Research Paper

Experiences of In-service EFL Teachers for the Modes of Instruction Regarding Comparative Perceived TPACKs

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ABSTRACT

The settings of education have undergone several alterations in such a way that the modes of instruction are one of the obvious results of this change. Therefore, it was inevitable that TPACK would resurface, and EFL teachers had to carefully examine and record the levels of TPACK considering the modifications that occurred prior to, during, and following their exposure to various modalities of instruction. Thus, this study aimed to explore the perceived TPACKs for the modes of instruction of 185 in-service EFL teachers in Türkiye during and after the pandemic and shed light on the literature by comparing the two different modes of instruction (i.e., face-to-face, and online) they experienced via the quantitative findings. During the COVID-19 restrictions, a survey was conducted in such a way that participants could answer every single item twice: once in their face-to-face mode and once in their online mode associated with their perceived TPACKs. Overall, findings revealed that the in-service EFL teachers had a lower perceived TPACK for online mode compared to face-to-face education. The manifested results had significant national and international implications for the future of the EFL.

INTRODUCTION

As the technology integration becomes highly recognized in the language education, researchers have been exploring the convenient technology for conveying the linguistic knowledge pedagogically. TPACK, based on Shulman's pedagogical content knowledge (PCK, 1986) and evolved as a conceptual framework that explains how instructors build an awareness of the "interconnections among technology, pedagogy, and content" while designing the instructions, require an array of competencies for teachers. Thus, teachers need to adapt themselves to these changes, especially in their disciplines, and their abilities to teach their subject matter (Mishne, 2012). However, one of the knowledge bases of the framework, technology knowledge, and its connected counterparts require the teachers to keep themselves up to date, because technological knowledge is the fastest evolving knowledge type in the TPACK framework.

With the outbreak of COVID-19, teachers' competencies may need to be reconsidered, especially in terms of their technological knowledge. Ward and Benson (2010) suggest that getting to know the TPACK framework may be beneficial for teachers to build a "new schema" when shifting from face-to-face (henceforth FTF) education to online education (henceforth OE) (İşler & Yıldırım, 2018). The current pandemic required teachers to use online teaching applications and tools. In other words, teachers are needed to be online teachers, which is a different notion than teachers in FTF classes. Most of them are faced to use technological instruments for the purpose of teaching online for the first time. Moreover, teachers generally are not trained mainly for being online teachers. They are trained to be competent in presenting their subject matter to their students in appropriate ways, mostly in FTF classrooms. However, being a teacher in online classrooms has become a reality with the outbreak of COVID-19. Thus, competencies are needed to be reconsidered. Teachers' perceptions regarding their TPACKs may not be the same in OE processes as they were in FTF classrooms. So, teachers are needed to be raised as competent online teachers as well as being teachers in FTF classrooms.

This study purposes to determine EFL teachers' comparative states of perceived TPACK for FTF education and for OE. After determining the relationship between teachers' self-perceived competencies in FTF and OE, it will guide the stakeholders of education to see the possible changes in language teacher competencies of tomorrow or the so-called "new normal" (Cahapay, 2020; Pacheco, 2020; Qiu et al., 2022; Wang, 2022) in education. OE practices gained importance and will probably keep their importance even after the COVID-19 pandemic ends. Thus, knowing the required teacher competencies for the future will help teachers, teacher trainers, and policymakers to draw on improving teacher competencies. Meanwhile, this study also purposes to research whether the TPACK perceptions of EFL teachers change after implementing OE practices for a while in pandemic.

To sum up, this study hypothesizes that EFL teachers' perceptions of TPACK may have differed for FTF education and OE in line with the reported studies that highlight the importance of "some background variables, such as gender, age, teaching level, and years of teaching" (Cheng, 2017; Koh et al., 2014; Qiu et al., 2022; Roig-Vila et al., 2015). Convenient with those studies, the variables

focused on this study are the demographic backgrounds of the EFL teachers; namely, genders, years of experience, educational background, degree of graduation, and the levels in which they teach. Keeping all in mind, this study dwell upon the following questions:

Do in-service EFL teachers' perceptions of TPACKs differ for the modes of instruction (e.g., FTF education and OE)? In what way do EFL teachers TPACKs differ for FTF and online modes of instruction?

Theoretical Framework: TPACK

The TPACK framework associated with the teacher competencies of "pedagogical content knowledge" (henceforth PCK) (Shulman, 1986, 1987) basically means how well a teacher can utilize approaches and methods to teach a subject matter in the best way. On the contrary, content knowledge simply means the teachers' competence in subject domain, which is teaching English as a Foreign Language (EFL) that the current study focuses on.
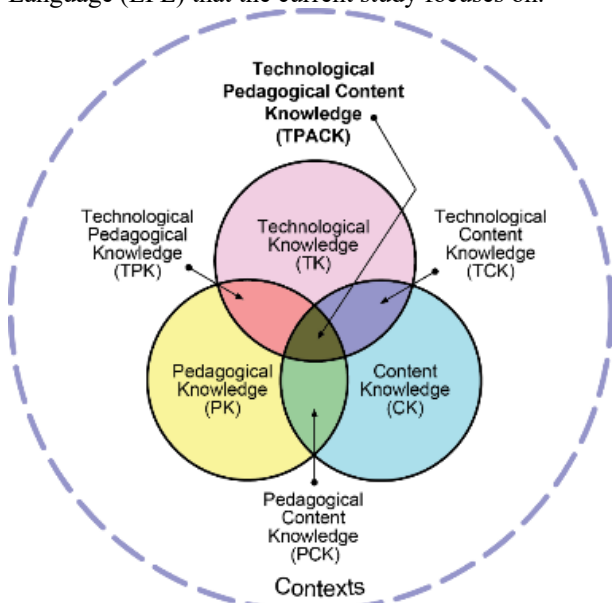

Figure 1. The Total PACKage (Koehler & Mishra, 2009)

However, Mishra and Koehler (2006) interrelated PCK framework with technology knowledge component and developed TPCK framework, by emphasising that technology is now a knowledge area which teachers are required to possess. Thompson and Mishra (2007) renamed TPCK as TPACK, as in "Total PACKage" to emphasize the interconnectedness of knowledge bases in the framework. In other words, "technological knowledge" (henceforth TK), "pedagogical knowledge" (henceforth PK), "content knowledge" (henceforth CK) are not the only constituents of the TPACK framework. Their combinations also refer to other competencies that teachers are to possess, which are "pedagogical content knowledge" (henceforth PCK), "technological content knowledge" (henceforth TCK), "technological pedagogical knowledge" (henceforth TPK), and the TPACK itself.

Pierson (2001) states that people welcomed computer technology and let it change their practices of producing, reaching, exchanging, and even contemplating about information. Affecting all areas of daily life, peculiarly in the education field, technology made things easier and more manageable. However, technology is an ever-changing concept, and adapting to it is important. Shulman (1987) mentions PCK, providing the basis for TPACK by saying "It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction." (p. 8).

Acknowledging PCK approach (Shulman,1986, 1987), Mishra and Koehler (2006) explain that an array of new, mainly digital technologies have emerged and taken their place in the vanguard of the education field. Moreover, the necessity to learn how to apply these new technologies into teaching environments has become an issue. Therefore, TPACK is conceptually driven for considering, scrutinize, and evaluating how to furnish the educators with the instructional practices via technology incorporation, but it should ultimately be considered with the ways that instructors might best develop the knowledge (Koehler et al., 2014). With the progressive information technology, TPACK is continually being used in literature and studies are interested in instructional practices with technology or technology-assisted or enhanced instructions (Hilton, 2016). Lee et al. (2020) declared 700 articles retrieved in Scopus database with the keyword "TPACK", written in English and directly targeted TPACK between 2011 and 2020. The same database released 285 articles in April, 2022 referring mostly the technology integration to different aspects and subject domains of education.
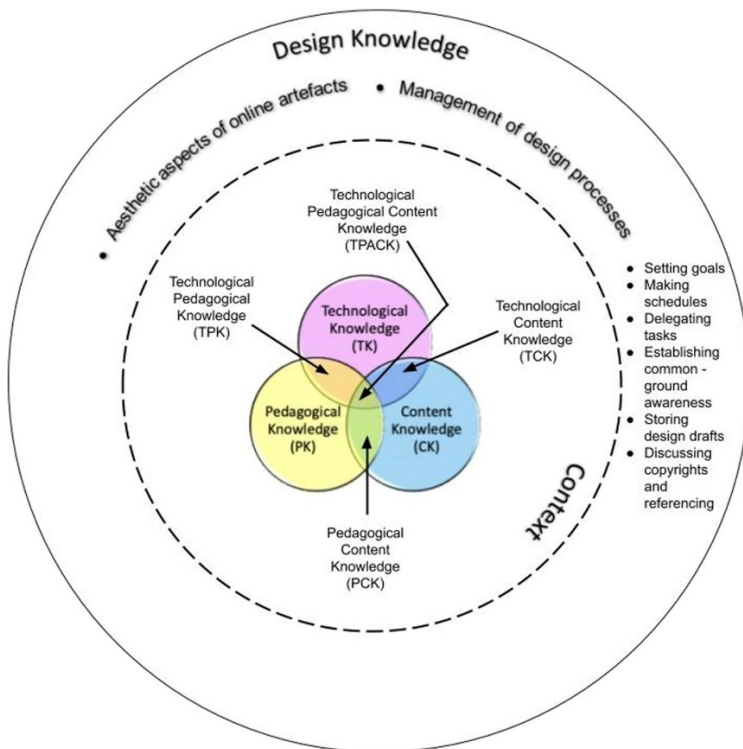
Figure 2. The D-TPACK Framework (Nguyen et al., 2022)

Additionally, according to a review of works on validating TPACK constructs by Rahimi and Pourshahaz (2019), TPACK requires a certain environment to emerge that overlaps with the target of unveiling the perceived TPACKs of in-service EFL teachers and provide subject domain sources for policy makers in the future of language education. As technological advancements continue to shape educational landscapes, TPACK framework remains pivotal in guiding educators towards integrating these tools meaningfully - such as in proposed "Design Knowledge" (Nguyen et al., 2022) - into their teaching methodologies. Research efforts underscore TPACK's relevance, reflecting a growing interest in how it enhances instructional practices, particularly in fields like EFL education.

Modes of instruction as FTF and OE

With the outbreak of pandemic and recommended social distance precautions, the modes of instruction that is" the manner in which a class component — lecture, discussion, lab, etc. — is delivered in a given semester" have undergone unprecedented shift from FTF to OE. The health effects lasted for a short-term has brought long-lasting effects on the modes of instruction that should be concerned not only for the currents state of "new normal" but also for the future of delivery (Hancock, 2021). Over 1.6 billion students constituting 90% of the wolds' students had their education interrupted abruptly (Edmunds, 2020; UNESCO, 2020).

The interruption worldwide resulted in the overview of the modes of instruction for all levels of education. Over the years, there have been debates over instructional modes, methods, and systems, and now the scholars are focusing their attention on them because they have posed significant challenges in various locations throughout the world. A large number of studies conducted over time by Alqahtani and Rajkhan (2020); Daniel (2020); Karalis (2020); Tria (2020) report that migrating from physical to online methods of teaching, rendering accessible school assessment subjects, teacher trainings, and assessment methods, among other things, have been a great challenge for the educational system during this pandemic's duration; similarly, making normal education policy is now a topic of focus for educationalists.

FTF and OE are the taken into granted for all steps of the current study and are the focal points of the comparative aspects of in-service EFL teachers' TPACKs.

METHOD

This "cross-sectional research, which refers to a snapshot-like analysis of the target phenomenon at one particular point time" (Dörnyei, 2007, p. 78), aims to measure perceived in-service EFL teachers' perceived TPACKs regarding their practices in FTF education and OE. Being quantitative in nature, "survey design" which "provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (Creswell, 2014, p.155) was preferred to that end. Accordingly, an adapted online version of the TPACK-EFL (Başer et al., 2016) survey is utilized to measure participants' perceived TPACK levels. This survey includes 9 items for measuring TK, 5 items for measuring CK, 6 items for measuring PK, 5 items for measuring PCK, 3 items for measuring TCK, 7 items for measuring TPK, and 4 items for measuring TPACK, adding up to 39 items. The original version of the survey included Likert 9 type scale. However, items are reduced to Likert 5 type scale to provide convenience for participants who will most probably answer the questions on their smartphones. The original Likert 9 type version

would require participants to swipe back and forth horizontally for answering every single item. The Likert 5 type online version of the TPACK-EFL (Başer et al., 2016) properly fits into the screens of smartphones. When answering the survey items, participants are supposed to answer each of the items twice, which is displayed as two back-to-back lines as FTF education and OE.

Participants

The participants who took part in the current study are reached via stratified random sampling. "In 'stratified random sampling' the population is divided into groups, or 'strata', and a random sample of a proportionate size is selected from each group" (Dörnyei, 2007, p. 97). Hence, the participants are 185 in-service EFL teachers working at elementary, secondary, and high state schools in Türkiye. All the teachers had both FTF and online teaching experiences. After the COVID-19 outbreak, again all the teachers experienced teaching online. While the data were being gathered, online teaching was around for them for nearly one year. Of course, sometimes they had to teach online only, but as the COVID-19 cases go up and down schools are shifted between hybrid education and OE. Demographic information about the participants is displayed below. Demographics of the participants is gathered to demonstrate the general state of the sample.

Table 1. Demographics of the Participants

Characteristics	Demographics	*N*	*Percentages*
Genders	Male	42	22.7
	Female	143	77.3
Teaching experience year(s)	0-1	17	9.2
	2-5	79	42.7
	6-10	63	34.1
	11-15	17	9.2
	16-20	7	3.8
	21+	2	1.1
Current Workplaces (School type)	Elementary	19	10.3
	Secondary	108	58.4
	High	58	31.4
Graduation Departments	ACL	1	0.5
	ELL	52	28.1
	ELT	131	70.8
	TI	1	0.5
Graduation Degrees	Undergraduate	174	94.1
	Graduate	10	5.4
	Ph.D.	1	0.5
Total		185	100

Table 1 shows the demographics of the participants. 77.3% (f=143) of the participants are females, while 22.7% (f=42) of them are males. 42.7% (f=79) of the teachers have been teaching for 2-5 years. On the other hand, 34.1% (f=63) of the teachers have been teaching for 6-10 years. 9.2% (f=17) of the teachers have been teaching for 0-1 year, and again 9.2% (f=17) of the teachers have been teaching for 11-15 years. Moreover, 3.8% (f=7) of the teachers have been teaching for 16-20 years. Lastly, 1.1% 2 (f=2) of the teachers have been committing their duties for more than 21 years. 58.4% (f=108) of the teachers are currently working at secondary schools. On the other hand, 34.1% (f=58) of the teachers are currently working at high schools. Lastly, 10.3% (f=19) of the teachers are currently working at elementary schools. Clearly, 70.8% (f=131) of the teachers have been graduated from English Language Teaching Department (ELT). On the other hand, 28.1% (f=52) of the teachers have been graduated from the English Language and Literature Department (ELL). Moreover, 0.5% (f=1) of teachers have been graduated from the American Culture and Literature Department (ACL), and 0.5% (f=1) of the teachers have been graduated from the Translation and Interpreting Department (TI). Clearly, 94.1% (f=174) of the teachers hold an undergraduate degree. On the other hand, 5.4% (f=10) of the teachers hold a graduate degree. Lastly, 0.5% (f=1) of the participants hold a Ph.D. degree.

Data Collection Procedures

Data collection practices are conducted on online platforms based on the voluntariness of the participants. Furthermore, ethical considerations and principles are followed in addition to the ethical approval taken from one of the state universities and the Ministry of National Education the authors share affiliations before conducting the study. First and foremost, volunteer participants are asked to state their genders, the duration of teaching experiences, current workplaces, departments of undergraduate degrees, and degrees of graduation. Then, the survey included items that measure participants' perceived TPACK levels for FTF and OE separately. Quantitative data were gathered between 06.03.2021 and 21.04.2021 through Google Forms.

Data Collection Tools

Details about the research instruments are presented in this section as well as their validity and reliability conditions. For the adapted online version of the TPACK-EFL (Başer et al., 2016) survey, participants are supposed to choose from 1 to 5, respectively (1) "none/nothing", (2) "very little", (3) "some", (4) "quite a bit", and (5) "a great deal", if they agree with the statements regarding

their perceived TPACK knowledge. Moreover, the participants were to select those numbers twice for each item of the survey, for FTF and OE. The validity of the quantitative instrument was provided by getting help from two different researchers who hold Ph.D. degrees in the field. They confirmed that the online adapted "TPACK-EFL survey" which is originally by designed and developed Başer et al. (2016) is appropriate for seeking out the explanations to the research questions proposed for this study.

Table 2. Reliability results of TPACK-EFL Survey provided by other researchers

Researchers	Başer et al. (2016)	Sarıçoban et al. (2019)	Nazari et al. (2019)	Yıldız (2020)	Lamminpää (2021)
Participants	Pre-service EFL teachers	Pre-service & In-service EFL teachers	In-service EFL teachers	In-service EFL teachers	In-service EFL Teachers
Sample Size	204	77	427	105	69
Likert Scale	9	5	9	9	5
TK	.89	.84	.78	.86	.85
CK	.88	.83	.86	.87	
PK	.92	.85	.83	.83	.80
PCK	.91	.86	.82	.85	.80
TCK	.81	.71	.81	.69	
TPK	.91	.89	.93	.84	.70
TPACK	.86	.80	.94	.86	.82
TPACK-EFL (Total)		.94	.91	.93	.93

Table 2 presents participants, sample sizes, Likert scales, and alpha values found by other researchers using the "TPACK-EFL survey" designed and developed by Başer et al. (2016). Actually, the first researchers in the table are the developers of the survey. They developed this survey in two rounds and presented their alpha values for the last version of their survey, which was between .81 and .92, conducting the instrument on 204 pre-service EFL teachers with a Likert-9 scale. However, they didn't present the alpha results of the total survey. Sarıçoban et al. (2019); on the other hand, found alpha values between .71 and 94, including the results for all 39 items. They used the instrument on 77 pre-service and in-service teachers with a Likert-5 scale. Moreover, Nazari et al. (2019) also presented the alpha results for all knowledge domains along with the values for all 39 items in the instrument, which were between .78 and .94, after conducting the instrument on 427 in-service EFL teachers with a Likert-9 scale. Furthermore, Yıldız (2020) presented alpha values between .69 and .93 after implementing the instrument on 105 in-service EFL teachers with a Likert-9 scale. They also presented the total alpha value for all 39 items of the survey. On the other hand, Lamminpää (2021) utilized this instrument and presented alpha values between .70 and .93, after implementing the survey on 69 in-service EFL teachers with a Likert-5 scale. However, they excluded the items measuring perceived CK and PCK because the scope of their study was reportedly more limited. After all, the "TPACK-EFL" survey designed and developed by Başer et al. (2016) yields reliable results in measuring perceived TPACK levels of both pre-service and in-service EFL teachers, when utilized in a range of different sample sizes and by both using Likert-9 and Likert-5 scales.

There are two different reliability results, as the same questionnaire is answered by the participants two times: for FTF education and OE. Scholars suggest that there is not a set-in-stone formula for deciding if an alpha value is acceptable while stating that the general guideline which applies to most circumstances is: "$\alpha > .9$ – excellent, $\alpha > .8$ – good, $\alpha > .7$ – acceptable, $\alpha > 6$- questionable, $\alpha > 5$ – poor, $\alpha < .5$- unacceptable" (George & Mallery, 2016, p. 240).

Table 3. *Reliability analysis of FTF and online data*

	N	*Cronbach's Alpha for FTF Data*	*Cronbach's Alpha for Online Data*
TK	9	.88	.90
CK	5	.93	.91
PK	6	.93	.92
PCK	5	.91	.92
TCK	3	.77	.79
TPK	7	.90	.92
TPACK	4	.83	.86
TPACK- EFL (Total)	39	.96	.97

Table 3 demonstrates the Cronbach's Alpha Reliability Coefficient results for the data gathered in terms of in-service English Language teachers' perceived TPACK scores regarding FTF education and OE. Cronbach's Alpha results for FTF data indicate .88 regarding TK, .93 regarding CK, .93 regarding PK, .91 regarding PCK, .77 regarding TCK, .90 regarding TPK, .83 regarding TPACK, and .96 regarding TPACK-EFL. On the other hand, Cronbach's Alpha results for online data indicate .90 regarding TK, .91 regarding CK, .92 regarding PK, .92 regarding PCK, .79 regarding TCK, .92 regarding TPK, .86 regarding TPACK, and .97 regarding TPACK-EFL. Consequently, the alpha results indicate that the instrument proves to be applicable when it comes down to reliability.

Data Analysis

The quantitative data are analysed via SPSS software. In-service EFL teachers perceived TPACK results regarding both FTF education and OE practices are demonstrated. Results are compared between FTF and OE practices. Paired Sample T-Test is applied between the two datasets: FTF education, and OE.

Table 4. *Data analysis procedures*

Research Questions	Methodological Approaches	Data Collection Tools	Data Analysis
1: Do in-service EFL teachers' perceptions of TPACKs differ for the modes of instruction (e.g., FTF education and OE)? In what way do EFL teachers TPACKs differ for FTF and online modes of instruction?	Quantitative	TPACK-EFL Survey (Online Adapted)	Paired Samples T-Test

Table 4 demonstrates the methodological approaches and the data collections tools which are expected to help answer the research questions as well as data analysis procedures. Moreover, data analysis methods for the research questions are being presented. For RQ1 Paired Samples T-test is done.

FINDINGS

Under this section, the findings are presented taking into account the order of the research questions.

1.Do in-service EFL teachers' perceptions of TPACKs differ for the modes of instruction (e.g., FTF education and OE)? In what way do EFL teachers TPACKs differ for FTF and online modes of instruction?

In this section, the comparison between in-service EFL teachers' perceptions on their TPACK levels for FTF education and OE is presented.

Table 5. *Paired samples statistics of TPACK means for FTF and OE*

TPACK Levels		N	$\bar{X}$	S	sd	t	p
TK	FTF	185	3.76	.75	184	1.69	.091
	OE	185	3.70	.83			
CK	FTF	185	4.45	.57	184	4.31	.000*
	OE	185	4.41	.61			
PK	FTF	185	4.32	.60	184	7.29	.000*
	OE	185	4.04	.76			
PCK	FTF	185	4.40	.56	184	8.70	.000*
	OE	185	3.91	.94			
TCK	FTF	185	3.63	.90	184	1.96	.051
	OE	185	3.56	.95			
TPK	FTF	185	4.15	.65	184	5.85	.000*
	OE	185	3.94	.81			
TPACK	FTF	185	3.73	.83	184	2.63	.009*
	OE	185	3.65	.88			
TPACK-EFL	FTF	185	4.07	.57	184	6.44	.000*
	OE	185	3.90	.70			

Table 5 demonstrates the Paired Sample T-Test Statistics for in-service English Language teachers' perceived TPACK levels for FTF and OE. Participants' perceived TK levels are not significantly lower for OE than FTF education t(184) =1.69, p>.05. Their perceived TK levels' mean is $\bar{X}$=3.76 for FTF education, while it is $\bar{X}$=3.70 for OE. Participants' perceived CK levels are significantly lower for OE than FTF education, t (184)=4.31,p<.01. Their perceived CK levels' mean is $\bar{X}$=4.45 for FTF education, while it is $\bar{X}$=4.41 for OE. Participants' perceived PK levels are significantly lower for OE than FTF education, t (184)=7.29,p<.01. Their perceived PK levels' mean is $\bar{X}$=4.32 for FTF education, while it is $\bar{X}$=4.04 for OE. Participants' perceived PCK levels are significantly lower for OE than FTF education, t (184)=8.70, p<.01. Their perceived PCK levels' mean is $\bar{X}$=4.40 for FTF education, while it is X $\bar{X}$=3.91 for OE. Participants' perceived TCK levels do not meaningfully differ from each other regarding FTF and OE, t (184) =1.96,p>.05. Their perceived TCK levels' mean is $\bar{X}$=3.63 for FTF education, while it is $\bar{X}$=3.56 for OE. Participants' perceived TPK is significantly lower for OE than FTF education, t (184)=5.85,p<.01. Their perceived TPK levels' mean is $\bar{X}$=4.15 for FTF education, while it is $\bar{X}$=3.94 for OE. Participants' perceived TPACK levels are significantly lower for OE than FTF

education, t (184)=2.63,p<0.01. Their perceived TPACK levels' mean is X̄=3.73 for FTF education, while it is X̄=3.65 for OE. Participants' TPACK-EFL levels are significantly lower for OE than FTF education, t (184)=6.44, p<.01. Their perceived TPACK-EFL for FTF is X̄=4.07, while it is X̄= 3.90 for OE. With all these findings, it is affirmed that in-service English Language Teachers perceived TPACK levels are high both for FTF and OE. However, their perceived TK, CK, PK, PCK, TPK, TPACK, and TPACK-EFL levels are significantly lower for OE than FTF education. On the other hand, their perceived TCK levels don't present a statistically significant difference between FTF and OE. Moreover, the significant differences between these means levels respectively go from highest to lowest as PCK, PK, TPK, TPACK-EFL, TPACK, TK, and CK.

DISCUSSION

As mentioned above, this study aimed to identify and compare participants' perceived TPACK levels for FTF and OE. Hence, the data yields two levels to elaborate on: first, participants' perceived TPACK levels for FTF and OE; and second, the comparison of these values. To begin with, participants perceive their TPACK-EFL – which is the overall score- levels to be high for FTF and relatively high for OE, which aligns with the literature, where other papers yield similar results indicating that teachers generally have high perceived TPACK levels (Atan, 2021; Delen, 2016; Dinçer, 2020; Lamminpää, 2021; Şaraç, 2015; Şenen, 2019; Tunçer, 2014;Yıldız, 2020). When the seven knowledge bases are ranked from high to less high, for FTF learning, the order is CK (high to really high), PCK (high to really high), PK (high to really high), TPK (high), TK (relatively high), TPACK (relatively high), and TCK (relatively high); whereas, for OE, the order is CK (high to really high), PK (high), TPK (high), PCK (high), TK (relatively high), TPACK (relatively high), and TCK (relatively high). Although all subcategories rank relatively high for both FTF and OE; CK, PK, and PCK stand out as the highest for both modes of delivery, except for TPK for OE. The less high end of the spectrum includes the knowledge bases that include the T component, which are TPK, TK, TPACK and TCK, again apart from TPK for OE. A similar trend where CK is the highest can be seen in the Indonesian context revealed by Mukminin et al. (2020); they revealed that Indonesian EFL teachers' highest knowledge area is CK, and there are lower -reportedly low- scores TK, TCK, and TPACK. On the contrary, Lamminpää (2021) revealed that Finnish EFL teachers got higher scores in TK along with other domains and the total TPACK. A further rationale for CK, specifically English Language proficiency in this context, being the highest subcategory, can be found in Richards et al.'s (2013) findings, which suggest that teachers with advanced language skills can effectively manage all critical aspects of language teaching. As for the exception where TPK ranks as the third highest subcategory for OE, the explanation can be attributed to the "technical" (Berge, 1995), "technologist" (Goodyear et al., 2001) and "social" (Álvarez et al., 2009) role of teachers in online education.

As for the comparisons, the paired sample T-Test outcomes also confirm a significant difference between participants perceived overall TPACK - as indicated in the findings section of Table 5 under "TPACK-EFL" -levels for FTF and OE. It is not a surprise that the perceived TPACK levels change across FTF and OE, as the researchers (Berge, 1995; Anderson et al., 2001; Goodyear et al., 2001; Smith, 2005; Álvarez et al., 2009; Guasch et al., 2010; McGee et al., 2017; Rhode et al. 2017; Adnan, 2018; Martin et al., 2019) emphasized the idea that online teaching requires a different set of competencies and roles, or even a different "online teacher persona" (Baran et al., 2013). Thus, this may explain the reason behind the change in their perceived TPACK levels across these two situations, not to mention the unique challenges and responsibilities brought up by emergency distance education (Akinler, 2022; Bond, 2021; Bozkurt & Sharma, 2020; Hodges et al., 2020; Kamisli & Su, 2023; Tafazoli & Meihami, 2023). On the flip side of the coin, Teachers' lower perceived TPACK for OE may be influenced by disadvantages experienced by students, potentially affecting teachers' perceived competence. Researchers state that students face many obstacles during learning English online during the COVID-19 pandemic, which mainly is "teaching method, psychological, language skills, and the proficiency level" (Karuppannan & Mohammed, 2020). Zhou et al. (2020) argue that while teachers maintain similar teaching methods in OE as in FTF settings, they overlook guiding students subjectively, reduced teacher-student interaction, and potential teaching failures, while also noting students' disadvantages like lack of self-control. As for the sub-categories of the framework, most of them also show significant differences across FTF and OE, favoring FTF in participants' perceptions. However, a significant differentiation is not observed between participants' perceived TK and TCK levels for FTF education and OE.". This change across the teaching environments may be explained by the participants' experiences in both educational contexts.

Another aspect to consider is the topic of teacher emotions, which should be considered as important as the teacher competencies defined by the TPACK framework. Being rather a new area of research, new instruments should be developed in order to scrutinize the issue of teacher emotions and find ways to improve teachers' emotional health. Also, the time has come to develop a new proposed framework that defines teachers' competencies and required traits including both technical and emotional aspects of the teaching profession, as it doesn't consist of technical aspects and includes 'emotional labour' (Hargreaves, 1998a). TELPACK (EL stands for emotional labour) Smith, 2005; or TEAPACK (E stands for emotions, and A is for making it sound like a whole) could be the new name for this suggested framework which stands for Technological Emotional Pedagogical Content Knowledge.

LIMITATIONS

This study has certain limitations. Firstly, it is important to note that the research sample is restricted to in-service English as a Foreign Language (EFL) teachers in Bingöl, Türkiye, and, therefore, the generalizability of the findings to EFL teachers in other regions of Türkiye may be limited. Secondly, data collection was carried out during the COVID-19 pandemic, and participants were constrained to respond to surveys online due to unpredictable pandemic-related restrictions. Furthermore, the demographic distribution of the sample deviated from the normal distribution. The study also adapted an instrument initially designed for traditional classroom settings to measure participants' Technological Pedagogical Content Knowledge (TPACK) in the context of

online education. Finally, the data collection occurred during a period when online education was the norm due to COVID-19 restrictions, potentially influencing participants' responses, particularly in areas related to face-to-face education.

CONCLUSION

Regarding the findings of the current study, it is wise to ponder providing education to the in-service and pre-service EFL teachers considering technology, and the technology as it is used in education. Considering the outcomes of the TPACK-EFL survey for both FTF and OE, technological knowledge, and technology-based components of the TPACK framework need to be considered all over again, as the participants got lesser scores for T-related domains than the other knowledge domains. The pre-service along with the in-service education may need to be rearranged with more technologically enriched content. As for the comparison of the perceived TPACK results, participants got lesser scores for OE than they did for FTF education. So, this means that it could be a necessity to reconsider the online foreign language teaching conditions all over again, as it requires a different set of teacher competencies and roles. Moreover, pre-service, and in-service teachers' TPACK levels should always be kept at a constantly improving pace for both FTF and OE through in-service training and/or reflective teaching practices, as the 'T'echnolgy in the TPACK is everchanging, especially in the 'new normal'.

SUGGESTIONS

Suggestions for further research might include using this version of the instrument presented in the methodology section with another sample to validify the reliability items further. This could also be done for gauging perceived TPACK levels for OE to see if it yields reliable results again. On the other hand, this version of the instrument should also be used within a bigger sample with normal distribution in terms of demographics to find more reliable results. Another suggestion is that new instruments should be developed to gauge perceived TPACK levels of pre-service or in-service EFL teachers for OE. Moreover, a case study is better to be conducted on the relation between in-service EFL teachers from Türkiye and other countries regarding their perceived TPACK levels for FTF and for OE and their actual teaching practices. Furthermore, observations could be done to reveal the effects of pre-service and in-service EFL teachers perceived TPACK levels for FTF and for OE on their actual teaching practices. Also, more studies need to be done to find out the perceived TPACK levels of EFL teachers for OE and to find out how to improve them. Also, research is suggested to be done in order to reveal the relationship between in-service EFL teachers perceived TPACK levels for FTF and for OE and their students' academic success and motivation levels.

NOTES

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3. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
4. This article is based on a part of the unpublished master's thesis submitted by the first author to Amasya University. The first author contributed 60% to the article, while the second author, who was the supervisor of the first author's master's thesis, contributed 40% to the article.
5. **Ethics Committee Permission Information:** It is supported by ethical approval with the document dated 25.12.2020-E.27680 of Amasya University Social Sciences Ethics Committee.
6. We extend our sincere gratitude to all the participants of this study for their invaluable contributions and engagement.
7. The modes of instruction refer to the face-to-face and online education environments in the article.
8. TPACK levels and TPACKs are used interchangeably in this article.
9. The percentages presented in the demographic information tables have been rounded to one decimal place. This rounding may result in totals that slightly exceed or fall short of 100% due to the nature of decimal rounding.
10. The first author received his MA from Amasya University, Graduate School of Social Sciences and is currently continuing his Ph.D (Ph.D-C) at Atatürk University, Graduate School of Educational Sciences.

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