicism consisting of 14 statements; and was rated as 5-Likert (1-Strongly Disagree, 5-Strongly Agree) type. The KMO analysis result of the Organizational Cynicism Scale was determined as .889, and the Barlett test as significant (p=,000). As a result of the factor analysis, the data were compatible with the scale's three-factor structure. The goodness of fit values of the primary and second-level Confirmatory Factor Analysis (CFA) performed to determine the construct validity of the Organizational Cynicism Scale were determined as $X^2$(62, N=385)=136,664; $X^2$/df=2,204; CFI=,950; RMSEA=,056; SRMR=,045. According to the goodness of fit values, the CFA values of the Organizational Cynicism Scale are within

acceptable limits. According to the second-level CFA results, it was confirmed that the items in the Organizational Cynicism Scale, which is theoretically put forward, represent all three dimensions. Cronbach's Alpha reliability coefficient of the scale was determined as .864 with the reliability analysis.

The scale used to determine the organizational trust perceptions of the school personnel was shaped in a single dimension consisting of 11 items and was rated as 5-Likert (1-Strongly Disagree, 5-Strongly Agree) type. The KMO analysis result of the Organizational Trust Scale was determined as .962, and the Barlett test as significant (p=,000). As a result of the factor analysis, it was determined that the data were compatible with the scale's one-dimensional structure. The goodness of fit values of the primary-level Confirmatory Factor Analysis (CFA) performed to determine the construct validity of the Organizational Trust Scale were determined as $X^2$(35, N=385=72,070; $X^2$/df=2,059; CFI=,986; RMSEA=,054; SRMR=,024. According to the goodness of fit values, the CFA values of the Organizational Trust Scale are within acceptable limits. According to the primary-level CFA results, it was confirmed that the items in the Organizational Trust Scale, which is theoretically put forward, represent the one dimensions. Cronbach's Alpha reliability coefficient of the scale was determined as .942 with the reliability analysis.

The scale, which is applied to determine the types and levels of locus of control that the school staff has been shaped in two dimensions: internal and external locus of control consisting of 11 items and rated as 5-Likert (1-Strongly Disagree, 5-Strongly Agree) type. KMO analysis result of Locus of Control Scale was determined as .776 and Barlett test as significant (p=,000). As a result of the factor analysis, it was determined that the data were compatible with the scale's two-dimensional structure. The goodness of fit values of the primary and second-level Confirmatory Factor Analysis (CFA) performed to determine the construct validity of the Locus of Control Scale were determined as $X^2$(43, N=385)=72,860; $X^2$/df=1,694; CFI=,942; RMSEA=,043; SRMR=,048. According to the goodness of fit values, the CFA values of the Locus of Control Scale are within acceptable limits. According to the second-level CFA results, it was confirmed that the items in the Locus of Control Scale, which was theoretically suggested, represent both dimensions. Cronbach's Alpha reliability coefficient of the scale was determined as .675 with the reliability analysis.

### *Data Analysis*

Validity analysis and reliability analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM) were performed using the SPSS 24 and AMOS 24 programs of the data obtained in this study. Confirmatory factor analysis is a factor analysis used to test the compatibility of the factors determined by explanatory factor analysis to the factor structures determined by the hypothesis (Bandalos & Finney, 2010). Structural equation modeling can be explained as a combination of factor analysis and regression analysis, and it uses the estimated covariance matrix created according to the

theoretical model to test the compatibility of the observed data to the covariance matrix (Hox & Bechger, 1995).

### *Ethical considerations*

During the research process, first of all, necessary permissions were obtained from the Istanbul Provincial Directorate of National Education. In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were not taken.

## RESULTS

In the study, firstly, the measurement model consisting of the implicit variables of organizational trust, organizational cynicism and locus of control was tested. Due to the normal distribution of the data, the covariance matrix was created by using the maximum likelihood calculation method. The goodness of fit values obtained as a result of the analysis are within acceptable threshold values in the literature, indicating that the model is compatible and acceptable with the data ($X^2$[552, N=385]=1060,453; $X^2$/df=1,921; CFI=,908; RMSEA=,050; SRMR=,065). Correlation relations and weights between implicit variables in the measurement model are given in Table 2.

**Table 2**

*Measurement Model Correlation Relations and Weights*

| | | | **Estimate** |
|---|---|---|---|
| Organizational cynicism | <--> | Organizational trust | -,851 |
| Organizational cynicism | <--> | Locus of control | -.688 |
| Organizational trust | <--> | Locus of control | .439 |

p<.001

As seen in Table 2, it has been determined that organizational trust has a negative and significant relationship with organizational cynicism (r=-,851, p<,001) and positive and significant relationship with locus of control (r=,439, p<,001); and, that organizational cynicism has a significant and negative relationship with the locus of control (r=-,688, p<,001). After the measurement model was verified, the research hypotheses were tested using the structural model with implicit variables.

The model created to test the hypotheses "*There is a negative relationship between organizational trust and organizational cynicism, and the change between the indirect effect of organizational trust and the sub-dimensions of organizational cynicism is inconsistent*" was estimated with Maximum Likelihood (ML) method since the data is normally distributed. The goodness of fit values obtained as a result of the path analysis are within acceptable threshold values in the literature, indicating that the model is compatible and acceptable

with the data ($X^2$[248, N=385]=550,284; $X^2$/df=2,219; CFI=,936; RMSEA=,058; SRMR=,051). The standardized regression weights (β) of this model created are shown in Figure 2.

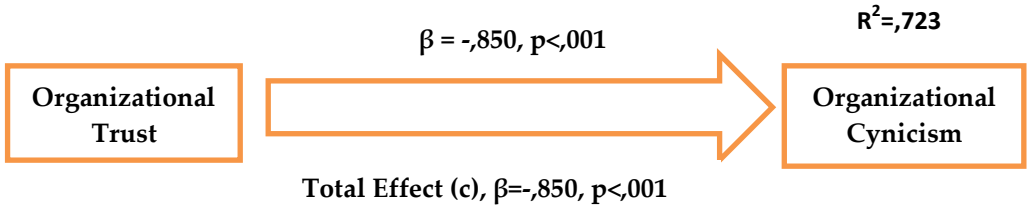



***Figure 2.*** *The Path Analysis Model of the Relationship between Organizational Trust and Organizational Cynicism*

As seen in Figure 2, there is a significant negative (β=-,850, p<,001) relationship between organizational trust and organizational cynicism. According to this, a one-unit increase in organizational trust causes an .850 -unit decrease in organizational cynicism, or a one-unit decrease in organizational trust causes an .850 -unit increase in organizational cynicism. In addition, organizational trust explains 72% of the variance in organizational cynicism. Hypothesis 1 was accepted according to this result.

Regarding the indirect effect of organizational trust on the sub-dimensions of organizational cynicism through organizational cynicism, the standardized regression weights (β) in the model which verified in Figure 2 are given in Table 3.

**Table 3**

*Standardized Regression Weights Regarding the Indirect Effects of Organizational Cynicism on its Sub-Dimensions in the Path Analysis Model with Organizational Trust and Organizational Cynicism*

| | Organizational trust | | |
|---|---|---|---|
| | Direct effects | Indirect effects | Total effects |
| Cognitive cynicism | .000 | -.809 | -.809 |
| Affective cynicism | .000 | -.643 | -.643 |
| Behavioral cynicism | .000 | -.557 | -.557 |
| Organizational cynicism | -.850 | .000 | -.850 |

p<.001

As seen in Table 3, it is seen that organizational trust has a significant negative relationship with the sub-dimensions of organizational cynicism through organizational cynicism. Indirect effect of organizational trust on cognitive cynicism is (β=-,809, p<.001)-.809, indirect effect on behavioral cynicism is (β=-,557, p<,001)-,557, and indirect effect on affective cynicism (β=-,643, p<,001) -,643. It can be said that the change in organizational cynicism sub-dimensions is becoming inconsistent with the effect of organizational trust. Based on these results, Hypothesis 2 was accepted.

The model created to test the hypotheses "*There is a positive relationship between organizational trust and locus of control, and the level of relationship between the indirect effect of*

*organizational trust and the sub-dimensions of locus of control differs*" was estimated with Maximum Likelihood (ML) method since the data is normally distributed. The goodness of fit values obtained as a result of the path analysis are within acceptable threshold values in the literature, indicating that the model is compatible and acceptable with the data ($X^2$[186, N=385]=313,894; $X^2$/df=1,688; CFI=,961; RMSEA=,043; SRMR=,053). The standardized regression weights (β) of this model created regarding the factors are shown in Figure 3.

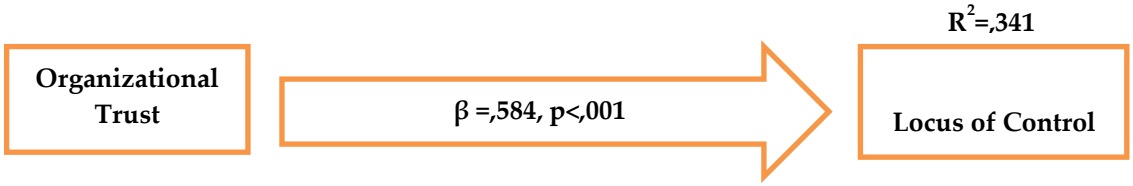



***Figure 3.*** *Path Analysis Model of the Relationship between Organizational Trust and Locus of Control*

As seen in Figure 3, there is a positive significant (β=,584, p<,001) relationship between organizational trust and locus of control. In addition, organizational trust explains 34% of the variance in the locus of control. Hypothesis 3 was accepted according to this result.

Regarding the indirect effect of organizational trust on the sub-dimensions of the locus of control through the locus of control, the standardized regression weights (β) in the model which verified in Figure 3 are given in Table 4.

**Table 4**

*Standardized Regression Weights Regarding the Indirect Effects of Locus of Control on its Sub-Dimensions in the Path Analysis Model with Organizational Trust and Locus of Control*

| | **Organizational trust** | | |
|---|---|---|---|
| | Direct effects | Indirect effects | Total effects |
| External locus of control | .000 | -,356 | -,356 |
| Internal locus of control | .000 | .436 | .436 |
| Locus of control | .584 | .000 | .584 |

p<.001

As seen in Table 4, it is observed that organizational trust has a positive significant relationship with internal locus of control, one of the sub-dimensions of locus of control, over locus of control (β=,436, p<,001); and, that on the other hand, it has a negative significant relationship (β=-,356, p<,001) with the external locus of control. It can be said that the level of relationship between the effect of organizational trust and the sub-dimensions of locus of control is differentiating. Based on these results, Hypothesis 4 was accepted. It can be said that internal locus of control tendencies of school personnel increase in the presence of organizational trust, and external locus of control tendencies in

the absence of organizational trust.

The model created to test the hypotheses "*There is a positive relationship between organizational cynicism and locus of control, and the level of relationship between the indirect effect of organizational cynicism and the sub-dimensions of locus of control differs*" was estimated with Maximum Likelihood (ML) method since the data is normally distributed. The goodness of fit values obtained as a result of the path analysis are within acceptable threshold values in the literature, indicating that the model is compatible and acceptable with the data ($X^2$[246, N=385]=435,365; $X^2$/df=1,770; CFI=,913; RMSEA=,045; SRMR=,054). The standardized regression weights of this model created with the ways related to the factors are shown in Figure 4.

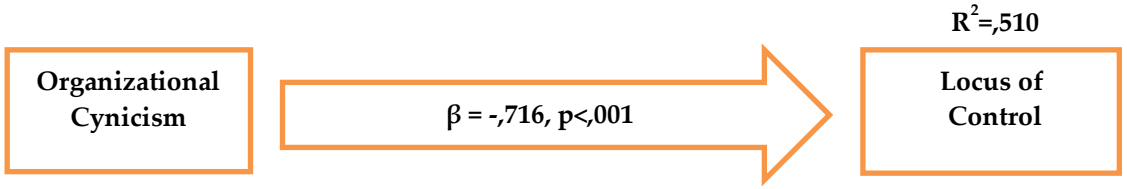



***Figure 4.*** *Path Analysis Model of the Relationship between Organizational Cynicism and Locus of Control*

As seen in Figure 4, there is a significant negative (β=-,716, p<,001) relationship between organizational cynicism and locus of control. In addition, organizational cynicism explains 51% of the variance in the locus of control. Based on this result, Hypothesis 5 was accepted.

Regarding the indirect effect of organizational cynicism on the sub-dimensions of the locus of control over the locus of control, the standardized regression weights (β) in the model verified in Figure 4 are given in Table 5.

**Table 5**

*Standardized Regression Weights Regarding the Indirect Effects of Locus of Control on its Sub-Dimensions in the Path Analysis Model with Organizational Cynicism and Locus of Control*

| | **Organizational cynicism** | | |
|---|---|---|---|
| | Direct effects | Indirect effects | Total effects |
| External locus of control | .000 | .685 | .685 |
| Internal locus of control | .000 | -,354 | -.355 |
| Locus of control | -,716 | .000 | -,716 |

p<.001

As seen in Table 5, organizational cynicism has a negative significant relationship with the internal locus of control, one of the sub-dimensions of the locus of control, through the locus of control (β=-,354, p<,001); and there is a positive significant relationship (β=,685, p<,001) with the external locus of control. In other words, it can be said that the level of relationship between the effect of organizational cynicism and the

sub-dimensions of locus of control is differentiating. Based on these results, Hypothesis 6 was accepted. It can be said that the cynic perception of school personnel towards their schools increases as the tendency of the external locus of control increases.

In the model created for the hypothesis that "*the locus of control has a mediating role in the effect of organizational trust on organizational cynicism*" the relationship was analyzed with latent (implicit) variables. The relationship model of the intermediary locus of control was created in the effect of organizational trust on organizational cynicism to test this situation. Path analysis was made to the model created with the Maximum Likelihood (ML) method. The goodness of fit values obtained as a result of the analysis are within acceptable threshold values in the literature, indicating that the model is compatible and acceptable with the data ($X^2$[552, N=385]=1060,453; $X^2$/df=1,921; CFI=,908; RMSEA=,050; SRMR=,065). The non-standardized regression weights (R.W) and standardized regression weights (S.R.W) related to the paths of this model created are shown in Table 6. Also, with the Sobel test, it was determined that the mediating role of locus of control in the effect of organizational trust on organizational cynicism was significant (β=-,148, p=,005<0,05).

**Table 6**

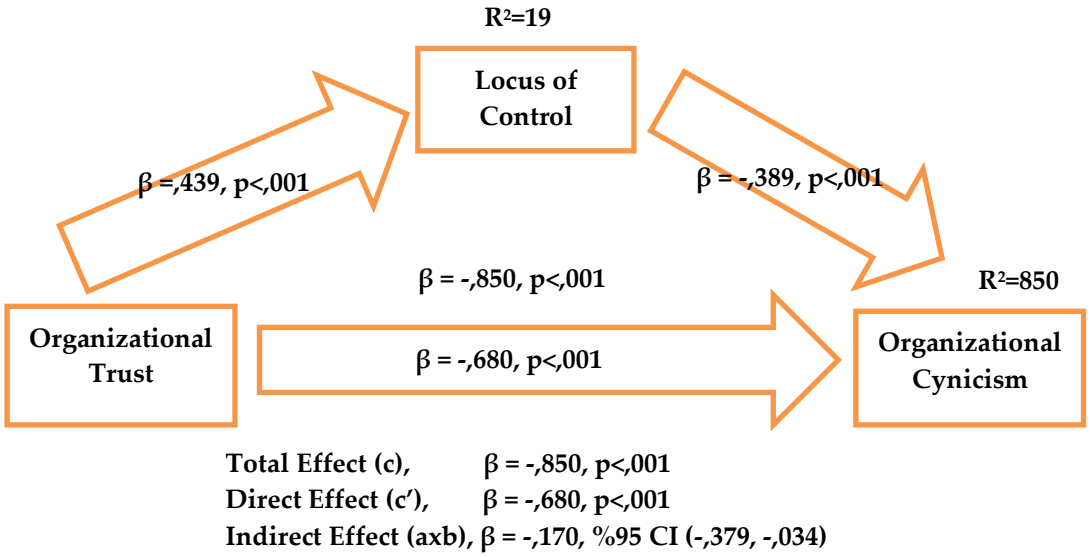
*Significance Levels and Results of Organizational Trust, Organizational Cynicism and Intermediary Locus of Control Variable Relations*

| | | | R. W Estimate | S.R. W Estimate | S.E. | C.R. | P | Label | Result |
|---|---|---|---|---|---|---|---|---|---|
| Locus of Control | ← | Organizational Trust | ,107 | ,439 | ,028 | 3,897 | *** | a | Significant |
| Organizational Cynicism | ← | Locus of Control | -1,286 | -,389 | ,317 | -4.050 | *** | b | Significant |
| Organizational Cynicism | ← | Organizational Trust | -,549 | -,680 | ,067 | -8.170 | *** | c' | Significant |

The representation of p<.001, three asteriks (***) indicates that p values are much less than .001.

In Figure 2, the standardized regression coefficient of the effect of organizational trust on organizational cynicism is (β=-.850, p<0.001) -.850. However, in the model in Figure 5, created by adding the mediating locus of control variable to the model in Figure 2, the standardized regression weight between organizational trust and organizational cynicism decreased to (β=-.650, p<0.001) -650. Since the effect of organizational trust on organizational cynicism is reduced and significant (β=-.680, p<,001), it can be said that locus of control has a partial mediating role in the relationship between these two variables. According to the mediation theory of Baron and Kenny (1986), in the mediation analysis in which exogenous, endogenous and mediator variables are included together, the effect of the exogenous variable on the endogenous variable, when it is insignificant, is full mediation; if the decrease in the weight of the said effect is still significant, then the partial mediation effect is mentioned.

According to the modern mediation theory, in order to test the mediating role of locus of control in the effect of organizational trust on organizational cynicism, a path analysis was performed again with bootstrap technique. Analysis results are presented in Figure 5. It is suggested that the Bootstrap technique gives more reliable results than Baron and Kenny's traditional method and Sobel test (Hayes, 2018). In Bootstrap analysis, 5000 resampling option was preferred. According to Preacher and Hayes (2004), in the mediation effect analysis performed with the bootstrap technique, the 95% confidence intervals (CI) values obtained as a result of the analysis should not include the zero value in order to support the research hypothesis (Preacher & Hayes, 2004).




CI: Confidence Interval

***Figure 5.*** *Path Analysis Model of Organizational Trust, Organizational Cynicism and Intermediary Locus of Control Variable Relations*

As seen in Figure 5, according to Bootstrap analysis results, the indirect effect of organizational trust on organizational cynicism through the locus of control was found to be significant (β=-,148, %95 GA[-341, -,050]). Because the Bootstrap lower and upper confidence interval values obtained by the percentage method do not include 0 (zero) value. In addition, organizational trust explains 85% of the variance in organizational cynicism with the locus of control. These results show that the locus of control variable has a mediating effect on the relationship between organizational trust and organizational cynicism. Based on these results, Hypothesis 7 was accepted.

## DISCUSSION AND CONCLUSION

This study concluded that there is a significant negative relationship between organizational trust and organizational cynicism. In other words, a decrease in the level of

trust within the organization increases organizational cynicism. According to this result, it can be said that organizational trust is one of the pioneers of organizational cynicism. Organization employees feel positive emotions when organizational trust is established. Individuals in the organization are not cynical individuals because they move away from negative emotions. According to Nicholson, Leiter, and Laschinger (2014), while the number of cynical individuals increases in organizations with mistrust; there is no cynicism in organizations where an atmosphere of trust prevails.

There are many personal and organizational factors that underlie the existence of cynical employees among school staff (James, 2005). It is stated that the feeling of "trust" has a special place and importance among these factors (Nicholson, Leiter & Laschinger, 2014). Organizational trust is defined as an employee's perception of the support provided by the organization, his/her belief that the leader will be truthful and will keep his/her word (Mishra & Morrissey, 1990). The decrease in school staff's trust in top management can cause employees to develop cynical attitudes about change (Wanous, Reichers & Austin, 2000). These school personnel think that the administrators of the organization are more interested in protecting their own interests (Akin, 2015). According to Abraham (2000), the basic idea in organizational cynicism is the sacrifice of honesty, justice and goodwill feelings in order to gain personal benefit.

Teachers' trust in principals in a school affects how teachers adapt to innovation, how they participate in professional development and adopt teacher leadership (Bryk & Schneider, 2002). Organizational cynicism includes the tendency of school staff to behave critically and degrading, accompanied by negative attitudes towards management (Dean, Brandes & Dharwadkar, 1998). In a study conducted by Andersson and Bateman (1997), it was found that in organizations where there is a difference between managers' wages and employees' wages that create a perception of injustice, and where job security is not strong, employees' trust in the organization is lower and their perception of cynicism is higher.

When the literature is examined, it is seen that there are studies that reveal a positive relationship between communication and trust within the organization (Ridder, 2006; Ruppel & Harrington, 2000; Stevenson & Gilly, 1991). The effective functioning of the communication system enables the school staff to express their feelings and thoughts comfortably and contributes to the school staff to make more efforts towards common goals (Mishra & Morrisey, 1990). Owen, Hodgson, and Gazzard (2011) stated that managers should always allow open communication and establish equal relations with everyone in order to create a reliable image. Thomas, Zolin and Hartman (2009) point out that if school personnel do not trust their administrators or do not communicate openly, employees will be skeptical and exhibit cynical attitudes in supporting organizational goals.

School administrators' providing autonomy and psychological support to school staff, participation of school staff in making decisions and applying policies that value them are important in creating a sense of trust in the school (Reychav & Sharkie, 2010). In school organizations, the awards given to the employees for their contributions to the school should be distributed according to the principle of equality, and school employees should not think that their contribution is worthless or that they are not rewarded for their contributions (Hoy & Tarter, 2004). In their study, Isci, Sisman and Bektas (2013) found that organizational cynicism decreases when the employee in the organization is given more authority and the right to take initiative related to his/her job.

Paying attention to the wishes and needs of the school staff and having opportunities for personal and professional development also contribute to trust formation (Reychav & Sharkie, 2010). There is a positive relationship between the professional and personal development opportunities offered by the organization to employees and organizational commitment (Bartlett, 2001). According to the research results of Tschannen-Moran and Hoy (1998), the level of trust increases in a school environment where the professional development of school personnel is supported. In this context, it can be said that failure to meet the expectations of school staff regarding career advancement and professional development affects their perceptions of organizational cynicism.

Expectation theory centers on self-interest (Robbins & Judge, 2013). According to the research results of Levent and Keser (2016), it is stated that school employees have expectations such as "optimism, career advancement, professional development" from the school. However, unfortunately, sufficient attention is not paid to in-service training and professional development in schools. With this aspect, it can be said that there is a relationship between the selfishness found in organizational cynicism and the expectations that pursue personal interests (Mirvis & Kanter, 1989; Brandes, 1997).

Trust is the belief in the honesty and integrity of the trusted individual (Vidotto, Massidda, Noventa & Vicentini, 2012). Employees trust managers if they keep their promises and behave with integrity and honestly in their communication with employees (Simons, Friedman, Liu & McLean Parks, 2007). Subordinates feel more secure within the organization when they trust their managers (Mayer, Davis & Schoorman, 1995). The inconsistency between the promises of the administrators and their practices causes both a decrease in the trust between the administrators and the school staff and the disappointment of the school staff (Andersson, 1996). Organizational cynicism can emerge if school personnel believe that integrity, honesty, and sincerity are sacrificed for the personal interests of administrators or for the benefit of the organization (Abraham, 2000).

In schools with low trust, school staff develop self-defensive behaviors (Paul, 1982). Naus (2007) expresses organizational cynicism as a defense mechanism developed by the employee against bad working conditions. Organizational cynicism is an internal “free

space" or "self-defense" space created by school staff at different hierarchical levels to protect themselves (Karafakis & Kokkinidis, 2011). In this context, organizational cynicism can also have positive outcomes within the organization (Davis & Gardner, 2004). School staff with cynical attitudes within the school can play a positive role in questioning the correctness and validity of organizational strategies and decisions. Cynical school staff even though they display negative attitudes based on the lack of organizational integrity, they can be considered as "the voice of conscience within the organization." Cynical individuals can be decisive in preventing administrative decisions that ignore the rights of school personnel and only protect the interests of the school (Brandes, Castro, James, Martinez, Matherly, Ferris & Hochwarter, 2008).

When looking at the current studies examining the relationship between organizational trust and organizational cynicism, it is observed that as organizational cynicism levels increase, the level of organizational trust decreases (Turner & Valentine, 2001; Chrobot-Mason, 2003; Bommer, Rich & Rubin, 2005). The findings of this study showed that there is a negative relationship between organizational trust perceptions of school personnel and organizational cynicism in all dimensions. According to Sagir and Oguz (2012), school administrators should take into account that school staff who do not believe in the work done in the school, who are pessimistic about their own performance, who make negative statements against their school and who refrain from cooperating with the administration may be experiencing cynicism.

One of the findings obtained in this study is that the change in the sub-dimensions of organizational cynicism is becoming inconsistent with the effect of organizational trust. This finding is in line with the findings of the study conducted by Guler (2014). It can be said that factors such as the existence of a belief (cognitive) expectation situation in the concept of trust, the concept of insecurity includes negative feelings (Brandes, 1997), and the personality traits of the school staff caused this inconsistency.

Due to the insecure behaviors of the school and the administration, cognitive dissonance may occur in the minds of the staff who experience cynicism in their schools. It is unlikely that a staff member with cynical attitudes in his/her school will act beyond the formal requirements of a school that s/he believes lacks integrity. Similarly, it is possible for staff with cynical attitudes to behave in a consistent manner with their feelings and beliefs (Brandes, 1997). According to cognitive dissonance theory, people have a tendency for their cognitions to be consistent with each other. If there is an inconsistency or a contradiction, the individual somehow wants to make them consistent and eliminate the contradiction (Kruglanski, 1989). According to the balance theory, school staff want to balance the three components of organizational cynicism. If there is a change in one of the three components of organizational cynicism, school personnel are expected to change the other components as well (Levent & Keser, 2016). According to the cognitive dissonance and balance theory, there should be consistent changes in affective and behavioral cynicism of the school staff with the effect of changing cognitive cynicism.

According to the findings of this study, it was found that the locus of control is the "mediating variable" in the relationship between organizational trust and organizational cynicism. Also in this research, while there is a negative relationship between organizational trust and external locus of control, a positive correlation with internal locus of control have been found; a high level of positive correlation between organizational cynicism and external locus of control, and a moderate level of negatively correlation with internal locus of control have been found. Accordingly, it is observed that the organizational cynicism levels of the school personnel with an internal locus of control who have the perception that the organizational trust level of the school or school management is high is low; it can be said that the organizational cynicism levels of the school personnel with an external locus of control who have the perception that the organizational trust level of the school and the administration is low is high. It can be said that the level of organizational cynicism of school personnel with an external locus of control, who interprets the school and the administration as is using the trust the personnel has in them for their own interests, is high.

Based on the findings obtained in this study, in order to decrease cynical attitudes by increasing the organizational trust levels of school personnel, it is recommended that school administrators, in matters such as performance evaluation, rewarding, appreciation, should prioritize professional ethical principles rather than relationships, act fairly and in accordance with the law; and, they should include school staff in the decision-making process and perform all their work in a transparent manner. In addition, since the locus of control is effective in the relationship between organizational trust and organizational cynicism, it can be said that school staff should be equipped with functional skills to show internal control-oriented behavior rather than external control-oriented behaviors.

## REFERENCES

Abraham, R. (2000). Organizational cynicism: Cases and consequences. *Generic, Social and General Psychology Monographs, 126*(3), 269-297.

Akin, U. (2015). The relationship between organizational cynicism and trust in schools: A research on teachers. *Education and Science, 40*(181), 175-189.

Andersson, L. M. (1996). Employee cynicism: An examination using a contract violation framework. *Human Relations, 49*(11), 1395-1418.

Andersson, L. M. & Bateman, T. S. (1997). Cynicism in the workplace: Some causes and effects. *Journal of Organizational Behavior, 18*(5), 449-469.

Arsenault, A., Dolan, S. L. & Van Ameringen, M. R. (1991). Stress and mental strain in hospital work: Exploring the relationship beyond personality. *Journal of Organizational Behavior, 12*(6), 483-493. doi: 10.1002/job.4030120603

Arslantaş, C. & Dursun, M. (2008). The impact of ethical leadership behavior on trust in manager and psychologıcal empowerment: The mediating role of interactional justice. *Anadolu University Journal of Social Sciences, 8*(1), 111-128.

Bandalos, D. L. & Finney, S. J. (2010). Factor analysis: Exploratory and confirmatory. In G. R. Hancock & R. O. Mueller (Eds.), *The reviewer's guide to quantitative methods in the social sciences* (pp. 93-114). New York, NY: Routledge.

Bartlett, K. R. (2001). The relationship between training and organizational commitment: A study in the health care field. *Human Resource Development Quarterly, 12*, 335-352. doi: 10.1002/hrdq.1001

Baron, R. M. & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Blake, R. R. & Mouton, J. S. (1982). *Consultation: A handbook for individual and organization development*. Ontario: Addison-Wesley Publishing Company.

Bommer, W. H., Rich, G. A. & Rubin, R. S. (2005). Changing attitudes about change: longitudinal effects of transformational leader behaviors on employee cynicism about organizational change. *Journal of Organizational Behavior, 26*(7), 733-753. doi: 10.1002/job.342

Brockner, J., Siegel, P. A., Daly, J., Tyler, T. & Martin, C. (1997). When trust matters: The moderating effect of outcome favorability. *Administrative Science Quarterly, 42*(3), 558–583.

Brandes, P. M. (1997). *"Organizational cynicism: Its nature, antecedents, and consequences"*. (Unpublished Doctoral Dissertation). The University of Cincinnati, Ohio.

Brandes, P., Castro, S., James, M. S. L., Martinez, A., Matherly, T., Ferris, G. & Hochwarter, W. (2008). The interactive effects of job insecurity and organizational cynicism on work effort following a layoff. *Journal of Leadership & Organizational Studies, 14*(3), 233-240.

Bryk, A. S. & Schneider, B. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation.

Carlson, N. R., Heth, D., Miller, H., Donahoe, J. & Martin, G. N. (2009). *Psychology: The science of behavior*. New York: Pearson.

Chrobot-Mason, D. L. (2003). Keeping the promise: Psychological contract violations for minority employees, *Journal of Managerial Psychology, 18*(1), 22-45.

Connolly, S. G. (1980). Changing expectancies: A counselling model based on locus of control. *The Personnel and Guidance Journal, 59*(3), 176-180. doi:10.1002/j.2164-4918.1980.tb00525.x

Cook, J. & Wall, T. (1980). New work attitude measures *of* trust, organizational commitment *and* personal need non-fulfillment. *Journal of Occupational Psychology, 53*, 39-52.

Cutler, I. (2000). The cynical manager. *Management Learning, 31*(3), 295-312.

Daft, R. L. (2000). *Management.* (5th Edition). Orlando: The Dryden Press.

Dawis, W. D. & Gardner, W. L. (2004). Perceptions of politics and organizational cynicism: An attributional and leader-member exchange perspective. *The Leadership Quarterly, 15*, 439-465.

Dean Jr, J. W., Brandes, P. & Dharwadkar, R. (1998). Organizational cynicism. *The Academy of Management Review, 23*(2), 341-352.

Deluga, R. J. (1995). The relation between trust in the supervisor and subordinate organizational citizenship behavior. *Military Psychology, 7*(1), 1-16.

de Ridder, Jan A. (2006). Organizational communication and supportive employees. *Human Resource Management Journal, 14*(3), 20–30.

Di Fabio, A. & Saklofske, D.H. (2019). Positive relational management for sustainable development: Beyond personality traits-The contribution of emotional intelligence. *Sustainability, 11*(2), 330-339.

Diffe-Couch, P. *(*1984*).* Building *a* feeling *of* trust *in the* company. *Supervisory Trust*, *29*, 26-31.

Dirks, K. T. & Ferrin, D. L. (2002). Trust in leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology, 87*(4), 611.

Eaton, J. A. (2000). *"A social motivation approach to organizational cynicism".* (Unpublished Master's thesis), Faculty of Graduate Studies, York University, Toronto.

Eisinger, R. M. (2000). Questioning cynicism. *Society, 37*(5), 55-60.

Fairholm, G. W. *(*1994*). Leadership and the culture of trust*. Westport, CT: Praeger.

Feldman, D. C. (2000). The Dilbert syndrome: How employee cynicism about ıneffective management is changing the nature of careers in organizations. *American Behavioral Scientist, 43*(8), 1286-1300.

Fink, S. L. (1992). *High commitment workplaces*. New York: Quorum Books.

Forte, A. (2005). Locus of control and the moral reasoning of managers. *Journal of Business Ethics*, *58*, 65–77. doi:10.1007/s10551-005-1387-6

Gilbert, J. A. & Tang, T. L. (1998). An examination of organizational trust antecedents. *Public Personnel Management, 27*(3), 321-338.

Greenberg, J. & Baron, R. (2003). *Behaviour in organizations: Understanding and managing the human side of work.* Upper Saddle River, NJ: Prentice Hall.

Grimes, P. W., Millea, M. J. & Woodruff, T. W. (2004). Grades-who's to blame? Student evaluation of teaching and locus of control. *The Journal of Economic Education, 35*(2), 129-147.

Guinot, J., Chiva, R. & Mallén, F. (2013). Organizational trust and performance: Is organizational learning capability a missing link? *Journal of Management & Organization, 19*, 559-582. doi:10.1017/jmo.2014.3

Güler, S. (2014). "*Örgütlerde güven algılamasının örgütsel sinizm üzerine etkisi ve bir araştırma"* (Unpublished Master's thesis). Pamukkale Üniversitesi, Sosyal Bilimler Enstitüsü, Denizli.

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The *Guilford Press*.

Hox, J. J. & Bechger, T. M. (1998). An introduction to structural equation modeling. *Family Science Review, 11*, 354-373.

Hoy, W. K. & Tarter, C. J. (2004). Organizational justice in schools: no justice without trust. *International Journal of Educational Management, 18*(4), 250-259. doi: 10.1108/09513540410538831

İşçi, E., Şişman, F. A. & Bektaş, G. (2013). A research on the relationship between personnel empowerment and organizational cynicism. *Management, 3*(5), 252-258.

James, M. S. (2005). *"Antecedents and consequences of cynicism in organizations: An examination of the potential positive and negative effects on school systems"* (Unpublished Doctoral Dissertation). The Florida State University College of Business, Florida.

Johnson, J. L. & O'Leary-Kelly, A. M. (2003). The effects of psychological contract breach and organizational cynicism: Not all social exchange violations are created equal. *Journal of Organizational Behavior, 24*(5), 627-647.

Jordan, M., Schraeder, M., Feild, H. S. & Armenakis, A. A. (2007). Organizational citizenship behavior, job attitudes, and the psychological contract. *Military Psychology, 19*(4), 259-271. doi:10.1080/08995600701548122

Kanovsky, M. A. & Pugh, S. D. (1994). Citizenship behavior and social exchange. *Academy of Management Journal, 37*, 656-669.

Kanter, D. L. & Mirvis, P. H. (1989). *The cynical Americans: Living and working in an age of discontent and disillusion*. San Francisco: Jossey-Bass.

Karadag, E., Kilicoglu, G. & Yilmaz, D. (2014). Organizational cynicism, school culture, and academic achievement: the study of structural equation modeling. *Educational Sciences: Theory & Practice, 14*(1), 102-113.

Karfakis, N. & Kokkinidis, G. (2011). Rethinking cynicism: Parrhesiastic practices in contemporary workplaces. *Culture and Organization, 17*(4), 329-345.

Klein, J. & Wasserstein-Warnet, M. (1999). Predictive validity of the locus of control test in selection of school administrators. *Journal of Educational Administration, 38*(1), 7-24. doi:10.1108/09578230010310 957

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York, NY: Guilford.

Kruglanski, A. W. (1989). *Lay epistemics and human knowledge: Cognitive and motivational bases.* New York, NY: Plenum.

Landy, F. J. & Conte, J. M. (2004). *Work in the 21st century: An introduction to industrial & organizational psychology*. Boston, MA: McGraw-Hill.

Laursen, J. C. *(*2009*).* Cynicism then and now. *European Journal of Philosophy and Public Debate, 1(2),* 469-482.

Leedy, P. D. & Ormrod, J. E. (2015). *Practical research. Planning and design* (11th ed.). Boston, MA: Pearson.

Levent, F. & Keser, S. (2016). Examining the organizational cynicism among teachers at schools a mixed methods study. *Educational Research and Reviews, 11*(21), 2009-2020.

Lewicki, R., McAllister, D. & Bies, R. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review, 23*(3), 438-458.

Louis, K. S. (2007). Trust and improvement in schools. *Journal of Educational Change, 8*, 1-24.

Luck, E. G. (1997). *Die Weisheit der Hunde: Texte der antiken Kyniker.* Stuttgart: Kröner.

Martin, R., Thomas, G., Charles, C., Epitropaki, O. & McNamara, R. (2005). The role of leader-member exchanges in mediating the relationship between locus of control & work reactions. *Journal of Organisational & Occupational Psychology, 78*, 141-147. doi:10.1348/096317904X23763

Mayer, R. C., Davis, J. H. & Schoorman, D. F. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*, 709–734.

Morgan, R. M. & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, 58*, 20-38.

Mishra, J. & Morrissey, M. A. (1990). Trust in employee/employer relationships: A survey of West Michigan Managers. *Public Personnel Management, 19*(4), 443-485.

Mishra, A. K. (1996). Organizational response to crisis: The centrality of trust. In R. M. Kramer & T. R. Tyler (Eds.). *Trust in organizations: Frontiers of theory and research* (pp. 261-287), Newbury Park, CA: Sage.

Mirvis, P. & Kanter, D. L. (1991). Beyond demography: A psychographic profile of the workforce. *Human Resource Management, 30*(1), 45-68.

Naus, A. J. A. M. (2007). *"Organizational cynicism: on the nature, antecedents and consequences of employee cynicism toward the employing organization"* (Unpublished doctoral thesis), Maastricht University, Maastricht.

Nicholson, R. M., Leiter, M. P. & Laschinger, K. S. (2014). Predicting cynicism as a function of trust and civility: a longitudinal analysis. *Journal of Nursing Management, 22*(8), 974-983.

Nyhan, R. C. & Marlowe, H. A. (1997). Development and psychometric properties of the organizational trust inventory. *Evaluation Review, 21*(5), 614-635.

Onwuegbuzie, A. J. & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report, 12*(2), 281-316.

O'Reilly, C. A. & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology, 71*(3), 492-499. doi:10.1037/0021-9010.71.3.492

Owen, H., Hodgson, V. & Gazzard, N. (2004). *The leadership manual: Your complete practical guide to effective leadership.* London: Pearson Prentice Hall.

Paul, M. F. (1982). Power, leadership and trust: implications for counselors in terms of organizational change. *The Personnel and Guidance Journal, 60*(9), 538-541.

Pillai, R., Schriesheim, C. A. & Williams, E. S. (1999). Fairness perceptions and trust as mediators for transformational and transactional leadership: *A* two-sample study. *Journal of Management*, *25*(*6*), 897-933.

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H. & Fetter, R. (1990). Transformational leaders behavior and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly, 1*(2), 107–142.

Preacher, K. J. & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36*(4), 717–731.

Reychav, I. & Sharkie, R. (2010). Trust: An antecedent to employee extra- role behaviour. *Journal of Intellectual Capital, 11*(2), 227-247.

Robbins, S. P. & Judge, T. (2013). *Organizational behavior.* (15th. Edition). Boston: Pearson.

Robbins, S. P. & Coulter, M. (2002). *Management.* (7th. Edition). New Jersey: Prentice Hall.

Rotter, J. (1966). Generalized expectancies for internal vs. external control of reinforcement. *Psychological Monographs, 80*(1), 1-28.

Rousseau, D. M., Sitkin, S. B., Burt, R. S. & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review, 23*(3), 393-404.

Ruppel, C. & Harrington, S. (2000). The relationship of communication, ethical work climate, and trust to commitment and innovation. *Journal of Business Ethics, 25*(4), 313-328.

Sabel, C. F. (1993). Studied trust: Building new forms of cooperation in a volatile economy. *Human Relations, 46*(9), 1133-1170.

Sağır, T. & Oğuz, E. (2012). Developing of organizational cynicism scala for teachers. *International Journal of Human Sciences, 9*(2), 1094-1106.

Shaw, R. B. *(1997). Trust in the balance*: *Building successful organizations on results*, *integrity*, *and concern.* San Francisco: Jossey-Bass.

Seligman, A. B. (1997). *The problem of trust.* New Jersey: Princeton University Press.

Simons, T., Friedman, R., Liu, L. A. & McLean Parks, J. (2007). Racial differences in sensitivity to behavioral integrity: Attitudinal consequences, in-group effects, and "Trickle Down" among black and non-black employees. *Journal of Applied Psychology, 92*, 650-665.

Sonnenberg, F. K. *(1994). Managing with a conscience*: *How to improve performance through integrity, trust and commitment.* New York*:* McGraw Hill.

Stanley, D. J., Meyer, J. P. & Topolnytsky, L. (2005). Employee cynicism and resistance to organizational change. *Journal of Business and Psychology, 19*(4), 429-459. doi:10.1007/s10869-005-4518-2

Stein, C. M., Morris, N. J. & Nock, N. L. (2012). Structural equation modeling. In: Elston, R., Satagopan, J., Sun, S. (eds) *Statistical human genetics: Methods and protocols*, (pp. 495-512), New York, NY: Springer Science-Business Media.

Stevenson, W. B. & Gilly, M. C. (1991). Information processing and problem solving: The migration of problems through formal positions and networks of ties. *Academy of Management Journal, 34*(3), 918-928.

Tan, H. & Lim, A. (2009). Trust in co-workers and trust in organizations. *The Journal of Psychology, 143*(1), 45–66.

Thomas, G. F., Zolin, R. & Hartman, J. L. (2009). The central role of communication in developing trust and its effect on employee involvement. *Journal of Business Communication, 46*(3), 287-310.

Tschannen-Moran, M. & Hoy, W. (1998). Trust in schools: A conceptual and empirical analysis. *Journal of Educational Administration, 36*(4), 334-352.

Tschannen-Moran, M. (2001). Collaboration and the need for trust. *Journal of Educational Administration, 39*(4), 308-331.

Turner, J. H. & Valentine, S. R. (2001). Cynicism as a fundamental dimension of moral decision-making: A scale development. *Journal of Business Ethics, 34*, 123-136. doi:10.1023/A:1012268705059

Wanous, J. P., Reichers, A. E. & Austin, J. T. (2000). Cynicism about organizational change measurement, antecedents, and correlates. *Group and Organizational Management, 25*(2), 132-153.

Welch, M. R., Rivera, R. E. N., Conway, B. P., Yonkoski, J., Lupton, P. M. & Giancola, R. (2005). Determinants and consequences of social trust. *Sociological Inquiry, 75*(4), 453-473.

Vice, S. (2011). Cynicism and morality. *Ethic Theory Moral Prac, 14*, 169-184.

Vidotto, G., Massidda, D., Noventa, S. & Vicentini, M. (2012). Trusting beliefs: A functional measurement study. *Psicológica, 33*(3), 575-590.

## Biographical notes:

***Muhammet Bahadır:*** He graduated from Sakarya University, Department of Science Education in 2003. He started his master's degree in Educational Management and Supervision at Sakarya University, Department of Educational Sciences in 2003 and completed it in 2007. In 2020, he received his Ph.D. on Education Management and Supervision at Marmara University and Istanbul Sabahattin Zaim University.

***A. Faruk Levent:*** He is an associate professor at the Ataturk Faculty of Education, Marmara University, Istanbul, Turkey. He is serving as "vice chairperson" in Educational Sciences Department, Marmara University. He received his Ph.D. on Administration, Supervision, Planning and Economics at Marmara University.



***Author(s)' statements on ethics and conflict of interest***

***Ethics statement:*** We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

***Statement of interest:*** We have no conflict of interest to declare.

***Funding:*** None

***Acknowledgements:*** None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# Developing Students' Positive Affective Entry Characteristics towards Mathematics: An Action Research Study

**Muhittin Çalışkan**[1] **Hüseyin Serçe**[2] **Hatice Uysal**[3] **Tianlan Wei**[4]

**Article Type**
Original Research
*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 159-179
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 31.03.2022
Revision : 16.04.2022
Accepted : 10.05.2022

**Abstract:**

*Past research has indicated the vital role of affective factors in mathematics learning. This action research study aimed to develop and evaluate the effectiveness of an action plan, which was implemented to foster students' positive affective entry characteristics towards mathematics specifically by fixing the deficiencies in prior learning and promoting the allocation of time to study. Thirteen students attending a secondary school participated in the study over a 12-week period. We collected both quantitative and qualitative data through the Affective Entry Characteristics Scale for Mathematics, the Attitude Observation Form towards Mathematics, the research diary, and indirect observation of use traces on student assignments. First of all, the analysis of these data sources confirmed that there was a substantial improvement in the students' affective entry characteristics, indicating the effectiveness of our implementation. On the other hand, the qualitative data analysis of the diary and student assignments revealed that this effect was not long-lasting for students who lived in a disadvantaged family/home environment. In other words, remedying the deficiencies in prior learning and promoting the allocation of time to study alone were not sufficient for these students. As a result, we came to the conclusion in the study that non-modifiable variables (such as family home environment) are as important as or even more important than modifiable ones in the development of positive affective entry characteristics towards mathematics.*

**Keywords:** Affective entry characteristics towards mathematics, Prior learning, Allocating time to study, Mathematics achievement, Action research

**Citation:**
Çalışkan, M., Serçe, H., Uysal, H., & Wei, T. (2022). Developing students' positive affective entry characteristics towards mathematics: An action research study. *International Journal of Modern Education Studies, 6*(1), 159-179. https://doi.org/10.51383/ijonmes.2022.189

[1] Prof. Dr., Necmettin Erbakan University, Faculty of Education, Konya, Turkey. mcaliskan@erbakan.edu.tr,
Orcid ID: 0000-0002-2341-0710
[2] Asst. Prof. Dr, Selçuk University, Faculty of Education, Konya, Turkey. hserce@selcuk.edu.tr,
Orcid ID: 0000-0001-7132-2910
[3] Teacher, Turkish Ministry of National Education, Konya, Turkey. h.uysalll@hotmail.com,
Orcid ID: 0000-0003-3935-5899
[4] Assoc. Prof. Dr., Mississippi State University, Educational Psychology Faculty, the U.S.A. ewei@colled.msstate.edu,
Orcid ID: 0000-0002-8270-5287

## INTRODUCTION

Mathematics is a fundamental subject that students need to master in order to achieve their academic and professional goals (Chiu & Klassen, 2010). Naturally, it has great importance among school subjects (Li & Li, 2008; Wang, 2006). For this reason, mathematics achievement has always been the focus of research endeavors. Research has shown that both cognitive and affective factors need to be investigated to understand how to improve learning in mathematics (Leder & Forgasz, 2002). Thus, examination of affective as well as cognitive factors has become an important issue (Lebens et al., 2011). For instance, there is a large body of research that indicates how affective factors impact on student achievement in mathematics (Carpenter & Clayton, 2014; Chiu & Klassen, 2010; Cvencek et al., 2015; Edirmanasinghe, 2020; Ehmke et al., 2010; Ganley & Vasilyeva, 2011; Gunderson et al., 2012; Lee & Anderson, 2015; Pantziara & Philippou, 2015; Peters, 2013; Samuelsson, 2021). It is also stressed that affective factors are an important predictor of mathematics achievement (Grootenboer & Hemmings, 2007; Liston & O'Donoghue, 2009; Marsh et al., 2005). Although there is widespread knowledge about the relationship between affective factors and learning mathematics, more research is needed on how to develop these factors (Samuelsson, 2021). Therefore, as the action research team in this study, we set out to investigate how we could improve students' affective entry characteristics towards mathematics.

### Theoretical Framework

Affective characteristics play a major role in students' decisions about how proficient they need to be in mathematics and how they approach mathematical studies (Reyes, 1984). In addition, students with positive affective entry characteristics tend to be more attentive, persistent, and successful in their learning processes (Anderson & Bourke, 2000). Therefore, affective characteristics are an important factor in learning mathematics (Maass & Schlöglmann, 2009), which is reasserted periodically in the literature (Evans & Tsatsaroni, 1996).

One theory that can help promote students' learning mathematics is Bloom's mastery learning (Bloom, 1998). In addition to cognitive prerequisites, affective entry characteristics play an important role in Bloom's model as they influence achievement and speed of learning (Seel, 2012). According to Bloom (1998), affective entry characteristics, which are a combination of student interest, attitude, and academic self-concept towards a course or the learning units of that course, account for 25% of the variation in learning level.

Research reveals that positive affective characteristics are directly associated with better learning outcomes (Çalışkan, 2014; Edirmanasinghe, 2020; Samuelsson, 2021). A learning environment that develops students' affective entry characteristics towards mathematics can be characterized by a) ensuring student achievement first (Ganley &

Lubienski, 2016; Ma & Xu, 2004), to this end b) fixing the deficiencies in prior learning (Bloom, 1998; Hailikari et al., 2008) and c) supporting students to devote time to studying (Kitsantas et al., 2011).

In order to develop positive affective entry characteristics towards mathematics, students firstly need a sense of achievement. Past achievement significantly predicts the future attitude (Ma & Xu, 2004). Mathematics achievement is a consistent predictor of later self-confidence and interest (Ganley & Lubienski, 2016). On the other hand, deficiencies in prior learning must be fixed beforehand to enable student achievement. Studies conducted at different teaching levels and in different subject areas have shown that prior learning has a positive effect on achievement (Thompson & Zamboanga, 2004). Prior learning is also a strong predictor of mathematics achievement (Hailikari et al., 2007, 2008). Ninety-five percent of the studies reported that prior learning had a positive and facilitating effect on learning (Dochy et al., 1999). However, remedying the deficiencies in prior learning alone is not sufficient for achievement. Students must also dedicate time to studying. Achievement necessitates student engagement with the learning unit. (Butler & Winne, 1995). Therefore, the time allocated to study is an important variable that has a positive effect on mathematics achievement (Kitsantas et al., 2011; Özer & Anıl, 2011). Accordingly, students can achieve success in mathematics only when (a) their deficiencies in prior learning are addressed at the beginning of a new learning unit; and (b) they allocate sufficient time to study. The achievement in turn may result in positive affective entry characteristics. Finally, positive affective entry characteristics can motivate the students to devote time to studying in subsequent learning units. This cyclic process may repeat itself in such an order that each variable affects the other positively as students proceed to each new unit of the mathematics course (Çalışkan, 2014).

## Purpose of the Study

Quantitative studies have certainly contributed to our understanding of affective entry characteristics in mathematics. Nevertheless, qualitative inquiries should not be neglected in this regard. Qualitative data can provide a richer description of the nature and development of affective entry characteristics in learning mathematics. Therefore, there is a need for interpretative qualitative research to improve our understanding of the process of promoting or developing affective entry characteristics. As a result, as the action research team in this study, we aimed to investigate how we could improve students' affective entry characteristics towards mathematics by specifically fixing the deficiencies in prior learning and promoting the allocation of time to study. Accordingly, we implemented an action plan based on the theoretical explanations above and evaluated its effectiveness.

# METHOD

## Research Design

We adopted the *technical/scientific/collaborative* mode of action research for the present study. The goal of this mode is to test or evaluate the implementation of an action plan based on a pre-specified theoretical framework. This goal is achieved by the close collaboration between a practitioner and a researcher. Accordingly, the researcher identifies a problem and develops a theoretical plan while the practitioner implements it. Furthermore, the researcher guides the practitioner to facilitate the implementation and deal with the problems that might arise throughout the process (Berg, 2001; Yıldırım & Şimşek, 2016).

## Participants and Setting

The research was conducted in a secondary school in a district 40 km away from the city of Konya, Turkey. The district was of a population of 2,000, with a majority of its residents working in agriculture and animal husbandry and considered of low socioeconomic status (SES) in the Turkish context. The school had 25 teachers, 251 students, and 5 classrooms.

A total of 13 fifth-grade students participated in the present study, which lasted 12 weeks. These participants were also the students of the third author, who worked as a mathematics teacher in that secondary school. In Class 5/A, students sat in two-seat benches arranged one behind the other. Classroom interaction among the students appeared to be good. The participants were generally disciplined and well-behaved but easily distracted during the class sessions. Their family environment (e.g., visitors, family chores such as caring for a sibling, helping with housework and farm work) was also known to have distracted students from studying adequately at home. These have also resulted in students' absences from school. No participating student had their own room at home, and most of them did not have a desk to study. Academically, they suffered from deficiencies in basic knowledge and skills in mathematics lessons. Parental expectations of education were also low: some parents had no plan to send their children to high school after secondary school.

## Roles of the Authors

The authors assumed different roles in the study, namely the practitioner (the third author) and the researchers (all the other authors). After collaborating with the practitioner, the researchers developed an action plan. The practitioner implemented the plan under the guidance of the researchers. The practitioner also informed the researchers about the problems arising in the process. The researchers made suggestions to the practitioner on how to intervene to solve these problems. The practitioner continued the implementation according to these suggestions. The researchers finally guided the

practitioner on when and how to collect the data, observed the data collection processes, and made an evaluation by analyzing the data.

### Data Sources

Four data sources, both quantitative and qualitative, were collected at different stages of the implementation to evaluate the action plan. Thus, the data were of mixed-methods and longitudinal nature to achieve triangulation (Johnson, 2015). These data sources included (a) quantitative data collected via two instruments, the Affective Entry Characteristics Scale for Mathematics (AECSM; Çalışkan & Serçe, 2016), the Attitude Observation Form towards Mathematics (AOFM; Boz & Çalışkan, 2018); and (b) qualitative data collected in the form of practitioner's research diary, and indirect observation. In general, the data collected through these sources at different times gave the opportunity to describe the changes in students' affective entry characteristics. Specifically, the AECSM, which is a valid and reliable Likert-type scale with 20 items, was used to measure students' affective entry characteristics. The AOFM, which is a valid and reliable Likert-type observation form with 11 items, was utilized to support and complement the quantitative data. According to Boz and Çalışkan (2018), in identifying affective characteristics, this form can be a useful tool to support the results obtained from the scale. The diary was employed for determining the students' allocation of time to study and other behaviors as indicators of affective entry characteristics. Hence, the practitioner recorded her observations, feelings, thoughts, and student comments about the process in the diary (Johnson, 2015). Finally, indirect (unobtrusive) observations were conducted through use traces (Shaughnessy et al., 2016) in order to identify whether the students allocated time to do their assignments and put some effort for achievement as a sign of affective entry characteristics.

### Data Collection Process

The AECSM was administered twice, at the beginning and end of the implementation. The AOFM was applied for the observation sessions led by the practitioner in the first, sixth and last week over the 12-week span. Each session lasted 3 or 4 class hours. During the observations, the form was not used directly so as not to disturb the natural classroom setting. Therefore, the practitioner often checked the form to remember the observation units in it. The data were also recorded without any interpretation by using the memory-based notes method (Karasar, 2002). Accordingly, the practitioner filled out the form right after each class based on whether the behavior expressed in the observation unit was observed or not. Furthermore, the practitioner initially started observing only one student to keep in mind and master the observation units. In time, after enough practice, the number of students to be observed gradually increased.

The practitioner kept the research diary after the class or at the end of the day. Notes were taken under a separate entry for each student in the diary. At the end of the process,

a diary of 22 pages was obtained. The indirect (unobtrusive) observation, on the other hand, was made by measuring use traces. According to Shaughnessy et al. (2016), use traces involve the physical evidence remaining from the use or nonuse of an item. Therefore, we collected 12 weekly assignments of each student and examined physical evidence on the papers such as the student's operations or eraser marks to identify students' allocation of time to study and effort. For example, if a student did some operations on a question, deleted them but did not mark the correct answer or marked it incorrectly, we considered the student to have made an effort.

### Procedures (Action Plan)

The action plan was developed based on the theoretical framework discussed above. Specifically, it may be postulated that prior learning, allocation of study time, achievement, and affective entry characteristics affected one another cyclically and reciprocally. Figure 1 presents a graphic illustration of this cyclic process.

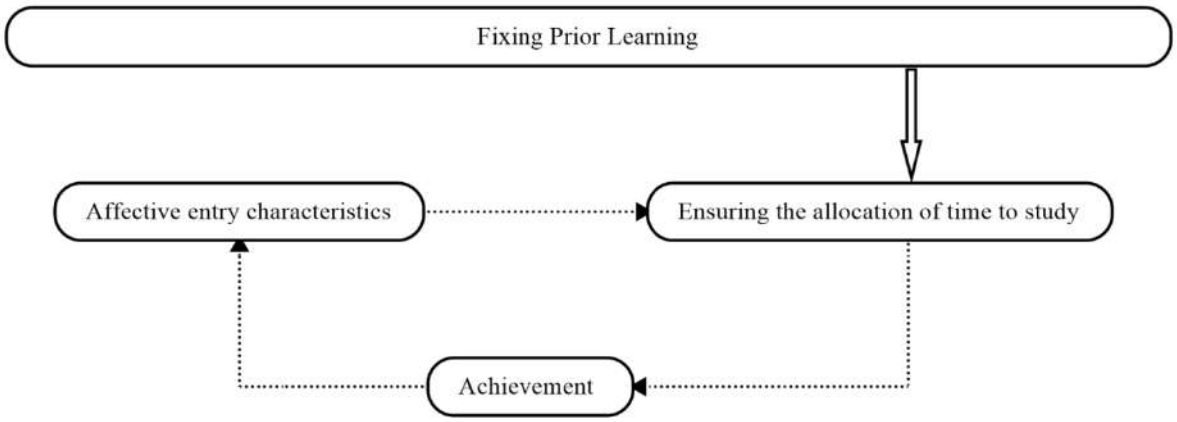



***Figure 1.*** The Cyclic Process of Prior Learning, Allocation of Time to Study, Achievement, and Affective Entry Characteristics

As shown in Figure 1, this action plan gave us the opportunities to plan, act and reflect throughout the implementation. Therefore, we were able to come up with a new solution by thinking deeply during the process. In order to achieve the aim of the study, the implementation focused on fixing the students' deficiencies in prior learning and promoting their allocation of time to study. Accordingly, the following procedures were implemented throughout 12 weeks:

1) This step aimed to fix deficiencies in prior learning before the instruction of a new unit. For example, the first unit was fractions. In this unit, students were expected to learn topics such as simplification, expansion, and equivalent fractions. However, they must have previously mastered multiplication and division to achieve this. Therefore, a cognitive entry behaviors test was prepared and applied by the practitioner. The test included questions assessing multiplication and division skills. It also comprised other questions to examine the prior learning of all the topics in the unit. The test results generally revealed some deficiencies in all of the students' multiplication and division

skills. Thus, these deficiencies were remedied before they started the unit. In cases where there was not enough class time to do it, take-home assignments and tasks were also given. When necessary, one-on-one tutoring was provided for the students after school. After-school tutoring took a longer time in the first two weeks than the following weeks, as students showed positive growth and needed less tutoring. The same process was repeated for each new learning unit throughout the implementation.

2) After the deficiencies in prior learning were fixed and instruction of the new unit started, the second step included the attempts to ensure that the students allocated enough time to study. Therefore, the practitioner tried to motivate the students by explaining the importance of the issue in class. One-on-one interviews were also held when necessary. In addition, the practitioner and each student prepared a particular study plan together. The practitioner also closely monitored to what extent the students stuck to the study plan. Furthermore, a meeting was held to inform the parents about the activities and get their support. Those parents who could not attend the meeting were reached by phone. Moreover, letters were sent to the parents twice during the process. The content of the face-to-face/telephone interviews and the letters covered the following topics: a) arranging a suitable study environment at home, b) duties of parents in having students gain regular study habits, c) suggestions for establishing good communication with their children, d) factors that may prevent students from studying and remedies. In this regard, the issues that inhibited students from studying such as television, family visits, and household chores were particularly dealt with.

3) This step covered student assignments. At the end of each week, the students were given assignments for the topics covered during the week. The purpose of these assignments was to both evaluate the week and collect data for the indirect observation. There were also some other assignments, which were given to remedy the deficiencies in prior learning and lesson review.

### Data Analysis

Descriptive statistics of the scores obtained from the pretest and posttest of the AECSM were calculated, and the mean scores of the two tests were analyzed with the paired samples t-test. Frequency analysis was done for the data obtained from the AOFM. Thus, the number of students who demonstrated the behavior expressed in the observation unit in each observation was calculated. Inductive analysis (Johnson, 2015) was used to analyze the data obtained from the research diary. Accordingly, the entries in the research diary were examined, and recurring items and themes were searched. Similar expressions were coded and moved into categories. Frequency analysis was performed for the data obtained from the indirect observation of student assignments. Therefore, the number of students "doing assignments", "not doing assignments", "making an effort" and "not making an effort" was generated.

The data sources of the scale, observation form, research diary and indirect observation were utilized to observe the changes in the affective entry characteristics. In this way, triangulation was achieved and the situation was analyzed from diverse viewpoints. Similar patterns were sought in the data from different sources in order to ensure accuracy and credibility.

### Ethical Considerations

We took some measures to ensure research ethics in this study. Firstly, the study did not entail any procedures to give biased/false information to the participants in any way, or to keep the purpose of the study completely confidential. In addition, participation in the study and the content of the data collection tools did not pose any risk or harm to the physical, social or psychological health of the participants. To ensure privacy and confidentiality, the data of the participants were hosted on the researchers' personal computers and safeguarded by a password. The report also contained no identifying information about the participants in any part of the article.

The study did not require official approval from an institutional ethical review board in Turkey because we collected the data in 2019. It should be noted that such approval was not needed in Turkey for the studies which collected data before the year 2020. However, in this study, all rules stated within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were taken.

## RESULTS

One of the data sources in the study was the AECSM. It was observed that the data obtained from the AECSM did not deviate excessively from normal distribution. The skewness and kurtosis coefficients ranged between -1.294 and 1.479. Therefore, the pretest and posttest mean scores were analyzed with paired samples t-test, and the results are summarized in Table 1.

**Table 1**

*t-test Results for the AECSM Pretest-Posttest Mean Scores*

| **Measurement** | *n* | *M* | *SD* | *df* | *t* |
|---|---|---|---|---|---|
| Pretest | 13 | 64.85 | 15.18 | 12 | -2.446* |
| Posttest | 13 | 72.92 | 6.28 | | |

*$p < .05$

As shown in Table 1, the results showed a significant improvement of students' affective entry characteristics in mathematics after the implementation (M = 72.92, SD = 6.28) as compared to their pre-implementation level (M = 64.85, SD = 15.18), t(12) = −2.446,

p = .02). Accordingly, it can be stated that the implementation made a difference in the posttest scores compared with the pretest scores. In other words, the implementation was effective in the development of positive affective entry characteristics compared to the initial situation.

The second data source in the study was the AOFM. The data obtained from the form were analyzed using the frequency method and the results are shown in Table 2.

**Table 2**

*Number of Participants by Observation Unit Across the Three Observations*

| Observation Units | Observation | | |
|---|---|---|---|
| | First | Second | Third |
| The student struggles with a problem until finding a solution. | 7 | 12 | 12 |
| The student is not engaged in other things. | 4 | 11 | 13 |
| The student solves problems without difficulty. | 6 | 9 | 9 |
| The student listens attentively to the teacher. | 5 | 13 | 12 |
| The student does his/her homework carefully. | 9 | 8 | 10 |
| The student wants to speak up. | 11 | 13 | 12 |
| The student keeps notes. | 12 | 13 | 13 |
| The student asks when not understanding. | 2 | 6 | 12 |
| The student wants to solve questions on the board. | 9 | 13 | 12 |
| The student makes eye contact with the teacher. | 9 | 13 | 13 |

As can be seen in Table 2, compared to the results of the first observation, there was an increase in the number of students exhibiting behaviors of positive attitude in the subsequent observations. For example, while there were only 2 students asking about a point they did not understand in the first observation, this number rose to 6 and 12 in the second and third observations, respectively. In addition, the number of students who displayed the following behaviors had been stable across observations: doing their assignments carefully, wanting to speak up, and taking notes. In general, these add to the evidence that the implementation was effective in developing positive affective entry characteristics.

The third data source in the study was the practitioner's research diary. As a result of the inductive analysis of the diary, three main categories were reached, namely "obstacles", "time allocated to study" and "affective entry characteristics." The frequency of the subcategories recurring in the diary was also calculated. The results are presented in Table 3.

**Table 3**

*Categories and Subcategories Obtained From the Analysis of the Research Diary with Frequencies*

| Categories and Subcategories | Frequency |
|---|---|
| **Obstacles** | **18** |
| The family does not care about attendance to school. | 1 |
| The student lacks suitable environment to study (no private room, has to study in front of the television). | 1 |
| The family goes on visits and receives visitors frequently. | 1 |
| The student is absent from school with an excuse. | 3 |
| The student is absent from school without any excuse. | 8 |
| The student has to help the family with the chores such as housework, farm work, sibling and animal care. | 4 |
| **Time allocated to study** | **53** |
| The student has started to study systematically and regularly. | 11 |
| The student allocates 15 to 90 minutes to study. | 9 |
| The student comes prepared for classes. | 3 |
| The student does lesson reviews at home. | 9 |
| The student lacks stability (sometimes studying, sometimes not) | 9 |
| The student does not study enough (spends too little time). | 7 |
| The student does not allocate time to study. | 3 |
| The student does not review lessons. | 2 |
| **Affective entry characteristics** | **111** |
| The student does homework regularly. | 13 |
| The student does more than the assigned homework. | 4 |
| The student has not done the homework. | 11 |
| The student develops and uses different strategies (e.g. asking questions and explaining to each other, oral repetition, marking the points s/he does not understand and asking the teacher, writing and answering questions) | 13 |
| The student makes arrangements (e.g. for creating a quiet environment) | 2 |
| The student takes more interest in the lesson. | 9 |
| The student is indifferent to the lesson. | 2 |
| The student keeps a tidier notebook. | 7 |
| The student gets happier as success comes. | 4 |
| The student makes an effort. | 8 |
| The student studies from different sources as well. | 4 |
| The student is more self-confident in mathematics now. | 5 |
| The student does not hesitate to ask when not understanding. | 9 |
| The student is excessively bored with school. | 1 |
| The student enjoys the lesson and finds it fun. | 8 |
| The student gets bored in class and does not want to listen. | 1 |
| The student is willing to come to the blackboard and speak up. | 9 |
| The student is afraid to come to the blackboard and speak up. | 1 |

Each category in Table 3 was defined and explained below:

*Obstacles*

This category included the factors that negatively affected the students' allocation of time to study and the expected positive contributions of the implementation. School

absence and the obligation to help the family with the chores can be listed as important obstacles for students to allocate time to study.

*Time allocated to study*

This category included the time that students devoted to studying mathematics in the implementation process. When the subcategories were examined, it was understood that students generally started to study systematically and regularly, reviewed lessons at home, and thus allocated time to study. However, there were some instances when some students did not show consistency, did not spend enough or any time to study, and did not review lessons.

*Affective entry characteristics*

This category included behaviors that indicate interest, attitude and self-confidence in mathematics such as taking interest in mathematics, enjoying the lesson, doing assignments regularly, making an effort and using different strategies. An examination of the subcategories in Table 3 foregrounded the positive aspects of these behaviors, although there were occasions when students did not do their homework, were indifferent to the lesson, bored in class, and afraid to come to the blackboard and speak up. Therefore, we overall concluded that the implementation was effective in developing positive affective entry characteristics.

The final data source in the study was the indirect observation performed with the use traces. Therefore, the physical evidence on student assignments was analyzed. The results are shown in Table 4.

**Table 4**

*Results of the Analysis of Data Obtained from the Indirect Observation*

| Assignment | Did not do assignment | Did assignment | No effort | Made an effort |
|---|---|---|---|---|
| A1 | 1 | 12 | 8 | 4 |
| A2 | 1 | 12 | 6 | 6 |
| A3 | 2 | 11 | 4 | 7 |
| A4 | - | 13 | 3 | 10 |
| A5 | 1 | 12 | 2 | 10 |
| A6 | 2 | 11 | 4 | 7 |
| A7 | 1 | 12 | 4 | 8 |
| A8 | 3 | 10 | 4 | 6 |
| A9 | 3 | 10 | 6 | 4 |
| A10 | 5 | 8 | 4 | 4 |
| A11 | 4 | 9 | 6 | 3 |
| A12 | 4 | 9 | 6 | 3 |

When the high number of students who did each assignment was examined in Table 4, it was understood that students allocated time to study. However, a slight decrease was observed in the last three assignments. On the other hand, considering the argument of the

research, an increase would normally be expected in the number of students who make an effort while doing assignments from the first to the twelfth. This is because affective entry characteristics determine whether the students will make an effort or not in a task. Accordingly, an increase in the number of students making an effort in the process is explained by a positive change in affective entry characteristics. As seen in Table 4, the results in the first five assignments supported the argument of the research. In the rest of the assignments, a gradual decrease was observed in the number of students making an effort. Nevertheless, the number of these students was relatively high in A6 to A8. In contrast, the number was the lowest in the last four assignments, A9 to A12. In this case, it can be said that the implementation was effective in the allocation of time to study, but its effect on developing positive affective characteristics was not long-lasting for some students.

## DISCUSSION AND CONCLUSION

This study aimed to examine the effectiveness of an action plan, which was implemented to improve students' affective entry characteristics towards mathematics by specifically fixing the deficiencies in prior learning and promoting the allocation of time to study. The findings are discussed and concluded below.

Two of the data sources in the study were the AECSM and the AOFM. First of all, the analysis of the AECSM mean scores revealed a significant difference in favor of the posttest. In addition, the analysis of the data obtained from the AOFM showed an increase in the number of students exhibiting behaviors as indicators of positive attitude from the first to the third observation. The findings from these two data sources confirmed that there were positive changes in the students' affective entry characteristics towards mathematics. Therefore, we concluded that the implementation was effective in achieving the aim of the study. This result is in line with the research findings (Edirmanasinghe, 2020; Samuelsson, 2021), which report that affective characteristics can be improved through various interventions. On the other hand, the positive changes in the affective entry characteristics may be interpreted as follows: Students became more successful after fixing the deficiencies in prior learning and promoting the allocation of time to study mathematics (Bloom, 1998; Dochy et. al, 1999; Hailikari et al., 2008; Kitsantas et al., 2011; Thompson & Zamboanga, 2004). The enhanced achievement, in turn, positively affected students' affective entry characteristics (Ganley & Lubienski, 2016; Ma & Xu, 2004).

Another data source in the study was the practitioner's research diary. The inductive data analysis revealed some interesting findings regarding the 3 main categories, "obstacles", "time allocated to study" and "affective entry characteristics". We firstly reached some positive findings after the examination of the subcategories. We found out that students generally began to study systematically and regularly, reviewed lessons at home, and thus allocated time to study. This showed that they took time to study mathematics. As mentioned in the literature (Anderson & Bourke, 2000; Reyes, 1984),

devoting time to studying is the result of a positive change in affective entry characteristics. In addition, students mostly exhibited positive behaviors of interest, attitude and self-confidence. For example, they got more interested in mathematics, enjoyed the lesson, were willing to participate and ask questions, did assignments regularly, made an effort and used different strategies. Therefore, we overall concluded that the implementation was effective in improving students' positive affective entry characteristics, which supported the findings of the AECSM and the AOFM. On the other hand, we had some negative findings. For example, there were some occasions when some students did not show stability, spend adequate or any time to study, do lesson reviews or assignments, were indifferent to the lesson and bored in class. This situation may be attributed to the factors, which were described in the category of "obstacles". It seemed that a combination of these family-related factors such as frequent family visits, family chores (e.g. caring for a sibling, helping with housework and farm work etc.), and lack of a suitable study resulted in students' school absence. This may have prevented some students from allocating time to study and thus developing positive affective entry characteristics. Based on these findings, we concluded that the implementation worked for the students who had a supportive family home environment. In other words, the students who had a family home environment supporting the activities at school became more successful in mathematics after the implementation. This success, in turn, positively affected their development of affective entry characteristics. Therefore, it can be argued that fixing the deficiencies in prior learning and encouraging students to devote time to studying at school was not enough alone. The family home environment should have supported these endeavors. The significance of family-related factors is also highlighted in the literature. For instance, Özer and Anıl (2011) state that family characteristics (e.g. education level of parents, the number of books in the house, having a computer and related equipment) are key variables regarding mathematics achievement. According to Grootenboer & Hemmings (2007) affective factors in combination with socioeconomic status predict mathematics achievement. Berberoğlu et al. (2003) also add that the most important factor determining mathematics achievement is socioeconomic level.

The last data source in the study was the indirect observation, which was realized through the use traces. Firstly, we found out that students allocated time to study mathematics considering the high number of students who did each assignment. However, the analysis of the physical evidence on the assignment papers showed an increase in the number of students making an effort in the first five assignments, and then a gradual decrease in the following ones. The decrease was even larger in the last four assignments. Therefore, it can be argued that the implementation was effective in allocation of time to study, but its effect on developing positive affective characteristics was not long-lasting for some students. Effort is one of the most important indicators of affective entry characteristics. A student with positive affective entry characteristics makes an effort when faced with difficulty (Bloom, 1998). The reason for the decline of effort in

the final weeks of the implementation can be explained by the increase in the housework and farm work with the arrival of the spring months. Thus, the students had to either go to the field or take care of their siblings at home. Even if they wanted to allocate time to their homework, this didn't seem possible. Based on this finding and interpretation, it can be concluded that the family home environment should be in a manner that supports the endeavors made at school. It is also worth mentioning that this result is in line with the finding of the research diary.

In conclusion, it is possible to summarize the results of the study as follows: Remedying the deficiencies in prior learning and enabling the students to allocate time to study ensured student achievement in mathematics; this achievement, in turn, resulted in positive affective entry characteristics; positive affective entry characteristics motivated the students to devote time to studying in subsequent learning units; however, in order for all these to happen, the family home environment should support these processes. As a final word, it can also be added that non-modifiable variables (such as family home environment) may be as important as or even more important than modifiable ones in the development of positive affective entry characteristics towards mathematics.

## REFLECTIONS OF THE PRACTITIONER AND RECOMMENDATIONS

As the practitioner and the mathematics teacher of Class 5/A, the third author's reflections on the process are presented below. We think this will give useful information about the contribution of the implementation to her professional development and some ideas for future researchers.

At the beginning of the implementation process, I thought that some of my students would not be able to reach our target, or even would not want to make an effort for it. However, over time, I generally observed that the students experienced a sense of achievement as I worked on their deficiencies in prior learning and encouraged them to devote time to studying mathematics. The feeling of success made them more self-confident and motivated to learn. So, they put more effort into studying mathematics at home. Seeing the successful results of their effort made a great difference in the following weeks.

The situation I had observed in most of the students at the school where I worked was that the things learned were soon forgotten. In the implementation process, since students did lesson reviews at home, I realized that their learning often became permanent and meaningful. This process we experienced together also increased the teacher-student interaction. The fact that almost the entire class was enthusiastic during classes was motivating for me as well. I observed the same participation in collaborative activities. Everyone contributed to the process, and the classroom atmosphere was more vibrant than before. I, too, was looking forward to the lessons in Class 5/A.

I realized positive changes in the students' attitudes towards mathematics during the process. For example, I observed an increase in behaviors such as wanting to come to the board, raising hands, and doing more homework. Even the students who formerly had difficulty in participating in the lesson began to insist on taking part in the activities. Especially, I noticed that the students who were previously afraid of raising their hands and making eye contact with me when I asked a question became more self-confident as the process progressed. Thus, the lessons were very fun. My students also started asking questions to make sense of the subject. I had no problem with classroom management, but I observed that the students who did not previously pay attention to the lesson were more interested in the lesson than before, even if not in the entire lesson. It was great pride and rewarding for a teacher to see that her own students began to love mathematics more than before and developed a positive attitude.

The students wanted me to notice in class the studies they made at home. Therefore, they were eager to tell me that they reviewed lessons at home, even before I asked. Generally, I could feel the excitement of the students when I entered the classroom. I think this process gave the students the feeling of "I can make it". Giving regular assignments made it easier for students to remember their responsibilities. Since the students studied at home, I did not have to spend a long time repeating the previous lesson as before. This enabled us to devote more time in class to different question types, and to learn the subject in a more comprehensive and versatile way.

I noticed that students' studying together during the breaks and especially after school increased the communication between them. Consequently, there was a more positive atmosphere in the classroom. On the other hand, I think that the lack of internet and computers at home limited their opportunities to study together.

Although the implementation process was generally positive, I experienced some negative situations. Since there was a progressivity relationship between the topics of mathematics, a student who did not attend one class could have difficulty in the next one. The students who did not attend classes tried to overcome the resulting gap, sometimes with their own efforts, sometimes with peer support and sometimes with my help. However, with the warming of the weather in spring, there was a significant increase in the absence of some students, and we had difficulty in compensating for the days they were absent. They began to lose interest in the lesson. I think this situation made them unable to do their homework and decreased their motivation.

I guided the students on how to study, and at the beginning of the process, I sent letters to the parents to increase their awareness. I contacted the parents I deemed necessary by phone. I was not expecting to receive such positive feedback from the process in this school, which can be called 'disadvantaged' because most students did not have their own rooms in their homes. Besides, except for a few students, the parents of the others did not want them to go to high school after secondary school. Therefore, the

parents were not interested in their children's progress at school. Nevertheless, particularly some students made great progress in-class participation, listening to the lesson and doing homework, and so their self-confidence increased. Regular lesson reviews at home ensured that the topics were not forgotten easily. Thus, when we moved to a new topic, which was a continuation of the previous subject, the students did not have much difficulty.

In this process, I realized once again how important prior learning of the students was. Fractions, especially addition and subtraction with fractions, and ordering of fractions are topics of mathematics that students have misconceptions about. In order to check the students' incomplete and incorrect learning in the process, I tried to observe the operations they performed as much as I could. Trying to deal with the students individually during classes was sometimes difficult, but when I did so, it was easier for the students to learn. Naturally, I could not do this for all students and at all times. Nevertheless, I tried to deal with the students individually, as much as I could, according to their individual differences and prior learning.

As a result of this process, I realized the importance of giving regular assignments. In this way, students can gain the habit of disciplined study. Now, I make a point of giving assignments to the class I teach every week. We decide together on the day I will check the assignments and they do their homework on the day we set throughout the semester. This makes students more organized and systematic. I also realized that a unit should be divided into smaller learning units and homework should be given after each unit was completed. In this way, learning deficiencies could be detected earlier.

I would like to repeat this experience in another school with students who have a better and more adequate family home environment (with separate rooms, internet, sourcebooks, different parent profiles). I really think this implementation will be more effective for students living in such an environment. In this way, I can have the opportunity to compare the results of my experiences. I may also have a chance to examine the effects of different variables in more detail. So, I can recommend researchers interested to repeat this study with participants who have a supportive family home environment. Their results can be compared with the results of this study. Thus, different perspectives can be gained on the effectiveness of the implementation. Finally, I hope the present study will contribute to the related literature.

## REFERENCES

Anderson, L. W., & Bourke, S. F. (2000). *Assessing affective characteristics in the schools* (2nd ed.). Lawrence Erlbaum Associates Publishers.

Berberoğlu, G., Çelebi, Ö., Özdemir, E., Uysal, E., & Yayan, B. (2003). Üçüncü uluslararası matematik ve fen çalışmasında Türk öğrencilerin başarı düzeylerini etkileyen etmenler

[Factors effecting achievement level of Turkish students in the third international mathematics and science study]. *Eğitim Bilimleri ve Uygulama*, *2*(3), 3-14.

Berg, B. L. (2001). *Qualitative research methods for the social sciences* (4th ed.). Allyn and Bacon.

Bloom, B. S. (1998). *İnsan nitelikleri ve okulda öğrenme* (3th ed.) [Human characteristics and school learning] (D. A. Özçelik, Trans). MEB Yayınları.

Boz, H., & Çalışkan, M. (2018). Developing an attitude observation form towards mathematics. *Research on Education and Psychology (REP), 2*(2), 95-110.

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research, 65*(3), 245-281. https://doi.org/10.3102/00346543065003245

Carpenter, D. M., & Clayton, G. (2014). Measuring the relationship between self-efficacy and math performance among first-generation college-bound middle school students. *Middle Grades Research Journal*, *9*(2), 109-126.

Cvencek, D., Kapur, M., & Meltzoff, A. N. (2015). Math achievement, stereotypes, and math self-concepts among elementary-school students in Singapore. *Learning and Instruction*, *39*, 1-10. https://doi.org/10.1016/j.learninstruc.2015.04.002

Çalışkan, M. (2014). Bilişsel giriş davranışları, matematik özkavramı, çalışmaya ayrılan zaman ve matematik başarısı arasındaki ilişkiler [The relationships between cognitive entry behaviors, mathematics self-concept, the time allocated for studying mathematics and mathematics achievement]. *Türkiye Sosyal Araştırmalar Dergisi*, *18*(1), 345-357.

Çalışkan, M., & Serçe, H. (2016). Matematiğe yönelik duyuşsal giriş özellikleri ölçeği: Geçerlik ve güvenirlik çalışması [Affective entry characteristics scale for mathematics: A study of reliability and validity]. *International Journal of Eurasia Social Sciences*, *7*(22), 137-160.

Chiu, M. M., & Klassen, R. M. (2010). Relations of mathematics self-concept and its calibration with mathematics achievement: Cultural differences among fifteen-year-olds in 34 countries. *Learning and Instruction, 20*(1), 2-17. https://doi.org/10.1016/j.learninstruc.2008.11.002

Dochy, F., Segers, M., & Buehl, M. M. (1999). The relation between assessment practices and outcomes of studies: The case of research on prior knowledge. *Review of Educational Research*, *69*(2), 145-186. https://doi.org/10.3102/00346543069002145

Edirmanasinghe, N. (2020). Using youth participatory action research to promote self-efficacy in math and science. *Professional School Counseling, 24*(1), 1-12. https://doi.org/10.1177/2156759X20970500

Ehmke, T., Drechsel, B., & Carstensen, C. H. (2010). Effects of grade retention on achievement and self-concept in science and mathematics. *Studies in Educational Evaluation*, *36*(1-2), 27-35. https://doi.org/10.1016/j.stueduc.2010.10.003

Evans, J., & Tsatsaroni, A. (1996). Linking the cognitive and the affective in educational research: Cognitivist, psychoanalytic and poststructuralist models. *British Educational Research Journal, 22*(3), 347-358. https://doi.org/10.1080/0141192960220307

Ganley, C. M., & Lubienski, S. T. (2016). Mathematics confidence, interest, and performance: Examining gender patterns reciprocal relations. *Learning and Individual Differences, 47*, 182-193. http://dx.doi.org/10.1016/j.lindif.2016.01.002

Ganley, C. M., & Vasilyeva, M. (2011). Sex differences in the relation between math performance, spatial skills, and attitudes. *Journal of Applied Developmental Psychology, 32*(4), 235-242. https://doi.org/10.1016/j.appdev.2011.04.001

Grootenboer, P., & Hemmings, B. (2007). Mathematics performance and the role played by affective and background factors. *Mathematics Education Research Journal, 19*, 3-20. https://doi.org/10.1007/BF03217459

Gunderson, E. A., Ramirez, G., Levine, S. C., & Beilock, S. L. (2012). The role of parents and teachers in the development of gender-related math attitudes. *Sex Roles, 66*, 153-166. http://doi.org/10.1007/s11199-011-9996-2

Hailikari, T., Nevgi, A., & Komulainen, E. (2008). Academic self-beliefs and prior knowledge as predictors of student achievement in mathematics: A structural model. *Educational Psychology, 28*(1), 59-71. https://doi.org/10.1080/01443410701413753

Hailikari, T., Nevgi, A., & Lindblom-Ylänne, S. (2007). Exploring alternative ways of assessing prior knowledge, its components and their relation to student achievement: A mathematics based case study. *Studies in Educational Evaluation, 33*(3-4), 320-337. https://doi.org/10.1016/j.stueduc.2007.07.007

Johnson, A. P. (2015). *Eylem araştırması el kitabı* [A short guide to action research] (Y. Uzuner & M. Özten Anay, Trans. Eds.) Anı Yayıncılık.

Karasar, N. (2002). *Bilimsel araştırma yöntemi* [Scientific research method]. Nobel Akademik Yayıncılık.

Kitsantas, A., Cheema, J., & Ware, H. W. (2011). Mathematics achievement: The role of homework and self-efficacy beliefs. *Journal of Advanced Academics, 22*(2), 310-339. https://doi.org/10.1177/1932202X1102200206

Lee, K., & Anderson, J. (2015). Gender differences in mathematics attitudes in coeducational and single sex secondary education. In M. Marshman, V. Geiger, & A. Bennison (Eds.), *Mathematics education in the margins* (Proceedings of the 38th annual conference of the Mathematics Education Research Group of Australasia, pp. 357-364). MERGA. https://eric.ed.gov/?id=ED572489

Lebens, M., Graff, M., & Mayer, P. (2011). The affective dimensions of mathematical difficulties in schoolchildren. *Educational Research International, 2011*, 1-13. https://doi.org/10.1155/2011/487072

Leder, G. C., & Forgasz, H. J. (2002). Measuring mathematical beliefs and their impact on the learning of mathematics: A new approach. In G. C. Leder, E. Pehkonen, & G. Törner (Eds.), *Beliefs: A hidden variable in mathematics education?* (pp. 95-113). Springer. https://doi.org/10.1007/0-306-47958-3_6

Li, X., & Li, Y. (2008). Research on students' misconceptions to improve teaching and learning in school mathematics and science. *School Science and Mathematics, 108*(1), 4-7. https://doi.org/10.1111/j.1949-8594.2008.tb17934.x

Liston, M., & O'Donoghue, J. (2009) Factors influencing the transition to university service mathematics: part 1 a quantitative study. *Teaching Mathematics and Its Applications, 28*(2), 77-87. https://doi.org/10.1093/teamat/hrp006

Ma, X., & Xu, J. (2004). Determining the causal ordering between attitude toward mathematics and achievement in mathematics. *American Journal of Education, 110*(3), 256-280. https://doi.org/10.1086/383074

Maass, J., & Schlöglmann, W. (Eds.). (2009). *Beliefs and attitudes in mathematics education: New research results*. Sense Publishers.

Marsh, H. W., Trautwein, U., Lüdtke, O., Köller, O., & Baumert, J. (2005). Academic self-concept, interest, grades, and standardized test scores: Reciprocal effects models of causal ordering. *Child Development, 76*(2), 397-416. https://doi.org/10.1111/j.1467-8624.2005.00853.x

Özer, Y., & Anıl, D. (2011). Öğrencilerin fen ve matematik başarılarını etkileyen faktörlerin yapısal eşitlik modeli ile incelenmesi [Examining the factors affecting students' science and mathematics achievement with structural equation modeling]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 41*, 313-324.

Pantziara, M., & Philippou, G. N. (2015). Students' motivation in the mathematics classroom. Revealing causes and consequences. *International Journal of Science and Mathematics Education, 13*(2), 385-411. https://doi.org/10.1007/s10763-013-9502-0

Peters, M. L. (2013). Examining the relationships among classroom climate, self-efficacy, and achievement in undergraduate mathematics: A multi-level analysis. *International Journal of Science and Mathematics Education, 11*, 459-480. https://doi.org/10.1007/s10763-012-9347-y

Reyes, L. H. (1984). Affective variables and mathematics education. *The Elementary School Journal, 84*(5), 558-581. https://doi.org/10.1086/461384

Samuelsson, J. (2021). Developing students' relationships with mathematics. *Educational Action Research*. https://doi.org/10.1080/09650792.2021.1899012

Seel, N. M. (2012). Bloom's model of school learning. In Norbert M. Seel (Ed.), *Encyclopedia of the sciences of learning* (pp. 466-469). Springer. https://doi.org/10.1007/978-1-4419-1428-6_979

Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2016). *Psikolojide araştırma yöntemleri* (1st ed.) [Research methods in psychology] (İ. Göz, Trans. Ed.). Nobel Akademik Yayıncılık.

Thompson, R. A., & Zamboanga, B. L. (2004). Academic aptitude and prior knowledge as predictors of student achievement in introduction to psychology. *Journal of Educational Psychology*, *96*(4), 778-784. https://doi.org/10.1037/0022-0663.96.4.778

Wang, J. (2006). An empirical study of gender difference in a relationship between self-concept and mathematics achievement in a cross-cultural context. *Educational Psychology, 26*(5), 689-706. https://doi.org/10.1080/01443410500390863

Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri* (10th ed.) [Qualitative research methods in the social sciences]. Seçkin Yayıncılık.

## Biographical notes:

***Muhittin Çalışkan***: He works as a professor for the Department of Curriculum and Instruction at Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education. His research interests and expertise include academic achievement, instructional and learning strategies, executive cognition, and affective factors in learning.

***Hüseyin Serçe*:** He works as an assistant professor for the Department of Curriculum and Instruction at Selçuk University, Faculty of Education. Among his research interests are English language teaching, language and vocabulary learning strategies, learning and teaching methodology, action research, and teacher education.

***Hatice Uysal*:** She is a Ph.D. student at the Department of Curriculum and Instruction, Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education; also mathematics teacher for Turkish Ministry of National Education. Her research interests include teaching and learning mathematics, and teacher education.

***Tianlan Wei*:** She is an associate professor of Educational Psychology in the Department of Counseling, Educational Psychology, and Foundations, College of Education, Mississippi State University. Her research activities are situated into three subcategories: gender and ethnic differences in learning and performance, academic emotions and motivation, and quantitative methodology and psychometrics.

*Author(s)' statements on ethics and conflict of interest*

*Ethics statement:* We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

*Statement of interest:* We have no conflict of interest to declare.

*Funding:* None

*Acknowledgements:* None

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# A retrospective snapshot of academic staff preparation at the onset of COVID

**David Santandreu Calonge** [1] **Patrik. T. Hultberg** [2] **Melissa Connor** [3]
**Mariam Aman Shah** [4] **Pablo Medina Aguerrebere** [5]

**Article Type**
Original Research

*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 180-205
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 23.02.2022
Revision : 27.04.2022
Accepted : 18.05.2022

**Abstract:**

*The abrupt emergence and spread of the COVID-19 virus compelled institutions worldwide to swiftly suspend face-to-face instruction in favor of a remote teaching mode. This extraordinary shift of instructional delivery created one of the biggest infrastructural, pedagogical and operational challenges for universities in recent history. As institutions that traditionally have been slow to respond to sudden external influences, universities struggled to respond effectively to COVID-19. Using the Human Systems Dynamics approach as conceptual framework, this paper retrospectively explores how academic staff adapted their Emergency Remote Teaching strategies and became more learning-agile to respond to such challenges in the future. This exploratory case-study article summarizes the results of a survey of teaching staff's readiness, experience and struggles with Emergency Remote Teaching during COVID-19 in the United States, the United Kingdom and Australia, at the height of the pandemic. A total of 73 usable responses were received between July 17 and August 7, 2020. The results were classified into four categories: (1) Preparation and training; (2) Faculty impressions of own teaching; (3) Faculty experience; and (4) Faculty impressions of student experience.*

**Keywords:** COVID-19, Emergency remote teaching, Human systems dynamics, Academic development

**Citation**:
Santandreu Calonge, D; Hultberg, P; Connor, M; Shah, M.A; & Medina Aguerrebere, P. (2022). A Retrospective Snapshot of Academic Staff Preparation at the Onset of COVID. *International Journal of Modern Education Studies, 6*(1), 180-205. https://doi.org/10.51383/ijonmes.2022.172

[1] PhD, Mohamed bin Zayed University of Artificial Intelligence, Academic Development, United Arab Emirates. David.Santandreu@mbzuai.ac.ae, Orcid ID: https://orcid.org/0000-0003-0101-8758

[2] PhD, Kalamazoo College, Economics and Business, United States. patrik.hultberg@kzoo.edu, Orcid ID: https://orcid.org/0000-0001-9514-8996

[3] PhD candidate, The University of Adelaide, Professions, Australia. melissa.connor@adelaide.edu.au, Orcid ID: https://orcid.org/0000-0003-0927-0069

[4] PhD, Lancaster University, Educational Research, United Kingdom. shahmariamaman@gmail.com, Orcid ID: https://orcid.org/0000-0003-2633-196X

[5] PhD, Canadian University Dubai, Communication, United Arab Emirates. pablo.medina@cud.ac.ae, Orcid ID: https://orcid.org/0000-0002-5882-9298

## INTRODUCTION

"Crises are, at least while they are happening, not educational opportunities, but there are still things to learn" (Callard, 2020)

Crises and outbreaks, such as SARS and H1N1 (Cauchemez et al., 2014), have dominated media headlines for decades. However, previous crises have not had the same global impact on education as the COVID-19 pandemic. The magnitude and scope of changes that resulted in the education field from the COVID-19 pandemic are unprecedented and likely to be long-lasting. Between January and March 2020, most universities around the world were forced to cancel face-to-face classes and close their campus. As a result, 1.5 billion students across 165 countries (UNESCO, 2020) were asked to return home and academic staff were requested to move all their courses fully online, in what Hodges et al. (2020: 13) described as *Emergency Remote Teaching*, "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances."

Higher education institutions were taken by surprise and thus faced significant challenges when implementing Emergency Remote Teaching (ERT) initiatives: urgently upskill academic staff on how to interact, engage and assess students online, enhance their classrooms technologically (with a quick response system to fix tech issues encountered by staff and students), somehow gauge students' digital capabilities for learning, implement the effective and active use of Learning Management Systems (LMS), and support the adaptation of all pedagogical content to an online environment (Watermayer et al., 2020: 2). As indicated in a survey during COVID-19 by Watermayer et al. (2020), in the United Kingdom, only 47.5 percent of academics felt prepared to deliver online learning, teaching, and assessment, compared with 62.5 percent in the United States and 81.5 percent in the European Union.

COVID-19 is a paradigm shift that has radically challenged our thinking and reshaped the way we approach learning and teaching (Devlin & Samarawickrema, 2022): There is no doubt that the aftermath of this public health crisis has structurally affected higher education institutions. The "biggest distance-learning experiment in history" has created a new education environment that determines teaching, research and outreach decisions (Kamenetz, 2020). In other words, COVID-19 has forced academics to rethink and work in a different way. As educational practitioners have interrogated the benefits and drawbacks of Emergency Remote Teaching, there has been a need to investigate faculty preparedness and concerns.

Many would contend that it was not a matter of whether to implement ERT, but rather how best to do so in such circumstances. In this study, we consider the constraints, challenges and limitations that impacted education in the COVID-19 context, as this study retrospectively traces the development of ERT in 2020 and attempts to gauge academic staff

readiness, learning-agility and struggles with ERT. As our framework, we chose the Human Dynamic Systems approach, in order to identify patterns between educators' ability to adjust to ERT, and to address the question of how academic staff have adapted their Emergency Remote Teaching strategies to become more learning-agile and hence better able to respond to challenges in the future.

Although considerable literature has been published over the past two decades on academic staff readiness to online environments and, more recently, on ERT during COVID-19 in various academic contexts (Bozkurt & Sharma, 2020; Chuah & Mohamad, 2020; Nae, 2020; Talidong, 2020; Trust & Whalen, 2020; Cesco et al; 2021; Karakaya, 2021), no published study exists which addresses our specific research question using the Human Systems Dynamics (HSD) approach as a framework. HSD is based on the definition of social structures as complex *agents* (in the case of a university: academic/professional staff, teams in departments/programs, senior management, administration, students). These agents interact to form *patterns* (policies, strategic/business plans, directives). Those complex patterns, over time, may constrain the action (s) of those agents (Eoyang, 2006). Eoyang (2006: 128) argued that "HSD assessment tracks changes at individual, group, departmental, and organizational levels simultaneously and considers how each of the levels may influence the others".

We conducted a survey, distributed to university campuses in three countries (The UK, The U.S. and Australia), to capture some of the complexities of the issues. Results from the survey were used to inform recommendations about systematic adoption of ERT and the provision of professional development to academic staff.

Given the stated research question, we proceed as follows: section two provides a brief background and an overview of the origins of Emergency Remote Teaching; section three outlines the conceptual framework used for this study; the next two sections present the methodology and the findings of the research, respectively. Section six analyses and discusses the results, while section seven concludes and provides implications for practice.

## Background

"One hundred years later, tremendous advances have been made, no doubt, in science, in technology, and in health. It is a striking fact that in spite of all of these many advances, we are globally still underprepared for the next pandemic" (Williams, 2018)

Since the start of the COVID-19 outbreak, the published literature on Emergency Remote Teaching (ERT) has flourished. A common definition for ERT has emerged as an unplanned, quick need to implement online teaching initiatives rather than face-to-face courses on the campus. Bozkurt and Sharma (2020) analyzed the difference between ERT and online teaching and concluded that the latter concept refers to an established pedagogical method that is planned since the beginning to be delivered online. In other words, online teaching is a planned activity, while ERT is an emergency solution taken at

the last minute to face an urgent crisis, such as higher education institutions resorting to adopting ERT to address an extraordinary crisis (natural disaster, public health emergency, security issue, etc.).

The implementation of ERT predated COVID-19. It was for instance used in Hong Kong in 2003 during the SARS outbreak and in 2015 when the Middle East Respiratory Syndrome (MERS) struck South Korea (Calonge & Grando, 2013). Once the crisis is over, these institutions abandon ERT, revert to a face-to-face mode, and pause online teaching. Shisley (2020) highlighted that this quick change embraces all pedagogical activities implemented by universities, such as teaching, course design, assessments, labs, academic advising, workshops with students, etc. Since the beginning of the COVID-19 crisis, universities were forced to resort to ERT to ensure learning continuity and the delivery of courses to students who could no longer physically attend the campus: in other words, these institutions, in many cases, had neither the time nor the necessary resources to carefully strategize and plan these courses, as they would normally do when implementing online courses (Vlachopoulos, 2020).

The early literature on the impact of COVID-19 on university teaching suggests that for many teaching staff the pandemic presented their first experience with delivering teaching remotely and online (Toquero, 2021; SUMS Consulting, 2020; Trust & Whalen, 2020). For example, a survey of Norwegian teaching staff showed that 70% of teaching staff had their first experience of teaching online due to COVID-19 (Langford & Damsa, 2020). Another survey of the impact of the pandemic on teaching staff revealed that ERT was their first time facilitating learning online, as well as using Zoom (SUMS Consulting, 2020). Trust and Whalen (2020: 193) indicated that "the COVID-19 outbreak exposed a significant variation in educators' readiness to use technology to support learners at a distance". More recently, Devlin and McKay (2021: 2) stated that COVID-19 had "brought about sudden, unplanned and widespread shifts to remote teaching and learning, with many educators and students having limited knowledge of online pedagogy".

Higher education institutions tried to implement upskilling initiatives to help academic staff improve their confidence and adapt to an online context in a more efficient way; that is, ERT and the COVID-19 crisis acted as a sort of an "activator" for these organizations to understand how important continuing professional development (CPD) is (Langford & Damsa, 2020; Hodges et al.; 2020). Nevertheless, because of the emergency and, in some cases, a lack of substantial CPD budgets, a significant number of universities could not implement structured academic development sessions on the (pedagogical) use of digital learning tools, which may have impacted on academic staff confidence to successfully engage with remote teaching (Mohmmed et al.; 2020, Flores & Gago, 2020). Clearly, ERT requires adaptability, resourcefulness and flexibility (Karakaya, 2021). In contrast, teaching staff facing lack of training, IT support and even connectivity, were often stressed, working around the clock, and without access to support teams or specific professional development to help with tasks such as course design or multimedia creation

development (Mohmmed et al., 2020). As Hodges et al. (2020: 2) write "faculty might feel like instructional MacGyvers, having to improvise quick solutions in less-than-ideal circumstances".

Despite the obvious pressures on institutions, their budgets or lack thereof, and teaching staff to move rapidly online, it has been suggested that educational continuity in the face of COVID-19 contexts had support from institutions and teachers in their adaptation to ERT (Manca & Delfino, 2021). A Malaysian study outlined the rapid adaptability of the "majority" of educators to ERT was based on their emphasis on "online teaching", and thus minimizing the concept and sudden impact of "emergency" (Juhary, 2020 : 17-18). Similar positive sentiments towards the adaptation to ERT were found in a study by Talidong (2020). Mobilizing to ERT in this case was in part due to the ability of instructors to rapidly contextualize learners' needs and make changes in educational requirements due to the pandemic (Talidong, 2020). The mindset of educators towards ERT, coupled with the ability to contextualize students needs and transform 'fear' of fully online technology to the 'use' of fully online technology, therefore shifting away from "traditional methods" of learning and teaching (Can & Silman-Karanfil, 2021: 2), appear to be some of the supporting mechanisms that enabled swift and effective uptakes of ERT at the onset of COVID-19.

### *Conceptual Framework*

Based on Complex Adaptive Systems theory, Human Systems Dynamics (HSD) are defined by Solow and Fake (2010: 31) as a "series of complex interactions between various individuals and groups within the whole", which may emerge in chaotic, intractable, unordered contexts and uncertain environments, leading to higher levels of disagreement and unpredictable outcomes. HSD considers problems to be approached as patterns, or more precisely *shifting* patterns. HSD is relevant here, in a *supercomplex* (Barnett, 2000) COVID-19 induced Emergency Remote Teaching era, especially as we explored patterns of groups and individuals, gauged readiness, evolving relationships, and complex interactions (e.g., academic staff-management-students) of ever-changing components (e.g., digital tools; operational models; remediation plans; instruction; assessment) within a system (e.g., university; LMS; communication and collaboration tools). HSD emphasizes three principles, which again are relevant to the context of this article: 1. *Adaptability* defined as the ability of agents (an individual, a team, an institution) to respond to (expected/unexpected) change, opportunities, and challenges in the environment, 2. *Communication* (during interactions), to avoid misunderstandings, disaccord and conflicts. Calonge et al. (2021) argued for instance that the pandemic highlighted the challenges communications and marketing staff encounter when dealing with internal (academic/professional/administrative, students) and external (industry, community, government, parents) stakeholders during complex, unexpected and sudden health crisis (: 1); and 3. *Problem-solving*, following a thorough analysis and sense-making of the patterns, their dynamics and their granularity.

This research also explored learning agility, which is defined by Burke (2016: 12) as "dealing with new experiences flexibly and rapidly by trying new behavior, getting feedback on these attempts, and making quick adjustments so new learning will be realized when you do not know exactly what to do", and further refined into three dimensions by Burke and Noumair (2015: 321) as "a) Flexibility (being adaptable, not rigid, when trying something for the first time and getting feedback as soon as possible), b) Speed (trying new approaches quickly and learning about the consequences in the moment, retaining some of the thoughts and behaviors and discarding others that do not appear to add anything to one's learning), and c) Avoiding defensiveness (justifying one's actions regardless of their efficacy regarding the uniqueness of the situation)." Nissim and Simon (2020: 23) vividly report for instance on how the "agile change to distance teaching" for lecturers "took place within 48 hours" in Ohalo College, a tertiary training institution for educators in Israel.

## METHOD

This study employed a survey for data collection. Ethical approval to conduct the study was sought and received from the University of Adelaide (Australia) and Kalamazoo College (United States). We adopted instruments derived from a 20-item Classroom Community Scale published by Rovai (2002) and a University of Wisconsin survey of faculty and instructional staff concerning their use of technology in teaching and learning (Hartman et al., 2014). Most items were retained in their original form, other items were adapted or added to obtain additional data, relevant to the specific context of our research on ERT and based on the practical Human Systems Dynamics' principle, such as distinctive processes of adapting (Q 3, 7, 10, 19), communicating (Q 8, 12, 20, 36, 36), and problem-solving (Q 6).

The survey consisted of 48 items, including 47 multiple-choice and multi-select items and one open-ended item. The first part of the survey asked for background information, including current academic position, the discipline(s) and courses taught, the delivery format of the course, as well as gender and age. The survey also collected information about the respondents' readiness and digital competencies. The rest of the survey covered three broad domains: Involvement in curriculum and course development; Use of web conferencing systems; and Interaction and attendance.

The survey was distributed electronically using Qualtrics for three weeks. In total, 77 responses were received but four responses did not contain any answers beyond the initial consent, leaving 73 valid completed survey responses.

### *Participants*

Participants for this study consisted of academics/teaching staff from higher education institutions in the United States (53), Australia (14), and the United Kingdom (5). The distribution of responses across the three nations is represented in Figure 1.

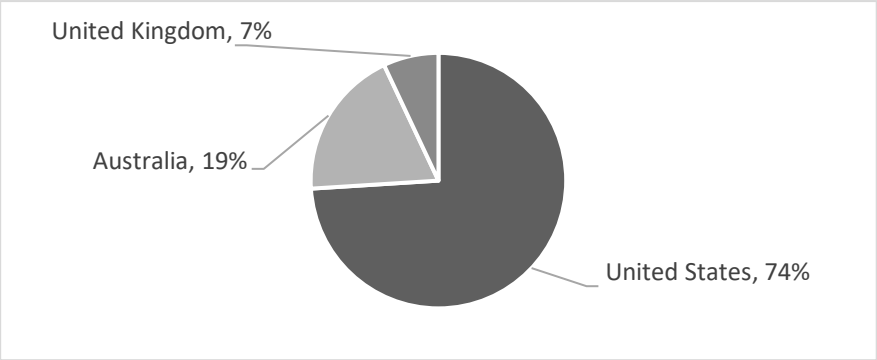



***Figure 1***. Responses by Geographic Location

As Figure 2 indicates, of the 73 responses, 84% (61) were by faculty members at the rank of Full Professor, Associate Professor, Assistant Professor, Lecturer, and Senior Lecturer. The remaining 16% (12, nine of which were in the United States) were categorized as Visiting Professor, Instructor, Teaching/Lab Assistant, and Other.

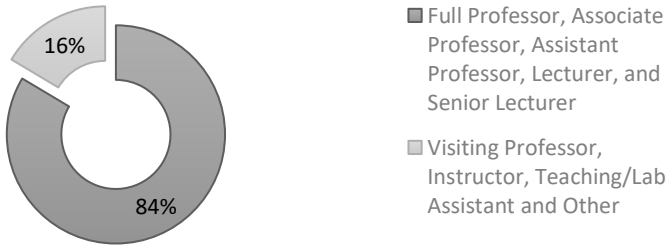



***Figure 2.*** Responses by academic rank and position

The responses were distributed across all disciplines, see Figure 3, with a slight bias toward the humanities (26%), mathematics and natural sciences (16%) and the social sciences (14%). Few respondents chose to list the specific course that they taught remotely. Most responses were from faculty that taught either lectures or tutorials/practicals. Of 69 respondents who chose to answer the question about gender, 62% identified as female and 38% identified as male. Of the 69 respondents that chose to reveal their age, 65% were 45 or above and 35% were under 45. These distributions of responses are shown in Figure 4.

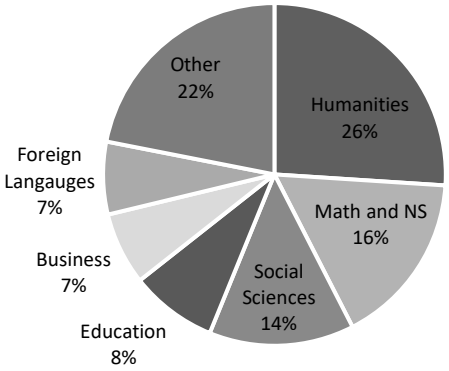



***Figure 3.*** Responses by Discipline


***Figure 4.*** Responses by Gender and Age

### *Data Collection Tools*

Due to the short (3 weeks) timeframe for completing the survey, non-probability purposive and snowball sampling was used. Academic staff and personnel with teaching/facilitating responsibilities at all levels (Teaching/Lab Assistant - Instructor - Lecturer – Senior Lecturer - Assistant Professor - Associate Professor - Professor - Full Professor - Part-Time /Adjunct) were contacted via email and asked to complete the survey. To increase participation, the survey was also posted on LinkedIn (snowball sampling).

### *Data Analysis*

Data analysis is primarily qualitative and descriptive, focusing on the frequency of the respondents' choices in order to better understand their readiness, experience, learning-agility and struggles with ERT. Data were triangulated with *open-ended* qualitative comments received, op-eds, and the published literature, including policy briefs. The authors also employed thematic analysis to explore participants' experience with ERT and deduce patterns. The four categories (results section) derived from identifying, analysing and interpreting data.

### *Ethical considerations*

In this study, all rules stated to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. All of the actions stated under the title "Actions Against Scientific Research and Publication Ethics", which is the second part of the directive, were taken.

The questionnaire and methodology for this study were approved by the Human Research Ethics committee of the University of Adelaide (Australia). Date of ethics review decision: 09/07/2020; Ethics assessment document issue number: H-2020-114.

Institutional Review Board approval (Kalamazoo College, U.S.) was also received on July 17, 2020 (email).

## RESULTS

Data are reported here anonymously. Given the research question "*How can academic staff adapt their Emergency Remote Teaching strategies and become more learning-agile to respond to such challenges in the future?"* the results were classified into four categories: (1) Preparation and training; (2) Faculty impressions of own teaching; (3) Faculty experience; and (4) Faculty impressions of student experience.

### *Preparation and training*

Approximately two-thirds of all respondents had never taught fully online courses before the switch to ERT due to COVID-19. Although the reported experience was similar across the three locations (Australia: 54%; UK: 60%; US: 72%), it was slightly higher among the respondents in the United States who taught at small, liberal arts colleges. The same general result applied also to the respondents' experience with blended courses, but it was even more pronounced for staff located in the United States, 79% of whom reported no experience with blended courses (corresponding numbers were 46% for Australia and 40% for the UK).

In line with their lack of personal experience with blended or fully online courses, only 40% of respondents reported at the least some familiarity with effective pedagogy for online teaching. The degree of familiarity was, however, higher for respondents located in Australia and the UK (72% and 60%, respectively), compared to the United States (30%), which may reflect a greater emphasis on small class sizes at the liberal arts institutions. Slightly fewer than two-thirds reported that they had attended IT/online/remote training courses, with a greater percentage of attendance reported for staff located in Australia (71%). However, the results were different in terms of technical support, where approximately one-third of all respondents reported not receiving adequate support. Approximately 46% of all respondents expressed that they had not received adequate support for delivering their remote courses, and these numbers were slightly lower for the Australian respondents (36%,

5 out of 14). These results indicate that faculty were ill-prepared due to a lack of training and preparation prior to shift to ERT.

Fewer than one-fifth of the respondents reported having adequate opportunity to experiment with the technology required for teaching online prior to the switch to remote teaching, and the answers were comparable across the three locations (see Figure 5). This indicates a lack of pre-pandemic support from the institutions' Information Services departments, and possibly a lack of administrative preparedness. Similarly, one-fourth of the respondents felt that they had an adequate opportunity to discuss with other faculty the use of technology for online teaching prior to engaging in emergency remote teaching (see Figure 6).

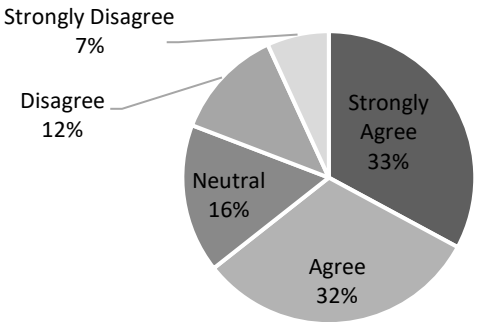



***Figure 5.*** There was little or no opportunity to experiment with the technology for teaching online prior to COVID-19

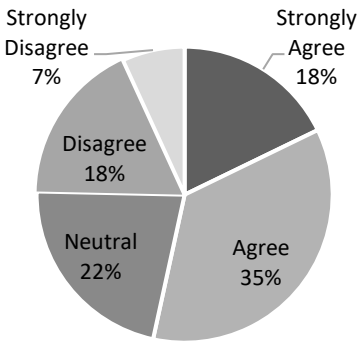



***Figure 6.*** There was little or no opportunity to discuss with other faculty the use of technology for online teaching prior to COVID-19

The responses were evenly split regarding the type of resources that were most important to prepare the faculty for remote teaching, 42.5% identified IT help as most important and 42.5% identified pedagogical support as most important. In terms of the amount of

preparation time required for emergency remote teaching the responses were clearly skewed, with less than 10% reported spending less time in preparation compared to time spent preparing a face-to-face course. In fact, more than 50% reported spending *much* more time in preparation, which seems to confirm research by Zapata-Garibay et al. (2021) on teaching practices experience in Mexico when it stated that [teachers'] working hours have become more strenuous, that they did not have the tools to optimally manage their time, that they did not find a balance between the time dedicated to teaching and home activities" (para.56). Although answers were similar across the three locations, there were some differences as seen in Table 1.

**Table 1**

*Think of a similar course you have developed and taught in the classroom, compared to that course the preparation time for this remote teaching course took…*

| | **USA** | **Australia** | **UK** | **Combined** |
|---|---|---|---|---|
| **Much more time** | 55.6% (30) | 42.9% (6) | 40% (2) | 52.1% (38) |
| **More time** | 22.2% (12) | 28.6% (4) | 40% (2) | 24.7% (18) |
| **About the same amount of time** | 14.8% (8) | 14.3% (2) | 20% (1) | 15.1% (11) |
| **Less time** | 5.6% (3) | 7.1% (1) | 0 | 5.5% (4) |
| **Much less time** | 0 | 7.1% (1) | 0 | 1.4% (1) |
| **Choose not to answer** | 1.9% (1) | 0 | 0 | 1.4% (1) |
| **Total** | 100% (54) | 100.0% (14) | 100% (5) | 100.0% (73) |

### *Faculty impressions of own teaching*

Although faculty and staff reported a lack of knowledge and support, as well as inadequate opportunities to learn and prepare for the Emergency Remote Teaching experience, they felt more confident in their ability to effectively teach their online courses. Faculty overwhelmingly reported (eight out of ten) that they had clearly and regularly communicated the intended learning outcomes of their course to the students. Similarly, more than 90% of respondents reported that they clearly and regularly communicated important course topics to their students. In addition, more than nine in ten reported that they provided their students clear instructions on how to participate in online course learning activities. Almost all teaching staff (97%) across the three locations either agreed or strongly agreed that they had clearly communicated important due dates/time frames for learning activities to their students (see Figure 7).

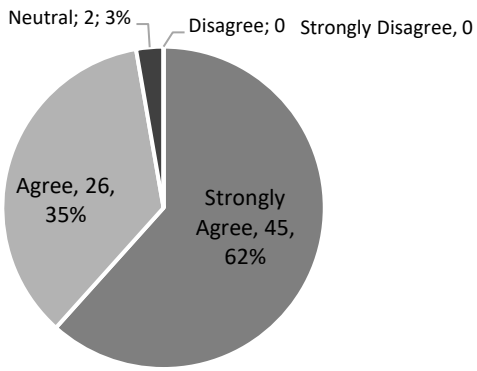



***Figure 7.*** Overall, I clearly communicated important due dates/time frames for learning activities that helped my students keep pace with this course…

The teaching staff clearly felt that they had effectively communicated learning goals and instructions that would help students successfully learn the content material. However, teachers were less confident in their ability to help students understand and practice behaviors that are acceptable in an online learning environment. Overall, approximately four in ten reported that they helped students learn such behaviors, but staff in Australia and the United Kingdom reported higher levels of ability (71% and 60%, respectively). The overall impression was that faculty members felt that they were able to effectively teach their course content online, despite their concerns regarding knowledge and preparation for such teaching.

***Faculty experience***

Although the vast majority of faculty felt that they had been effective in communicating goals and instructions, they reported that technical difficulties had made it more difficult to teach. Overall, approximately 6 in ten reported that technical issues made it more difficult to teach than in a regular classroom and answers were roughly similar across the three locations. A breakdown of the responses can be found in Figure 8.

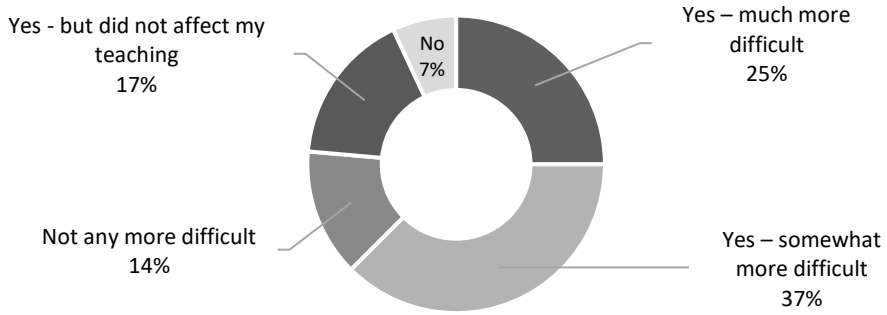



***Figure 8.*** Do you feel technical difficulties made it more difficult to teach than a regular classroom?

An interesting result was that one third of the respondents reported that remote teaching had prompted them to be more systematic in their design of instruction, however a significant number (12.3%) also reported that they had been either less or much less systematic in their course design. Although the general results were similar across the three locations, 77% of Australian respondents reported that their design had remained about the same, while responses from the United States indicated that 45% became more systematic in their design of instruction. These results do suggest the possibility of a silver lining to the Emergency Remote Teaching experience, namely that teaching staff revisited the instructional design of their courses.

In terms of the use of Web conferencing system (such as Zoom or Microsoft Teams), 96% of the respondents reported that they had used such systems in their online courses. Despite the adoption of these techniques, more than 50% of the respondents either agreed or strongly agreed to the statement that they were not familiar with Web Conferencing Systems for online teaching prior to the switch. The platforms of Zoom and Microsoft Teams were the most popular among the participants of the survey. Of those who did use a Web conferencing system, approximately eight out of ten used them to contact students either twice a week or during the scheduled class sessions. In fact, just over 50% reported that they used the Web conferencing systems for regular lectures, one third also used the system for student group work. However, the most popular use of Web conferencing was to hold virtual office hours, which approximately seven out of ten of the respondents did. In terms of satisfaction with the Web conferencing technology, only ten percent of the respondents reported being dissatisfied (all located at institutions in the United States).

In support of the previous result that one third of respondents had been more systematic in the design of their courses, most of the teaching staff (75.4%) either strongly agreed (23.3%) or agreed (52.1%) that developing and teaching a remote teaching course had given them an opportunity to consider alternative means of instruction; that is, new learning and teaching activities. Almost the same number of respondents (71.2%) agreed or strongly agreed that the remote teaching experience had provided an opportunity to consider alternative assessment tasks. Finally, 76.7% of the respondents agreed or strongly agreed with the statement that remote teaching had provided them with an opportunity to consider alternative ways of engaging students. These results are positive examples of how external events may prompt teaching staff to reconsider their instructional design teaching and learning activities; that is, changes prompted by a shift to Emergency Remote Teaching may result in a change in pedagogical approaches in terms of activities used to engage and assess students.

***Faculty impressions of student experience***

Given the faculty impressions of their own ability to design their courses and communicate goals and instructions, it is interesting to consider how the faculty viewed the

students' experience of these changes and remote teaching and learning in general. First, very few faculty members (4%) *disagreed* with the statement that they had encouraged students to interact and ask questions, in fact one in three strongly agreed that they had encouraged students to interact and ask questions. However, although faculty felt that they had encouraged students to interact, three quarters reported less interaction between students in their online course compared to a regular face-to-face course. Supporting this finding, fewer than two in ten of the faculty either agreed or strongly agreed with the statement that their students felt connected to others in their course. In fact, almost six in ten felt that students were not connected to others in the course (see Figure 9).

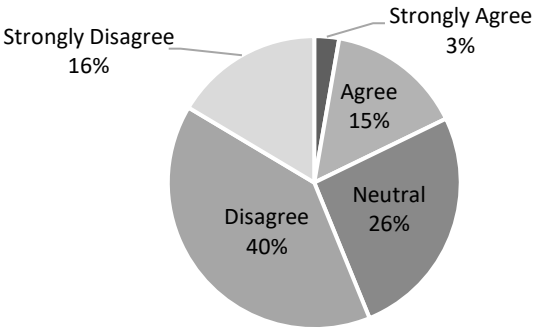



***Figure 9.*** My students felt connected to others in this course…

Although most faculty felt that students were unable to connect with other students in their courses despite their efforts to facilitate those interactions, less than ten percent reported that their students felt that it was hard to get help when they had a question. This is another example where the teaching staff reported that they were able to communicate effectively with their students, and this assessment carried over to faculty's perceived ability to provide timely feedback to their students, which 77% reported having done so.

When it came to students' feelings of isolation during the ERT experience, only about 12% of the respondents disagreed or strongly disagreed with the statement that their students felt isolated in their course (the 12% were all located at institutions in the United States). Thus, the general feeling among the teaching staff was that their students had indeed felt isolated due to the switch to online teaching. Only about one out of ten respondents reported that they had experienced a greater level of student attendance in their online course compared to a regular face-to-face course. Although about half of the teaching staff reported that attendance was about the same, one third reported less attendance.

Except for five percent of the respondents in the United States, all teaching staff reported that they had had contact with their students outside of class sessions, through email, phone calls, and Web conferencing. In addition, three in four respondents reported being aware of students having contact with other students outside of regular, online class activities. Even though most respondents reported having contact with their students

outside of regular class sessions, only about 12 percent reported getting to know their students either better or much better in the online course compared to a regular face-to-face course; in fact, six out of ten respondents reported that they got to know their students less or much less during remote teaching.

An important component of remote teaching and learning is of course the level of student learning. There was no clear response as to whether students had learned more during the emergency remote teaching experience compared to a regular face-to-face course. In fact, more than six in ten reported that they learned less. Similarly, just over four in ten reported that their students did not perform as well in the remote course compared to a regular face-to-face course. However, four in ten also reported that there was no real difference in their students' performance.

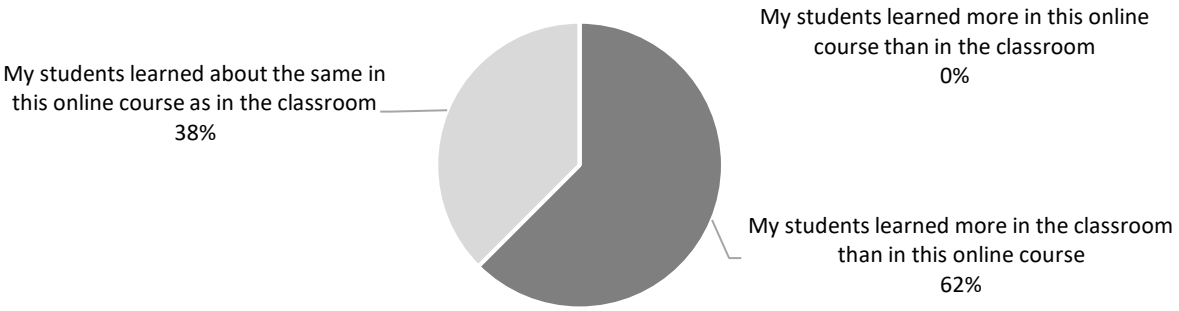



***Figure 10.*** Think of a similar course you have taught in the classroom. Compared to that course, how would you rate the level of learning in this course…

Given that ERT will still be used in times of crises, it is comforting to note that 86.3 percent of the respondents now feel better prepared to teach a remote teaching course if campuses implement another lockdown or if another emergency arises. However, despite feeling better prepared for ERT in the future, a third of the respondents reported that they would not consider remote teaching unless necessary. On the other hand, more than a third did indicate a willingness to teach remote courses in the future, either some additional courses or even as many as possible.

## DISCUSSION

The findings above indicated several patterns, commonalities, as well as some discrepancies between the four categories of responses. The results demonstrate that academic staff can become more learning-agile in response to the strategies adapted for ERT, while also reflecting the level of confidence of academic staff with ERT, the need for IT and pedagogical support, and the student experience with ERT.

Faculty members felt that despite their lack of experience, they were able to adapt to the challenging environment of ERT brought on by the unprecedented global COVID-19

phenomenon. This is also in line with the "shifting patterns" found in the Human Dynamics Systems approach. The initial lack of preparedness that teaching staff felt due to factors such as the inadequate experience or opportunities to previously engage with online learning, and insufficient IT and pedagogical support, shifted to an overall impression of being able to effectively teach their online content, as indicated by their responses to questions categorized as Faculty Impressions of Own Teaching. This indicates that faculty members perceived a "steep" learning curve in terms of their ability to use online tools. This result is also confirmed by Ferri et al. (2020), when they advocate "systematic training initiatives" to be "provided to improve teachers' and learners' technological skills in relation to new emerging models and approaches encouraging the effective use of online learning" (p.14).

The need for greater IT support was a pattern that again emerged in responses in the third category, Faculty Experience. Here, faculty members expressed their often-negative experiences with technical difficulties and being unfamiliar with online communication tools such as Web Conferencing Systems. Again, these answers matched the need for greater IT support and instructional training to facilitate a smoother transition into ERT, as conveyed when respondents reflected on their level of preparation. A finding confirmed by research by Cesco et al. (2021: 288) which indicated that most universities, "due to the time pressure but also to the lack of experience and plans for online teaching… just transformed the in-class lessons into online synchronous (streaming) or asynchronous lessons".

Research by Trotter et al. (2022) in the South African context also exemplifies how staff of a center for teaching and learning were overwhelmed by the scale and speed at which they had to respond to faculty issues and queries, how challenging it was to provide "specialist advice to so many in such a condensed timeframe" (: 3). Despite the initial chaotic few days, however, faculty members demonstrated components of adaptability, as found in *learning agility*, as the challenging circumstances of ERT prompted them to explore and research, interact and discuss with colleagues, adjust, and consider alternative means of instruction, new learning activities, as well as considering alternative assessment tasks, better suited to their context and students. In short, ERT, although painful and challenging at times, seems to have positively acted as a sort of catalyst that helped (a) improve their learning-agility and self-reflection practices and (b) change their attitude and behaviors towards the pros (and cons) of online learning and teaching.

Similar to revealed patterns which indicated confidence of faculty members in the shift to ERT and calls for greater IT and pedagogical support prior to and also in the midst of ERT, discrepancies emerged with faculty members instructional design abilities and student experiences of connectedness to others in their courses. By their responses in the second category, Faculty Impressions of Own Teaching, faculty members indicated instructional design abilities in the face of ERT, such as clearly communicating the intended learning outcomes as well as important course topics, providing clear instructions on how to participate in online learning activities, and clear communication on due dates/time frames for assessment activities.

In contrast, responses that we categorized as Faculty Impressions of Student Experience indicated that academic staff judged that their students felt *socially disconnected* to others in their courses. Therefore, despite reflections of their instructional design abilities, there are bound to be some discrepancies between faculty members' perspectives on the design of the courses, the assessment processes within the courses, encouragement towards student participation, and actual "student connectedness" to others in the course. This highlights that although adaptability increased, demonstrated by faculty members' ability to adjust to instructional design elements required for ERT, there is still a need for strong pedagogical support that may benefit the student experience.

Given our findings regarding faculty members response patterns and levels of adjustment, as well as their connections to the framework of Human Systems Dynamics, we must revisit our research question "*How can academic staff adapt their Emergency Remote Teaching strategies and become more learning-agile to respond to such challenges in the future?"* We agree with Greene (2020), when she wrote that the "world of instructional support, design and development that was…pretty much invisible to many people in higher education" (Greene, 2020, para.1) prior to ERT, but now these support centers are "coming roaring into visibility" (para.3). This is also mirrored in our findings. The three dimensions of learning-agility, flexibility, speed, and avoiding defensiveness, requires a shift from a lack of awareness of online or remote teaching leading to the adoption of "coping strategies," which came forth with ERT due to its nature of immediate implementation and emerging out of absolute necessity, towards developing "coherent digital strategies" (M, 2020). One prominent way to achieve this is, as suggested in the findings, to provide greater IT and continuous pedagogical support to academic staff. Predicting, identifying and analyzing difficulties, how academic staff adjusted and the student experience in the ERT space, is a wakeup call and a fundamental process towards designing future digital strategies.

In the ongoing global phenomenon of COVID-19, it is clear that "the pandemic will have complex, unexpected, and long-term implications…that must be anticipated now" (The Lancet, 2020: 1). Studies have shown that contextualizing learning and teaching needs according to unexpected circumstances, is essential in order to adjust to complex and long-term implications as well as to establish stability, engagement and educational continuity for learners (Juhary, 2020; Talidong, 2020; Shah, 2021). In addition, Devlin and Samarawickrema (2022: 32) argue that new models of learning and teaching will need to be developed and wonder whether "future university educators" will "need to demonstrate intense flexibility to teach [the curriculum]". However, the challenge is in the "how to" anticipate these significant disruptions. We suggest that by examining how academic staff have quickly adapted to COVID-19, we can analyze how they became more learning-agile and can retrospectively argue that this unprecedented experience has already empowered them to some degree. Frameworks such as Human Dynamics Systems help us sort through experiences, in terms of abilities and weaknesses, as academic staff struggled to adapt to volatile, complex and ambiguous remote learning environments. This, in turn, can help

inform future "instant" remote teaching concerns, "distance learning experiments" (Kamenetz, 2020), and perhaps allow higher education institutions and academic staff to transition from reactively responding to "emergencies" brought on by a global crisis, to more proactive, stable, sustainable strategic online options. This new understanding should thus help to improve predictions of the impact of future pandemics on higher education.

## LIMITATIONS

A significant limitation to this study was the limited number of published articles on the topic (academic development) due to COVID-19 being, still, an emergent issue. This led to additional limitations such as: the practical time constraints of the survey period (3-week campaign) and access to over-stretched academics amid their Emergency Remote Teaching experience. Being limited to academic staff, this study lacks the students' perspectives on their learning experience.

Other limitations to the study include the small sample size and only surveying participants who met the criteria of delivering English-language instruction in Australia, United States and the United Kingdom. The survey was sent during the second Australian COVID wave, the 3rd American COVID wave and strict lockdowns (emergency period) in the UK (The Health Protection (Coronavirus, Restrictions) (No. 2) (England) Regulations 2020), and this has undoubtedly affected the number of responses. Finally, and most importantly, the authors of this study acknowledge that positivity bias may have had an impact on the results of this study. Survey participants may have "biased their recall by transforming content initially" considered "as negative into more neutral or positive content" (Aizpurua et al., 2021).

## CONCLUSION

Undoubtedly, the COVID-19 outbreak forced higher education institutions to adjust their pedagogical approach to teaching and learning. The shift to Emergency Remote Teaching (ERT) led academic staff to quickly upskill in digital learning tools in order to adapt to this new professional environment. Nevertheless, many of them did not feel confident when teaching online, and we can retrospectively argue that many are still technology agnostic. In addition, when campuses started closing their doors for safety reasons and courses went online, many students faced several technical and connectivity glitches, as well as mental-health related issues due to feelings of isolation, unemployment, etc., which diminished their abilities to establish rich relations with peers and their professors.

This paper aimed to answer a main research question: "*How have academic staff adapted their Emergency Remote Teaching strategies and become more learning-agile to respond to such challenges in the future?*" Based on the literature review and the quantitative analysis

conducted about academic staff and personnel with teaching/facilitating responsibilities in the United States, the United Kingdom and Australia, this study has shown that teaching staff demonstrated the three dimensions of learning agility (flexibility, speed and avoiding defensiveness) to a certain degree, in their ability to learn new tools, be agile and quickly adapt to the circumstances of remote teaching. A second finding was that while teaching staff were largely confident in their ability to provide structured learning for students, there existed clear gaps in the perceived ability to engage students in the (fully-) online learning space.

The findings of this study indicate several important implications for future practice. First and foremost, and as most campuses return/returned to face-to-face teaching, we advocate to gradually move from what HSD describes as Strategic Adaptive Action, a process that enables coherent planning and action across a complex, self-organizing system, to what HSD calls the Transformation stage. Based on their reflective experience and the challenges encountered with the (often chaotic) ERT implementation, feedback from students and staff and the gradual but inexorable return of students on campus, higher education institutions should now evolve to a more systematic HyFlex approach. Providing additional modalities such as HyFlex (with well-designed learning spaces and hybrid classrooms) will allow universities to future-proof their teaching and research offerings to deal with unpredictable events in a crisis-prone world, and provide increased customization, equitable accessibility (Gkougkoura et al., 2022) to those from disadvantaged backgrounds (Shah & Santandreu Calonge, 2019) more flexibility (synchronous and asynchronous) and better control of their learning experience to students.

Second, we acknowledge the difficulties and the tremendous amount of work done by all the centers of learning and teaching around the world at the onset of and during the pandemic and suggest to higher education institutions to capitalize on this new ERT expertise to design hands-on *pedagogical* continuing professional development programs on HyFlex. These professional development opportunities should be for academics "whose aim will be to foster adaptability to uncertainty" as advocated by Calonge et al. (2022: 29), not "button pushing" workshops but rather sessions that focus on functioning knowledge (e.g. effective use of polling and data analytics, providing constructive feedback in an online discussion forum, feedback podcasts/videos, use of social media as alternate backchannel, synchronous online/class formative/diagnostic assessment, etc.). Despite decades of online learning literature and implementation initiatives, there remains a need among teaching staff to foster confidence in simultaneously engaging and assessing face-to-face (F2F) and online students. As reported in a global Survey on the impact of COVID-19 on higher education around the world (424 universities and other Higher Education Institutions based in 109 countries), the unavailability of "management structure in place to develop the teaching capacities of staff for them to shift towards online learning easily and this therefore often resulted in "learning by doing" approaches" (Marinoni et al, 2020: 25).

In short, we recommend a more strategically planned, practical and professional approach to academic staff development. Notwithstanding the limitations presented earlier, we do hope that this retrospective *snapshot* study will prove useful in expanding our understanding of how academic staff at all levels adapted to ERT at the onset of the pandemic.

## REFERENCES


Aizpurua, A., Migueles, M., & Aranberri, A. (2021). Prospective memory and positivity bias in the COVID-19 health crisis: the effects of aging. *Frontiers in Psychology*, 2532. https://doi.org/10.3389/fpsyg.2021.666977

Barnett, R. (2000). University knowledge in an age of supercomplexity. *Higher Education*, 40(4), 409-422. https://doi.org/10.1023/A:1004159513741

Bozkurt, A., & Sharma, R.C. (2020). Emergency remote teaching in a time of global crisis due to Corona Virus pandemic. *Asian Journal of Distance Education,* 15(1), 1-6. https://doi.org/10.5281/zenodo.3778083

Burke, W. (2016). Burke learning agility inventory technical report. *Bridgeton, MO*.

Burke, W. W., & Noumair, D. A. (2015). *Organization development (Paperback): a process of learning and changing*. New Jersey, USA: FT Press.

Callard, A. (2020). What Do the Humanities Do in a Crisis? Retrieved from https://www.newyorker.com/culture/annals-of-inquiry/what-do-the-humanities-do-in-a-crisis

Can, I. & Silman-Karanfil, L. (2021). Insights Into Emergency Remote Teaching in EFL. *ELT Journal*, 1–10. https://doi.org/10.1093/elt/ccab073

Calonge, D. S., Aguerrebere, P. M., Hultberg, P., & Connor, M. (2021). Were Higher Education Institutions Communication Strategies Well Suited for the COVID-19 Pandemic?. *Journal of Education and Learning*, *10*(4), 1-14. https://doi:10.5539/jel.v10n4p1

Calonge, D. S., Connor, M., Hultberg, P., Shah, M. A., Aguerrebere, P. M. (2022). Contactless higher education: a SWOT analysis of emergency remote teaching and learning during COVID-19. *Journal of Educational Studies and Multidisciplinary Approaches*, 2(1). https://doi.org/10.51383/jesma.2022.22

Calonge, D. S., & Grando, D. (2013). Reality-based learning: outbreak, an engaging introductory course in public health and epidemiology. *Health Education Journal*, 72(5), 584-600. https://doi.org/10.1177/0017896912452072

Cauchemez, S., Van Kerkhove, M. D., Archer, B. N., Cetron, M., Cowling, B. J., Grove, P., Hunt, D., Kojouharova, M., Kon, P., Ungchusak, K; Oshitani, H; Pugliese, A; Rizzo, C; Saour, G; Sunagawa, T; Uzicanin, A; Wachtel, C; Weisfuse, I; Yu, H; & Nicoll, A. (2014). School closures during the 2009 influenza pandemic: national and local experiences. *BMC Infectious Diseases,* 14(1), 207. https://doi.org/10.1186/1471-2334-14-207

Cesco, S., Zara, V., De Toni, A. F., Lugli, P., Betta, G., Evans, A. C., & Orzes, G. (2021). Higher education in the first year of COVID-19: thoughts and perspectives for the future. *International Journal of Higher Education*, 10(3), 285-294. https://doi.org/10.5430/ijhe.v10n3p285

Chuah, K. M., & Mohamad, F. S. (2020). Emergency remote teaching scenarios, struggles and soundboxes: a case study on Malaysian teachers. *IxD&A*, 46, 13-28. https://doi.org/10.55612/s-5002-046-001

Devlin, M., & McKay, J. (2021). Guest editorial: student success in a global pandemic. *Student Success*, 12(3). https://doi.org/10.5204/ssj.2058

Devlin, M., & Samarawickrema, G. (2022). A commentary on the criteria of effective teaching in post-COVID higher education. *Higher Education Research & Development*, 41(1), 21-32. https://doi.org/10.1080/07294360.2021.2002828

Eoyang, G. H. (2006). Human systems dynamics: Complexity-based approach to a complex evaluation. In Williams, Bob (ed), *Systems Concepts in Evaluation: An expert anthology*, (123-139). Dubai: Edge Press.

Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online learning and emergency remote teaching: Opportunities and challenges in emergency situations. *Societies*, 10(4), 86. https://doi.org/10.3390/soc10040086

Flores, M.A., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: national, institutional and pedagogical responses. *Journal of Education for Teaching*, 46 (4), 507-516. https://doi.org/10.1080/02607476.2020.1799709

Gkougkoura, C., Paida, S., Vitsou, M., & Palaiologou, N. (2022). Emergency remote teaching (ERT) in multilingual contexts: A mixed methods case study. *International Journal of Modern Education Studies*, 6(1). http://dx.doi.org/10.51383/ijonmes.2022.115

Greene, J. (2020, March 17). Keep calm and keep teaching. Retrieved from https://www.insidehighered.com/advice/2020/03/17/shifting-unexpectedly-remote-instruction-requires-many-human-solutions-tech

Hartman, A; Barnet, B; Pfeifer-Luckett, R; Mann, P; & Wong, L. (2014). *Faculty & Staff survey on online teaching, learning and support report - 2014*. Wisconsin: University of Wisconsin.

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*, 3.

Juhary, J. (2020, December 17). Emergency remote teaching during COVID-19 pandemic: Roles of educators in Malaysia, Intech Open. Retrieved from https://www.intechopen.com/online-first/emergency-remote-teaching-during-covid-19-pandemic-roles-of-educators-in-malaysia

Kamenetz, A. (2020, March 26). The biggest distance-learning experiment in history: week One. Retrieved from https://www.npr.org/2020/03/26/821921575/the-biggest-distance-learning-experiment-in-history-week-one

Karakaya, K. (2021). Design considerations in emergency remote teaching during the COVID-19 pandemic: a human-centered approach. *Educational Technology Research and Development*, 69(1), 295-299. https://doi.org/10.1007/s11423-020-09884-0

Langford, M., & Damsa, C. (2020, April 17). Online teaching in the time of Covid 19 – Academic teachers experiences in Norway. Retrieved from https://www.jus.uio.no/cell/digitaldugnad/report-university-teachers-16-april-2020.pdf

M, V. (2020, April 21). On challenges and opportunities: emergency remote teaching. *Neo Blog*. Retrieved from https://blog.neolms.com/on-challenges-and-opportunities-emergency-remote-teaching

Manca, S., & Delfino, M. (2021). Adapting educational practices in emergency remote Education: continuity and change from a student perspective. *British Journal of Educational Technology*, 52(4), 1394–1413. https://doi.org/10.1111/bjet.13098

Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. *IAU Global Survey Report*, *23*. Retrieved from https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf

Mohmmed, A.O., Khidhir, B.A., Nazeer, A., & Vijayan, V. (2020). Emergency remote teaching during Coronavirus pandemic: the current trend and future directive at Middle East College Oman. *Innovative. Infrastructure. Solutions*. 5 (72). https://doi.org/10.1007/s41062-020-00326-7

Nae, N. (2020). Online learning during the pandemic: Where does Japan stand?. *Euromentor Journal*, 11(2), 7-24. Retrieved from https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1374924

Nissim, Y., & Simon, E. (2020). Agility in teacher training: distance learning during the COVID-19 Pandemic. *International Education Studies*, 13(12), 11-26. https://doi.org/10.5539/ies.v13n12p11

Rovai, A. P. (2002). Development of an instrument to measure classroom community. *The Internet and higher Education*, 5(3), 197-211. https://doi.org/10.1016/S1096-7516(02)00102-1

Shah, M. A. (2021). *Moocs without borders. Investigating the dynamics of a contextualised approach to scalable online learning, inclusion of displaced populations and conditions of poverty*. Lancaster, UK: Lancaster University.

Shah, M. A., & Santandreu Calonge, D. (2019). Frugal MOOCs: an adaptable contextualized approach to MOOC designs for refugees. *International Review of Research in Open and Distributed Learning*, 20(5), 1-19. https://doi.org/10.19173/irrodl.v20i4.3350

Shisley, S. (2020, May 20). Emergency remote learning compared to online learning. *Learning Solutions Mag.* Retrieved from https://learningsolutionsmag.com/articles/emergency-remote-learning-compared-to-online-learning

Solow, L., & Fake, B. (2010). *What Works for GE May Not Work for You: Using Human Systems Dynamics to Build a Culture of Process Improvement*. New York: CRC Press.

SUMS Consulting. (2020). Rapid response briefing paper: the impact of Covid 19 on learning and teaching & assessment. Retrieved from https://sums.org.uk/app/uploads/2020/05/SUMS-

Briefing-Paper-The-impact-of-C-19-on-Teaching-Learning-and-Assessment-May-2020.pdf

Talidong, K. J. B. (2020). Implementation of emergency remote teaching (ERT) among philippine teachers in Xi'an, China. *Asian Journal of Distance Education*, 15(1), 196–201. https://doi.org/10.5281/zenodo.3881825

The Lancet. (2020). Research and higher education in the time of COVID-19. *The Lancet*, 396(10251), 583. https://doi.org/10.1016/S0140-6736(20)31818-3

Toquero, C. M. (2021). Emergency remote education experiment amid COVID-19 pandemic. *IJERI: International Journal of Educational Research and Innovation*, (15), 162-176. https://doi.org/10.46661/ijeri.5113

Trotter, H., Huang, C. W., & Czerniewicz, L. (2022). Seeking equity, agility, and sustainability in the provision of emergency remote teaching during the COVID-19 pandemic: a center for teaching and learning takes an expanded role. *Higher Learning Research Communications*, 12, 1. https://doi.org/10.5590/10.18870/hlrc.v12i0.1280

Trust, T. & Whalen, J. (2020). Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education*, 28(2), 189-199. Retrieved from https://www.learntechlib.org/primary/p/215995/

UNESCO. (2020, March 26). UNESCO rallies international organizations, civil society and private sector partners in a broad Coalition to ensure #LearningNeverStops. Retrieved from https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad

Vlachopoulos, D. (2020). COVID-19: Threat or opportunity for online education? *Higher Learning Research Communications*, 10 (1), 16-19. http://dx.doi.org/10.18870/hlrc.v10i1.1179

Watermayer, R., Crick, T., Knight, C., & Goodall, J. (2020). Forced shift to online teaching in coronavirus pandemic unleashes educators' deepest job fears. *Nature Index*. Retrieved from https://www.natureindex.com/news-blog/forced-shift-to-online-teaching-in-coronavirus-pandemic-unleashes-educators-deepest-job-fears

Williams, M. (2018). Harvard T.H Chan School of Public Health. Featured News. Preparing for future pandemics by learning from the past. Retrieved from https://www.hsph.harvard.edu/news/features/preparing-for-future-pandemics-by-learning-from-the-past

Zapata-Garibay, R., González-Fagoaga, J. E., González-Fagoaga, C. J., Cauich-García, J. R., & Plascencia-López, I. (2021). Higher education teaching practices experience in Mexico, during the emergency remote teaching implementation due to COVID-19. *Frontiers in Education*, 6, 43. https://doi.org/10.3389/feduc.2021.628158

## Biographical notes:

*David Santandreu Calonge*: Dr. David Santandreu Calonge is Head, Educational Program Development at Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), United Arab Emirates. He has previously worked in Dubai, Hong Kong, South Korea, and Australia and has written in the areas of education policy, MOOCs, curriculum design, and disruptive technologies in education.

*Patrik T. Hultberg*: Dr. Patrik Hultberg is the Edward and Virginia Van Dalson Professor of economics at Kalamazoo College, USA. He is currently Chair of economics and recently served in the role of assistant provost of teaching and learning at Kalamazoo College.

*Melissa Connor*: Melissa Connor is Academic Director Work Integrated Learning for the Faculty of the Professions at The University of Adelaide (Australia). Melissa teaches internships and work preparedness courses, with her research interests in employability and higher education history and policy.

*Mariam Aman Shah*: Dr. Mariam Aman Shah worked at universities in Hong Kong and Australia in designing fully online degrees. Her research interests in the areas of online education focus on inclusive educational design, refugee education and education policy.

*Pablo Medina Aguerrebere*: Dr. Pablo Medina Aguerrebere holds a PhD in Corporate Communication (University of Navarra, Spain). He is Assistant Professor at Canadian University Dubai (UAE). His main research interest is corporate communication in health organizations.



*Author(s)' statements on ethics and conflict of interest*

*Ethics statement:* We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

*Statement of interest:* We have no conflict of interest to declare.

*Funding:* The authors did not receive support from any organization for the submitted work.

*Availability of data:* The full data analyzed in this study are not publicly available to protect the privacy of identifiable faculty and/or institution information.

*Authors contributions:* This study was led by the first author. All authors contributed to the study conception, design and writing. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

| Volume 6 - No 1 - June 2022 - ISSN 2618-6209 |

Research

# Examination of the Relationship between TPACK Competencies and Mathematics Teaching Anxiety: The Mediating Role of Mathematics Anxiety

**İbrahim Çetin**[1] **Derya Özlem Yazlık**[2]

**Article Type**
Original Research

*International Journal of Modern Education Studies*
2022
Volume 6, No 1
Pages: 206-235
http://www.ijonmes.net
dergipark.gov.tr/ijonmes

**Article Info:**

Received : 22.02.2022
Revision : 10.05.2022
Accepted : 05.06.2022

**Abstract:**

*This study explored the mediating role of mathematics anxiety in the relationship between TPACK competencies and mathematics teaching anxiety. This mediation role was tested through structural equation modeling using data from 426 pre-service mathematics teachers selected through criterion sampling. TPACK Competencies Scale, Mathematics Anxiety Scale, and Mathematics Teaching Anxiety Scale were used to collect data. The data were analyzed through descriptive statistics, correlation analysis and path analysis. The study revealed a negative relationship between TPACK competencies and mathematics anxiety, and mathematics teaching anxiety, while there was a positive relationship between mathematics anxiety and mathematics teaching anxiety. The results suggested that the pre-service teachers' mathematics anxiety had a mediating role in accounting for the relationship between TPACK competencies and mathematics teaching anxiety. Additionally, TPACK competencies explained 69% of the total variance in mathematics teaching anxiety through mathematics anxiety in the structural equation model. The study argued that offering pre-service teachers technology-supported education during undergraduate education may develop their TPACK competencies and reduce their mathematics anxiety and teaching anxiety.*

**Keywords:** TPACK, Mathematics anxiety, Mathematics teaching anxiety, Structural equation modeling

**Citation:**
Çetin, İ & Yazlık, D.Ö. (2022). Examination of the Relationship between TPACK Competencies and Mathematics Teaching Anxiety: The Mediating Role of Mathematics Anxiety. *International Journal of Modern Education Studies, 6*(1), 206-235.

[1] Asst. Prof. Dr., Necmettin Erbakan University, Ahmet Keleşoğlu Education of Faculty, Konya, Turkey. İbrahimcetin44@gmail.com, Orcid ID: 0000-0003-4807-3295
[2] Asst. Prof. Dr., Nevşehir Hacı Bektaş Veli University, Education of Faculty, Nevşehir, Turkey. deryaozlemyazlik@gmail.com Orcid ID: 0000-0002-2830-5215

## INTRODUCTION

Mathematics researchers have focused on the factors affecting mathematics teaching anxiety in the last two decades. The literature highlights that mathematics teaching anxiety has negative or positive links with several factors, including mathematics anxiety (Hacıömeroğlu, 2014; Peker & Ertekin, 2011; Vinson, 2001; Wilson, 2013, Yazlık & Çetin, 2020; Olson & Stoehr, 2021), deficiency in content knowledge (Hoşşirin, 2010; Peker, 2006), self-efficacy perception regarding mathematics (Ural, 2015), attitudes towards technology use (Tatar et al., 2015), beliefs towards mathematics teaching (Başpınar & Peker, 2016), problem-solving skill (Akinsola, 2008), and self-efficacy perception regarding mathematics teaching (Deringöl, 2018; Peker, 2016). Among these variables, mathematics anxiety stands out since it is another anxiety type experienced directly in mathematics teaching. Though a consensus on the relationship between mathematics anxiety and mathematics teaching anxiety has not been established yet, studies report positive relationships between the two anxiety types (Peker & Ertekin, 2011; Serin, 2017; Yazlık & Çetin, 2020). Besides, several studies investigate the reasons for both anxiety types (Ameen et al., 2002; Nolting, 2010; Peker, 2008; Wilson, 2013). Technology integration into mathematics education, particularly in the last two decades, is expected to decrease mathematics anxiety and mathematics teaching anxiety of both teachers and pre-service teachers (Gökoğlu-Uçar & Ertekin, 2019; Zengin, 2017). However, the literature lacks adequate studies exploring the relationships between Technological Pedagogical Content Knowledge (TPACK), which is one of the technology competencies that teachers and pre-service teachers should have, and both mathematics anxiety and mathematics teaching anxiety. This deficiency indicates a need for more studies to understand the nature of these relationships better.

The literature on TPACK and mathematics teaching anxiety embodies experimental studies reporting that learning environments supported with technology reduced pre-service teachers' mathematics teaching anxiety. It was observed that using activities designed with WebQuest (Peker & Halat, 2009) and GeoGebra software (Zengin, 2017) reduced pre-service teachers' mathematics teaching anxiety. However, the number of studies examining the relationship between technology and mathematics teaching anxiety is limited. Some studies examined the relationship between pre-service mathematics teachers' mathematics teaching anxiety and their perceptions of technology use in mathematics teaching (Tatar et al., 2015) and TPACK competencies (Gökoğlu-Uçar & Ertekin, 2019). Furthermore, some other studies reported reduced mathematics anxiety in students using technology. In their meta-analysis study, Sun and Pyzdrowski (2009) found that using technology devices in mathematics lessons lessened students' mathematics anxiety. Besides, content-based and technology-supported tasks (Juniati & Budayasa, 2021; Carjuzza & Williams, 2021) and learning experiences designed with Geogebra (Zengin, 2017) reduced mathematics anxiety. Finally, to the researchers' best knowledge, no studies examine the relationship between TPACK and mathematics anxiety. Except for experimental studies, the studies involve regression analysis exploring the relationships

among these variables, revealing a niche in studies that comprehensively address the relationships among TPACK competencies, mathematics anxiety, and mathematics teaching anxiety. Experimental and regression studies examine the relationships among these variables; however, no structural equation modeling study addresses the relationships among TPACK competencies, mathematics anxiety, and mathematics teaching anxiety holistically.

This study focused on the relationship between mathematics pre-service teachers' mathematics anxiety and the practices related to technology integration used in teacher training programs to improve their mathematics and mathematics teaching anxiety. Additionally, the literature review does not host studies revealing the relationships among these three variables clearly, and mathematics anxiety is an undeniable variable in the relationship between TPACK and mathematics teaching anxiety. Accordingly, the current study attempted to investigate the mediating role of mathematics anxiety in the relationship between TPACK and mathematics teaching anxiety. Thus, the current study aimed to explore the mediating role of mathematics anxiety in the relationship between TPACK competencies and mathematics teaching anxiety. To this end, this study employed structural equation modeling, which has certain advantages over regression analysis in that it includes measurement errors and identifies direct and indirect relations among variables. Given that these three variables interact strongly in learning environments, an examination of pre-service teachers in this respect is expected to contribute to the literature.

## Theoretical Framework

### *Mathematics Teaching Anxiety*

Mathematics teaching anxiety refers to anxiety and tension teachers experience while teaching mathematical concepts, theorems, and formulas or during the problem-solving process (Levine,1993; Peker, 2006). This type of anxiety may arise in organizing the learning environment, time management, and identifying teaching methods and learning activities (Ameen et al., 2002; Peker, 2009a). Teachers experiencing mathematics teaching anxiety are reported to demonstrate reactions such as tension, inability to concentrate, being easily distracted, not hearing the students, sweating hands, and talking to oneself negatively (Levine, 1993). This type of anxiety teachers undergo affects the experiences of mathematics teaching, thereby negatively affecting students' mathematics learning. Therefore, some studies examined teachers' and pre-service teachers' levels of mathematics teaching anxiety in terms of grade and gender (Çenberci, 2019; Demir et al., 2016; Tatar et al., 2016; Yavuz, 2018). Additionally, some other studies addressed the reasons for mathematics teaching anxiety (Ameen et al., 2002; Huber & Ward, 1969; Peker, 2008). Some of these reasons include the challenges the students experience in solving questions, high expectations of being a good mathematics teacher, and the increased need for finding concrete materials.

Mathematics anxiety is another type of anxiety that teachers may experience apart from mathematics teaching anxiety. Different from mathematics anxiety, mathematics

teaching anxiety is experienced by teachers while teaching mathematics. On the other hand, mathematics anxiety is the type of anxiety felt when solving any mathematics problem. Hence, while only teachers can experience mathematics teaching anxiety, all people learning mathematics may experience mathematics anxiety. Mathematics anxiety is addressed in detail below.

### *Mathematics Anxiety*

Students mostly regard mathematics as a lesson that consists of only numbers and calculations and involves a set of rules (Markovits & Forgasz, 2017; Van de Walle, 2004; Yetim-Karaca & Ada, 2018). Students generally find mathematics difficult and think they may fail mathematics lessons (Kayan & Çakıroğlu, 2008; Üredi & Üredi, 2005). In addition, it is reported that these negative attitudes toward mathematics increase as the students move on school grades, and mathematics becomes a nightmare for some students (Baykul, 2016; Ma & Xu, 2004). On the other hand, these negative attitudes are not limited to students; they also apply to adults, pre-service teachers, and teachers (Hembree, 1990; Katipoğlu & Öncü, 2015; Lim & Ernest, 1999; Şenol et al., 2015). It is reported that these negative feelings towards mathematics in the society affect negative attitudes towards mathematics and lead to the development of mathematics anxiety in particularly students (Baloğlu, 2001; Deringöl, 2018; Özdemir & Gür, 2011; Yenilmez, 2010).

Mathematics anxiety has various definitions in the literature. These definitions suggest that mathematics anxiety causes psychological responses in students such as concern, tension, fear, panic, and irritability while solving maths problems (Dreger & Aiken, 1957; Miller & Mitchell, 1994). As well as psychological responses, mathematics anxiety causes physical responses such as palm sweating, heart palpitations, and nausea (Ashcraft & Krause, 2007; Ashcraft, 2002; Baloğlu & Koçak, 2006). These results suggest that mathematics anxiety is one of the most critical factors restraining students' learning of mathematics (Bai, 2011; Cates & Rhymer, 2003). In support of this notion, studies in the literature highlight that mathematics anxiety negatively affects students' academic achievement (Ader, 2004; Al-Mutawah, 2015; Bayırlı et al., 2021; Ho et al., 2000; Ma & Xu, 2004). Additionally, mathematics anxiety is reported to decrease students' interest in mathematics lessons (Keitel & Kilpatrick, 2005; Sherman & Wither, 2003; Zakaria & Nordin, 2008) and self-confidence (Aydın, 2011; Bursal & Paznokas, 2006; Olatunde, 2009).

The studies on the reasons for mathematics anxiety that negatively affect students' learning in various ways report several factors affecting the emergence of mathematics anxiety. The reasons for mathematics anxiety are peculiar to individuals because it is a learned anxiety type (Nolting, 2010., Wilson, 2013). These reasons are also affected by the nature of mathematics and the methods used in mathematics teaching (Baloğlu, 2001; Peker, 2006). As well as the methods and techniques teachers use, their characters and attitudes towards lessons and students are also effective in mathematics anxiety (Swanson & Nebraska, 2006). Studies reported that students who had earlier negative experiences with

their mathematics teachers were anxious about mathematics and the effects of this negative experience with their teachers went down over a very long time (Bekdemir et al., 2004; Perry, 2004). Hence, we can argue that teachers' attitudes towards mathematics and mathematics teaching and their professional competencies critically affect students' mathematics anxiety. However, research revealed that teachers (Baloğlu, 2001) and pre-service teachers (Bekdemir, 2010) also experience mathematics anxiety, and teachers transfer the mathematics anxiety they undergo to their students in conscious or unconscious ways (Baloğlu, 2001; Vinson, 2001). Therefore, it is critical to examine the variables related to pre- service teachers' mathematics anxiety in the pre-service period and eliminate their mathematics anxiety by controlling these variables.

### *TPACK*

With the recent technological advances, the use of technology in learning-teaching experiences has become necessary (Hew & Brush, 2007). This has led to changes in the knowledge and competencies that teachers should possess in the last two decades. Teachers are now expected to have technology knowledge and integrate technology into their lessons (Graham et al., 2012). Therefore, the technological aspect was added to Shulman's (1986) Pedagogical Content Knowledge (PCK), Technological Pedagogical Content Knowledge (TPACK) framework was developed (Mishra & Koehler, 2006). TPACK is considered as a model explaining what teachers should know to efficiently integrate technology into their teaching fields (Schmidt et al., 2009). In this model, there are seven knowledge types, which are Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge and their combinations which are Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), and Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006). The components of TPACK are presented in Figure 1.

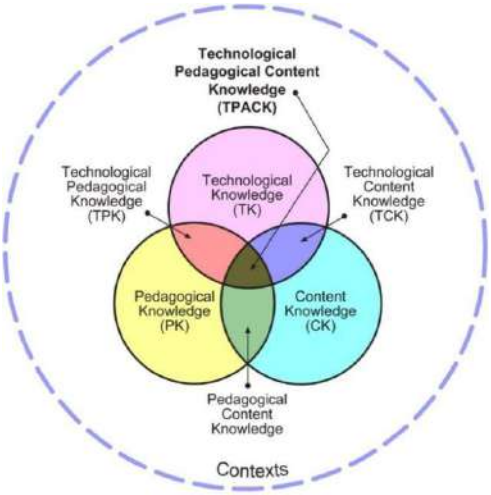



***Figure 1.*** Components of TPACK Model

The knowledge types in TPACK model can be briefly explained as follows: CK refers to knowledge of the field that is to be taught; PK refers to knowledge regarding methods and practices employed during the learning-teaching process; and TK includes the

knowledge needed for using digital technologies such as multimedia, interactive board, and the internet as well as other advanced technologies. Additionally, PCK refers to the knowledge about selecting the best method for the content knowledge and teaching that subject in the best way. TCK relates to the knowledge for integrating technology with the field and using the most appropriate technology for the content knowledge. TPK appertains to the knowledge on technologies developed to be used in instruction as well as using appropriate technologies for teaching methods. Finally, TPACK refers to the knowledge on how to integrate technology and teaching methods while teaching a subject, and how technological tools and presentations affect students' grasping the contents (Angeli & Valanides, 2009; Graham et al., 2012; Mishra & Koehler, 2006; Koehler & Mishra, 2009).

As the above explanations suggest, teachers are expected to use technology by blending it with the pedagogic perspective that is appropriate for the learning outcomes of the lesson (Demir et al., 2011; Ertmer & Ottenbreit-Leftwich, 2010; Şad & Göktaş, 2014). However, it is difficult for teachers to integrate technology into their teaching practices (Jang & Tsai, 2012). The studies in the literature reported that teachers could not effectively use technology in the classroom. However, they generally made use of technology to carry out tasks assigned to them by the administration, communicate via e-mails, prepare plans, prepare for lessons and write examination questions (Erdemir et al., 2009; Sancar-Tokmak et al., 2012; Yanpar-Yelken et al., 2013). This demonstrates the significance of training teachers who can integrate technology into their fields in teacher training programs. Therefore, it is critical to carry out practices in teacher training programs that would enable pre-service teachers to enhance their TPACK levels (Abbitt & Klett, 2007).

That TPACK has recently become a commonly referred framework in training pre-service teachers and teacher competencies (Niess, 2012) has resulted in studies towards identifying teachers' and pre-service teachers' TPACK levels (Alayyar et al., 2012; Archambault & Barnett, 2010; Timur & Taşar, 2011b; Çetin, 2017). However, the TPACK framework is focused on knowledge level, and it is hard to directly measure teachers' and pre-service teachers' knowledge levels, which directed researchers conducting studies on how teachers and pre-service teachers perceived their TPACK levels (Açıkgül & Aslaner, 2015). This is evident in the fact that studies in the literature mainly examined teachers and pre-service teachers' perceptions of their competence regarding TPACK (Balçın & Ergün, 2018; Kaya et al.,2011; Şad et al., 2015) and self-confidence (Graham et al., 2012; Saltan & Arslan, 2017; Sancar-Tokmak et al., 2013) in terms of various variables. Additionally, some studies explore the relationships between pre-service mathematics teachers' TPACK competencies and their thinking styles (Canbolat et al., 2016), perceptions of technology use frequency (Özgen et al., 2013), and mathematics teachers' TPACK competencies and their teaching style preferences (Mutluoğlu & Erdoğan, 2016), and their attitudes towards information and communication technologies (Albayrak-Sarı et al., 2016). However, few studies examined the relationship between TPACK competencies,mathematics anxiety, and mathematics teaching anxiety (Gökoğlu-Uçar & Ertekin, 2019).

## Conceptual Framework

Factors such as negative attitudes towards mathematics, deficiency in content knowledge, and self-confidence affect pre-service teachers' mathematics anxiety and mathematics teaching anxiety (Peker, 2006). Recently, efforts have been invested in teacher training institutions to develop pre-service teachers' not only content knowledge solely but also their TPACK levels comprehensively. It is thought that pre-service teachers who can use technology in line with the course aims with the appropriate pedagogy and feel competent in these respects would have low mathematics teaching anxiety. Therefore, this study hypothesizes a negative relationship between TPACK competencies and mathematics teaching anxiety ($H_1$). In addition, it is assumed that when pre-service teachers' TPACK competencies are enhanced, their mathematics anxiety will decrease. In the same vein, studies in the literature found that computer-supported mathematics instruction lessened students' mathematics anxiety (Sun & Pyzdrowski, 2009). Similarly, the technology-supported education offered in education faculties enables meaningful learning thanks to technological opportunities and improves their content knowledge (Çetin, 2017) which can also be interpreted that this improvement reduces pre-service teachers' mathematics anxiety. Therefore, the study's second hypothesis assumes a negative relationship between TPACK competencies and mathematics anxiety ($H_2$).

Teachers with high levels of mathematics anxiety are reported to use traditional teaching methods more frequently and focus on teaching basic skills as opposed to teaching concepts (Gresham, 2010; Swars et al., 2006). Accordingly, we can suggest that teachers experiencing mathematics anxiety may have negative attitudes towards mathematics teaching. Due to their mathematics anxiety, teachers may experience problems in teaching mathematics to students and therefore experience mathematics teaching anxiety. The literature also supports this notion with the findings that the mathematics anxiety teachers experience transforms into mathematics teaching anxiety (Hadley & Dorward, 2011). Additionally, mathematics anxiety is a significant predictor of mathematics teaching anxiety for also pre-service teachers (Hacıömeroğlu, 2014; Peker & Ertekin, 2011; Serin, 2017; Yazlık & Çetin, 2020). We can again argue that mathematics anxiety is related to pre-service teachers' mathematics teaching anxiety, hindering them from enhancing their mathematics teaching competencies.

On the other hand, it was also reported that the relationship between pre-service primary school teachers' mathematics anxiety and mathematics teaching anxiety was not always significant, and pre-service teachers with high mathematics anxiety could have low levels of mathematics teaching anxiety (Brown et al., 2011). As these results show, the relationship between mathematics anxiety and mathematics teaching anxiety is not well-established. The literature suggests that pre-service teachers experiencing mathematics anxiety are also expected to experience mathematics teaching anxiety. However, we cannot argue this notion for sure. This can be accounted for by the fact that pre-service teachers

who do not experience mathematics anxiety-or perceive themselves as qualified- may not know how to teach secondary school mathematics to young children. In other words, they may experience mathematics teaching anxiety due to their deficiencies in pedagogical content knowledge. Additionally, pre-service mathematics teachers who experience mathematics anxiety may not experience mathematics teaching anxiety because they may have mathematics anxiety for advanced mathematics subjects and may not have anxiety for secondary school mathematics subjects. Therefore, this study aimed to question the assumption that pre-service teachers' mathematics anxiety predicts their mathematics teaching anxiety ($H_3$).

Although some studies examing the relationship between mathematics anxiety and mathematics teaching anxiety are present in the literature, there are limited studies examining the relationship between TPACK and mathematics teaching anxiety. There are no regression studies on the relationship between TPACK and mathematics anxiety. However, mathematics anxiety is an unignorable variable while examining the relationship between TPACK and mathematics teaching anxiety, and this gap is a limitation in explaining this relationship. The current study formed the structural model in Figure 2 to fill this niche and clearly reveal the relationships among these variables. This study assumes that mathematics anxiety mediates the relationship between TPACK competencies and mathematics teaching anxiety. In other words, it is assumed that when pre-service teachers' levels of TPACK competencies increase, their mathematics teaching anxiety will decrease since their mathematics anxiety will decrease ($H_4$). In this sense, the hypotheses are tested through the established structural model (Figure 2).

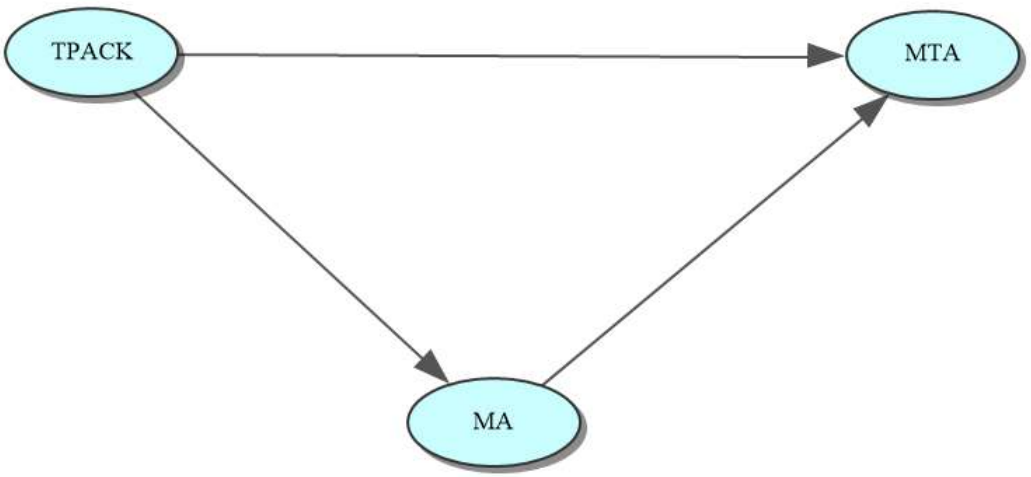



***Figure 2.*** *The* Research Model

$H_1$: TPACK competencies are negatively correlated with mathematics teaching anxiety.

$H_2$: TPACK competencies are negatively correlated with mathematics anxiety.

$H_3$: Mathematics anxiety is positively correlated with mathematics teaching anxiety.

$H_4$: Mathematics anxiety mediates the relationship between TPACK competencies and mathematics teaching anxiety.

## METHOD

### Research Design

This study aimed to reveal the relationships among the variables of pre-service mathematics teachers' TPACK competencies, mathematics anxiety, and mathematics teaching anxiety. It was hypothesized that TPACK affects mathematics teaching anxiety, and mathematics anxiety has a mediating role in this relationship. Therefore, this study employed the causal survey design in testing the multiple causal relationships and performed Structural Equation Modeling (SEM). This model aims to determine the co-change between two or more variables within the reason-result framework (Karasar, 2005; Robson, 2015). SEM is a robust statistical analysis method that develops theories by testing the causal relationships between observed and latent variables and simultaneously examining the relationships between multiple variables (Byrne, 2010, Fraenkel et al., 2012). SEM also allows for obtaining more reliable results than regression and path analysis, as it calculates linear relations between variables without error (Meydan & Şeşen, 2011).

### Participants

SEM generally requires samples larger than n=200 to test hypothesized relationships significantly with the slightest measurement error (Kline, 2011). Hence, 426 pre-service mathematics teachers attending to third and fourth grades of the mathematics teaching program in three education faculties of two universities in Middle Anatolia, Turkey, participated in this study. The criterion sampling method was used in sample selection. The criterion was taking most of the content knowledge courses such as Analysis, Geometry, Algebra, Statistics-Probability Instruction, and Computer Supported Mathematics Teaching, which are needed for pre-service teachers to integrate technology into teaching practices. Since the study was conducted towards the end of the 2020-2021 academic year's spring semester, the participants could take the courses with TPACK competencies and field courses. The researchers asked the pre-service teachers in these universities to fill in the scales through Google Forms. Table 1 presents the distribution of the participants in terms of grade and gender.

**Table 1**

*Distribution of the Participants in terms of Grade and Gender*

| | Grade | | |
|---|---|---|---|
| | 3rd grade | 4th grade | Total |
| Female | 165 | 179 | 344 |
| | 47,9% | 52,1% | 100% |
| | 83,8% | 78,2% | 80,7% |
| Male | 32 | 50 | 82 |
| | 39,1% | 60,9% | 100% |
| | 16,2% | 21,8% | 19,3% |
| Total | 197 | 229 | 426 |
| | 46,2% | 53,8% | 100% |
| | 100% | 100% | 100% |

As seen in Table 1, 46.2% of the participants were in third grade (n=197), and 53.8% were in fourth grade (n=229). 80.7% of the participants were female (n=344) and 19.3% were male (n=82).

## Instruments

Three scales were used to collect data in this study. The scales are explained below.

### *Mathematics Anxiety Scale*

The scale was developed by Üldaş (2005) to identify teachers' and pre-service teachers' anxiety towards mathematics. The scale was in four-point Likert type (1=I am not anxious, 4= I am quite anxious), and the 39 items in the scale were gathered under seven factors. The factors are 'understanding mathematics anxiety' (UMA), 'discussing mathematics anxiety' (DMA), 'problem-solving anxiety' (PSA), 'arithmetical computation anxiety' (ACA), 'mathematical self-adequacy anxiety' (MSAA), 'mathematical interpretation anxiety' (MIA), and 'making mathematical mistakes anxiety' (MMMA). Üldaş (2005) reported the Cronbach's Alpha reliability coefficient as 0.95; similarly, it was also calculated as 0.95 in the current study. While the minimum score is 39, the maximum score is 156. All the items in the scale are positive; therefore, a higher score on the scale means higher levels of mathematics anxiety. For scale's validity, exploratory factor analysis was performed, and the factor loadings of the items varied between .435 and .801, which explained 59.23% of the total variance.

### *Mathematics Teaching Anxiety Scale*

The scale was developed by Peker (2006) to identify mathematics and primary school pre-service teachers' levels of mathematics teaching anxiety. The scale has 23 items with four factors in a five-point Likert format (1= I definitely agree, 5= I definitely disagree). The scale factors are content knowledge-related anxiety (CKA), self-confidence-related anxiety (SCA),

attitude towards mathematics teaching-related anxiety (AMTA), and pedagogical content knowledge related anxiety (PCKA). Peker (2006) reported the Cronbach's Alpha value of the scale as 0.91, which was calculated as 0.90 in the current study. While the maximum score is 115, the minimum score is 23. Higher scores in the scale refer to higher levels of mathematics teaching anxiety in pre-service teachers. The first ten items are reverse-coded. The exploratory factor analysis for the validity of the scale showed that the factor loadings of the 23 items in the scale range between .528 and .857, accounting for 56.5% of the total variance.

### *Technological Pedagogical Content Knowledge Scale*

The scale, developed by Önal (2016), identifies pre-service mathematics teachers' TPACK competencies. 59 items in the five-point Likert type (5= I am totally competent, 1= I am totally incompetent) gather under nine factors in the scale. The factors include technological knowledge (TK), content knowledge (CnK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technological content knowledge (TCK), online and offline technological pedagogical knowledge (TPK), technological pedagogical content knowledge (TPCK), and context knowledge (CxK). This study combined online and offline TPK, and the scale was analyzed in eight factors. While the maximum score is 295, the minimum score is 59. There are no reverse-coded items in the scale. Higher scores in the scale mean higher levels of TPACK competencies in pre-service teachers. Önal (2016) reported the Cronbach's Alpha value of the scale as 0.97, which was calculated as the same value in the current study. The exploratory factor analysis for the validity of the scale showed that the factor loadings of the 59 items in the scale range between .495 and .797, accounting for 66.2% of the total variance.

## Data Collection

The pre-service mathematics teachers were first informed about the purpose of the research. Then volunteering 458 participants took the instruments through Google forms due to the Covid-19 pandemics conditions. To prevent common method bias, data should either be collected from different sources or data regarding dependent, independent, and mediator variables should be collected at different times when different sources are unavailable (Podsakoff et al., 2003). Since the same participants completed all three scales, the scales were sent to the participants at one-week intervals. The pre-service teachers had five days to complete each scale. The participants spent adequate time filling in the scales.
32 scale forms were excluded from the analysis as they were completed randomly or outliers.

## Data Analysis

The data analysis started with descriptive statistics regarding the instruments. The results are presented in Table 2.

**Table 2**

*Distribution of the Participants in terms of Grade and Gender*

| Variable | Min-Max | X | Sd | Skewness | Kurtosis | Correlation | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 2 | 3 |
| **1-Mathematics Anxiety** | 39 – 110 | 68.96 | 14.39 | .247 | -.429 | 1 | .599 | -.422 |
| **2-Mathematics Teaching Anxiety** | 24-76 | 44.54 | 11.50 | .502 | -.324 | | 1 | -.449 |
| **3-TPACK overall** | 139-295 | 216.82 | 30.07 | -.057 | -.084 | | | 1 |

Table 2 demonstrates that means of all variables in the model were above the midpoints of the related score ranges, and these values ranged between 44.54 and 216.82. In order to assume univariate normality for the data, the skewness and kurtosis values of the variables should not be greater than |3.0| and |10.0|, respectively (Kline, 2011). The Skewness values ranged between -.001 and -.847, and the Kurtosis values ranged between -.243 and .615, indicating that univariate normality for the data was met. Mahalanobis distance was checked for multi-variate normality, and tolerance and VIF values were checked for multicollinearity. Mahalanobis distance value was calculated, and 32 significant (p=.01) outlier values were identified. Since the sample was large enough, these values were excluded from the analysis. The correlation coefficients among the observed variables were not very high. The tolerance value was larger than 0.20, and the VIF value was smaller than 10, meeting the multicollinearity assumption (Field, 2009; Montgomery & Peck, 1992). Hence, the problem of multicollinearity was not present in the analysis.

Path analyses were performed on AMOS involving the measurement and structural model to test the model's fitness with the data. The ratio of chi-square to the degree of freedom ($\chi 2/df$), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), normed fit index (NFI), non-normed fit index (TLI), and comparative fit index (CFI) were checked for the fit of SEM models (Çelik & Yılmaz, 2013; Kline, 2011; Schumacker & Lomax, 2010). The criterion values for fit indices are provided in detail in Table 3. To enhance the fit index values regarding the model in SEM analyses, modifications (error binding) that were supported theoretically were conducted. After each error binding, the $\chi 2$ difference test was conducted, and the new model was compared with the previous model in terms of fit indices and significance of the chi-square test. To test H4, the mediating role of the mediator variable (mathematics anxiety) between the independent variable (TPACK) and the dependent variable (mathematics teaching anxiety) was checked. The following three assumptions should be met before performing mediation analysis (Baron & Kenny, 1986; MacKinnon et al., 2007). First, the independent variable should predict the dependent variable directly and significantly. Second, there should be a linear regression relationship between the independent and mediating variables. Third, to reveal

the mediating role in the mediator model, there should be some decrease (absolute value) in the relationship between dependent and independent variables when the effect of the mediating variable is controlled.

Yılmaz and İlhan-Dalbudak (2018) argue that the mediating variable may explain the whole or only a part of the observed relationship between dependent and independent variables. It is called full mediation when the mediator explains the whole relationship, and partial mediation when it explains a part of it. In full mediation, the relationship between dependent and independent variables weakens and becomes statistically insignificant when the mediating variable is included in the analysis. In partial mediation, the mediating variable cannot measure the whole relationship between the dependent and independent variables. Although the relationship between the dependent and independent variables is still significant, there is a decrease in the effect coefficient and significance level. To test the statistical significance of the indirect effect of TPACK competency on mathematics teaching anxiety through mathematics anxiety, a bias-corrected bootstrapping procedure was performed on AMOS, as suggested by Preacher and Hayes (2008). The sample size was increased to 5.000, and the 95% confidence interval was ensured. In mediation effect analyses conducted with the Bootstrap technique, the values in 95% confidence interval should not involve zero (0) value to be able to support the research hypothesis (Preacher & Hayes, 2008).

## FINDING

### Findings Regarding the Measurement Model

Since the data had normal distribution, the covariance matrix was generated using the Maximum Likelihood method. First, the measurement model consisting of the variables of TPACK competencies and mathematics teaching anxiety was tested to test the H1 hypothesis, which assumed that TPACK competencies are negatively correlated with mathematics teaching anxiety (TPACK Competencies → Mathematics Teaching Anxiety). The measurement model is presented in Figure 3. The fit indices calculated in the analysis confirmed the measurement model ($x^2$[46, n=426] = 169,5; p<.01; $x^2$/df= 3.69; NFI=0.95, TLI=0.95, CFI=0.96; RMSEA= 0.08; SRMR=0.06). When the mathematics anxiety was controlled and the regression was performed without the mediator variable, TPACK competencies predicted mathematics teaching anxiety (β=-.57; p<.01). A one-unit increase in TPACK competencies decreased pre-service teachers' mathematics teaching anxiety by .57 unit. Hence, $H_1$ was confirmed. TPACK competencies explained 38% of mathematics teaching anxiety.

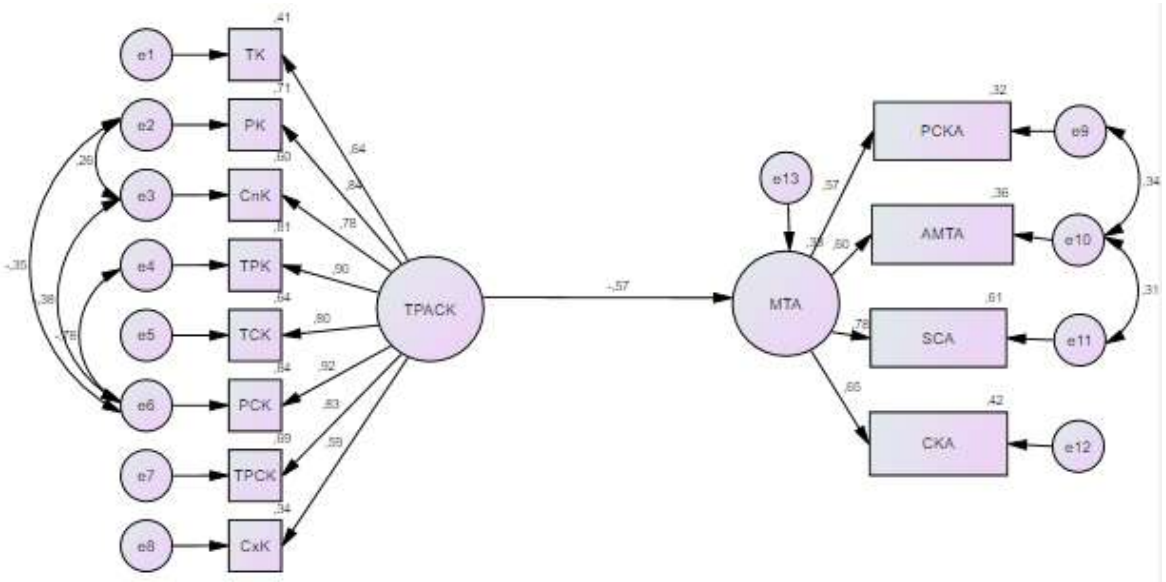



***Figure 3.*** *AMOS Screenshot for the Measurement Model*

## Findings Regarding the Measurement Model

Following the verification of the measurement model, the research hypotheses were tested through the structural model with implicit variables. To test the other hypotheses of the study, a separate model was formed in which mathematics anxiety was the mediator variable. The model is presented in Figure 4.

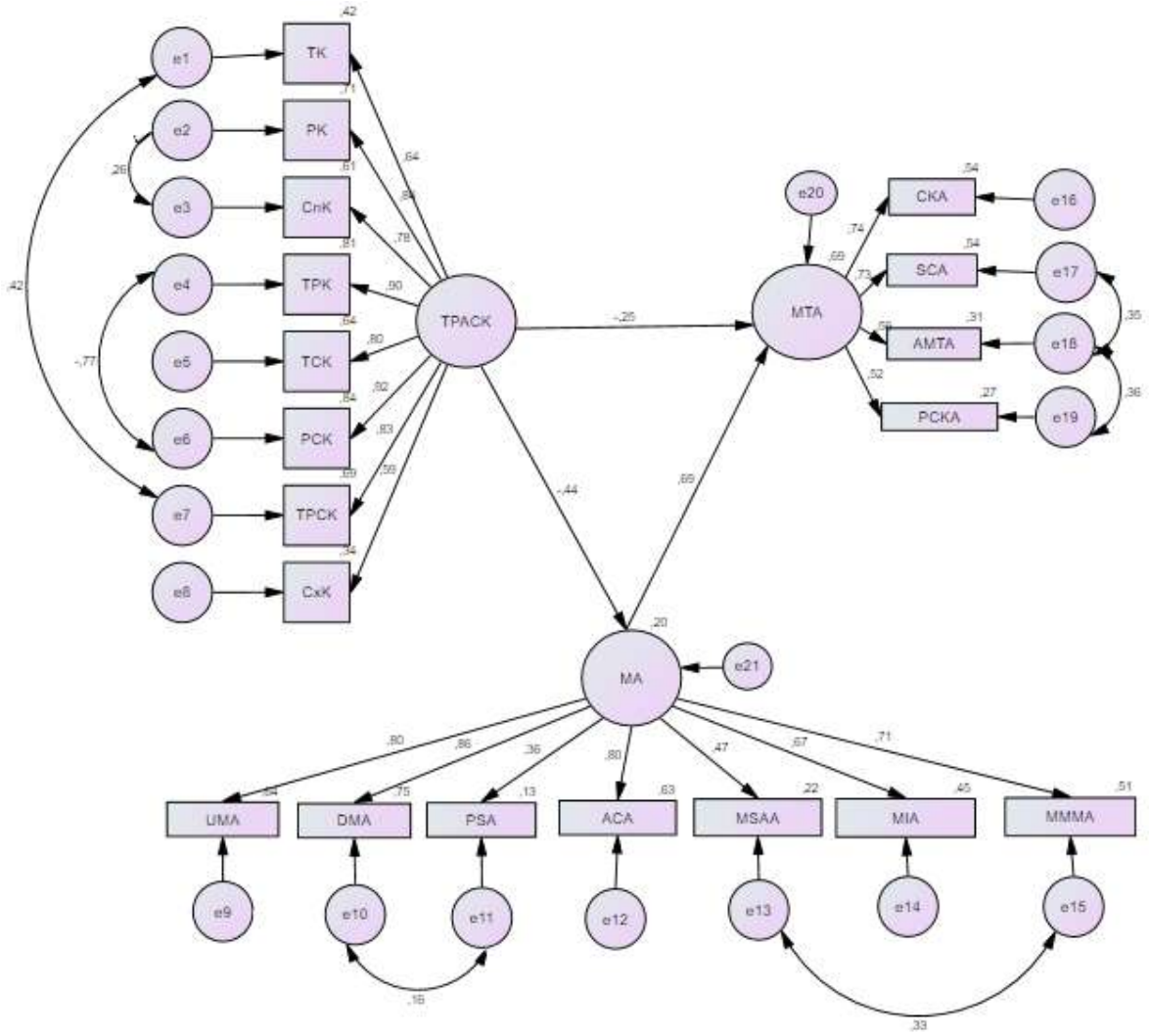



***Figure 4.*** *AMOS Screenshot for Structural Model*

As Figure 4 demonstrates, the analysis revealed that TPACK competencies predicted mathematics anxiety significantly (β = -.44; p<.01). This indicated that a one-unit increase in TPACK competencies decreased the pre-service teachers' mathematics anxiety by .44 unit. Hence, $H_2$ (TPACK competencies → Mathematics Anxiety) was supported. Similarly, mathematics anxiety, the mediator variable, predicted mathematics teaching anxiety (β =.69; p<.01). Therefore, $H_3$ (Mathematics Anxiety → Mathematics Teaching Anxiety) was accepted. Finally, when mathematics anxiety was added to the model as the mediator variable, the path coefficient from TPACK competencies to mathematics teaching anxiety was still significant (β = -.25; p<.01). The direct effect of TPACK competencies on mathematics teaching anxiety increased significantly from -.57 to -.25 (decreased in absolute value). Therefore, the model suggested that TPACK competencies affected mathematics teaching anxiety indirectly with the mediation of mathematics anxiety, supporting $H_4$. In the model where mathematics anxiety was the mediator variable, TPACK competencies accounted for 69% of the variance in mathematics teaching anxiety. Additionally, the path analysis revealed that the fit indices were within the cut-off values in the literature,

indicating the model fitted to the data and acceptable ($x^2$[137, n=426] =401,284; p<.01, $x^2$/df= 2.92; NFI=0.92, TLI=0.94, CFI=0.95, RMSEA=0.07; SRMR=.05). Fit values regarding the structural model are provided in Table 3.

**Table 3**

*Results Regarding the Structural Model*

| Measure | Good fit | Acceptable fit | Fit values of the model | |
|---|---|---|---|---|
| $x^2$/df | ≤3 | ≤4-5 | 3.82 | Acceptable fit |
| RMSEA | ≤ 0 . 0 5 | ≤ 0 . 0 6-0.08 | 0.07 | Acceptable fit |
| SRMR | ≤ 0 . 0 5 | ≤ 0 . 0 5-0.10 | 0.05 | Good fit |
| NFI | ≥ 0 . 9 5 | 0.94-0.90 | 0.92 | Acceptable fit |
| IFI | ≥ 0 . 9 5 | 0.94-0.90 | 0.96 | Good fit |
| TLI | ≥ 0 . 9 5 | 0.94-0.90 | 0.94 | Acceptable fit |
| CFI | ≥0.95 | 0.94-0.90 | 0.95 | Good fit |

## Findings Regarding Bootstrapping Analysis

A path analysis based on bootstrapping method was run to test whether there is a mediating role of mathematics anxiety in the relationship between TPACK competencies and mathematics teaching anxiety. In the Bootstrap analysis, the 5000 resampling option was preferred. The analysis showed that the indirect effect of TPACK competencies on mathematics teaching anxiety through mathematics anxiety was significant (β = -.30, %95 CI [-0.376, -0.220]). Accordingly, it was observed that the Bootstrap lower and upper confidence interval values obtained by the percentage method did not include the value of 0 (zero). These results prove that mathematics anxiety mediates the relationship between TPACK competencies and mathematics teaching anxiety. The results of this analysis are provided in Table 4.

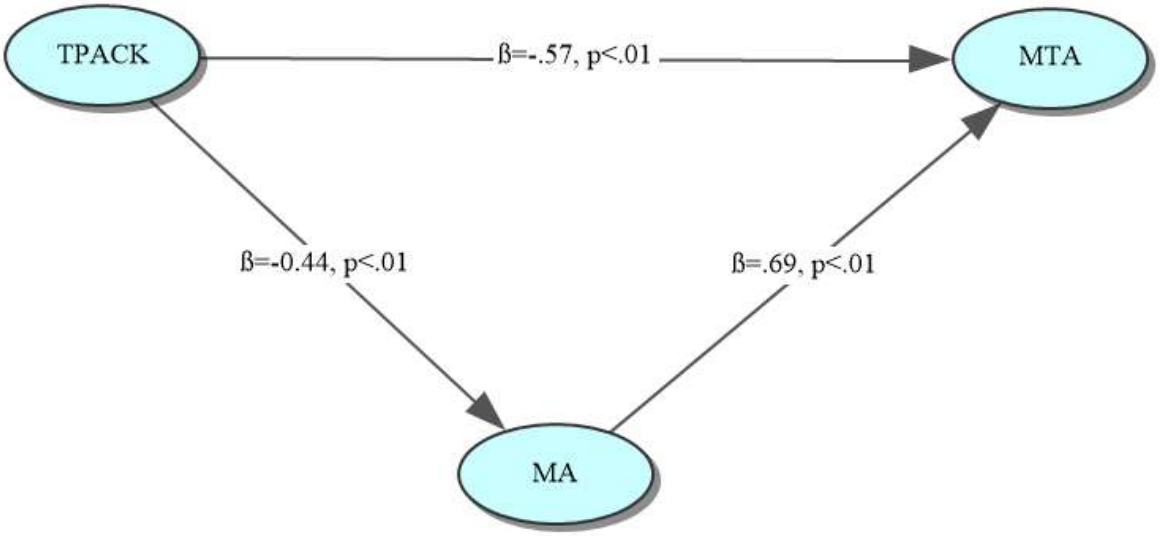
**Table 4**

*Results Regarding the Structural Model Bootstrapping Analysis (n=426)*

| Variables | Values | | | |
|---|---|---|---|---|
| | Mathematics Anxiety | | Mathematics Teaching Anxiety | |
| | β | S.E. | β | S.E. |
| **TPACK (path c)** | - | - | -.57* | .026 |
| **$R^2$** | - | | .38 | |
| **TPACK (path a)** | -.44* | 0.50 | - | - |
| **$R^2$** | 0.20 | | - | |
| **TPACK (path c')** | - | - | -.25* | .017 |
| **Mathematics Anxiety (path b)** | - | - | .69* | .029 |
| **$R^2$** | - | - | .69 | |
| **Bootstrap Indirect Effect** | - | - | -.30* (-0.38, -0.22) | |

Note: *p<.01, S.E.=Standard Error; Values in parentheses are lower and upper confidence intervals. Bootstrap resampling=5.000

Concerning the full or partial mediation effect of the mediator variable, it was observed that, in the assumed model, the effect coefficient of TPACK competencies on mathematics teaching anxiety (β= -.25, p< .01) was low but still statistically significant. Therefore, we found that mathematics anxiety had a partial mediating effect in the relationship between TPACK competencies and mathematics teaching anxiety. Figure 5 below shows the results of the model in the study.




Direct Effect β = -0.255, p<.05

Indirect Effect β = -.304* %95 CI (-0.409, -0.146)

***Figure 5.*** Results Regarding the Model in the Study

## DISCUSSION AND CONCLUSION

This study revealed a negative relationship between pre-service mathematics teachers' TPACK competencies and their mathematics teaching anxiety. This suggests that the more pre-service mathematics teachers' TPACK competencies increase, the lesser their mathematics teaching anxiety will be. Pre-service mathematics teachers who integrate technology into mathematics teaching and consider themselves adequate in this sense can conduct their courses without experiencing difficulties and tension in teaching mathematics. Similarly, another study reported that sub-dimensions of pre-service mathematics teachers' TPACK competencies negatively predicted sub-dimensions of their mathematics teaching anxiety (Gökoğlu-Uçar & Ertekin, 2019). The competency of PCK, a component of TPACK, also increased mathematics teaching proficiency and hence decreased mathematics teaching anxiety (Aksu & Kul, 2019). These results highlight the significance of carrying out activities to enhance pre-service mathematics teachers' TPACK levels for them to teach mathematics appropriately and effectively. Similarly, experimental studies indicated that learning environments supported with technology decreased pre-service teachers' mathematics teaching anxiety (Peker & Halat, 2009; Zengin, 2017).

Another result of the current study acknowledges a negative relationship between pre-service mathematics teachers' TPACK competencies and mathematics anxiety. This result means that the more TPACK levels of pre-service mathematics teachers increase, and the more they feel competent in this area, the less mathematics anxiety they will experience. The literature tells that lack of content knowledge which is one of the main components of the TPACK model, affects mathematics anxiety (Peker, 2006). Besides, technology-supported mathematics learning environments lessen students' mathematics anxiety (Sun & Pyzdrowski, 2009). It was found that particularly constructing mathematical concepts with the help of Geogebra and activities related to teaching those concepts contributed to decreased mathematics anxiety in pre-service mathematics teachers (Zengin, 2017). Therefore, efforts towards TPACK development of pre-service mathematics teachers in teacher training programs are significant.

The current study also found a positive relationship between mathematics anxiety and mathematics teaching anxiety, indicating that mathematics anxiety affects pre-service teachers' mathematics teaching experiences and hence bringing along mathematics teaching anxiety. The literature lends its support to these results (Hacıömeroğlu, 2014; Hadley & Dorward, 2011; Peker & Ertekin, 2011; Serin, 2017; Yazlık & Çetin, 2020). On the other hand, the relationship between pre-service teachers' mathematics anxiety and mathematics teaching anxiety is not present in every context (Brown et al., 2011). Accordingly, it was found that some of the pre-service teachers experiencing mathematics anxiety did not have mathematics teaching anxiety, while some others not experiencing mathematics anxiety had mathematics teaching anxiety. Although there is no consensus that mathematics anxiety predicts mathematics teaching anxiety, it is critical to identify pre-service teachers' mathematics anxiety levels when they start teacher training programs and control their mathematics anxiety throughout their undergraduate education.

Finally, the current study determined that, when mathematics anxiety was added to the model, TPACK competencies predicted mathematics teaching anxiety indirectly through mathematics anxiety. In other words, mathematics anxiety partially mediated the relationship between TPACK competencies and mathematics teaching anxiety. The direct effect of TPACK competencies on mathematics teaching anxiety was -.255, while its indirect effect was -.304. TPACK competencies explained 38% of the total variance in mathematics teaching anxiety in the first model, while this rate was 69% in the second model in which mathematics anxiety was added. When mathematics anxiety was added to the analysis, the relationship between TPACK competencies and mathematics teaching anxiety became more salient. In other words, mathematics anxiety mediated while revealing to what extent TPACK competencies predicted mathematics teaching anxiety clearly. This result argues that mathematics anxiety is an unignorable variable in the relationship between TPACK and mathematics teaching anxiety. Accordingly, eliminating pre-service mathematics teachers' anxiety regarding understanding and interpreting mathematics stemming from their previous mathematics experiences with technology-supported learning environments may

reduce their mathematics teaching anxiety. Therefore, it is crucial to identify pre-service mathematics teachers' levels of mathematics anxiety at the onset of their undergraduate education. The anxiety level of pre-service teachers experiencing mathematics anxiety should be lessened, and necessary precautions should be inserted to prevent undergoing mathematics anxiety. Particularly during the training provided for teaching content knowledge, the contents should be associated with daily life, various methods and strategies should be used, and technology should be integrated into this instruction. Using technology, particularly during training on content knowledge, may contribute to pre-service teachers. Thus, we can prevent mathematics anxiety from transforming into mathematics teaching anxiety in the following years.

As highlighted in the above paragraphs, the variable of TPACK competencies contributes to decreasing pre-service mathematics teachers' mathematics anxiety and mathematics teaching anxiety. Accordingly, we can argue that pre-service teachers equipped with TPACK competencies tend to have lower mathematics anxiety and mathematics teaching anxiety. In other words, TPACK competencies should be enhanced to lessen pre-service teachers both types of anxiety. With the changes in the curricula of education faculties in Turkey, the number of courses related to TPACK, and its components has increased significantly. Therefore, this change is expected to enhance pre-service mathematics teachers' TPACK levels and thereby increase the quality of mathematics education. It is well- known that these two types of anxiety experienced by teachers may cause students to experience mathematics anxiety and affect their mathematics learning capabilities (Baloğlu,
2001; Hadley & Dorward, 2011).

## Recommendations

This study revealed that pre-service mathematics teachers' mathematics anxiety was at a low level; however, considering the mediating effect of mathematics anxiety, it is recommended that necessary precautions be employed during the undergraduate education period to keep pre-service mathematics teachers' mathematics anxiety at a low. The first of these precautions is using technology in teaching content knowledge courses. Using communication and information technologies such as computer algebra systems, dynamic mathematics, and geometry software in field courses such as analysis, linear algebra, or geometry may enhance pre-service teachers' content knowledge and decrease their mathematics anxiety. Furthermore, this may also increase pre-service teachers' competencies to integrate technology in teaching mathematics. It is expected that pre- service mathematics teachers who can use technology more efficiently in their lessons will experience lesser mathematics teaching anxiety. Additionally, we can recommend more room for technology-based micro-teaching practices during pre-service teachers' undergraduate education to enhance their TPACK competencies.

Similarly, it is essential to guide pre-service teachers in integrating technology into their lessons during their teaching practicum. Hence, they may experience lesser

mathematics teaching anxiety when they become teachers. Similarly, mathematics teachers should be provided in-service training to improve their TPACK competencies and reduce their mathematics and mathematics teaching anxiety. Although both teachers and pre-service teachers are not expected to experience mathematics anxiety, this variable should be definitely included in the studies that examine the relationships among variables affecting mathematics teachers' competencies, given the mediating role of mathematics anxiety revealed in the current study. Besides, future studies should identify pre-service teachers' mathematics anxiety types before and after providing technology-supported training; hence, they can reveal the effect of technology-focused training on anxiety types. Additionally, we recommend that experimental studies separate pre-service teachers into groups of those experiencing mathematics and mathematics teaching anxiety, those experiencing mathematics teaching anxiety but not mathematics anxiety, those experiencing mathematics anxiety but not mathematics teaching anxiety, and those not experiencing both anxiety types.

This study has several limitations that should be considered while interpreting the results. First, pre-service teachers' perceptions regarding their TPACK competencies, mathematics anxiety, and mathematics teaching anxiety were measured through scales in this study. Therefore, the study data were collected based on the pre-service teachers' self-assessments and perceptions. Second, the obtained data can only account for the variables in the instruments. Herewith, future research may include other variables such as achievement and self-efficacy. Third, we think that measuring pre-service mathematics teachers' levels of knowledge regarding the TPACK framework directly would reveal more evident results; however, it is a challenging task requiring experimental studies. Therefore, researchers are advised to conduct mixed-method studies using methods such as observation and interviews. By this means, they can obtain more thorough results regarding pre-service teachers' TPACK competencies and anxiety levels.

## REFERENCES

Abbitt, J. T., & Klett, M. D. (2007). Identifying influences on attitudes and self-efficacy beliefs towards technology integration among pre-service educators. *Electronic Journal for the integration of technology in Education, 6*(1), 28-42. http://ejite.isu.edu/Volume6/Abbitt.pdf

Açıkgül, K., & Aslaner, R. (2015). Investigation of TPACK confidence perception of prospective elementary mathematics teachers. *Erzincan University Journal of Education Faculty, 17*(1), 118-152.. https://doi.org/10.17556/jef.04990

Ader, N. E. (2004). *A self-regulation model to explain quantitative achievement in a high-stakes testing situation.* Unpublished Master's Thesis, Boğaziçi University Institute of Science and Technology, Istanbul.

Akinsola, M. K. (2008). Relationship of some psychological variables in predicting problem solving ability of in-service mathematics teachers. *The Montana Mathematics Enthusiast, 5*(1), 79-100. https://doi.org/10.54870/1551-3440.1088

Aksu, Z., & Kul, Ü. (2019). The mediating role of mathematics teaching efficacy on the relationships between pedagogical content knowledge and mathematics teaching anxiety. *SAGE Open, 9*(3), 1-10. https://doi.org/10.1177/2158244019871049

Al-Mutawah, M. A. (2015). The influence of mathematics anxiety in middle and high school students' math achievement. *International Education Studies, 8*(11), 239-252. https://doi.org/10.5539/ies.v8n11p239

Alayyar, G., Fisser, P., & Voogt, J. (2012). Developing technological pedagogical content knowledge in pre-service science teachers: support from blended learning. *Australasian Journal of Educational Technology, 28*(8), 1298-1316. https://doi.org/10.14742/ajet.773

Albayrak-Sarı, A., Canbazoğlu-Bilici, S., Baran, E., & Özbay, U. (2016). Investigating the relationship between teachers' technological pedagogical content knowledge (TPACK) competencies and attitudes towards information and communication technologies. *Educational Technology Theory and Practice, 6*(1), 1-21. https://doi.org/10.17943/etku.11643

Angeli, C., & Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT–TPCK: Advances in technological pedagogical content knowledge (TPCK). *Computers & Education, 52*(1), 154–168. https://doi.org/10.1016/j.compedu.2008.07.006

Ameen. E. C., Guffey. D. M., & Jackson. C. (2002). Evidence of teaching anxiety among accounting educators. *Journal of Education for Business, 78*(1), 16-22. https://doi.org/10.1080/08832320209599692

Archambault, L. M., & Barnett, J. H. (2010). Revisiting technological pedagogical content knowledge: Exploring the TPCK framework. *Computers & Education, 55*(4), 1656-1662. https://doi.org/10.1016/j.compedu.2010.07.009

Ashcraft, M. H. (2002). Math anxiety: personal, educational and cognitive consequences. *Current Directions in Psychological Science, 11* (5), 181-185. https://doi.org/10.1111/1467-8721.00196

Ashcraft, M. H., & Krause, J. A. (2007). Working memory, math performance and math anxiety. *Psychonomic Bulletin and Review, 14*(2), 243-248. https://doi.org/10.3758/bf03194059

Aydın, B. (2011). A study on secondary school students' mathematics anxiety in terms of gender factor. *Kastamonu Education Journal, 19*(3). 1029-1036.

Bai, H. (2011). Cross-validating a bi-dimensional mathematics anxiety scale. *Assessment, 18*(1), 115-122. https://doi.org/10.1177/1073191110364312

Balçın, M., & Ergün, A. (2018). Determination of technological pedagogical content knowledge (TPACK) self-efficacy of science teacher candidates and analysis of them according to various variables. *Mehmet Akif Ersoy University Journal of Education Faculty, 45*, 23-47. https://doi.org/10.21764/maeuefd.311316

Baloğlu, M. (2001). Matematik korkusunu yenmek [Overcoming the fear of math]. *Educational Sciences in Theory and Practice, 1*(1), 59-76.

Baloğlu, M., & Koçak, R. (2006). Multivariate investigation of the differences in mathematics anxiety. *Personality and Individual Differences, 40*, 1325–1335. https://doi.org/10.1016/j.paid.2005.10.009

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182. https://doi.org/10.1037/0022-3514.51.6.1173

Başpınar, K., & Peker, M. (2016). The relationship between pre-service primary school teachers' mathematics teaching anxiety and their beliefs about teaching and learning mathematics. *The Journal of Theoretical Educational Science, 9*(1), 1-14. http://dx.doi.org/10.5578/keg.10628

Bayırlı, H., Geçici, M. E., & Erdem, C. (2021). Matematik Kaygısı ile Matematik Başarısı Arasındaki İlişki: Bir Meta-Analiz Çalışması [The relationship betweeen mathematics anxiety and mathematics achievement: A meta-analysis study]. *Pamukkale University Journal of Education, 53*, 87-109. doi: 10.9779/pauefd.783083

Baykul, Y. (2016). *İlkokulda matematik öğretimi [Teaching mathematics in primary school].* Ankara: PegemA Publishing.

Bekdemir, M., Işık, A., & Çıkılı, Y. (2004). Teacher behaviors causing and increasing mathematics anxiety and the ways of remedial. *Eurasian Journal of Educational Research (EJER),* 16, 88-94.

Brown, A. B., Westenskow, A., & Moyer-Pakenham, P. S. (2011). Elementary pre-service teachers: Can they experience mathematics teaching anxiety without having mathematics anxiety? *Issues in the Undergraduate Mathematics Preparation of School Teachers, 5*, 1-14.

Bursal, M., & Paznokas, L. (2006). Mathematics anxiety and preservice elementary teachers' confidence to teach mathematics and science. *School Science and Mathematics, 106*(4), 173-180. Wiley. https://doi.org/10.1111/j.1949-8594.2006.tb18073.x

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications and programming.* New York: Routledge.

Canbolat, N., Erdogan, A., & Yazlik, D. O. (2016). Examining the relationship between thinking styles and technological pedagogical content knowledge of the candidate mathematics teachers. *Journal of Education and Training Studies, 4*(11), 39-48. https://doi.org/10.11114/jets.v4i11.1819

Carjuzaa, J., & Williams, K. B. (2021). Navigating through Turbulent Times: US Secondary Teachers Share Their Experiences as Online Learners and the Implications for Their Teaching Practice. *International Journal of Modern Education Studies, 5*(2). 245-279 https://doi.org/10.51383/ijonmes.2021.110

Cates, G. L., & Rhymer, K. N. (2003). Examining the relationship between mathematics anxiety and mathematics performance: An instructional hierarchy perspective. *Journal of Behavioral Education, 12*(1), 23-34.

Çelik, H. E. & Yılmaz, V. (2013). *Yapısal eşitlik modellemesi temel kavramlar uygulamalar programlama [Structural equation modeling basic concepts applications programming].* Ankara: Anı Publishing.

Çenberci, S. (2019). The examination of prospective mathematics teachers' mathematics teaching anxiety levels. *Journal of Theoretical Educational Science, 12*(4), 1193-1208. https://doi.org/10.30831/akukeg.455708

Çetin, İ. (2017). *The investigation of changes in technological pedagogical content knowledge (TPCK) proficiencies and levels of mathematics teacher candidates in secondary education.* Unpublished PhD Thesis, Necmettin Erbakan University, Institute of Educational Sciences, Konya.

Demir, S., Özmantar, M. F., Bingölbali, E., & Bozkurt, A. (2011). An investigation of elementary teachers' use of technology. In *5th International Computer and Instructional Technologies Symposium,9*22-928., Elazığ: Fırat University.

Demir, B. K., Cansız, Ş., Deniz, D., Kansu, C. Ç., & İşleyen, T. (2016). The investigation of primary school teacher candidates' anxiety levels for teaching mathematics in terms of different variables (The example of Bayburt). *Journal of Bayburt Education Faculty, 11*(2), 379-390. Retrieved from https://dergipark.org.tr/tr/pub/befdergi/issue/28762/307848

Deringöl, Y. (2018). An examination of the mathematics teaching efficacy and the mathematics teaching anxiety of classroom teacher candidates. J*ournal of Theoretical Educational Science, 11*(2), 261-278.

Dreger, R. M., & Aiken, L. R. (1957). The identification of number anxiety in a college population. *Journal of Educational Psychology, 48*(6), 344–351. https://doi.org/10.1037/h0045894

Erdemir, N., Bakırcı, H., & Eyduran, E. (2009). Determining of student teachers' self-confidence using technology in instruction. *Journal of Turkish Science Education, 6*(3), 99-108.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255-284. https://doi.org/10.1080/15391523.2010.10782551

Field, A. (2009). *Discovering statistics using SPSS*. California: Sage Publications.

Fraenkel, J. R., Wallen, N. E. ve Hyun, H. H. (2012). *How to design and evaluate research in education.* New York: McGraw Hill.

Gökoğlu-Uçar, B., & Ertekin, E. (2019). A study on the relationship between the pre-service mathematics teachers' technological pedagogical content knowledge and mathematics teaching anxiety. *Research on Education and Psychology, 3*(2), 209-224. Retrieved from https://dergipark.org.tr/en/pub/rep/issue/47401/638836

Graham, C. R., Borup, J., & Smith, N. B. (2012). Using TPACK as a framework to understand teacher candidates' technology integration decisions. *Journal of Computer Assisted Learning, 28*(6), 530–546. Wiley. https://doi.org/10.1111/j.1365-2729.2011.00472.x

Gresham, G. (2010). A study exploring exceptional education pre-service teachers' mathematics anxiety. *IUMPST: The Journal, 4*, 1-14.

Hacıömeroğlu, G. (2014). Elementary pre-service teachers' mathematics anxiety and mathematics teaching anxiety. *International Journal for Mathematics Teaching and Learning,* 15(1), 1-10.

Hadley, K. M., & Dorward, J. (2011). The relationship among elementary teachers' mathematics anxiety, mathematics instructional practices and student mathematics achievement. *Journal of Curriculum and Instruction, 5*(2), 27-44. https://doi.org/10.3776/joci.2011.v5n2p27-44

Hembree, R. (1990). The nature effects, and relief of mathematics anxiety. *Journal for Research in Mathematics Education, 21*, 33-44. https://doi.org/10.2307/749455

Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development, 55*(3), 223–252. https://doi.org/10.1007/s11423-006-9022-5

Ho, H. Z., Senturk, D., Lam, A. G., Zimmer, J. M., Hong, S., Okamoto, Y., Chiu, S., Nakazawa, Y., & Wang C. (2000). The affective and cognitive dimensions of math anxiety: A cross-national study. *Journal For Research In Mathematics Education*, 31(3), 362-379. https://doi.org/10.2307/749811

Hoşşirin-Elmas, S. (2010). *The pre-service primary school teachers' mathematics teaching anxiety levels and the reasons which cause this anxiety.* Unpublished Master's Thesis, Afyon Kocatepe University Institute of Social Sciences, Afyonkarahisar.

Huber, J., & Ward, B. E. (1969). Pre-service confidence through microteaching. *Education, 90*(1), 65-68. https://doi.org/10.1080/08878736909554443

Jang, S. J., & Tsai, M. F. (2012). Exploring the TPACK of Taiwanese elementary mathematics and science teachers with respect to use of interactive whiteboards. *Computers & Education, 59*(2), 327-338. Elsevier BV. https://doi.org/10.1016/j.compedu.2012.02.003

Juniati, D., & Budayasa, I. K. (2021). Field-based tasks with technology to reduce mathematics anxiety and improve performance. *World Transactions on Engineering and Technology Education, 19*(1), 58-64.

Karasar, N. (2005). *Bilimsel araştırma yöntemi [Scientific research method]* Ankara: Nobel Publication Distribution.

Katipoğlu, M., & Öncü, B. (2015). Students' views towards the reason why Mathematics is hardly being perceived according to Social Studies teacher candidates. *International Journal of Social Sciences and Education Research, 1*(4), 1357-1370. https://doi.org/10.24289/ijsser.279122

Kaya, Z., Özdemir, T. Y., Emre, İ., & Kaya, O. N. (2011). Determination of technological pedagogical content knowledge self-efficacy levels of information technology teacher

candidates. In *5th International Computer and Instructional Technologies Symposium* (pp. 22-24).

Kayan, F., & Çakıroğlu, E. (2008). Preservice elementary mathematics teachers' mathematical problem solving beliefs. *Hacettepe University Journal of Education, 35*, 218-226.

Keitel, C., & Kilpatrick, J. (2005). Mathematics education and common sense. In J. Kilpatrick. C. Hoyles. O. Skovsmose & P. Valero (Eds.), *Meaning in mathematics education* (pp.105-128). Springer US.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York and London: The Guilford Press.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary issues in technology and teacher education, 9*(1), 60-70.

Levine, G. (1993). Prior mathematics history. anticipated mathematics teaching style. and anxiety for teaching mathematics among pre-service elementary school teachers. Paper presented at *The Annual Meeting of the International Group for Psychology of Mathematics Education*. North American Chapter.

Lim, C. S., & Ernest, P. (1999). Public images of Mathematics. *Philosophy of Mathematics Education Journal, 11,* 43-55.

Ma, X., & Xu, J. (2004). The causal ordering of mathematics anxiety and mathematics achievement: A longitudinal panel analysis. *Journal of Adolescence, 27*(2), 165-179. https://doi.org/10.1016/j.adolescence.2003.11.003

MacKinnon, D. & Fairchild, A. (2009). Current directions in mediation analysis. *Current Directions in Psychological Science, 18*, 16-20. https://doi.org/10.1111/j.1467-8721.2009.01598.x

Markovits, Z., & Forgasz, H. (2017). "Mathematics is like a lion": Elementary students' beliefs about mathematics. *Educational Studies in Mathematics, 96*(1), 49-64. https://doi.org/10.1007/s10649-017-9759-2

Meydan, C. H. & Şeşen, H. (2011). *Structural equation modeling AMOS applications [Yapısal eşitlik modellemesi amos uygulamaları].* Ankara: Detay Publishing.

Miller, L. D., & Mitchell, C. E. (1994). Mathematics Anxiety and Alternative Methods of Evaluation. *Journal of Instructional Psychology, 21*(4), 353-358.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher knowledge. *Teachers College Record, 108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Montgomery, D. C. & Peck, E. A. (1992). *Introduction to linear regression analysis*. USA: A. Wiley-Interscience Publication.

Mutluoğlu, A., & Erdoğan, A. (2016). Examining primary mathematics teachers' technological pedagogical content knowledge (TPACK) levels according to their preferred teaching styles. *International Journal of Society Researches, 6*(10), 102-126.

Niess, M. L. (2012). Teacher knowledge for teaching with technology: A TPACK lens. In Ronau, R. N., Rakes, C. R. & Niess, M. L. (Eds.), *Educational technology, teacher knowledge, and classroom impact: A research handbook on frameworks and approaches* (pp. 1-15). IGI Global. https://doi.org/10.4018/978-1-60960-750-0.ch001

Nolting, P. D. (2010). *Math study skills workbook (Fourth Edition).* USA: Brooks/Cole.

Olatunde, Y. P. (2009). Mathematics anxiety and academic achievement in some selected senior secondary schools in southwestern Nigeria. *Pakistan Journal of Social Sciences. 6*(3), 133-137. https://doi.org/10.3923/pjssci.2010.23.27

Olson, A. M., & Stoehr, K. J. (2019). From numbers to narratives: Preservice teachers experiences' with mathematics anxiety and mathematics teaching anxiety. *School Science and Mathematics, 119*(2), 72-82. https://doi.org/10.1111/ssm.12320

Önal, N. (2016). Development, validity and reliability of TPACK scale with pre-service mathematics teachers. *International Online Journal of Educational Sciences*, 8(2), 93-107. https://doi.org/10.15345/iojes.2016.02.009

Özdemir, E., & Gür, H. (2011). Validity and reliability study of mathematics anxiety apprehension survey (MASS). *Education and Science, 36*(161), 39-50.

Özgen, K., Narlı, S., & Alkan, H. (2013). An investigaion of mathematics teacher trainees' technological pedagogical content knowledge and their perception of the frequency of technology use. *Electronic Journal of Social Sciences, 12*(44), 31-51.

Peker, M. (2006). The development of mathematics teaching anxiety scale. *Journal of Educational Sciences & Practices, 5*(9), 73-92.

Peker, M. (2008). Eğitim programları ve öğretmen adaylarının matematik öğretme kaygısı [Educational programs and pre-service teachers' anxiety about teaching mathematics]. Paper presented at *VIII. National Science and Mathematics Education Congress*. 27-29 August, Abant İzzet Baysal University, Bolu.

Peker, M. (2009). The use of expanded microteaching for reducing preservice teachers' teaching anxiety about mathematics. *Scientific Research and Essay, 4*(9), 872-880.

Peker, M. (2016). Mathematics teaching anxiety and self-efficacy beliefs toward mathematics teaching: A path analysis. *Educational Research and Reviews, 11*(3), 97-104. https://doi.org/10.5897/err2015.2552

Peker, M., & Ertekin. E. (2011). The relationship between mathematics teaching anxiety and mathematics anxiety. *The New Educational Review, 23*(1): 213-226.

Peker, M., & Halat, E. (2009). Teaching anxiety and the mathematical representations developed through Web Quest and spreadsheet activities. *Journal of Applied Sciences, 9*(7), 1301-1308. https://doi.org/10.3923/jas.2009.1301.1308

Perry, A. B. (2004). Decreasing mathematics anxiety in college students. *College Student Journal, 38*(2), 321-324.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J. ve Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 79-891. https://doi.org/10.3758/brm.40.3.879

Saltan, F., & Arslan, K. (2017). A comparison of in-service and pre-service teachers' technological pedagogical content knowledge self-confidence. *Cogent Education, 4*(1), 1311501. https://doi.org/10.1080/2331186x.2017.1311501

Sancar-Tokmak, H., İncikabi, L., & Yanpar-Yelken, T. (2012). Differences in the educational software evaluation process for experts and novice students. *Australasian Journal of Educational Technology, 28*(8), 1283-1297. https://doi.org/10.14742/ajet.772

Sancar-Tokmak, H., Yavuz-Konokman, G., & Yanpar-Yelken, T. (2013). An investigation of Mersin University early childhood pre-service teachers' self-confidence about their technological pedagogical content knowledge (TPACK). *Ahi Evran University Journal of Kırsehir Education Faculty, 14*(1), 35-51.

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological pedagogical content knowledge (TPACK) the development and validation of an assessment instrument for preservice teachers. *Journal of Research on Technology in Education, 42*(2), 123-149. https://doi.org/10.1080/15391523.2009.10782544

Schumacker, R. E. & Lomax, R. G. (2010). A *beginner's guide to structural equation modeling*. New York: Routledge.

Serin, M. K. (2017). Investigation of pre-service primary school teachers' mathematics anxiety and mathematics teaching anxiety. *International Journal of Eurasia Social Science*, 8(28), 247-263.

Sherman, B. F., & Wither, D. P. (2003). Mathematics anxiety and mathematics achievement. Mathematics Education Research Journal, 15(2), 138-150. https://doi.org/10.1007/bf03217375

Shulman, L. S. (1986). Those who understand: knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14. https://doi.org/10.3102/0013189x015002004

Sun, Y., & Pyzdrowski, L. (2009). Using technology as a tool to reduce mathematics anxiety. *The Journal of Human Resource and Adult Learning, 5*(2), 38-44.

Swanson, D., & Nebraska A. (2006). Math Anxiety. What can teachers do to help their students overcome the feeling? *Math Anxiety*, 7, 1-29.

Swars, S. L., Daane, C. J., & Giesen, J. (2006). Mathematics anxiety and mathematics teacher efficacy: What is the relationship in elementary preservice teachers? *School Science and Mathematics, 106*(7), 306-315. Wiley. https://doi.org/10.1111/j.1949-8594.2006.tb17921.x

Şad, S. N., & Göktaş, Ö. (2014). Preservice teachers' perceptions about using mobile phones and laptops in education as mobile learning tools. *British Journal of Educational Technology, 45*(4), 606-618. Wiley. https://doi.org/10.1111/bjet.12064

Şad, S. N., Açıkgül, K., & Delican, K. (2015). Senior pre-service teachers' senses of efficacy on their technological pedagogical content knowledge (TPACK). *Journal of Theoretical Educational Science, 8*(2), 204-235. http://dx.doi.org/10.5578/keg.9480

Şenol, A., Dündar, S., Kaya, İ., Gündüz, N., & Temel, H. (2015). Investigation of secondary school mathematics teachers' opinions on mathematics fear. *Journal of Theory and Practice in Education, 11* (2), 653-672.

Tatar, E., Zengin, Y., & Kağızmanlı, T. B. (2015). What is the relationship between technology and mathematics teaching anxiety? *Educational Technology & Society, 18*(1), 67–76.

Tatar, E., Zengin, Y., & Kağızmanlı, T. B. (2016). Examining levels of mathematics teaching anxiety of pre-service teachers. *Journal of Theoretical Educational Science, 9*(1), 38-56. http://dx.doi.org/10.5578/keg.10006

Timur, B., & Taşar, M. F. (2011). The adaptation of the technological pedagogical content knowledge confidence survey into Turkish. *Gaziantep University Journal of Social Sciences, 10*(2), 839 -856.

Ural, A. (2015). The effect of mathematics self-efficacy on anxiety of teaching mathematics. *Journal of Theoretical Educational Science, 8*(2), 173-184. http://dx.doi.org/10.5578/keg.9075

Üldaş, İ. (2005). *Development of a mathematics anxiety scale towards teachers and teacher candidates (MAS-T) and an assessment on mathematics anxiety.* Unpublished Master's Thesis, Marmara University Institute of Education Sciences, İstanbul.

Üredi, I., & Üredi, L. (2005). The predictive power of self-regulation strategies and motivational beliefs on mathematics achievement of primary school 8th grade students. *Mersin University Journal of The Faculty of Education, 1*(2), 250-260.

Vinson, B. M. (2001). A comparison of preservice teachers' mathematics anxiety before and after a methods class emphasizing manipulatives. *Early Childhood Education Journal, 29*(2), 89-94.

Van de Walle, J. A. (2004). *Elementary and middle school mathematics: Teaching developmentally.* Pearson Education.

Wilson, S. (2013). Mature age pre-service teachers' mathematics anxiety and factors ımpacting on university retention (pp, 666-673). In V. Steinle, L. Ball & C. Bardini (Eds.), *Mathematics education: Yesterday, today and tomorrow*. Melbourne, VIC: Merga.

Wilson, S. (2013). Investigating rural pre-service teachers' mathematics anxiety using the Revised Mathematics Anxiety Scale (RMARS). *Australian and International Journal of Rural Education, 23*(3), 1-11.

Yanpar-Yelken, T., Sancar-Tokmak, H., Özgelen, S., & İncikabı, L. (2013). *Fen ve matematik eğitiminde teknolojik pedagojik alan bilgisi temelli öğretim tasarımları [Technological pedagogical content knowledge-based instructional designs in science and mathematics education].* Ankara: Anı Publishing.

Yavuz, G. (2018). Do prospective teachers have anxieties about teaching mathematics? *International Journal of Higher Education, 7*(2), 68-75. https://doi.org/10.5430/ijhe.v7n2p68

Yazlık, D. Ö., & Çetin, İ. (2020). Examining the relationship between mathematics anxiety and mathematics teaching anxiety of prospective mathematics teachers. *Turkish Journal of Computer and Mathematics Education, 11*(3), 646-667.

Yenilmez, K. (2010). High school students' hopelessness levels towards mathematics. *Hacettepe University Journal of Education*, 38, 307-317.

Yetim-Karaca, S., & Ada, S. (2018). Determining students' perceptions regarding the Mathematics and mathematics teachers through metaphors. *Kastamonu University Kastamonu Education Journal, 26*(3), 790-800. https://doi.org/10.24106/kefdergi.413327

Yılmaz, V., & Dalbudak, Z. İ. (2018). Research of the rffect of mediatıon variable: An application of the management of high-speed train. *International Journal of Management Economics and Business, 14*(2), 517-534.

Zakaria, E., & Nordin, M. N. (2008). The effects of mathematics anxiety on matriculation students as related to motivation and achievement. *Eurasia Journal of Mathematics Science & Technology Education, 4*(1), 27-30. https://doi.org/10.12973/ejmste/75303

Zengin, Y. (2017). The investigation of the effect of GeoGebra software on mathematics anxiety and mathematics teaching anxiety. *YYU Journal of Education Faculty, 14*(1), 908-939.

## Biographical notes:

*İbrahim Çetin:* He works as an asistant professor in the department of maths education at Necmettin Erbakan University. His academic interests include teacher education, computer aided mathematics teaching, technological pedagogical content knowledge (TPACK), mathematical modeling and skill-based activity.

*Derya Özlem Yazlık*: She works as a asistant professor at Nevşehir Hacı Bektaş Veli University, Faculty of Education. She is interested in prospective teacher education. Her research interests include computer aided mathematics teaching, origamy, problem solving, math anxiety and instructional material.



*Author(s)' statements on ethics and conflict of interest*

*Ethics statement:* We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

*Statement of interest:* We have no conflict of interest to declare.

*Funding:* None

*Acknowledgements:* None

# IJONMES

# INTERNATIONAL JOURNAL OF MODERN EDUCATION STUDIES

The International Journal of Modern Education Studies publishes original research and theoretical articles in the field of educational sciences. The journal publishes manuscripts that have direct relevance to the principles of learning and teaching, the significance of quality education, the role of technology in education, application of psychological concepts to education, student health and wellness, the importance of curriculum development and sociology of education. The journal also welcomes contributions from closely related research areas such as: educational leadership, creative pedagogy, special education, educational policy, educational management, language education, career planning and educational finance etc.

The IJONMES welcomes any papers on educational sciences: original theoretical works, literature reviews, research reports, social issues, psychological issues, curricula, learning environments, research in an educational context, book reviews, and review

**ISSN: 2618-6209**
**URL: https://www.ijonmes.net**