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Research Article

Lexical bundles and disciplinary variation in master theses

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Abstract

Lexical bundles, as fixed-form recurrent word combinations of multiple words, constitute a significant portion of academic writing and play a pivotal role in producing fluent texts. Extant studies on lexical bundles have documented difficulties that second language learners, and particularly writers experience in producing these bundles in their academic writing. However, despite an extensive existing body of research on the use of lexical bundles in various fields, the use of such linguistic devices across various disciplines, particularly in the Iranian context is an under-researched area. Thus, this study examined the frequency, functions and structure of 4-word lexical bundle use in master theses of native English-speaking writers and Iranian second language (L2) writers across four different disciplines. For this purpose, two corpora, each containing 60 master theses, 120 theses in total, were selected and analyzed following a corpus-based approach. The findings of the study revealed that, overall, Iranian writers incorporated more lexical bundles in their texts than their native English counterparts and that their use varied functionally and structurally across not only native and nonnative corpora but also across disciplines. The study has important implications for Iranian L2 writers of the respective disciplines as well as genre-based instruction in English for both academic and specific purposes.

Note(s) from the author(s)
≫*Corresponding author
≫ This paper is part of the MA thesis of the second author in this study.

Introduction

Graduate students are generally expected to possess an adequate knowledge of academic writing in English, particularly in an international context. However, research on second language academic writing has demonstrated the challenging nature of writing for L2 writers (Belcher, 1994). A number of second language researchers have also reported variation across academic writing in different fields of study (e.g., Durrant, 2014; Hyland & Tse, 2007) and the different needs of students from even inter-related disciplines (Durrant, 2017). Thus, academic writing in L2 for graduate students means not only familiarity with academic writing conventions but also a good knowledge of their study discipline, which is usually a distinct genre with its own special discoursal and linguistic elements (Durrant, 2017). One important aspect of academic discourse is formulaic language, specifically lexical bundles which is defined as fixed recurrent word combinations of multiple words (Biber & Conrad, 1999). Lexical bundles have been reported to play a pivotal role in the development of fluent linguistic production and establishing membership in various academic disciplines (Ädel & Erman, 2012). Moreover, these frequent lexical combinations are an indication of fluency in successful writing and the lexico-grammatical foundation of language (Coxhead & Byrd, 2007) which act as the basis for other language aspects (Ellis, 1996).

The studies conducted on the use of lexical bundles by Iranian L2 writers in the Iranian context have focused mainly on articles in the humanities and social sciences, particularly in the field of Applied Linguistics (e.g., Amirian et al., 2013; Esfandiari & Barbary, 2017; Jalali et al., 2008; Safarzadeh et al., 2015). There is also a scarcity of research comparing the use of bundles by graduate students, particularly across disciplines, by Iranian L2 writers. This is mainly because access to Iranian L2 writers' theses is quite limited and difficult since universities across Iran usually do not allow full access to theses and dissertations and even if access is granted, the theses are not usually in English. Thus, the current study examined the use of lexical bundles in master theses by native English-speaking and Iranian L2 students outside the Iranian context across four different areas of study, two from hard sciences (mechanical engineering [ME] and civil engineering [CE]), and two from soft sciences (Business [BS] and tourism [TR]), by focusing on three aspects namely, frequencies, functions and structures.

The early studies on lexical bundles are ascribed to Altenberg (1993, 1998) who conducted a comprehensive study on word combinations. However, the term lexical bundle was first appeared in Biber et al.'s (1999) study and has since been extensively researched in L2 academic writing (e.g., Hyland, 2008a; Xu, 2012). Lexical bundles differ from word combinations such as idioms and collocations. They are "extremely common"; "not idiomatic in meaning and not perceptually salient" which surpass a given threshold, and "usually do not represent a complete structural unit" (Biber & Barbieri, 2007, pp. 269-270).

Studies on lexical bundles have revealed that the frequency, structure and functions of such word combinations vary across genre (e.g., Biber, 2006; Chen, 2010; Hyland, 2008a; Qin, 2014), registers (Biber et al., 1999; Biber et al., 2004), proficiency levels (Ädel & Erman, 2012; Cortes, 2004; Pan et al., 2016; Salazar, 2014), and more importantly disciplines (Durrant, 2017; Hyland, 2008b). In this study, we investigated the frequency, structure and functions of these word sequences by comparing and contrasting the academic thesis texts of Iranian L2 and native English writers.

Frequency-based analysis

By investigating the academic texts of the Longman Spoken and Written English Corpus, Biber et al. (1999) found three-word and four-word lexical bundles as the most frequently used types of bundles in academic texts comprising more than 20% of around 5.5 million words. This finding emphasized the frequency as an important aspect of lexical bundles that needs to be investigated (Biber et al., 2004). Thus, a number of scholars became interested in exploring the differences in the frequency of lexical bundle use across writings of native English and nonnative English writers (e.g., Ädel & Erman, 2012; Bychkovska & Lee, 2017; Hyland, 2008a; Xu, 2012). Some of the studies indicated that L2 users of English incorporated more lexical bundles in their writings than native English speakers of English (e.g., Ädel & Erman, 2012; Chen & Baker, 2010). However, later research revealed that proficiency as well as study level of the writers (bachelor, master or PhD) also play a significant role in L2 writers' use of lexical bundles and need to be taken into account. In this regard, Hyland (2008a) reported a discrepancy between the number of bundles used by Chinese master and doctoral students in their theses surpassing the number of bundles utilized by native English authors in their articles. Some later studies also reported similar findings by Chinese university bachelor students (Bychkovska & Lee, 2017; Pang, 2009).

In line with these findings, with regard to Iranian L2 writers' use of lexical bundles, Jalali et al. (2008) examined the use of lexical bundles by Iranian graduate students and native English writers in Applied Linguistics and found that Iranian students employed significantly more lexical bundles than native English writers. Similar results were reported by Alipour and Zarea (2013) and Amirian et al. (2013) on the use of lexical bundles by Iranian students and native English students or writers.

However, a number of studies have also reported quite opposite findings on Iranian L2 writers and authors' use of lexical bundles. For instance, Safarzadeh et al. (2015) noted that Iranian published authors used fewer bundles than native English-speaking professional writers. Esfandiari and Barbary (2017) also reported similar findings on the use of such bundles by professional Iranian and English expert writers. Overall, research on the frequency of lexical bundles use by Iranian L2 writers has reported contrary findings.

Studies on functional analysis

Lexical bundles serve various functions in both spoken and written texts. Following Biber et al.'s (2003, 2004) earlier studies, Biber et al. (2004) and Biber and Barbieri (2007) categorized bundles functionally into three main groups: stance expressions, discourse organizers and referential expressions. The findings of these studies demonstrated that spoken discourse comprised mostly of *stance* and *discourse organizer bundles* while written discourse relied mainly on *referential bundles*. Adopting the Biber et al. (2004) and Biber and Barbieri's (2007) functional taxonomy, later studies reported that native English-speaking student writers and scholars tend to use *referential* and *stance* bundles more, while L2 students and expert writers mostly utilized *discourse organizer* bundles in their texts (e.g., Ädel & Erman, 2012; Pérez-Llantada, 2014; Uçar, 2017; Xu, 2012).

Following Biber et al. (2004) and Biber and Barbieri's (2007) line of research, Hyland (2008a) proposed a new taxonomy of functional bundles based on a 3.5 million word corpus of research articles, doctoral dissertations and master's theses written by L1 Cantonese speakers

and native English experts from four disciplines: applied linguistics, business studies, electrical engineering, and microbiology. The study identified three major functions of lexical bundles in academic texts: research-oriented, text-oriented and participant-oriented bundles. Research-oriented bundles comprise of the ideational function of language such as location (e.g., *the top of the, the center of the*), procedure (e.g., *the purpose of this, for the purpose of*), quantification (e.g., *growth rate of the, the majority of the*), description (e.g., *in the form of, the length of the*) and topic (e.g., *in the ELT field*). Text-oriented bundles are related to text organization or textual functions which deal with transition signals (e.g., *in addition to the*), resultative signals (e.g., *were found to be*), structuring signals (e.g., *as shown in figure*) and framing signals (e.g., *when it comes to*). On the other hand, participant-oriented bundles are concerned with interpersonal functions which include stance features (e.g., *it is important to*) and engagement features (e.g., *it can be seen*). Hyland's (2008a) results further illustrated that masters' students extensively relied on research-oriented bundles in their theses while PhD students like published research article writers preferred more text-oriented and less research-oriented bundles in their writings.

Adopting Hyland's (2008a) functional framework, studies conducted on Iranian L2 writers' use of lexical bundles have reported different findings. In this regard, Jalali et al. (2008) found that both native English-speaking and Iranian L2 writers relied mainly on research-oriented bundles and utilized fewer participant-oriented clusters, while Amirian et al. (2013) comparing the use of bundles by native English and Iranian L2 students noted that Iranian students used research-oriented clusters the most and native English-speaking students text-oriented bundles the most in their writings. On the contrary, Esfandiari and Barbary (2017) found that both native English-speaking and Iranian scholars incorporated text-oriented bundles the most and participant-oriented clusters the least in their articles.

Studies on structural analysis

Lexical bundles are also composed of a variety of structural units (Hyland, 2008b). In this regard, Biber et al. (1999) categorized bundles in academic texts into three main structural groups: phrasal, clausal and other expressions totaling 12 widely-used structural patterns. Studies conducted by Biber et al. (1999) and Biber et al. (2004) on spoken discourse indicated that the most highly used structural pattern in conversation was verb phrase lexical bundles with about 90% occurrences, which consisted of 50% personal pronoun + verb phrase (e.g., *they want to*), 19% extended *verb phrase fragments* (e.g., *should be noted that*) and 17% question fragments (e.g., *do they ask to*). However, in academic prose, noun phrase and prepositional phrase were found to be the dominant structural pattern comprising 60% of the bundles used by writers. Overall, these studies pointed out that *noun phrase, prepositional phrase*, *passive verb phrase* and *anticipatory-it bundles* were the most used bundles in academic writing (Hyland, 2008a).

However, studies on lexical bundle use by native English and Iranian L2 writers have not yielded a consistent pattern. Some of the studies have reported structural differences across Iranian L2 and English writers' texts in that *prepositional phrases with of* were more frequently employed by native-English speaking scholars than Iranian experts and post graduate writers (Esfandiari & Barbary, 2017; Jalali et al., 2008). Some studies have also found that *anticipatory*

it bundles had the lowest occurrence in master and PhD students' writings of Iranian graduate students (Amirian et al., 2013; Jalali, 2017; Jalali et al., 2008).

Thus, this study attempted to bridge these gaps by investigating the use of lexical bundles in master thesis writings of Iranian L2 writers and by comparing and contrasting the use of such devices both across native and nonnative corpora and across different disciplines. The study also specifically examined one particular genre, master thesis writings, of Iranian L2 writers which is either unavailable or nonexistent in the Iranian context.

Methodology

Corpus building procedure

This study adopted a convenience-sampling method by developing two sub-corpora of 120 theses, written by Iranian L2 writers and L1 English writers. The first corpus of 60 theses was collected from Iranian graduate student L2 writers who studied at a Northern Cyprus university; while the other corpus comprised of 60 theses written by native writers of English at three USA universities: California State University, Iowa State University and the University of Nevada. It should be mentioned here that at the time of data collection, the number of theses written by the Iranian students in the study context was limited which in turn impacted the selection of the size of the corpus for native English writers. The theses were collected from four disciplines, two from hard science (mechanical engineering and civil engineering) and two from soft sciences (business and tourism). The reason for selecting only one university from Northern Cyprus was its large Iranian graduate student population and free access to the theses.

To identify the theses writers as native English speakers we followed Wood's (2001) criterion (selection of commonly used English names) which was also taken into account for the selection of Iranian L2 writers' theses. We are aware of the limitations of this selection criterion, however, we think that this is the most practical and convenient approach possible for the selection.

The corpus collected for this study consisted of 1,387,885 words which was comprised of two main sub-corpora: the native speaker corpus (NSC hereafter) and the nonnative speaker corpus (NNSC), including 712,728 and 675,157 words respectively. Each corpus also comprised of smaller sub-corpora. Table 3.1 displays information on the size of the sub-corpora in the current study.

Table 1. Word counts and lengths of the sub-corpora

	NSB	NSCE	NSME	NST	NNSB	NNSCE	NNSME	NNST
Theses	15	15	15	15	15	15	15	15
Words	150,295	239,825	170,610	151,998	129,461	170,388	132,128	243,180
Length	10,019	15,988	11,374	10,133	8,630	11,359	8,808	16,212

Note: NSB: Native speaker business, NSCE: native speaker civil engineering, NSME: native speaker mechanical engineering, NST: native speaker tourism, NNSB: nonnative speaker business, NNSCE: nonnative speaker civil engineering, NNSME: nonnative speaker mechanical engineering, NNST: nonnative speaker tourism

Bundle identification

The two main corpora each consisted of 4 sub-corpora from four disciplines (business, civil engineering, mechanical engineering and tourism). The theses selected for these sub-corpora were written between years 2010 and 2017. The researchers downloaded the theses from the digital repositories of the universities mentioned earlier and converted the files into word documents. The non-textual annotations were then removed and the files were subsequently converted into text, for the final analysis. This study focused on the use of 4-word lexical bundles in the corpora due to their higher rate of occurrence (Cortes, 2004) and their wider variety of structures and functions (Hyland, 2008b).

To analyze the frequency of the bundles in this study, a cut-off frequency criterion with 40 times per million word (pmw) was adopted (Biber & Barbieri, 2007). Range or number of bundle occurrence in different texts was considered 20%, that is, for lexical bundle frequency, we only selected the bundles that at least appeared in 3 different texts (theses in this case). Thus, in native speaker civil engineering (NSCE) sub-corpus, for example, the frequency cut-off point is 9 since the size of the corpus is 239,825 and range is 3 theses (20 percent of the texts, 15 theses in each sub-corpus). It should be stated here that frequency cut-off point varied to a smaller degree from one sub-corpus to another due to the variation in word lengths in each sub-corpus.

Table 2. Frequency and range of the sub-sections of the two corpora

Discipline	NSB	NSCE	NSME	NSTE	NNSB	NNSC	NNM	NNST
Frequency	6	9	7	6	5	7	5	9
Range	3	3	3	3	3	3	3	3
Word count	150295	239825	170610	151998	129461	170388	132128	243180

The concordance software used to analyze the data in this study was AntConc computer software version 3.5.2 (Anthony, 2018). First all the bundles were identified in both native and nonnative sup-corpora and then we looked at the distribution of bundles in the sub-corpora.

Findings and Discussion

Bundle frequency in the corpora

The frequency analysis of bundles across our two main sub-corpora showed that Iranian L2 writers relied heavily on bundles than the native English-speaking writers overall; however, in the civil engineering sub-corpus, a reverse trend was observed, that is, native English speaker writers incorporated more bundles in their writings (see Table 3). There were 351 different bundle types in the nonnative word corpus, totaling nearly 4,916 individual cases while in the native corpus, the number was 268 different bundles reaching 3,655 tokens.

Table 3. The frequency of lexical bundles across the four sub-corpora

Corpus	Thesis	Words	Types	Token
NSB	15	150,295	43	426
NST	15	151,998	68	810
NCE	15	239,825	141	2137
NSME	15	170,610	92	988
NNSB	15	129,461	130	1098
NNST	15	243,180	96	1582
NNSCE	15	170,388	90	1030
NNSME	15	132,128	140	1206

Note: Type: the frequency of each unique bundle; Token: the total occurrence of all bundles in the given set. It should be mentioned here that like previous studies we also used type to refer to lexical bundle use.

The difference across native and nonnative corpora were very large in some cases (see Table 3 above); for example in the business sub-corpus, Iranian L2 students incorporated around three times more bundles than the native English writers in their theses. This result confirmed the findings of previous studies conducted in the Iranian contexts, namely Alipour and Zarea (2013), Amirian et al. (2013) and Jalali et al. (2008), as well as studies done in other contexts (e.g., Bychkovska & Lee, 2017; Hsu et al., 2017; Pang, 2009; Pérez-Llantada, 2014), which reported that nonnative English writers utilized more lexical bundles in their writings than native English writers. This heavy reliance on lexical-bundle use by Iranian L2 writers could also be explained by academic writing courses that focus on lexical phrases and bundles. That is, formulaic language can be overused, underused or misused by nonnative English writers (Schmitt & Carter, 2004) due to various factors such as proficiency or study level (Ädel & Erman, 2012; Hyland, 2008a; Salazar, 2014).

The result of the study on the frequency of bundle use in the civil engineering master students' corpus (141 to 90 types by English-speaking and Iranian L2 writers respectively) confirms the results of some other studies which reported a heavy reliance on lexical bundles by native English students (e.g., Ädel & Erman, 2012; Karabacak & Qin, 2013). This particular result only corroborates the findings of Esfandiari and Barbary (2017) and Safarzadeh et al. (2015), who reported that Iranian L2 writers used fewer lexical bundles than native English-speaking writers.

Variation across native and nonnative corpora

Further analysis of the bundles across native and nonnative sub-corpora revealed that in some disciplines, Iranian L2 writers' use of bundle patterns tended to be closer to their native counterparts. For example, by comparing the top 30 four-word bundle types across both native and nonnative corpora (see the Appendix), we found that business and mechanical engineering Iranian L2 students behaved like native English writers by using similar bundles in their writing than the other two disciplines (civil engineering and tourism). In this regard, in business theses, nine bundles were identified as the most commonly used bundles by both native and nonnative business student writers, namely *in the case of, it is important to, at the same time, on the other hand, when it comes to, one of the most, the value of the, as a result of,* and *is one of the;* while in the mechanical engineering theses, eight bundles were observed to

be the most frequently employed bundles by mechanical engineering master student writers: *as shown in figure*, *is shown in figure*, *can be seen in*, *shown in figure the*, *is shown in fig*, *as a result the*, *the performance of the*, and *it can be seen.*

However, in the other two sub-corpora, fewer bundles were found to be mutually employed by the native and Iranian L2 writers; that is, in civil engineering five lexical bundles (*as shown in figure*, *is shown in figure*, *shown in figure the*, *can be seen in*, and *it can be seen*) and in the tourism student theses, four bundles (*in the United States*, *one of the most*, *as well as the,* and *is one of the)* were found to be the shared most used bundles (see the Appendix).

Furthermore, by comparing the top 30 frequently used bundle in the Iranian L2 student writer theses, we found that three lexical bundles (*on the other hand*, *is one of the*, and *one of the most*) were the most highly utilized bundles in all the sub-corpora followed by three highly-used bundles (*as a result of, in the case of, of the most important*) occurring in three sub-corpora (see Table 4 below).This result corroborates the findings of Ädel and Erman (2012), Chen and Baker (2010) and Esfandiari and Barbary (2017) who identified the same bundles as the most frequently used ones regardless of discipline, genre, or first language background.

Table 4. The most frequently used four-word lexical bundles by the Iranian writers

NNSB	NNST	NNSC	NNSM
on the other hand	on the other hand	on the other hand	on the other hand
is one of the	is one of the	is one of the	is one of the
one of the most	one of the most	one of the most	one of the most
as a result of	as a result of	as a result of	
in the case of	in the case of	in the case of	
of the most important	of the most important	of the most important	

Additionally, a careful examination of these highly employed bundles showed that native student writers chose *one of the most* to serve quantification; however, Iranian L2 writers employed it to demonstrate mainly the significance of the topic (extract 1), to introduce the topic (extract 2 and 3) and in some cases to organize their discourse (extract 4).

> *Extract 1:* Immigration is *one of the most* influential facts for such considerable changes in the demographics. (NNST2)
> *Extract 2: One of the most* excessive and approved model in extant literature is profit chain model. (NNST7)
> *Extract 3: One of the most* popular types of tourism is the student/tourists that attract many tourists to the destinations for higher educational purposes (Woo & Uysal, 2013). (NNST8)
> *Extract 4:* Netherlands is located at the mouth of the Rhine River, which is *one of the most* polluted waters in Europe. (NNST12)

Variations across disciplines

There were also some disciplinary variations across the four discipline sub-corpora as well; that is, the Native English-speaking civil engineering texts contained the greatest range

of bundles with 141 types of 4- word strings meeting the 40 per million words threshold (across 20% of texts). On the other hand, native writers in the soft sciences incorporated the lowest range of bundles in their texts (43 types in business and 68 types in tourism sub-corpora).

There was also great interdisciplinary variation in terms of the types of bundles used in each sub-corpus; that is, each discipline writers mainly resorted to their discipline-specific bundles confirming the results of Jalilifar and Ghoreishi (2018). In this regard, nonnative business, nonnative mechanical and native civil engineering corpora were the three sub-corpora with the highest discipline-specific bundles (85, 77 and 76 types, respectively). There were also a few shared items that specifically occurred in the hard sciences. However, as illustrated in Table 5, *is shown in figure*, *it can be seen*, *it was found that*, and *is due to the* were only shared by writers in the hard sciences (mechanical and civil engineering). This finding can be related to the argument patterns in hard sciences since in hard sciences, writers tend to avoid authorial tone by focusing on facts (Hyland, 2008b).

Table 5. Shared bundles across the hard sciences sub-corpora

	NSB	NST	NSME	NSCE	NNSB	NNST	NNSME	NNSCE
As shown in figure	0	0	35	83	0	10	13	10
is shown in figure	0	0	21	50	0	0	26	17
it can be seen	0	0	28	33	0	0	26	18
it was found that	0	0	13	32	0	0	27	18
is due to the	0	0	9	12	0	0	5	0

Functional categorization of lexical bundles and their structural manifestations

As stated earlier, in the current study, Hyland's (2008a) functional taxonomy was employed to analyze the functions of four-word lexical bundles in the two corpora. The taxonomy categorizes the functions of lexical bundles into three main groups of research-oriented, text-oriented, and participant-oriented bundles divided further into other sub-groups. The functional analysis of lexical bundles revealed some variations across native and nonnative corpora. That is to say, in all the sub-corpora except mechanical engineering one, native English writers' utilization of research-oriented bundles surpassed that of the Iranian L2 writers which confirmed Hyland's (2008a) study finding that native English speakers use more research-oriented bundles than L2 writers. However, the Iranian L2 writers resorted extensively to text-oriented bundles in all the sub-corpora except in tourism corpus. This finding is not consistent with the study results of Amirian et al. (2013) on the predominance of text-oriented bundles in English writers' texts and heavy reliance of Iranian L2 writers on research-oriented bundles.

Table 6. Frequency distribution of functions of native and nonnative writers' lexical bundles

	Function	Business N/NN		Tourism N/NN		Civil Engineering N/NN		Mechanical Engineering N/NN		Total N/NN
Research-oriented	Location	3/8	11	4/7	11	11/7	18	7/6	13	25-28
	Procedure	6/7	13	9/8	17	15/5	20	13/11	24	43-31
	Quantification	7/11	18	6/13	19	19/6	25	11/16	27	43-46
	Description	4/12	16	11/10	21	14/2	16	8/6	14	37-30
	Topic	4/7	11	12/17	29	11/9	20	1/7	8	28-40
	Total		69		97		99		86	
Text-oriented	Transition signals	5/14	19	3/5	8	6/5	11	4/7	11	18-31
	Resultative signals	3/24	27	3/13	16	23/13	36	17/22	39	46-72
	Structuring signals	1/13	14	8/7	15	18/17	35	16/40	56	43-77
	Framing signals	4/18	22	2/10	12	9/12	19	7/6	13	22-46
	Total		82		51		101		119	
Participant-oriented	Stance features	6/10	16	5/7	12	1/2	3	1/6	7	13-25
	Engagement features	1/9	10	6/2	8	18/12	30	7/12	19	32-35
	Total		16		20		33		26	
	Grand Total	44/133		69/99		145/90		92/139		

Note: the number on the left represents Native-English speaking writers'(N) and the one on the right represents Iranian L2 writers' (NN) use of lexical bundles; the third number in each sub-corpus illustrates the total number of bundle use by both native speaker and Iranian L2 writers.
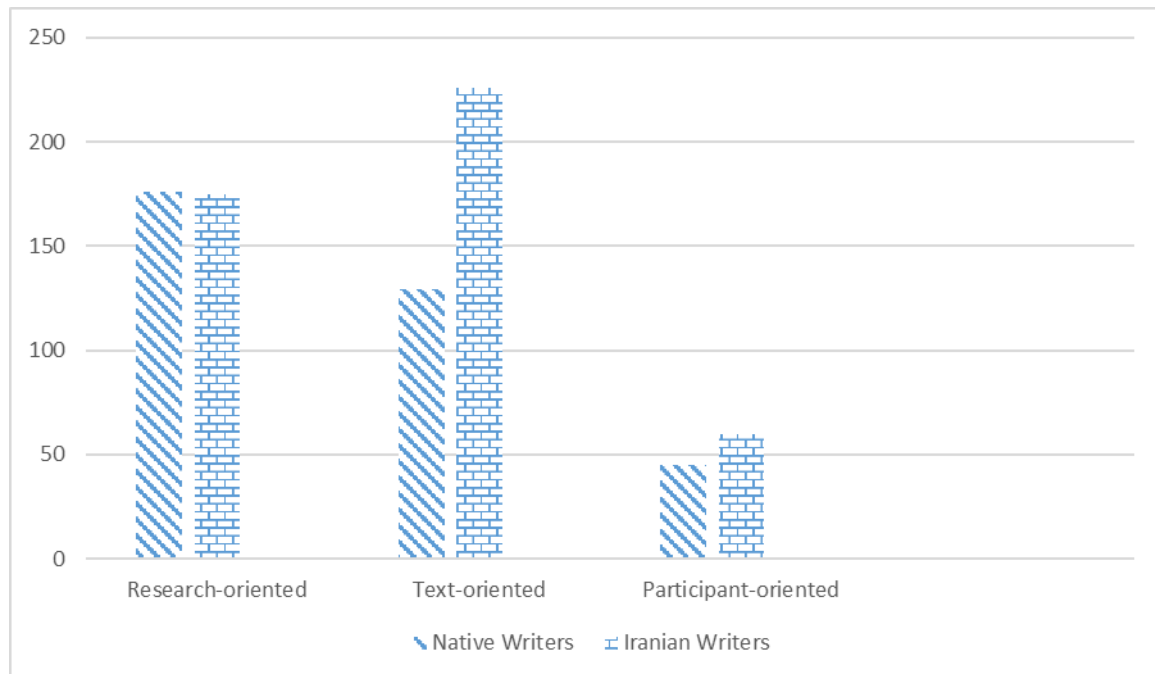
Figure 1. The distribution of main functional categories of lexical bundle use by native and nonnative writers

As mentioned in the previous section, research-oriented lexical bundles are placed the first on the list of ranking of main functional categories for English writers. In this regard, the frequency distribution of research-oriented bundles revealed that with 43 types each, procedure and quantification bundles surpassed other subcategories in native English sub-corpus. Description is placed the second in the list representing 37 types, followed by topic and location with 28 and 25 types respectively (see Table 6 above).

However, in the Iranian L2 writings, text-oriented lexical bundles ranked the first as the main functional category and structuring signal bundles with 77 types as the first subcategory. Placing second and third were resultative signals with 72 types and framing signals with 46 types respectively (see Table 6 above).

In what follows, we will examine the three main functions of lexical bundles as well as their structural variations across native and nonnative corpora and across the four disciplines.

Research-oriented bundles

Research-oriented lexical bundles constituted the majority of the bundles in native business corpora. An interesting case was the tourism sub-corpus in which both native and nonnative writers relied extensively on research-oriented bundles with 42 (60.8%) and 55 (55.5%) types respectively. In both native and nonnative toursim sub-corpora, research-oriented bundles that contribute to the topic stood at the top of the list, with 12 (17.3%) and 17 (17.1%) types respectively. Such an extensive use of topic-oriented bundles in tourism texts can indicate that writers in this field tended to utilize more subject-related expressions and clusters to bring unity to their writing (Amirian et al., 2013) and to relate more to their subject under study (Hyland, 2008a).

Table 7. Distribution of functional bundles across native and nonnative and discipline sub-corpora

Disciplines	Research-oriented %		Text-oriented %		Participant-oriented %	
	N	NN	N	NN	N	NN
Business	54.5	33.8	29.5	51.8	15.9	14.2
Tourism	60.8	55.5	23.1	35.3	15.9	9
Civil Engineering	48.2	32.2	38.6	52.2	13	15.5
Mechanical Engineering	43.4	33	47.8	53.9	8.6	12.9

Note: N: native writers, NN: nonnative writers (Iranian L2 writers)

The structural analysis of topic bundles in tourism sub-corpora revealed that they typically took similar forms such as *other prepositional phrase* (extracts 5 and 6), noun phrase with *other post-modifier fragment* (extract 7), and other noun phrase (extract 8).

Extract 5: It is also implied that these results can be used for hotel employers and

employees *in the hospitality industry*. (NT 5)
Extract 6: In the United States, as Opie (2006) confirmed, there was a great revolution in power generation and usage. (NNT 10)
Extract 7: In *North Cyprus as a* tourist destination, there are many hotels and inns for tourist accommodation which are ranging from 1,2,3,4 to 5 star hotels. (NNT 4)
Extract 8: Both receive golfers from off *the Las Vegas strip* and the two share an 800# reservation system for booking tee times in advance. (NT 4)

Further structural analysis of tourism texts revealed that noun phrase-based category of bundles was the most frequently utilized lexical bundles by native and Iranian L2 writers (36.76 % and 39.57 %, respectively, extracts 9 and 10). This result confirms the findings of Salazar (2014) and Jalilifar and Ghoreishi (2018) who found that published research writers incorporated noun phrases extensively in their writing to objectively document research activities and report results.

Extract 9: Also, *the findings of this research* provide significant managerial implication for the practitioner as well as tourism marketers and managers for marketing hospitality and Tourism destination. (NNT 6)
Extract 10: Employees must be taught to see *the needs of the guest* as more important than their own schedule or their own convenience. (NT 13)

Text-oriented bundles
The functional analysis of the lexical bundles in this study further showed the greater concentration of text-oriented bundles in the engineering (particularly mechanical and Iranian L2 civil engineering corpora) texts which was at variance with Hyland's (2008b) study. A preference which amounted to almost half of the total bundles in the native mechanical texts (44 types, 47.8%) and more than half in the nonnative mechanical (75 types, 53.9%) and civil engineering corpora (47 types, 52.2%), as shown in Table 8. The two extensively utilized functional subcategories of lexical bundles in both native and nonnative corpora were resultative and structuring signals (with 46 and 43 types for native English writers and with 72 and 77 types, for Iranian writers) which significantly occurred more than the other sub-categories in the Iranian L2 corpus, (see Table 7 above). By utilizing resultative signal bundles, engineering student writers signaled the conclusions drawn from their studies and highlighted the inferences they intended their readers to make from their discussions (see extracts 11, 12, and 13 below). Such linguistic devices also allowed the engineering master students to "frame an assertive construal of events" displaying their positions/stances and "directing readers to a categorical understanding" (Hyland, 2008b, p.17).

Table 8. Distribution of functional bundle sub-categories across native and nonnative and discipline sub-corpora (%)

	Function	Business	Tourism	Civil Engineering	Mechanical Engineering
Research-oriented	Location	6.8/6	5.7/7	7.5/7.7	7.6/4.3
	Procedure	13.6/5.2	13/8	10.3/5.5	14.1/7.9
	Quantification	15.9/8.2	8.6/13.1	13.1/6.6	11.9/11.5
	Description	9/9	15.9/10.1	9.6/2.2	8.6/4.3
	Topic	9/5.2	17.3/17.1	7.5/10	1/5
Text- oriented	Transition signals	11.3/10.5	4.3/5	4.1/5.5	4.3/5
	Resultative signals	6.8/18	4.3/13.1	15.8/14.4	18.4/15.8
	Structuring signals	2.2/9.7	11.5/7	12.4/18.8	17.3/28.7
	Framing signals	9/13.5	2.8/10.1	6.2/13.3	7.6/4.3
Participant-oriented	Stance features	13.6/7.5	7.2/7	0.6/2.2	1/4.3
	Engagement features	2.2/6.7	8.6/2	12.4/13.3	7.6/8.6
	Total	100/100	100/100	100/100	100/100

Note: the number on the left represents Native English-speaking writers' and the one on the right represents Iranian L2 writers' percentage of bundle use.

The structural analysis of bundles in native mechanical engineering corpus revealed that resultative lexical bundles were mainly realized by noun phrases (11), anticipatory *it* phrases (12), and clausal structure (13):

> *Extract 11: The results of the* TTR strategy showed significant fan energy savings at a site containing a wide range of zone types. (NM 3)
> *Extract 12: It was found that* this method had a much higher ability to control and maintain a steady injection pressure. (NM 12)
> *Extract 13:* Notice that the fluorescence quantum yield *has been shown to* be dependent on temperature, pressure, and excitation wavelength. (NM 6)

Additionally, the functional analysis of lexical bundles in the nonnative hard sciences corpora (mechanical and civil engineering) indicated that structuring signals with 40 (28.7%) and 17 (18.8%) cases were used the most in mechanical and civil engineering texts respectively, as shown in Table 8. This finding supports Hyland (2008b) who found structuring signals as one of the highly incorporated functional category of lexical bundle in academic texts. The predominance of these clusters in the Iranian L2 writers' texts in general and their extensive use in the hard sciences, in particular, indicated that engineering master students were aware of the significant role of these discoursal bundles and the need to present their arguments in a coherent and organized manner as competent writers (Hyland, 2008b). The heavy reliance on these lexical bundles also demonstrated the engineering master students' dependence on graphical and numerical information in presenting their arguments (see extracts 14, 18 and 19 below). The high concentration of these sequences in the Iranian L2 texts may be attributed to the proficiency level of the writers (although we did not have any evidence regarding their

proficiency level) and seemingly their struggle to cogently frame, present and scaffold their arguments and conclusions in their writing.

A further structural analysis revealed that the structuring signals were mainly realized by certain structures in the nonnative hard sciences, namely passive verb + propositional phrase fragment (14 and 15), other prepositional phrase fragment (16 and 17), and adverbial clause fragment (18 and 19).

> *Extract 14:* The geometry of a two dimensional numerical simulation *is shown in Fig*. 4.13. (NNM 12)
> *Extract 15:* These results *will be discussed in* the next chapter according to the requirements of the Iranian Code, RAA446/2009. (NNC 1)
> *Extract 16: In the following sections*, the comparison of the presented results and results published previously are explained. (NNM 1)
> *Extract 17: In this chapter the* significant results were reviewed and discussed briefly. (NNC 8)
> *Extract 18: As illustrated in Figure* 5.15 for each sample two areas have been photographed by the microscope. (NNM 2)
> *Extract 19: As shown in Figure* 14, BIM workflow will help in uniformity of estimations from the stakeholders' points of view. (NNC 13)

Participant-oriented bundles

Participant-oriented bundles provide a structure for the dialogic interaction between the reader and the writer in texts through conveying two major types of meaning: stance and engagement (Hyland, 2008b). Stance bundles are to do with "the ways writers explicitly intrude into the discourse to convey epistemic and affective judgements, evaluations and degrees of commitment to what they say" while engagement "refers to the ways writers intervene to actively address readers as participants in the unfolding discourse" (Hyland, 2008b, p. 18).

A comparison of stance and engagement bundles in the student writers' theses demonstrated that their distributions varied across the sub-corpora. The majority of the participant-oriented bundles in business and tourism sub-corpora were the writers' stance bundles with a total of 11 and 17 types respectively (see Table 7), which was in line with the findings of Salazar (2014), Cortes (2006) and Hyland (2008b). Through the utilization of these bundles, the writers of these disciplines seemed to explicitly establish their claims by creating a convincing and persuasive discourse for their readers (Hyland, 2008b; Salazar, 2014). Some examples have been provided below from the tourism and business sub-corpora:

> *Extract 20:* Subordinates who are perceived as having lower performance *are more likely to* become targets for supervisor hostility. (NB 13)
> *Extract 21:* By limiting the number of questions, a respondent *is more likely to* answer all of the questions. (NT 12)
> *Extract 22:* This may be *due to the fact that* people who work in the organization for a longer period of time are more satisfied with their jobs. (NNB 7)
> *Extract 23:* In this regard, this approach *can be considered as* an alternative to green

consumerism to some extent. (NNT 2)

As the previous examples illustrate, the writers of the tourism and business studies tended not to express complete commitment to their propositions through the use of stance markers in their writings.

However, the analysis of the participant-oriented bundles in the hard sciences revealed opposite findings in that the writers of the mechanical and civil engineering disciplines largely employed bundles which sought to engage readers in the interpretation of their writings (25 and 24 types respectively). A careful examination of these bundles use demonstrated that the writers of the said discipline tended to use more directives, by acknowledging explicitly the presence of the 'reader-in-the-text' (Thompson, 2001) and as such directing and hence convincing their readers to see their propositions, arguments and interpretations (Hyland, 2008b). Some examples have been given below:

Extract 24: It should be noted that the laboratory detail was constructed without the foundation pile in the pile cap. (NC 12)
Extract 25: Thus, *it is important to* understand and test the effects that drugs might have on the BBB through in vitro design. (NM 15)
Extract 26: It should be mentioned that DCR for beams in shear did not change after rehabilitation and adding braces do not have any effect on beam's shear too. . (NNC 15)
Extract 27: As can be seen, the thermal efficiency decreases by almost 1% when the condenser pressure varies from 8 to 12 kPa gradually. (NNM 3)

The dominance of these linguistic features in the participant-oriented bundles of the hard sciences showed that writers of the hard sciences in this study relied extensively on precision to express the procedures and results and expected their readers to share the same theoretical knowledge and routine practices which is not usually the case in soft sciences where opinions usually overshadow facts (Hyland, 2008b). Moreover, the difference in the use of the participant-oriented bundles among soft and hard sciences indicated that engineering students benefited from precision and technical argument to establish their claims more objectively (Hyland, 2008b).

Conclusion

This study compared and contrasted the use of lexical bundles by native English and Iranian L2 master students across four different disciplines of study. The findings of the study revealed variations across native and nonnative corpora as well as across the four studied disciplines in terms of frequency, functions and structures. The variations in each sub-corpus indicated that the writers of different disciplines relied on different linguistic devices with varying functional patterns, that is, discipline-specific bundles, (Hyland, 2008b) to persuade their readers, develop their arguments, structure and organize their discourses and thus establish credibility in their academic written texts (Hyland, 2008a, 2008b; Salazar, 2014). A further analysis of the findings in the Iranian L2 writers' texts also demonstrated that the Iranian L2 writers' use of lexical bundles varied both functionally, structurally, and in terms of frequency with that of their native counterparts; that is, Iranian L2 writers either overused or

underused these multi-word sequences in their academic texts. Such divergences might cause some nonnative feeling (Li & Schmitt, 2009) and may hinder L2 writers from reaching out to their readers and establishing effective communication in their field of study (Hyland, 2012).

Moreover, the knowledge of word combination can be seen as a critical aspect of membership in different discourse communities (Ädel & Erman, 2012; Pawley & Syder, 1983) and an essential component of writing fluency (Hyland, 2008a). Thus, the exploration of lexical bundles in different study disciplines can have significant implications for both novice and experienced (confident or less confident) Iranian L2 writers in acquiring and becoming familiar with the rhetorical practices of their respective communities (Hyland, 2008b) as well as the appropriate use of such linguistic devices (Cortes, 2015) in their writing.

The study also has some important pedagogical implications for course designers and practitioners to include instructions on the use of discipline-specific lexical bundles and their functions in various academic texts in their syllabuses and materials. The findings of the present study can also provide some implications for genre-based pedagogies in English for specific purposes (Hyland, 2003) by raising the awareness of ESP and EAP teachers over the importance of teaching both discipline-specific and general lexical bundles in academic writing.

The study also had some limitations namely the size of the corpora and thus sub-corpora, the limiting number of Iranian L2 writers' theses available in the study context, study level of the writers (Master students all), as well as the lack of information regarding the proficiency level of the Iranian L2 writers in this study. Thus, the study suggests exploring the lexical bundle use of Iranian students in other disciplines and across different study levels such as bachelor, master and doctoral texts. Finally, we are aware of the fact that the discrepancy in the use of bundles between native and nonnative corpora in this study could be also related to a host of other factors which the study did not investigate; namely, cross-linguistic influence, instructional differences, lack of rhetorical conventions and norms of disciplines, writers' proficiency levels, vocabulary knowledge and writers' strategic differences.

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Appendix

Top 30 four-word bundle across disciplines and native and nonnative corpora (the italicized bundles represent the shared bundles across native and nonnative sub-corpora)

Rank	Native Business	Nonnative Business	Native Tourism	Nonnative Tourism	Native Civil Eng.	Nonnative Civil Eng.	Native Mechanic Eng.	Nonnative Mechanic Eng.
1	in the united states	*on the other hand*	*in the united states*	*one of the most*	*as shown in figure*	on the other hand	can be used to	on the other hand
2	are more likely to	*is one of the*	it is important to	*is one of the*	as well as the	is one of the	*as shown in figure*	is one of the
3	at the end of	the effect of the	*one of the most*	on the other hand	*is shown in figure*	one of the most	as well as the	as can be seen
4	*in the case of*	one of the most	*as well as the*	in the context of	*shown in figure the*	in the construction industry	*is shown in figure*	*can be seen in*
5	the end of the	as can be seen	the purpose of this	in the case of	the results of the	*as shown in figure*	the top of the	*is shown in figure*
6	the purpose of this	that there is a	studies have shown that	as a result of	was found to be	used in this study	*can be seen in*	one of the most
7	in addition to the	is significant at the	in the hospitality industry	as one of the	*can be seen in*	as a result of	the size of the	presented in table and
8	in order to be	*in the case of*	the needs of the	*as well as the*	*it can be seen*	can be seen in	it is important to	*the performance of the*
9	*it is important to*	at the same time	*is one of the*	in the process of	it was found that	*it can be seen*	as a function of	be seen in figure
10	as a result the	*as a result of*	in addition to the	customer satisfaction and loyalty	can be seen that	one of the main	the results of the	the other hand the
11	as well as the	of goods and services	in the Las Vegas	of this study is	it is important to	*is shown in figure*	as a result of	is shown in fig.
12	growth rate of	of the most important	of the united	of the most important	in addition	of the most important	et al developed a	which is shown in

	the		states		to the			
13	to be able to	of this study is	of this paper is	for the purpose of	in order to determine	are shown in figure	*shown in figure the*	*as shown in figure*
14	*at the same time*	an increase in the	this paper is to	image of a destination	be seen in figure	as it can be	*is shown in fig*	in this study the
15	*on the other hand*	the results of this	to the success of	of the study this	the bottom of the	in this chapter the	an example of the	the aim of this
16	*when it comes to*	and as a result	the purpose of THIS	the findings of this	the top of the	the percentage of the	are shown in figure	the efficiency of the
17	*one of the most*	is defined as the	can be used to	that there is a	the center of the	in the case of	*as a result the*	can be seen from
18	the growth rate of	is going to be	purpose of this paper	at the same time	can be used to	in the following sections	as seen in figure	in most of the
19	*the value of the*	the null hypothesis of	purpose of this study	an important role in	it should be noted	management in construction industry	as well as a	as illustrated in figure
20	*as a result of*	there is a significant	the success of the	between customer satisfaction and	the length of the	to be used in	it was found that	at the end of
21	as a way to	*when it comes to*	the united states and	is located in the	the total number of	at the end of	on the order of	In table and illustrated
22	in the form of	are presented in table	an example of this	customer satisfaction and customer	in the number of	in the field of	figure provides an example	it is possible to
23	*is one of the*	in order to get	are more likely to	of the study the	were found to be	in this study the	provides an example of	*Table and illustrated in*
24	it is necessary to	in the long run	as part of the	can be considered as	should be noted that	*shown in figure the*	*the performance of the*	*as a result the*
25	the rest of the	in the short run	of this study was	one of the main	the accuracy of the	the compressive strength of	used in this study	is due to the
26	the success of the	*it is important to*	the end of the	satisfaction and customer loyalty	the distance to the	the other hand the	is dependent on the	is to investigate the
27	is similar	of the	the creation	all over the	the use of	in	is the	*it can be seen*

	to the	Iranian economy	of the	world	the	comparison with the	number of	
28	it is not surprising	that there is no	the success of a	North Cyprus as a	in the United States	is based on the	*it can be seen*	it is necessary to
29	that make up the	the findings of the	a part of the	in the form of	of the number of	the results of this	the accuracy of the	*shown in figure the*
30	will need to be	*the value of a*	an important part of	*in the united states*	the behavior of the	in order to find	the bottom of the	the effect of the

A Cross-sectional Study of the Present Perfect Tense in Arabic and Indonesian EFL Settings

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A cross-sectional study of the present perfect tense in Arabic and Indonesian EFL settings

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 Abstract

This document-based paper investigates EFL learners' uses of the present perfect tense when using English as their second or foreign language. A sample of 216 sentences written by 38 Indonesian and Arab undergraduate students was analyzed to detect erroneous uses of the present perfect tense (PPT) in their English writing. Twelve erroneous structures in the Arab corpus and 17 in the Indonesian dataset were underlined. The incorrect sentences were singled out and discussed. Pairing these grammar-related errors to SLA research and existing literature, the findings demonstrate that the majority of errors were grounded in either Arabic or Bahasa Indonesian language interference with English. The Arab learners seem to have more difficulties in using the PPT than the past simple tense. In contrast, the Indonesian EFL learners seem to have difficulties in both past and present perfect tenses altogether due to the absence of the past tense in the Indonesian tongue. It is concluded that learners' mother tongues in both contexts affect their uses of English grammatical structures. This yields important implications with reference to the effects of the mother tongue in EFL settings.

Note(s)
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Introduction

The English language has achieved a genuine status, and teaching English to non-English speakers has become evident worldwide. It is obviously used as the global contact language or the world language of science, business, tourism, and much more (Djenar, 2005; Hazzaa, 2021; Moqbel, 2022; Rizka, 2017). Given this significance, non-English-speaking countries such as Yemen, Jordan, and Indonesia adopt it to their local working languages as a second or additional language. Such countries strive to provide workable TESOL programs at schools and universities (Hazzaa, 2021; Rizka, 2017; Rochman, 2017). The programs certainly include grammatical aspects which are believed to be essential to produce grammatically correct English. Many English teaching materials over the last century have magnified the role of grammar in learning other languages – English is a case in point (Al-Kadi, 2020; Al-Khulaidi & Alzokhaimy, 2022; Mudhsh & Laskar, 2021; Rizka, 2017; Rochman, 2014). However, learning English grammar in contexts where it is not used natively has been generally reported as a source of difficulty and interference with learners' first language (Halik, Kareema, & Arsath, 2022; Mudhsh et al., 2021; Rochman, 2014; Sholeha, Ardian, & Amri, 2020; Teng, 2022).

The common sense that studying grammar helps to learn and understand English in general (Ellis, 2008) is complicated by its elaborated linguistic structure, primarily the tense aspect – the present perfect tense (hereafter PPT) is a working example. English tense, specifically the perfect tense, continues to be one of the most problematic tenses learners of English worldwide encounter during their course of English learning and use (Al-Khaleel, 2018; Frederickson, 1997; Halik et al., 2022; Moqbel, 2022; Rizka, 2017; Sholeha et al., 2020; Teng, 2022). Learners of languages lacking PPT (e.g., Arabic and Indonesian) likely encounter problems in using the PPT correctly. Numerous studies in Arab and East Asian contexts have tapped into English tenses through students' writing (Halik et al., 2022; Hazzaa, 2021; Jubran, 2021; Mudhsh, 2021; Rochman, 2017; Teng, 2022). This body of researchers, using an error analytic approach, identified errors in writing sentences or paragraphs. Nevertheless, few analyzed the causes, which can hardly be a coincidence, of such errors (Alzahrani, 2020). In this light, Ellis (2006) contended that "the fragile features of L2 acquisition are those which, however available as a result of frequency, recency, or context, fall short of intake because of one of the factors of contingency, cue competition, salience, interference, overshadowing, blocking, or perceptual learning, which are all shaped by the L1" (p. 164).

Hence, it is possible to speculate about such factors in the present study, departing from the error analysis model and second language acquisition (SLA) theory. Although prior research centers such errors around the aftermaths of the mother-tongue interference in solo contexts (Hazzaa, 2021; Jubran, 2021; Karim & Nassaji, 2013; Moqbel, 2022; Odlin, 1989), this linguistic issue remains at the forefront of language transfer research and is worth noting across contexts. Hence, the present study is based on a premise that research virtually conducted in single contexts seems to have missed some important findings derived cross-sectionally. It revisits such an assumption in three EFL settings: Jordan and Yemen where Arabic is the first language versus Indonesia where Bahasa is the mother tongue of the participants – a topic which is well-suited for a contrastive cross-sectional analysis. This endeavor measures how much EFL learners in these contexts have adequate knowledge about English PPT being one of the confusing tenses to

EFL learners (Rizka, 2017; Rochman, 2017; Teng, 2022). The investigation centers around the following two questions.

1. To what extent are Arab and Indonesian EFL learners able to use English PPT?
2. What are the sources of errors behind the inappropriate uses of PPT in these two settings?

Literature Review

Time and tense aspects across languages

Linguists who recognize the notion of time (not tense) as a universal concept contend that time and tense do not always correspond to each other (Fredericksonn, 1997; Levinson, 1983; Noochoochai, 1978; Ockenden, 1967). Time is, more often than not, entwined with other grammatical features and signals for a person and mood. According to Levinson (1983), time attributes are expressed in the systems through which languages represent these divisions. English is a time-oriented language requiring the overt marking of time when producing sentences. This time orientation is generally expressed in tense or a set of inflected verbs to indicate the time of an event occurrence: occurred, occurs, or will occur. In some cases, time is expressed through auxiliaries and adverbial time terms (Noochoochai, 1978). Admittedly, tense plays the most crucial part of the grammar of a language. It is, undeniably, challenging for non-native learners who spend a long time before they can use tenses correctly (Croft, 2012; Frederickson, 1997; Halliday, 2002; Karpava & Agouraki, 2013; Lado, 1975; Noochoochai, 1978; Ockenden, 1967; Sholeha, Ardian, & Amri, 2020).

In English, verbs strongly indicate when an event, an action, or something else happens. Even though there may be an absence of adverbs of time, it is directly known when the action takes place. When someone says, *I go to work*, for example, a clear indication is that the action happens in the present. However, when someone says, *I went to work*, it is known that the action happened in the past (Talking Indonesia, 2022). In the Indonesian language, however, there is no indication of the tenses reflected in the verbs. No changes in the verbs are abound. For all tenses, the verbs stay the same. In the Indonesian language, when someone says, *Saya makan sebuah apel*, which means *I ate an apple*, we will not know whether the action takes place in the present or past. In English, however, the tense is inherent with the verb, indicating when the action or event takes place. The time signals in Bahasa such as *kemarin* (yesterday), *setiap hari* (every day), or *saat ini* (at present), are the indicators of tenses.

Bahasa Indonesia or Indonesian is claimed to be relatively easy to learn. It is because the grammar is simple, especially in terms of verbs. In Indonesian, all verbs are the same, no matter what the time is. The verbs are the same in the past, present, or future tense (British Council, 2022). This difference in the concept of tense and verb causes difficulties for Arab and Indonesian English learners in understanding the English time and tense concepts. For instance, for the PPT in the Indonesian language, the only signal is the word 'sudah' or 'telah' which means has or have (been) done. When Indonesians want to say *I have eaten an apple*, they say, *Saya sudah makan sebuah apel*. The basic verb does not change. There are no changing endings in the verbs. There is no need to change the verb as well (Indonesianpod 101, 2021). Based on the fact that there are no changes in the basic verbs, whatever the tense is, many Indonesian EFL learners fail to formulate the right verbs in the tense, especially the past and perfect tenses (Djenar, 2005; Indonesianpot, 2021; TalkingIndonesia, 2022).

Teaching tenses to L2 learners

One aspect of English grammar is learning tenses. According to Halliday (2002), misunderstanding the concept of tenses deters ESL learners from advancing their English to a high level. Frederickson (1997) asserted that the problem is that students get confused when they encounter many verb forms. Teaching PPT is connected to the past and present altogether (Jubran, 2021; Tahang, 2020), which is also referred to as the 'unfinished time aspect' (Ockenden, 1967). In many languages that lack this type of tense, it becomes confusing to differentiate between the simple past tense and the PPT (Rizka, 2017; Sholeha, Ardian, & Amri, 2020). It is even more challenging for learners whose first language is tenseless as in the Chinese language (Teng, 2022). In English, the PPT covers actions that happened in the past that have resulted in the present speaking about such actions. Establishing this connection between the past and present is, arguably, a good strategy to absorb in them the notion of the PPT and thus avoid mistakes and confusion in using such a tense (Karpava & Agouraki, 2013).

Teaching the English PPT to Yemeni and Jordanian native speakers of Arabic and Indonesians, whose mother tongue is Bahasa, is one of the biggest challenges for EFL learners in these learning contexts. Perhaps this is because there is no corresponding tense in Arabic and Indonesian languages. In addition, the use of the present perfect tense shows a point of view on the part of the speaker relating the past to the present, which can make it difficult to grasp (Croft, 2012). In the Indonesian context, there are no tenses or changes in the verbs. Whatever the tenses are, the verbs stay the same. To say verbs in the past, present, and future, the verbs will stay the same (Croft, 2012). For example, to say *I ate an apple yesterday*, it will be *Saya makan sebuah apel kemarin*. While to say *I have eaten two apples today*, this will be stated as *Saya sudah makan dua buah apel hari ini*. There are no changes in the verbs. For the PPT, the word 'sudah' which means '*have been done or have happened*' is added. Basically, there are no changes in the main verb.

Language transfer and interference

What happens when a second language learner has a mother tongue with a particular language aspect that has no similarity to the target language? This question has guided a plethora of prior research and theorists, giving rise to what has been termed 'language transfer'. It has been argued that "L2 acquisition does not start from scratch like in L1 development, but it relies on the entire set of parametric values fixed in the L1; this assumption is known as the 'full transfer hypothesis'" (Schwartz & Sprouse, 1996, as cited in Leśniewska, 2019, pp. 56-57). The transfer has been evidenced as 'positive' or 'negative'. Negative transfer is understood as 'interference'. The transference of the first language's aspects (also known as interlingual interference) to the learners' second language has morphed into a phenomenon that researchers and language pundits have examined over the past century (Alzahrani, 2020; Lado, 1975; Levinson, 1983; Noochoochai, 1978; Odlin, 1989; Scovel, 1970). This body of researchers has acknowledged the unavoidable influence of L1 on second language learners' potential linguistic capacities.

Given the broad concept of first language transfer, SLA research has attributed this transfer to mother-tongue interference (also known as negative transfer) which poses difficulties in mastering tenses of the target language (Al-Kadi & Moqbel, 2022; Karim & Nassaji, 2013; Karpava & Agouraki, 2013; Mudhsh & Laskar, 2021; Tahang, 2020). Drawing on SLA research, it has been widely accepted that similarities and differences between L1 and L2 can be a source of success or

failure when using the target language, e.g., English (Hazzaa, 2021; Karim & Nassaji, 2013; Odlin, 1989; Richards, 1974). Transfer can be positive when L1 supports the acquisition of L2 or negative when the influence of L1 imposes difficulty in the acquisition and, even worse, the misuse of L2 (Alzahrani, 2020; Hazzaa, 2021; Odlin, 1989; Karim & Nassaji, 2013; Rizka, 2017). Negative transfer results in underproduction, overproduction, production errors, and misinterpretation. That is, the linguistic structure of L1 seemingly influences the structures of the target language, leading to misuse and misunderstanding in the target language (Alzahrani, 2020; Hazzaa, 2021; Karim & Nassaji, 2013).

This linguistic issue has been examined with relevance to various levels of interference: phonology (Utami et al., 2017), morphology (Baykalova et al., 2019), grammar (Moqbel, 2021), productive skills, e.g., speaking and writing (Rubab & Zaidi, 2022), among many other related works. Besides the transfer of linguistic structures (Karim & Nassaji, 2013), Odlin (1989) suggested that non-structural factors, namely proficiency, literacy, and variation influence language acquisition (Hazzaa, 2021). Ng (1998) questioned the relationship of multilingualism with first-language interference, addressing a hypothesis that the more languages an individual uses, the more interference will occur. However, relying on a Stroop color-word test administered to 44 participants, Ng's study did not support this hypothesis. It discussed the interference with proficiency in their languages- the more proficiency, the less the interference. In contexts that take grammatical rules for granted, negative-transfer-based errors can be used as indicators of learners' attempts to develop hypotheses about the target language from such learners' limited experience or exposure to the target language. They may overgeneralize, ignore some morphological and syntactic rules, and add aspects of the target language to the second language. Educators can build on such linguistic behavior and design adequate materials that address such errors.

To sum up, Arab and Indonesian learners admittedly rely on their first language, as in many other EFL situations wherein learners recall their mother tongue while using English. It has been demonstrated that a possible reason for this is that L2 learners, unlike children learning their first language, have their first language to turn to when they face difficulties producing specific structures of the L2. This is an SLA phenomenon – L2 learners transfer forms and meanings in their L1 to the target language (Hazzaa, 2021; Lado, 1975). With the present perfect tense as a case in focus, it is necessary to explain such interference of the mother tongue across a sample of learners with a heterogeneous first language background and yet share learning the target language – English. The PPT has been one of the most challenging areas of English grammar for L2 learners, including Arab and Indonesian learners. Perhaps this is due to such a tense aspect in the English language that has no correspondence in the languages in question (AlKhaleel, 2018; Hazzaa, 2021; Mudhsh, Mohammed, & Laskar, 2021; Mudhsh, 2021; Mudhsh & Laskar, 2021).

The English tense-aspect system challenges many learners, including Jordanians, Yemenis, and Indonesians, which is the underlying reason for conducting this research project. The study, premised on first language transfer, delves into the first language impact on acquiring the PPT of Yemeni, Jordanian, and Indonesian students learning English as a foreign language. Hopefully, it is beneficial for EFL English teachers to develop their teaching methods or activities to improve teaching about the PPT. Similarly, students in a local context will better understand the basic

rules of the PPT by devoting more time and effort to the significance of time and tense aspects for their English proficiency.

Methodology

This cross-sectional document-based study set out to articulate how EFL learners in the Jordanian, Yemeni, and Indonesian EFL contexts use the present perfect tense. It examined the magnitude of a mother-tongue's impact on learning another language across EFL learning situations. It analyzed errors in using the PPT as reflected in a sample of learners' writing. Drawing on Rose, McKinley, and Baffoe-Djan (2020), the study derived evidence from written learners' compositions for the current investigation, which was "subject to the same criteria of rigor as other data collection methods" (p. 196). Rose et al. (2020) contended that "a document data collection methodology is used for qualitative, quantitative, and mixed methods applied linguistics research. It can form the sole or main data collection method for a study" (p. 197). Arguably, document-based research helps researchers avoid the messiness that might happen with the survey data or the associated biased data collected from interviews. The research design was based on components of EFL students' writing, including structures of the present perfect form, which was suitable for the current inquiry as it "categorizes, investigates, interprets, and identifies the limitations of physical sources" (p. 197).

Participants

Thirty-eight EFL learners at the collegiate level were recruited in the investigation. Sixteen of them were third-year Indonesian students enrolled in a private university in Central Java, Indonesia, and twenty-two were Arab students (from Jordan and Yemen) representing Arabic as their native language and pursuing their bachelor's degrees in their own countries. They participated in the current study on a voluntary basis, and their background information is tabulated herewith.

Table 1. Background information of the participants

Variables	Indonesian EFL learners		Arab EFL learners		Total	%
	male	female	male	female		
Gender	3	13	12	10	38	100
Age average	20-21		19	20	19	
Total	3	13	12	10	38	100

Data collection

The two cohorts of learners were asked to write what they had done or had not done in their lifetimes in general. They were not instructed to use the PPT. The Indonesian respondents were instructed to write six sentences, with a total of ninety-six sentences, out of which, seventeen instances were elicited as examples containing errors. Similarly, in the Arab context, 22 participants provided 120 sentences with 12 instances of sentences with erroneous present perfect uses. In the students' writing, the following tense aspects were the focus of analysis: (a) subject-verb agreement (did, has/have), (b) forms of verbs (past-past participle), (c) time markers (ever, yet, so far, yesterday, last week/year, etc.), and (d) sentence forms (statements: positive/negative, interrogatives)

Data analysis

The sentences with wrong verb/tense uses were extracted for analysis. The sentences were read by four inter-raters, basically EFL lecturers, who helped in evaluating the sentences and agreed on the erroneous PPT structures. The purpose of asking these inter-raters' help was to find second opinions on the corrections done by the researchers. Sentences that were disagreed upon were excluded from the analysis. These teachers were arbitrators who suggested corrections to the wrongly phrased sentences. The corpus underwent a thematic analysis, looking for structures containing present perfect or past tense compared to each other. In total, twelve sentences were detected as erroneous in the dataset produced in the Arab context and sixteen in the Indonesian setting. The illustrative examples are arranged in Table 2 and Table 3 with corresponding interpretations.

Findings and Discussion

Some wrong verb uses emerged from the samples collected from the participants with a primary concern on improper uses of the PPT verbs. In the sentences collected from the Indonesian participants as displayed in Table 1, there was a mistake in using the present perfect or the participial verb (case numbers 1, 2, 3, 13, 14, and 16). These students wrongly used the verbs. They should have been put in the PPT. The underlying reasons may be because the students forgot the right form of the verbs. They were mixed up with the past-tense verbs. Likewise, there was a mistake due to the wrong tense. This case can be seen in case numbers 4, 5, 6, 8, 9, 10, and 11. *I have accompanied my dad to a doctor regularly*, for example, does not need a PPT. Instead, a verb in the present tense is used since the activity is done regularly. This might be caused by the students' lack of understanding of when to use the present perfect verbs.

Table 2. Errors in the present perfect verbs in the Indonesian EFL

Case	Students	Errors in the Present Perfect Verbs	Corrections
1.	Student 4	I have feed my pets and my mom's pets.	have fed (wrong use of V3)
2.	Student 4	I have help parents find mice in the house.	have helped (wrong use of V3)
3.	Student 4	I have get good grades above 80.	Have got (wrong use of V3)
4.	Student 6	I <u>have accompanied</u> my dad to a doctor regularly.	accompany (no perfect form is needed)
5.	Student 9	I <u>have been loving</u> myself.	love (no perfect form is needed)
6.	Student 10	I <u>have graduated</u> from senior high school.	graduated (no perfect form is needed)
7.	Student 7	I have gone to Bali.	have been (the use of be Vs go)
8.	Student 12	I <u>have ever worked</u> in a coffee shop.	once worked (no perfect form is needed)
9.	Student 12	I <u>have ever worked</u> as a live streaming host.	once worked (no perfect form is needed)
10.	Student 12	I <u>have ever become</u> an online seller;	once became (no perfect form is needed)
11.	Student 12	I <u>have ever climbed</u> a mountain.	once climbed (no perfect form is needed)
12.	Student 12	I have never gone abroad.	have never been (the use of be Vs go)
13.	Student 13	I have get close with a new person.	have got (wrong use of V3)
14.	Student 15	I have became an English tutor.	have become (wrong use of V3)
15.	Student 10	I have never gone to Singapore.	have never been (the use of be Vs go)
16.	Student 11	I have never became an artist.	have never become (wrong use of V3)
17.	Student 5	I <u>have not world</u> where I want to be.	have not been in the world (missing verb)

Apparently, there was confusion in using the verbs "been" and "gone" as in cases 7, 12, and 15. In Indonesian language, when someone wants to say that he/she has never been somewhere, the verb used is "pergi", which means "gone". In fact, "been" and "gone" have different meanings in English, a result endorsed by Rizka (2017) and Rochmanb (2017). In the Indonesian language, all verbs, no matter what the tenses are, stay the same. No inflections are needed and therefore, no changes take place. This may lead Indonesian language learners to find problems with past or past perfect verbs in English. When asking whether someone has been somewhere or not in Indonesian, the question starts with "sudah", and the verb does not change. For example, *Have you been to* (or visited) *Australia?* It is stated as *Anda sudah pernah ke Australia?* (Djenar, 2005). The last case is the missing verb. It is shown in case no. 17. The student surely had forgotten to write the verb in the sentence. This can typically happen, as a student may not concentrate fully on writing one's sentences. Besides that, the student did not recheck her sentence.

In comparison, Table 3 captures common errors in the use of the present perfect tense against the past tense in the Jordanian and Yemeni EFL situations, wherein Arabic is the learners' first language (Jubran, 2021). Among the 22 participants' writing samples, 12 examples of erroneous present perfect tense vs. past tense were illustrative of the problem of using verbs in the tense in question. As seen in the dataset in the table, the majority of those mistakes have to do with using the tense in the present perfect form. For instance, students 1, 3, and 5 misused the past tense for the PPT. In contrast, in case 5 the present perfect form is not required. It is a misuse of the PPT and confused for the past tense.

Table 3. Errors in the present perfect verbs in the Arab EFL setting

Case	Students	Errors in the Present Perfect Tense	Corrections
1.	Student 1	I ate caviar once in my whole life.	Have eaten (wrong use of tense)
2.	Student 2	I travelled a lot despite my busy life.	Have travelled (wrong use of perfect tense)
3.	Student 5	I never drove a limousine.	Have never driven (wrong use of perfect tense)
4.	Student 8	When I was in India, I <u>have ridden an elephant.</u>	Rode (no perfect form is needed in this example)
5.	Student 3	I <u>have lived </u>alone when I was abroad.	Lived (no perfect form is needed)
6.	Student 3	I <u>never cooked </u>a big meal like this one.	Have never cooked (perfect form is needed)
7.	Student 6	I <u>repaired </u>the broken window and need to wash my hand now.	Have repaired (perfect form is needed)
8.	Student 8	I <u>ate too much. </u>I will go and sleep.	Have eaten (perfect form is needed)
9.	Student 22	I <u>know my friend </u>Fatima for a long time.	Have known (perfect form is needed)
10.	Student 10	I <u>have never drink </u>whisky.	Drunk (past participle form is required)
11.	Student 19	I <u>worked </u>on my project and should work more.	Have worked (perfect form is needed)
12.	Student 17	She <u>was waiting</u> for her all day and I am angry now.	Waited for (perfect form is needed)

One interpretation of the results in Table 2 and Table 3 would be the influence of the mother-tongue in learning English in environments that barely use it natively. With the two

datasets in both tables, the Arab learners who participated in the study produced sentences with errors using the present perfect tense much more than the past tense. They mixed using the past tense for the PPT, which could be attributed to the fact that the Arabic language and English both share the concept of the past tense. However, Arabic does not have the concept of the PPT. This is why learners recoursed to using the past tense instead of the PPT. On the other hand, Indonesian English learners had problems producing sentences both in the past tense and PPT, which could be attributed to the fact that in the Indonesian mother tongue, there is no such past and PPTs. That is to say, Indonesian EFL learners are significantly affected by the mother tongue in using the target language (English). In contrast, Arab learners seem to have less impact due to the Arabic language's availability of the past tense.

Tying this to the literature, language transfer seems to be a factor in such unconventional uses of the PPT, confirming that the mother tongue transfers some of its properties to the target language. The greater the differences between the two languages, the more adverse effects. This manifests itself when Indonesian learners have no past tense or perfect tense and seem to have more problems using the PPT accurately. The Arab learners, whose first language does have past form but not tenses, seem to suffer less than the Indonesian learners in using the PPT. Therefore, it is important not to overlook the role the first language plays in learning another language, either positively or negatively. This is supported by a number of previous studies in this regard (Hazzaa, 2021; Karim & Nassaji, 2013; Moqbel, 2022; Odlin, 1989).

The results outlined in both tables are significant in some aspects. First, the perfect tense is almost absent in the Arab learners' samples; such learners lack the notion of the PPT in their first language (mother-tongue). In contrast, Indonesian learners seem to have more problems with using the past tense, which is non-existent in their mother-tongue (Indonesian). Such learners in both contexts tend to use, under the influence of their mother-tongue linguistic systems, the tense that comes close to the required tense in English in the given examples. For instance, instead of saying *I have eaten caviar once in my life*, the example outlined above is *I ate caviar once in this life*. Second, the results confirm the previous findings of Sholeha, Ardian, and Amri (2020) in that the lack of a perfect tense in some languages causes problems for English learners who belong to such languages. It also contributes to our understanding of the influence of the mother tongue on learners' uses of English tenses as explained by Odlin (1989), Karim and Nassaji (2013), and Hazzaa (2021), among others. In such cases, it is possible to speculate that interference of the mother tongue negatively impacts the construction of proper English sentences in the PPT (Karpava & Agouraki, 2013; Rizka, 2017).

The endeavor highlighted such a linguistic problem that might be foundational for TESOL teachers and educators as well as students enrolled in EFL and ESL programs. They could consider the mother-tongue in their programs and settings, and exert efforts to help learners make appropriate English verb tense-aspect choices, namely the PPT by avoiding the first language interferences discussed in this study.

Conclusion

The present comparative study set out to inspect erroneous uses of the PPT in relation to the past tense in the Indonesian and Arab contexts. It foregrounded the problem of interlingual and intralingual interference exemplifying the research problem in the Arabic context, wherein the present perfect hardly exists as well as in the Indonesian context, wherein both the PPT and

the past tense are non-observable. The sources of the particular errors were discussed to provide valuable contributions in the teaching of grammar to Arabic (manifested in Yemeni and Jordanian Arabic), and Indonesian EFL learners because the idea of the PPT and past tense is difficult to understand in the contexts at hand, which may be a shared phenomenon in some other situations.

There are obvious limitations to the study. For one thing, given the number of participants and data collected, the findings may not translate well to some other contexts. The study was limited to a few examples of EFL learners' writing using the PPT. Besides that, the topic under discussion was limited to one tense aspect – the PPT. Other aspects of the language likely interact and influence one another. Such limitations offer opportunities for further research. Despite these limitations, it can be said that the study sowed the seeds for further investigation employing more languages and participants in a diversity of contexts. Future researchers can have more participants with various data collection methods and add more language aspects in the investigation because such a grammatical issue is suggested to be explored in "a whole portfolio of writing, including drafts, written feedback, and written reflection, to gain a deeper understanding of the phenomenon of developing a student writer (Rose et al., 2020, p. 199). Participants' level of proficiency and gender-based errors may also attract the attention of some other researchers as it was understated in the literature. Last but also important, it has been hypothesized that the more languages an individual uses, the more interference takes place. The current study could not gain data to contribute to this assumption and it passes on the torch to other researchers to further examine it with an adequate research method.

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Native English-speaking Teachers (NESTs) in the Minority: How Do Three NESTs at a University in Türkiye Perceive Their Professional Identities?

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Research Article

Native English-speaking teachers (NESTs) in the minority: How do three NESTs at a university in Türkiye perceive their professional identities?

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Abstract

This research paper explored the experiences of three NESTs working at a Turkish university dominated by local ELT practitioners. In-depth interviews with the participants combined with lesson observations were implemented with an aim to gain a deeper understanding into how their professional identities were affected by their working conditions and how they adapted to being the only native English-speaking teachers at their university. The findings showed that the participants' sense of responsibility and pressure to fit an idealized model of a NEST negatively affected their professional identities. The participants devised several strategies to adapt to their working environment such as modifying cultural content to accommodate for their students' monocultural background. In addition, their working conditions hindered their ability to establish close ties with their professional community. Further studies in this area can implement a longitudinal design to explore how a similar working context affects the long-term development of NESTs' professional identities.

Note(s)
» The ethics committee approval was obtained from Bursa Technical University with a document number of E-96108589-044-52810 on 16/03/2022.
» This paper is part of a PhD study.

Author(s)' statements on ethics and conflict of interest
Ethics statement: I hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. I take full responsibility for the content of the paper in case of dispute.
Statement of interest: I have no conflict of interest to declare.

Introduction

The debate over nativeness in ELT can be traced back to the 1980s with its understanding gradually transforming from a more narrow perspective related to the first language learned (Cook, 1999) to a much wider and inclusive understanding aimed at defying political and social factors influencing nativeness (Brutt-Griffler & Samimy, 2001). Together with the definition, qualities traditionally associated with NESTs such as authenticity and pedagogical superiority have also been questioned. Native speakers were perceived as having ownership over their native language which legitimized them to make judgements about its authenticity and grammaticality (Davies, 2003). However, Rivers and Ross (2013) observed that this ideology extended mostly to White, male teachers from the inner-circle which aggravated the marginalization of teachers who identified themselves as native-speakers but did not fit this model. In contrast to the idealized view of nativeness, the current discourse on NESTs seemed to be dominated by the critique of the past ideologies and discussions of the native-speaker myth (Breckenridge, 2010).

Teacher identity is believed to have a major impact on deepening our understanding of language learning and teaching (Ko & Kim, 2021). Acknowledging the importance of researching teacher identity as well as the interplay between nativeness and identity formation, researchers sought to explore how the ideology of native-speakerism impacts NNESTs' teacher identity (Chun, 2014; Doerr, 2009; Medgyes, 2001), leaving the issue of NESTs' identity understudied (Breckenridge, 2010; Ko & Kim, 2021, Tajeddin & Adeh, 2016). Aneja (2016) called for researchers to move away from fueling the dichotomous relationship between NESTs and NNESTs, and turn their attention to "developing identity-driven approaches to understanding their individual experiences" (p. 573). Breckenridge (2010) voiced the need to study the influence of an idealized NEST model on actual NESTs, predicting that it can be detrimental for their professional identities. Ko and Kim (2021) reiterated the call for more research on NEST identity and stressed the importance of examining "individual NESTs' professional identities separately to illuminate both shared and unique aspects of their identity through multiple data sources" (p.9). The aim of this study is to answer these calls and add to the understanding of NESTs' professional identity by exploring experiences of three NESTs working at a state university in Türkiye.

Literature Review

Many researchers began to study the impact of nativeness and native-speaker ideologies on NESTs' professional identities (Ko & Kim, 2021; Simon-Maeda, 2004; Trent, 2016). Breckenridge (2010) narrated her own experience as well as the stories of two other NESTs working in Korea and shed light on a number of factors that exerted a negative influence on their identity formation. She found that NESTs were objectified and treated as resources rather than legitimate professionals. Similar findings were presented by Lawrence and Nagashima (2019) in their duoethnographical study of their teaching experiences in Japan. Both participants felt objectified by their students, proving that the status of a native-speaker can have a dehumanizing effect on NESTs.

The importance of establishing a friendly classroom atmosphere with an aim to create a friendly rapport with students is a common theme in studies on NEST identity (Breckenridge, 2010; Guo et al., 2021; Ko & Kim, 2021). This goal was shared by two NESTs teaching in Korea (Ko & Kim, 2021). The teachers believed that a comfortable and informal atmosphere was a vital

component in encouraging their students to speak. However, in contrast to the widely held belief in NESTs' ability to teach speaking skills, Liddicoat (2016) examined data from online chat rooms and discovered that their status can actually deter learners from speaking out of fear of embarrassment. The relationship between NESTs and their students was also researched by Guo et al. (2021) whose multiple case-study of four NESTs working in China proved that a strong relationship with students strengthened the participants' teacher identity despite cultural differences and challenges connected with a lack of supportive community.

One challenge explored in many research studies on NEST identity is alienation from the local community of practice. Lankveld et al. (2017) identified a sense of connectedness as having a reinforcing effect on professional identity. Unfortunately, extant literature on NEST identity strongly indicates that different linguistic and cultural backgrounds often cause NESTs to feel alienated. Samimy (2008) described the experience of an American preservice teacher joining a seminar dominated by NNESTs. Despite a strong desire to be accepted as a legitimate member of the community, Samimy's participant was initially ostracized and openly criticized for joining the seminar. Furthermore, an idealized view of NESTs as excellent teachers can cause school administrations to limit the amount of professional support and development opportunities available to them (Jeon, 2009). Yim and Ahn (2018) explored the stories of four NESTs working in South Korea. They observed that entering a community of local ELT practitioners was particularly difficult for inexperienced NESTs whose teacher identity was not validated or recognized. Nevertheless, even experienced NESTs with well-established professional identities can struggle to achieve a sense of belonging in their new communities of practice (Charles, 2019; Howard, 2019; Kim, 2012).

Another issue that is central to the current study is the concept of professional identity. In reflection of the multifaceted and complex nature of professional identity, it has been defined in various ways and with an emphasis on different aspects of its understanding (Beijaard et al., 2004). There are several conceptualizations of professional identity that are important for this study. First of all, the researcher adopted Gee's (2000) view of identity as an "interpretive system" (p.107). Gee viewed identity as a performance in which "people have to talk the right talk, walk the right walk, behave as if they believe and value the right things'' (Gee, 2014, p.24). This understanding of identity will be instrumental in exploring the relation between the NEST status with its ingrained expectations and norms and identity development. What is more, since the participants of the study are in the extreme minority compared to local ELT teachers, Wenger's (1998) emphasis on the role of community in identity formation will be conducive to the exploration of the role of working environment in the development of professional identity. In addition, in accordance with Wenger's belief in the salient connection between identity and practice, one of the researcher's aims was to observe how NEST identity manifests itself in the participants' teaching practice. Finally, since the NEST status was externally assigned to the participants of the study based on their cultural background, the concept of ascription of identity will also be drawn upon by the researcher (Day et al., 2006).

Drawing from Gee's (2000) conceptualization of identity as being recognized as "a kind of person" (p. 99) and Day's et al. (2016) ascription of identity, the current study sought to gain a deeper insight into the potential impact of the NEST status on the participants' professional identities. Finally, adopting Wenger's (1998) understanding of the intrinsic connection between identity, community and practice, the researcher aims to gain an insight into the interplay

between the participants' working environment, their classroom practice and their professional identities. The current study was guided by the following research questions:

1.   How do three NESTs at a state university in Türkiye perceive themselves as ELT practitioners?
2.   How do they adapt to teaching in a monocultural working environment?
3.   How is their classroom practice shaped by their professional identities?

Methodology

Research context

          All participants were employed at a preparatory school of a state university in Türkiye (Table 1). At the time of this study the university employed 42 Turkish teachers of English and 3 NESTs who were also the participants of the study. Barbara and Susana' responsibilities included teaching general English to students at different proficiency levels ranging from A2 to B2. Apart from his teaching responsibilities, Mohammad was also a member of the testing workgroup at the university and his role was to proofread all exams before they were distributed to students. According to the educational system at the university, language skills at the preparatory school were taught in an integrated way, which meant that the participants were responsible for teaching all skills to their students. The university organizes approximately two obligatory team-building activities every year, usually at the end of the academic year. The activities included staff picnics and dinners. All participants could speak Turkish to a varied extent. Barbara and Mohammad described their knowledge of Turkish as limited whilst Susana was an advanced speaker of Turkish.

Table 1. Information about the participants (pseudonyms were used to protect the participants' identities)

	Barbara	Mohammad	Susana
Nationality	British	British (born to Iranian parents)	American
Education	PhD in ELT	PhD in Linguistics (in progress)	MA in ELT
Teaching experience	15 years, including 6 years in Türkiye	12 years, including 3 years in Türkiye	8 years, including 5 years in Türkiye

Data collection

          The qualitative approach to research was adopted by the researcher owing to its focus on exploring individual experiences of participants and the idiosyncratic differences between their perceptions of their realities (Heigham & Croker, 2009). The qualitative approach is commonly used in identity studies as it facilitates a deeper understanding of how participants perceive their professional identity in a given context (Breckenridge, 2010; Mannes, 2020; Yim & Ahn, 2018).

The data for this study were collected over a period of one month and consisted of three stages. In the first stage, the researcher interviewed the participants to gain a more general understanding of their professional identities and working context. Each interview lasted for about 60 minutes. In the second phase of data collection, the researcher observed three hours of the participants' lessons at the university. Finally, data collected in the first interview and during class observations were used as prompts in follow-up interviews which lasted about 45 minutes. In the follow-up interviews, the participants had an opportunity to share their own thoughts on the lessons observed by the researcher. The choice of interviews as a data collection tool was guided by the belief that they allow the participants to share their experiences in a detailed and unconstrained manner. Data collection process was enriched by lesson observations in accordance with the assumption that classroom practice is strongly connected to professional identity (Breckenridge, 2010).

Data analysis

Data from all stages of data collection was analyzed in an iterative fashion with the researcher moving back and forward between the data and contrasting codes emerging from interviews and observations (Heigham & Croker, 2009). The interviews were transcribed and read several times in order to identify emergent codes. Data gathered from interviews were compared and contrasted with the researcher's observation notes in order to ensure data triangulation (Ko & Kim, 2021). Research questions were frequently referred to in order to guide the researcher in the coding process (Patton, 2002). The codes were then grouped into more general categories. Finally, a cross-case analysis of the participants' experiences was conducted and the data were organized around broader themes.

Trustworthiness

The credibility of the current study was established through member checking and data triangulation. The participants were presented with the transcripts from their interviews and given an opportunity to add or change any passages. In addition, capitalizing on the participants background in ELT research, they were also able to comment on the codes identified by the researcher. This ensured reliability of data in both data collection and analysis (Rallis & Rossman, 2009). The use of two different methods of data collection increased the reliability of the participants' accounts as their perceptions of their professional identities were contrasted with actual classroom practices observed by the researcher (Ko & Kim, 2021). Finally, allowing the participants to reflect on the observed teaching practices during follow-up interviews allowed the researcher to collect and analyze information about motivations behind the participants' behavior in class.

Findings

NEST status

Barbara identified herself as a NEST, and she felt that her students expected her to conduct her classes in a specific way that they associated with foreign English instructors. Some of these expectations were even explicitly stated by her students. For example, as soon as she entered the class, a few of the students stood up and exclaimed in excitement: "Teacher, what game are we going to play today?". What followed was a vocabulary-oriented lesson with three

different collaborative, fun activities with the students being fully engaged and active. Although expectations of having fun in class were in line with her own teaching philosophy, Barbara revealed that she felt pressure to deliver "the same quality of teaching" in every lesson. She felt that her NEST status combined with her actual teaching practice created a reputation that she had to maintain in order not to disappoint her students. The pressure was intensified by the fact that she was one of very few NESTs teaching at the university.

> *They want me to be different, they expect me to have a different teaching style, more relaxed, full of fun and engaging activities. Sometimes it's hard to keep up with this reputation because, you know, students talk. They talk about me with other students and the reputation spreads. Even when I have a bad day, I need to be consistent. Who else is going to do it here?* (Barbara, I2)

Mohammad's mixed cultural background had a strong impact on his identity as a native speaker of English. Due to him identifying as a Muslim as well as his foreign-sounding name, dark hair and dark skin, he felt that he could not fully identify himself as a British person, even though he was a British citizen. He was also aware of the fact that the combination of his British accent and his "foreign" appearance confused a lot of his students.

> *They see my name and they start wondering. If my name was Tom Smith, whatever, typical British appearance it would be different. There is a conflict. You are not fully British.* (Mohammad, I1)

Susana described her NEST status as both a benefit and a challenge. She found that her students had an "elevated perception of Westerners" and they were curious about her life in America. Unlike Mohammad, she did not refrain from teaching culture and familiarizing her students with American traditions and customs. On the contrary, she considered her culture to be a powerful motivating tool she could use in her classes. However, she was also aware of the fact that her "elevated status" as "a NEST from the West" might create a distance between her and her students and even discourage them from learning English. In order to minimize the negative effects of the NEST status on her students, she actively tried to "bring her status down"

> *I also think when they look at something in western culture, western countries, something elevated, they also see the English language as something unachievable.* (Susana, I2)

Susana developed two strategies of lowering her status that she found to be effective in her classes. The first strategy was to show genuine interest in her students' cultural background. Her goal was to show her students that their culture is not inferior to hers and their life experiences are not less meaningful just because they were not born in the West. For example, in the lesson observed by the researcher, the class discussion came to the topic of football and she asked multiple questions to her students about Turkish footballers, Turkish football league etc. Another strategy was using Turkish in class. In contrast to Barbara who repeatedly used a few Turkish words with an intention to add humor to her lessons, Susana often spoke full

sentences in Turkish during her lessons. She felt that using Turkish was not something her students would expect from a NEST and, as a result, they ceased to see her as an "outsider".

> *So the minute a Turkish word comes out of my mouth, I break all the breaks, gone.*
> *I am Turkish in their eyes and they start to feel comfortable. It's just kind of a card*
> *I have in my pocket that I can pull out.* (Susana, I2)

Teacher roles

Barbara felt that placing importance on speaking skills was intrinsically connected to her status as a NEST. Although this expectation was not overtly stated by her students, she felt that as a NEST, her role is to "activate" her students to speak in class. During the observed lessons, she asked many open-ended questions to her students and devoted the majority of her lesson time to speaking activities. However, she realized that her desire to activate her students in speaking activities was hindered by the students' passive nature.

> *In the classroom context I feel like the students are really dependent on the*
> *teacher. They come with the idea that the teacher should do everything and they*
> *just sit there and do absolutely nothing. And I worked to change that. It was one*
> *of my focus areas of teaching Turkish students.* (Barbara, I1)

In parallel to Barbara's views, Susana also emphasized teaching speaking skills as a core value in her teaching philosophy. She perceived speaking as the most important skill when learning a foreign language and she saw this belief as an essential difference between herself and local teachers who, in her opinion, failed to "push" their students to speak in their classes. As a result, she felt that her responsibility was to "push" the students even more in order to compensate for the lack of effort of local ELT practitioners.

> *I think that language is more about speaking than anything else. I push speaking*
> *all the time. If I keep doing what other teachers have done, their speaking is always*
> *going to be the worst.* (Susana, I1)

Susana felt that since she was "different" from local teachers, both in the sense of her linguistic background and teaching philosophy, her role at the university was to "bring difference". The difference she wanted to make in her students' lives was not only to boost their speaking skills, but also to teach them how to think critically and express themselves.

Mohammad displayed a strong confidence in his role as a vocabulary teacher. Echoing Susana's opinion, he felt that as a NEST, his role is to offer something different to his students, something that cannot be found in local ELT teachers' classrooms. According to him, the difference he could bring was providing his students with deeper vocabulary knowledge. He emphasized the role of context in mastering English vocabulary, and he strongly felt that only a native speaker of English can access information about authentic, contextual use of words. He described contextual vocabulary teaching not in terms of a choice made by him as a teacher, but as a responsibility of every NEST, in particular those who teach at educational institutions dominated by local ELT practitioners. He strongly believed that being a NEST, especially in a

monocultural environment, came with a set of clearly formulated expectations and norms, one of such expectations being authentic and contextual vocabulary teaching.

> *I am feeling I am having to do more explaining about the context and certain semantic issues to them. I feel there is more pressure on me to live up to the expectations of a NEST. What does a native speaker bring? There is a use. There are certain things that native speakers know in terms of contextual use of language that is not really found anywhere easily. I feel sometimes it's kind of a pressure to live up to that, make a real difference.* (Mohammad, I1)

Relationship with students

Since her role as an activator was a crucial building block of her NEST identity, Barbara displayed persistence and determination in changing her students' attitudes towards learning. She felt that, although engaging students in speaking activities can be challenging in all teaching contexts, it was particularly demanding in Türkiye due to the reliance on teacher-centered classroom practices which she noticed when observing her local colleagues' lessons. Instead of imitating their practices, Barbara decided to maximize her efforts and felt it was her "responsibility" as a NEST to change the teacher-student dynamics her students were used to.

Similarly to Barbara, Mohammad also voiced difficulties with activating his students. The lack of responsiveness and engagement on the part of his students could also be observed by the researcher. When discussing art in class, he chose to explain several words that were not presented in the textbook. Despite his efforts, students did not even choose to note down any of the words in their notebooks. He received a similar indifferent reaction from his class when talking about the role of art in people's lives. Students remained silent and only one person attempted to answer one of his questions. When asked about this situation in the follow-up interview, Mohammad traced his students' lack of engagement back to the educational system in Türkiye and its overreliance on analytical thinking skills and assessment.

> *They seem to demand a lot more but in terms of how to pass an exam or a test, that's where their mind is most of the time. Many of them are not taught to speak, they are taught to learn structures.* (Mohammad, I2)

Mohammad believed the way he taught was much more informal and flexible than what his students were used to. Similarly, not sticking to the order of activities or adapting textbook content was not in line with the more "teacher-centered" and "systematic" approach to language learning they experienced in Türkiye. As a result, he felt different from local teachers both in what he taught and how he taught.

> *I have noticed the way Turkish lecturers teach and the way I teach is different. Turkish students expect, a kind of, quite a systematic, traditional approach to learning, "here you have this exercise, now we will do this, we will go over this, here's a quick overview and get to work". My approach is much less formal, and they seem to be taken aback by this.* (Mohammad, I2)

Difficulties in activating students were also experienced by Susana. She described her students as being "programmed" not to question anything, focused on receiving information instead of producing something. When asked about the reasons for the apparent lack of creativity she observed among her students in the follow-up interview, she attributed it to the educational system. Looking back, she perceived her struggle with achieving her teaching goals in Türkiye as a maturing experience which pushed her to develop her creativity.

> *When you ask them a question and ask them "what do you think about that?" they say "nobody has ever asked me to think about it". It seems like they were just programmed to do something, match up a formula and do an equation or something.* (Susana, I2)

> *I think it develops me. I have to practice different ways of engaging students. Now I am so good at coming up with exercises, I am a genius. I didn't even know I could do that.* (Susana, I2)

However, in contrast to her desire to teach "differently", Susana's class bore a lot of characteristic features of a teacher-centered lesson. The amount of time students were engaged in speaking was limited and the majority of the lesson was spent on carefully following pages in the textbook, without adding any extra content (vocabulary- or culture-related). When asked about this apparent discrepancy between her teaching philosophy and the actual classroom practice in the follow-up interview, she stated that she was constrained by the assessment system at the university. She feared that if she departed from the textbook, she might miss an important word or structure that could be given in final exams.

Adapting to a monocultural teaching context

During the interviews, Barbara emphasized the importance of having fun in class. She felt that such an entertaining aspect was deeply ingrained not only in her teaching practice, but also her personality. She reported that the fun element came natural to her and her students when she taught in an international context. However, upon coming to Türkiye, she quickly realized that her humor was not understood by Turkish students. Since the fun element was such an integral part of her identity, she chose not to abandon it, but adapted it to the new context. Barbara developed her knowledge of Turkish culture and customs by watching Turkish TV and listening to how her students communicate and what they talk about. Her knowledge of Turkish, though limited as she described it herself, also played a vital role in introducing a fun element to her classes. A few strategically used Turkish words amused her students and became a stable part of her classroom routine.

> *So, I started implementing Turkish-related things in English classes. Even if they are very small Turkish words. For example if a student gets something I explained wrong, I would just go like; "Ayıp (shame), come on, we have just explained that". It became like my brand word or something.* (Barbara, I1)

Apart from being an "entertainer" and an "activator", Barbara saw herself as a "facilitator". As a "facilitator" she felt that her role as a teacher is to make learning easy for her

students. This was one of the reasons, apart from the fun aspect, why she chose not to use the students' textbook to teach a vocabulary lesson and opted for group activities instead. She believed her students would be able to help each other and work together to brainstorm target vocabulary. What is more, Barbara's role of a "facilitator" extended to cultural content. Having taught Turkish students for many years, she developed an insider's knowledge of what cultural content is and isn't appropriate or effective in her teaching context. Topics that were perfectly understood by her international students, failed to engage her Turkish students. As a "facilitator" she felt responsible for identifying and modifying cultural content presented in the textbook in order to maximize students' engagement and give them opportunities to express their opinions in class. One such example was the concept of New Year's resolutions which, although extremely engaging among her international students, is quite unfamiliar and foreign for Turkish students. Instead of asking her students to share their resolutions, like she used to do when teaching international students, she modified it into a group vocabulary activity aimed at teaching collocations.

Similar to Barbara, Mohammad also chose to adapt his teaching practice as well as the content of his lessons as a result of working in a monocultural environment. In parallel with Barbara's observations about using cultural references in class, he also learned that certain types of cultural content might be misunderstood or even openly rejected by his Turkish students. However, unlike Barbara who tackled cultural content by adapting it into a different activity (e.g. a vocabulary activity), Mohammad chose to limit any references to "the Western culture" to an absolute minimum. He feared that incorporating such content into his lessons might be interpreted by his students as "cultural propaganda".

> *There is no such thing as just learning a language without any baggage. There is always going to be some kind of cultural baggage. If you are teaching people English, you are also teaching them an interpretation of the culture. There might be unintended propaganda.* (Mohammad, I2)

Susana observed an incompatibility between cultural content found in students' textbooks and her students' actual life experiences. In consequence, she believed that in order to engage her students in speaking activities, she also had to modify what she taught. One example of this was the topic of traveling which she covered in one of the classes observed by the researcher. While the speaking activity in the textbook called for students to share their experiences of traveling to a foreign country, Susana asked them to discuss the last time they traveled to a different city in Türkiye.

> *I switched up things because if you are asking Turkish students "what countries have you been to?" and I know that 90% of them haven't been outside Türkiye then this book is clearly not working well with Turkish students. So you have to, if you are a good teacher, adapt.* (Susana, I2)

Relationship with the professional community

Barbara felt that she was not fully integrated into the professional community at her university. She felt that her outsider status was particularly visible during staff meetings when

local teachers switched to Turkish even though they were aware of her limited knowledge of their native language. Although she emphasized the fact that her local colleagues are friendly and welcoming, their everyday conversations at the office usually only involved them asking her questions about English words they are not familiar with. She saw it as an opportunity to share her knowledge and welcomed such questions as a way of offering support to her colleagues.

Mohammad also found himself providing commentary on authentic vocabulary use to his colleagues. He described being frequently asked by local teachers to verify if a certain word fit a given context, similarly to Barbara. However, unlike Barbara who described such practices in positive terms, Mohammad's portrayal of such interactions was underlain with negative language such as "pressure" and feeling "self-conscious". The fact that he was one of very few NESTs at the university further intensified the number of such interactions and the pressure to answer his colleague's questions.

> *They are asking me questions in English about certain language use. I kind of feel self-conscious because here I am and I can't say "I don't know". If I say "I don't know" then it's like- what am I here for? You feel aware that you are amongst a small minority.* (Mohammad, I1)

What is more, the fact that his responsibilities as a proof-reader in the testing office were different from his colleagues' duties, emphasized his role as a verifier or controller of language and created distance between him and his colleagues.

> *I am kind of left out of the whole, most of what they are involved in, the stress of the exams, the whole business. I am just there as a person to check if it is up to the standards, I am in the team, but not fully. There is a boundary there at some level.* (Mohammad, I1)

Susana purposefully distanced herself from her professional community dominated by local teachers. The reasons for her decision were irreconcilable differences in her own approach to teaching and the attitude she observed among her colleagues. Similarly to Barbara who saw herself as a "facilitator", Susana was of the opinion that a successful teacher should find a way to make things easier for their students. In contrast to her beliefs, she found that her local colleagues "blindly followed the rules even if they made life difficult". As a result, she remained friendly towards her colleagues but chose not to discuss her teaching style or teaching philosophy with them and never asked them for professional advice, although she admitted she was sometimes in need of professional support. Similarly to the other participants, she was often asked about the use of English words and idiomatic expressions.

Discussion
The influence of NEST status on teacher identity

All participants of the study emphasized their role as teachers of speaking. They felt that, as native speakers of English, they were better equipped to hold conversations with their students and improve their speaking skills. Barbara saw herself as an "activator" and she sought to maximize her students' opportunities to speak English in class, believing that they might not have an extended opportunity to do so outside her classroom. On top of activating their students'

speaking skills, Mohammad and Susana felt that their role as NESTs also involved developing their students' critical thinking skills and creativity. At the same time, this sense of responsibility was heightened by the fact they were the only NESTs at the university. A review of extant literature on the roles of native speakers in ELT shows that teaching speaking is a common expectation which many NESTs hold. Ko and Kim (2021) studied the experiences of two native speakers teaching in Korea and found that, similarly to the participants of the current study, they saw themselves as facilitators of speaking with their primary aim being to maximize their Korean students' opportunities to speak English. Similar results were found by Tajeddin and Adeh (2016) who questioned one hundred NESTs on how they perceive their identity and found that they focused on teaching speaking skills rather than grammatical content. NESTs who participated in Yim and Ahn's (2018) study also described themselves as "English role models" and felt that focusing on speaking skills was the best way in which they can model English for their students. The transformative role that Mohammad and Susana wished to play in their students' critical thinking skills, was also observed by Guo et al. (2021) in their study of four NESTs in China with one participant, in particular, quoting the use of his cognitive skills as a way to "exert broader and deeper influences on students" (p.252).

The word that was used frequently by all participants and was perceived as a defining aspect of their identities was "difference". They were aware that their linguistic and cultural backgrounds differentiate them from other teachers at the university. All of them accepted this "different" status and perceived it more in terms of a duty or a responsibility rather than a choice. When this sense of responsibility was challenged by the local context in which they were teaching, it created pressure. The sense of pressure was least articulated in Barbara's case. It can be hypothesized that, as the most experienced teacher among the participants, she felt more confident in her own methods and approach to teaching. The pressure that Susana felt was a result of the conflict between her flexible teaching style and the constraints of formal assessment. Although her opinions about the role of NESTs remained unchanged, her classroom practice underwent a significant change towards a more structured, teacher-centered approach to language teaching. The lack of concordance between a NEST's teaching philosophy and formal assessment has been documented in previous studies on NEST identity. For example, Johnston (1999) narrated experiences of British teachers working in Poland. The teachers often felt that they were expected to teach their students how to pass exams and any content that would not be tested during exams was deemed useless by their students and the management. In the case of Mohammad, the pressure of being "different" was most evident in the way he described his interactions with local ELT teachers. He believed that as a native speaker of English, he had to know everything about his native language and any hesitation on his part could threaten his status in the eyes of his colleagues. He often referred to his struggles as trying to fit a model, a mold of an ideal NEST with unlimited knowledge of English. Zyl (2016) warned that political, social and cultural theories on the status of native speakers can produce "superficial and harmful guidelines for our narratives of self and other" (p.44). Such guidelines could, in turn, lead to feelings of pressure and inadequacy. Similarly to Mohammad, Breckenridge (2010) experienced pressure when working in Korea. Strict expectations of what a NEST should and shouldn't do as well as rigid rules regarding their teaching practice forced her and other participants of her study to rebel against being perceived as a resource. The objectification of a NEST is, however, still

visible in Mohammad's account of his teaching experience in Türkiye and it continues to exert a lot of pressure on him and his teaching identity. Mohammad's desire to conform to the "ideal model" of a NEST, might be seen as an attempt to compensate for his mixed cultural background. Discrimination of NESTs on basis of their appearance was documented by Amin (1999) who observed that students exhibited a strong tendency to associate being White with being a native speaker of English. Such bias can lead to the marginalization of some NESTs as documented by Kubota and Fujimoto (2013). NESTs in their study felt marginalized by their Japanese students and management who failed to accept them as native speakers of English due to their race.

Relationship with local teachers

In their systematic review of literature on university teachers' identity, Lankveld et al. (2017) highlighted the importance of a supportive community in developing and nurturing teacher identity. However, if teachers are not able to find support and guidance from their colleagues, the development of their identities can be suppressed. Due to their different cultural and linguistic backgrounds, NESTs working abroad can often find integrating into their new community to be a challenging, if not even an impossible endeavor (Yim & Ahn, 2018). Jeon (2009) observed that even though the NEST status can command respect, it does not necessarily allow NESTs to instantly become full members of their professional communities.

In line with this observation, none of the participants of the current study felt that they were fully integrated into their community. The interactions that Barbara, Susana and Mohammad had with their colleagues placed them in the role of verifiers of language. In Mohammad's case, this role was even formally acknowledged due to his position as a proof-reader. In parallel to Mohammad's experience, McConnell (2000) discovered that NESTs administrative duties in their communities are often limited, and they are excluded from decision-making processes. As a result, even though their workload might be lighter in comparison to local teachers, it also deepens their feelings of alienation from their communities (Kim, 2012). Susana intentionally distanced herself from her colleagues due to their different attitudes to teaching which also entailed that she was not able to receive any professional support that an effective community of practice can offer. Breckenridge and Erling (2011) warned that frustration caused by not being understood or accepted by one's professional community can deter NESTs from seeking professional development opportunities. Mohammad was the only participant who asked his local colleagues for pedagogical advice, but he was also the one who felt most self-conscious about answering all his colleagues' questions. Being asked to verify the correctness of a word or an utterance is a common type of interaction between NESTs and local ELT teachers. Participants in Johnston's (1999) study recalled being treated as ultimate sources of information about English with their local colleagues accepting their linguistic judgments without any doubts. Davies (2003) pointed out that native speakers are believed to possess an insider's knowledge of their native language which automatically puts them in a position of "sources to which we appeal for the 'truth' about the language" (p. 1). Breckenridge (2010) observed that NESTs are often viewed and referred to as "arbiters of the language who can verify language accuracy" (p.139). However, if a teacher has any self-doubts about the legitimacy of his status, they might "become imposters, required in spite of themselves to behave as if they were legitimate experts" (Creese et al., 2014, p.943). Thus, the feelings of self-consciousness and

pressure experienced by Mohammad could be traced back to the doubts he had about his NEST status.

Relationship with local students

Lankveld et al. (2017) listed contact with students as a greatly impactful element in the development of teacher identity. Interacting with students can give teachers a sense of purpose and professional satisfaction. Taking this into account, it is not surprising that all participants of the current study stressed the importance of creating a friendly and informal atmosphere in their classes in order to build a harmonious relationship with their students. Barbara's efforts to forge such a relationship manifested itself in her reliance on fun, collaborative activities as well as a strategic use of Turkish words. On the other hand, Mohammad struggled to engage his students in his classes and although his principal aim was to encourage his students to speak, they remained quiet. Liddicoat (2016) suggested that a NESTs status, especially when elevated, can actually discourage students from actively participating in language classes. Fear of making a mistake in front of an expert user of English can cause paralyzing anxiety in some students. It is possible that classroom dynamics observed in Mohammad's class might have been a result of his NEST status. The low number of NESTs at the university meant that many students did not have an opportunity to interact with a NEST in their previous classes which could further intensify their anxiety. Echoing Liddicoat's assumption (2016), Susana believed that her elevated status as a NEST could hinder the relationship with her students. She also felt that showing an interest in local culture combined with using Turkish in class can help her to create a better rapport with her classes. Intentionally lowering one's status in order to forge better relationships with students was also documented by Ko and Kim (2021) who narrated how one of their participants tried to "break down the stereotype" to make her students feel less anxious in class. Kim (2017) who studied four NESTs employed at a Korean university found that, similarly to the participants of this study, they prioritized creating a comfortable and friendly atmosphere in their classrooms in order to make their students feel relaxed and maximize their engagement. All participants in the current study described creating a friendly and informal atmosphere as a challenging process and identified students' past educational experience as the main culprit. They all painted a picture of Turkish students as passive and dependent learners who prioritize assessment over critical thinking. Guo et al. (2021) suggested that "holding an essentialized view of culture and stereotypes towards students impedes professional identity development" (p.257). Whereas Susana chose to partially conform to her "essentialized" beliefs about Turkish students and their expectations by imitating local teachers' practices, Mohammad and Barbara remained determined to change their students' attitudes to language learning.

Culture

Barbara, Susana and Mohammad adapted their teaching practice to account for the homogeneous cultural background of their students. The most noticeable change was the implementation of cultural content. Susana and Barbara capitalized on their knowledge of Turkish culture and society to modify activities from their students' textbooks. In contrast, Mohammad feared that adding cultural content can be perceived by his students as promoting

Western values so, instead of discussing culture in his lessons, he chose to focus on expanding his students' vocabulary knowledge. Mohammad's fear of spreading "unintended Western propaganda" in his classroom is also corroborated by Simon (1992) who discussed the intertwined nature of teaching pedagogy and politics. The refusal to promote values associated with the Western culture was also depicted by Amin (2001) in her study of minority immigrant teachers in Canada. For example, she found that some of her participants adapted listening materials used in class in order to incorporate a wider variety of English accents instead of using only those which she perceived as "White accents" (p.97).

Conclusion

The current research study narrated the experiences of three NESTs working at a university in Türkiye and provided a deeper understanding of the impact NEST status can exert on NESTs' professional identities and their classroom practice. It was found that all three participants had similar perceptions of what their role as NESTs involved. Among the similarities, focus on speaking, creative thinking and creating a friendly, informal learning environment can be listed. All three participants described working in a monocultural environment as a challenge and the area they struggled most with was adjusting their teaching practices to the new context in terms of incorporating cultural content and transforming their students' attitudes. Furthermore, it was established that the fact that the participants were in a significant minority intensified the sense of pressure they felt to perform their self-attributed roles.

Limitations and Further Research

There are several limitations to this study. First of all, a study with a longitudinal approach could be more successful at capturing the process of the participants' identity development. Secondly, all participants in this study were experienced ELT practitioners. Contrasting the findings of this study with accounts collected from novice NESTs could offer a deeper insight into what role teaching experience plays in NESTs' identity development. Based on the findings of this study, important implications can be formulated for NESTs working abroad as well as their employers. As suggested by other researchers (Guo et al., 2021; Ma, 2012; Rao & Yuan, 2016) more opportunities for professional collaboration between NESTs and NNESTs are needed to facilitate community building. Moreover, the current study exhibited the importance of being open to local cultures and showcased benefits of incorporating teachers' knowledge of their students' culture into their classroom practice. Taking this into account, it is important for NESTs to familiarize themselves with local culture and customs in order to avoid making assumptions about their students based on cultural and societal stereotypes (Breckenridge, 2010; Guo et al., 2021).

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Pre-service English Language Teachers' Readiness for Online Teaching

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Pre-service English language teachers' readiness for online teaching

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Abstract

As a consequence of the sudden global outbreak of the COVID-19 pandemic, all the countries around the world, including Türkiye, had to adopt online education as a substitute for face-to-face education, thereby leading to a radical and unprecedented transformation. In this respect, pre-service teachers' readiness for online teaching gained greater significance as they had to switch from face-to-face teaching to online teaching. Accordingly, this study aims to identify pre-service English language teachers' (PELTs) readiness for online teaching. A qualitative research design was adopted in this research. The data were collected through an open-ended survey from 45 PELTs who study at the department of English language teaching at a state university in Türkiye. The technique of content analysis was employed for the analysis of the data gathered. The findings indicated that even though most of the PELTs perceived themselves as ready to teach online, they expected their department/faculty to provide them with a more structured and efficient training in terms of improving their technology integration skills into their instruction. Moreover, a great majority of the PELTs expressed their worries about insufficient technological equipment and technical problems in their future classrooms.

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Introduction

The concept of online education is not a new phenomenon because many educational institutions, particularly universities, started to offer online education to their students as computers, mobile tools, and the internet became more enhanced, innovated, and available. However, with the outbreak of the COVID-19 pandemic, this transition accelerated not only in Türkiye but also around the globe. As of March 2020, over 1.5 billion students were out of school due to closures in response to COVID-19. According to UNESCO (2020), over 181 countries had to implement nationwide lockdowns, impacting nearly 88% of the world's student population. Starting from the first half of 2020, schools at all levels across the world were required to switch to online teaching in response to the COVID-19 pandemic (Lynch, 2020), and teachers were demanded to redesign their programs to teach in a 100% online environment (Howard et al., 2021). Even though the adoption of online education at the beginning of the pandemic was a demanding process for students and teachers (Alqahtani & Rajkhan, 2020), it surely opened promising doors in terms of education as video conference applications, Web 2.0 tools, and related educational software became a central part of all the stakeholders' daily lives. Moreover, it should be noted that the concept of online education will possibly not disappear at the end of the pandemic and, on the contrary, it will be integrated more profoundly into the instructional practices in the so-called *new normal* period.

The review of related literature indicates that in-service English teachers' readiness for online teaching has been studied extensively (Albaqami & Alzahrani, 2022; Atmojo & Nugroho, 2020; Cote & Milliner, 2018; Khan et al., 2018; Li, 2021; Putri, 2021; Saud, 2021; Simbajon, 2021; Suwartono & Aniuranti, 2019; Tafazoli, 2021; Tappoon, 2021; Yan & Wang, 2022). However, there is limited research examining pre-service English language teachers' (PELTs') readiness for online teaching (Baz, 2016; Birisci & Kul, 2019; Çalışkan & Caner, 2022; Liza & Andriyanti, 2020; Merç, 2015; Peled, 2020; Sarini & Dewi, 2021). Therefore, this study aims to reveal PELTs' readiness for online teaching as they will become in-service teachers and offer online education.

Literature Review

Online education can be interpreted as the mainstream way of distance education today, which is defined as a type of education in which students learn and study away from school and teachers (Yılmaz, 2019), and the utilization of computers and internet technologies highlights the online dimension of the concept. Although it has recently achieved widespread popularity, distance education dates back to the 1800s when a group of teachers and students, who were not in a classroom but in different places, experienced getting in touch with their class through correspondence programs at the University of Chicago, in the United States (McIsaac & Gunawardena, 1996). Since then, with the introduction of communication tools such as computers, tablets, and the internet into the field of education, the way for online education has been paved. Today, the most important reason why online education has become a globally more popular education model can be attributed to the adoption of online education by almost all educational institutions around the world, with the declaration of a pandemic as a result of the COVID-19 virus in 2020. As for Türkiye, almost all the universities (with a percentage of 99.2%) switched from face-to-face education to online education in line with the Council of Higher Education's immediate decision of online education in March 2020 (YÖK,

2020). Thus, online education is adopted in many countries, including Türkiye, especially with the ongoing pandemic effects around the world.

Online education in EFL classrooms

In recent years, the widespread use of the internet and mobile applications as well as the compulsory switch to online education due to the COVID-19 pandemic led to remarkable changes in the design, delivery, and assessment of English as a Foreign Language (EFL) courses. Besides computers, smartphones and various applications have recently been used in EFL classrooms (Ipek & Ustunbas, 2021). According to Arslan (2008), there are certain online instructional sources used in EFL classrooms such as lexical quizzes, grammar games, listening and pronunciation podcasts, blogs, e-portfolios, and social websites as authentic materials, among many others.

Although the instructional sources listed above have been used commonly for years in EFL classes, they are just the tip of the iceberg as there exist an immense number of sources available to be utilized in EFL classes, depending on the context and other factors. As a consequence, EFL teachers should be aware of and familiar with these opportunities if they are to offer veritable online education to their students because it is hardly possible for a teacher to teach any subject to *digital natives* without making use of any of these innovations. Furthermore, it should not go without saying that online education promises to occupy greater space in the educational arena thanks to the benefits it features; thus, discussion and specification of PELTs' readiness for online education gain more significance. In this respect, several studies have been conducted both locally and globally and they are presented and summarized within the following section of the study.

To start with, Park and Son (2020) discussed PELTs' readiness for the use of Computer Assisted Language Learning (CALL) in Hong Kong. The data was collected through in-depth interviews with six PELTs to investigate PELTs' experiences, self-efficacy, and perceptions concerning the EFL teacher training curriculum for CALL. As a result, it was found that the PELTs perceived themselves as more or less experienced with computer and internet usage. For this reason, the PELTs defined themselves as competent individuals in the use of Information and Communication Technologies (ICT). However, despite their stated experience in ICT use, the PELTs were found to be unmotivated to implement ICT technologies in EFL classes.

In a similar fashion, Liza and Andriyanti (2020) aimed to discover the digital literacy levels of PELTs in a state university in Yogyakarta, Indonesia. A mixed-method research design was adopted to obtain both qualitative and quantitative data via Likert-scale questionnaires and interviews. It was observed that the PELTs had high digital literacy levels, which implies that they are competent enough to use digital technologies and able to fulfill the requirements as they are regarded as digitally literate English language teachers. Yet in another study, Peled (2020) examined PELTs' levels of digital literacy and readiness for integrating technology into their practices. The data was collected through a questionnaire including 54 items. The results indicated that most of the PELTs had high literacy in all areas included, especially in the areas of teamwork and ethical readiness on digital literacy in the case of Israel. In a similar vein, Sarini and Dewi (2021) investigated PELTs' readiness to teach online. A qualitative study was implemented through an interview. According to the results based on the thematic analysis, it was revealed that PELTs were conversant enough with technology to teach online. However, it

was also found out that PELTs did not feel ready enough to teach online owing to their lack of experience in the Indonesian context. At this point, the importance of supervision to improve PELTs' online teaching competencies was also emphasized. Finally, Caneva (2021) aimed to find out the level of digital technology use and self-efficacy beliefs of PELTs. The data was collected through a survey including both open-ended and closed-ended items. The findings revealed that most of the PELTs were keen to use traditional digital technologies such as e-mail and videos. However, even though they were taught how to use up-to-date digital technology in their professional development, they were found to be less confident while using them to teach English in the context of Costa Rica.

As for the relevant studies conducted in the Turkish context, Cuhadar (2018) examined the faculty education and experience of PELTs in terms of ICT with the aim of investigating EFL teachers' competencies for online education. The data were collected through a survey and the study group was composed of 832 PELTs from four different education faculties in Türkiye. The results showed that PELTs did not receive adequate training in education faculties regarding the use of ICT. Likewise, Birisci and Kul (2019) investigated PELTs' competencies for technology integration and their self-efficacy beliefs on teaching online. 174 PELTs participated in the study and *Technopedagogical Education Competency Scale* and *Technology Integration Self-Efficacy Perception Scale* were employed for data collection. Results showed that PELTs adopt high levels of technology usage and their self-efficacy beliefs correlate with their competencies positively. Similarly, Yastibas (2021) carried out a study to investigate whether the English Language Teacher Education Program (ELTEP) of Türkiye prepared PELTs to teach at unprecedented times, namely, during the COVID-19 pandemic. A qualitative research design was adopted to collect the data and the data were analyzed through the technique of content analysis. It was concluded that ELTEP of Türkiye prepared PELTs to teach online in the faculties of education. On the other hand, Çalışkan and Caner (2022) investigated PELTs' technology readiness by implementing a mixed-method research design. The results showed that most of the PELTs had negative attitudes towards technology integration and, as a consequence, it was put forward that they were not ready to teach English through online platforms. It was also underscored that the e-readiness of PELTs considerably fell behind expectations in Turkish context.

In the light of the studies summarized hitherto, it would be justified to argue that PELTs' readiness for online teaching is a fresh and controversial area that still seeks answers. According to the review of the relevant literature, it can be concluded that almost all PELTs in the 21st century technology world are more or less familiar with the use of technology in education. However, while some studies argue that PELTs perceived themselves as adequately prepared for online teaching situations, the results of some other studies refute this claim. More precisely, some of the PELTs do not feel ready to teach online arguing that they are not provided with the necessary training for teaching online.

Research questions

The study aims to reveal PELTs' readiness for teaching in an online environment with a specific view to the training they receive at their department. Therefore, answers to the following research questions are sought for within the research:

R.Q.1. To what extent are PELTs ready to teach online?

R.Q.1.1. To what extent does the training they receive prepare them to teach online?

R.Q.1.2. What are PELTs' expectations from the training they receive in terms of teaching online?

R.Q.2. What are the positive and negative aspects of integrating technology into EFL classrooms?

Methodology

In line with the aim of the study, a qualitative research design has been employed in that it enables the researcher to work with individuals or groups to study a social or human problem with the subject in a natural setting sensitive to the people or place, and interpret the phenomena how the subjects deliver to the researcher (Denzin & Lincoln, 2005). According to Creswell (2007), qualitative research is akin to producing fabrics that are composed of different colors, textures, blends, and materials. Since different elements create the fabric, different views create qualitative research approaches. In this study, one of the five qualitative research approaches, the case study approach has been adopted. The case study approach includes the study of an issue explored through one or more cases within a bounded system (Creswell, 2007). Accordingly, the technique of content analysis has been utilized in order to analyze the data. Since every person is unique and may have different perspectives on a single issue, and the question of the readiness and attitudes toward online teaching could be seen as a social issue, researchers aimed to enable and encourage PELTs to openly express their diverse points of view, which would not be possible under quantitative research designs.

Study group

The study group was grounded on convenience sampling which involves selecting subjects who are easily accessible (Fraenkel et al., 2011). The data were collected from 45 senior year PELTs who studied at the English Language Teaching department of a state university in Türkiye. More precisely, PELTs who performed their practicum at state schools in the 2021-2022 Academic Year were included in the study. According to their responses collected in the demographic information section of the survey, all of the PELTs have teaching experience at practicum schools. Table 1. presents the demographic data of the PELTs.

Table 1. Demographic data of the participants by age and gender

	Male	Female	Total
22-23	15	19	34
26-27	4	7	11
Total	19	26	45

As demonstrated in Table 1., 42% of the participants (n=19) are male while 58% of them are females (n=26). The ages of the participants range between 22 and 27 and most of the (n=34) participants are 22-23 years old.

Instrument

The qualitative data were collected through an online open-ended survey in the present study which was adapted from 'Pre-service EFL teachers' readiness in computer-assisted

language learning and teaching (PETAROT)' by Park and Son (2020) which consists of 7 survey items. The adapted form of the survey was reviewed by three experts (who hold PhDs in ELT) and the final form of the PETAROT survey was obtained in line with their suggestions. Additionally, the researchers designed a framework for the study which includes demographic information about PELTs' gender and age, their perceived competence in using online teaching tools, readiness for teaching online, and their expectations from their pre-service training.

To be more precise, PELTs' opinions on the following aspects were aimed to be gathered via the adapted form of the survey. The first item aimed to reveal PELTs' self-perceptions of their competencies in using technology to teach online. The second item aimed to identify PELTs' expectations from the training they receive at their department with regard to developing their techno-pedagogical skills and enabling them to teach effectively online. In a similar fashion, the third item intended to specify the courses (if any) PELTs' regard as beneficial for improving their online teaching skills. Furthermore, the fourth item asked PELTs' to indicate the aspects of their training they found the most and least useful for improving their online teaching competencies. The fifth item, on the other hand, aimed to reveal the views of PELTs about the positive and negative aspects of integrating technology and online teaching tools into their instructional practices. Similarly, in the sixth item, the PELTs were asked if they noticed any barriers to integrating technology and online teaching tools in their instructional practices. Finally, the seventh item aimed to reveal the extent to which PELTs perceived themselves ready to teach online.

Data collection procedures

After the final form of the PETAROT survey was achieved, an application was made to the university for ethics committee approval in November 2021 in order to collect the data from the participants, and the approval was granted by the university ethics committee on 12/11/2021 (with the approval number: E-87432956-050.99-160333). Following the approval process, the PETAROT survey was delivered to the PELTs through an online platform (Google Forms) and they were requested to submit their responses within 2 weeks. The data collection process, therefore, started in November 2021 and lasted for 2 weeks, until December.

Data analysis

The technique of content analysis was employed to analyze the qualitative data according to the framework suggested by Yıldırım and Şimşek (2013). More precisely, the data was read and re-read several times by the researchers and coded independently by the researchers. Thus, three separate code lists created by the three researchers were compared and finalized by re-evaluating the conflicting interpretations between and among the researchers. The reliability of this procedure was calculated using the formula "(Agreement) / (Agreement + Disagreement) x 100" offered by Miles and Huberman (1994). The inter-rater reliability level among the coders was found to be 79% in the first round, and 100% in the second round. As a result of all the analysis process, emerging themes are presented and discussed in the following part of the study under the roof of research questions, and some of the representative responses of the PELTs are also presented verbatim in order to support the inferences of the researchers.

It should also be noted that while providing the responses of the PELTs, each PELT has been assigned a number in order to ensure confidentiality.

Findings and Discussion

According to the results obtained from the data analyzed via content analysis, certain codes and themes were obtained and the findings were demonstrated under the sub-sections of "Research Question 1 and 2".

R.Q.1. To what extent are PELTs ready to teach online?

Survey items related to the first research question aimed to reveal the extent to which PELTs perceive themselves as ready and competent to teach online using technology. A summary of the findings was demonstrated in Table 2.

Table 2. Findings of the research question 1 by codes and themes
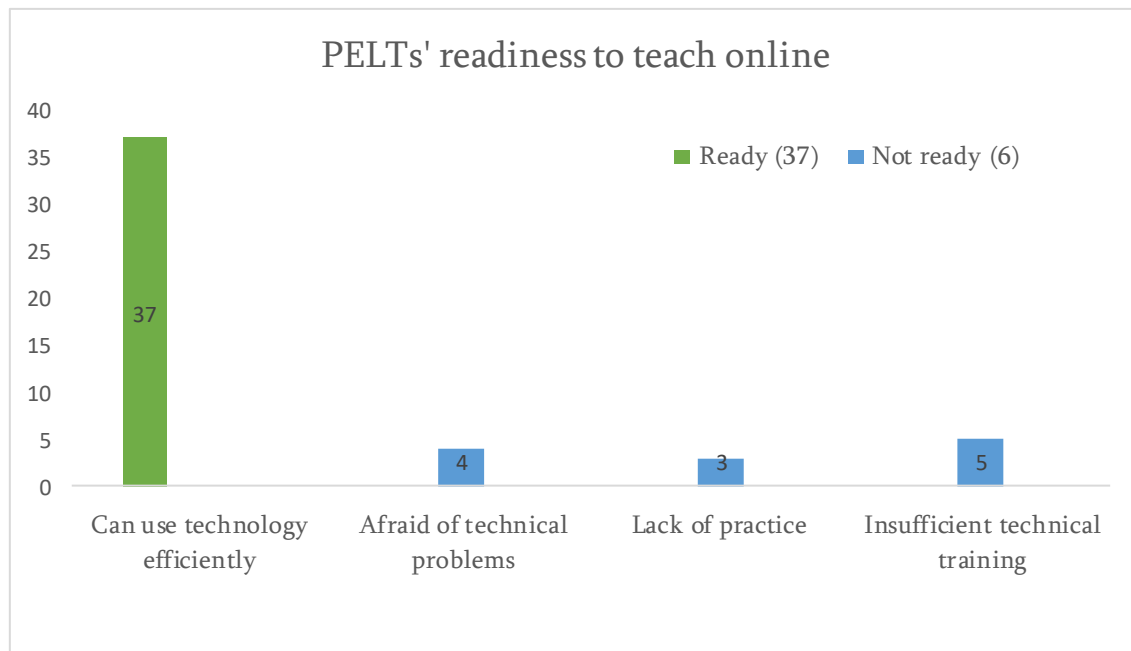
As seen in Table 2., findings show that a great majority of the PELTs (n=37) believe that they are ready to teach online, and also it is deduced that a considerable number of PELTs (n=33) describe themselves as competent enough in their use of technology. The following responses of the PELTs reveal how ready and competent they view themselves in terms of technology use:

I can use technology efficiently. I can edit documents, manage folders/files. I can create games/activities for my English classes. I can even create websites. (PELT 5)

In fact, I can say that I am even more ready than face to face teaching because I think my technological background knowledge will be sufficient. (PELT 21)

It is clear from the findings that most of the PELTs are ready to teach online and they see themselves as competent enough to use technology. In a similar vein, Park and Son (2020) found that PELTs are competent enough to use technology in the Hong Kong context and, as a result, it is put forward that they are ready to teach online using technology. In the same way, Liza and Andriyanti (2020) discovered that PELTs are digitally literate enough to use technology, and also it is emphasized that PELTs are ready to teach in an online environment in the Indonesian context. Birisci and Kul (2019) also came up with the result that PELTs are good enough to use technology efficiently in Türkiye. For this reason, PELTs are believed to be ready to teach online.

On the other hand, some participants (n=6) stated that they are not ready to teach online because of the reasons such as lack of practice, insufficient technology training given in faculties, fear of not being able to deal with possible technical problems during the lesson etc.

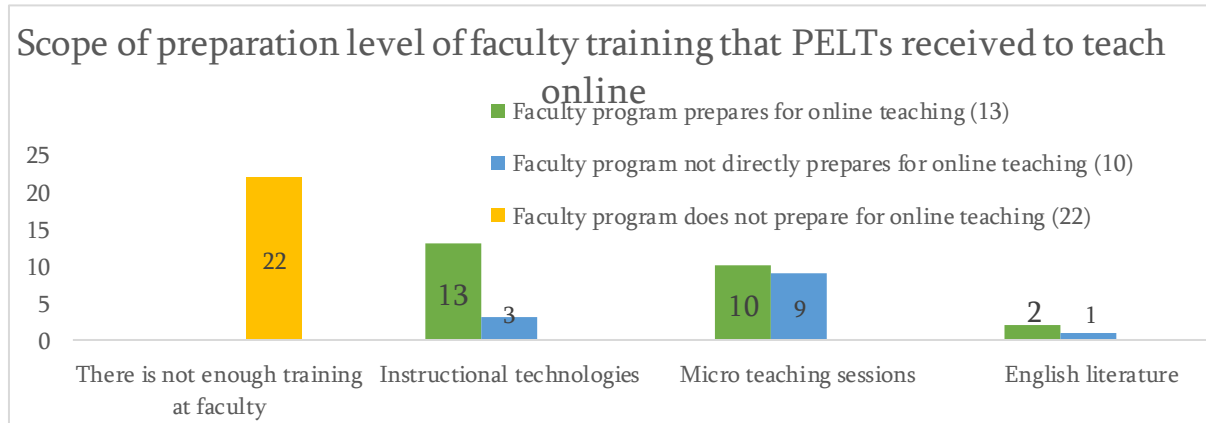> *I don't feel ready enough because I don't have practice.* (PELT 28)

> *I am afraid of not being able to deal with the technical problems that may occur during the lesson.* (PELT 41)

Sarini and Dewi (2021) put forward that even if PELTs are competent enough to use technology, they do not feel ready to teach online mainly because of their limited experience of online teaching in the context of Indonesia. Similarly, Çalışkan and Caner (2022) also found PELTs are not ready to teach online as they do not find themselves good enough to integrate technology into EFL classes in the Turkish context.

R.Q.1.1. To what extent does the training they receive prepare them to teach online?

This sub-research question aimed to find out the extent to which the training they receive prepares PELTs to teach online. More specifically, the PELTs were requested to specify the courses (if any) they regard beneficial for improving their online teaching skills. The summary of the findings are presented in Table 3.

Table 3. Findings of the research question 1.1 by codes and themes

Scope of preparation level of faculty training that PELTs received to teach online

- Faculty program prepares for online teaching (13)
- Faculty program not directly prepares for online teaching (10)
- Faculty program does not prepare for online teaching (22)

According to Table 3., findings demonstrate that only 13 PELTs took courses that assisted them in improving their online teaching skills and 10 PELTs stated that they took courses that helped them improve their techno-pedagogical skills indirectly. On the other hand, 22 PELTs reported that they did not take any technology-related courses.

> *Yes, I have taken a course named 'Instructional Technologies'. The course has helped to meet with Web 2.0 tools such as; PowToon, mind mapping applications. However, except these tools, there are many applications that still need to be learned which are very beneficial to our future students.* (PELT 10)

> *Not directly, but microteaching practices made it almost imperative to learn and search for the web tools in order to have an effective microteaching.* (PELT 8)

> *No, because none of the lessons are focused on online teaching specifically.* (PELT 2)

As can be inferred, the findings for this research question feature a double-edged picture as some of the PELTs believed that the pre-service training they received prepared them to teach online whereas some others disagreed with this. A similar study conducted by Cuhadar (2018) in the Turkish context put forward that PELTs do not receive adequate training in faculties of education to integrate technology. In the study of Rinekso et al. (2021), it is also deduced that PELTs should be given more training regarding online teaching at the faculties in the Indonesian context. Similarly, Merç (2015) and Baz (2016) concluded that technology-based training at the faculties was not sufficient for PELTs to teach online in Türkiye. Fathi and Ebadi (2020) found that even when technology-integrated courses are given at the faculties, PELTs still do not believe that those courses prepare them to teach online in real-life classroom environments in the Iranian context. On the other hand, Yüksel and Kavanoz (2011) came to the conclusion that sufficient technological availability and training are provided by faculties of education in Türkiye. Likewise, Yastibas (2021) exposed that the courses given at the faculties prepared PELTs to teach online efficiently in the context of Türkiye.

R.Q.1.2. What are PELTs' expectations from the training they receive in terms of teaching online?

This sub-research question aims to find out the expectations of PELTs from the training they receive in terms of developing their techno-pedagogical skills and preparing them for teaching online. The findings obtained are summarized in Table 4.

Table 4. Findings of the research question 1.2 by codes and themes
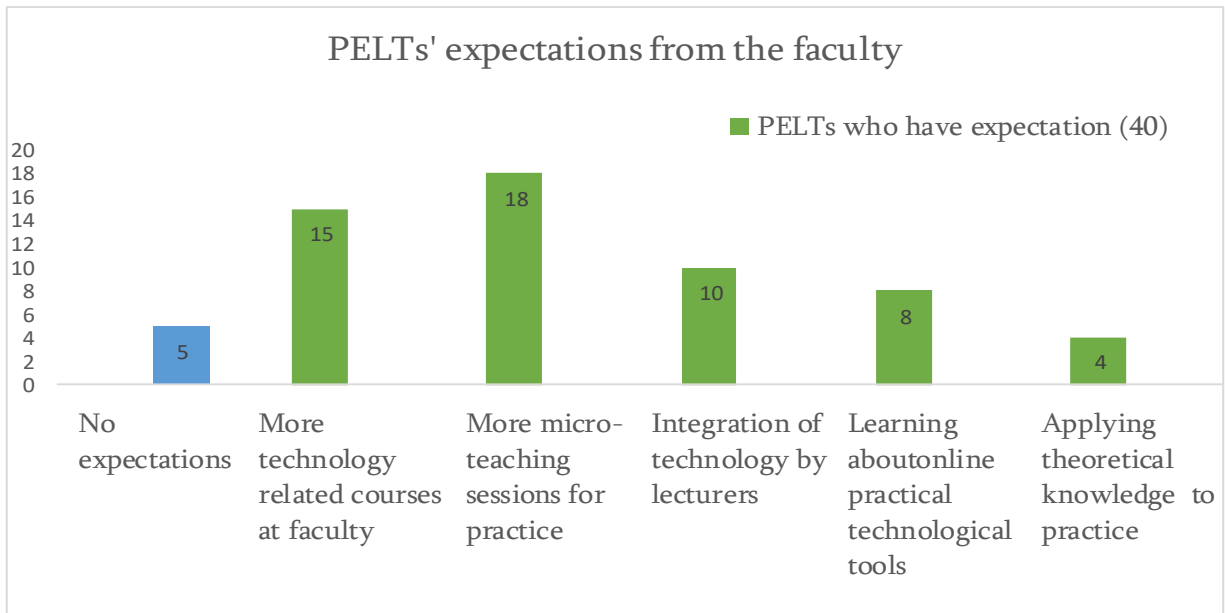
As can be seen in Table 4., the analysis of the data indicates that a majority of the PELTs (n=40) expect to learn more about various technological tools and how to integrate them into their future lessons. The expectations of PELTs from faculty are listed below in more detail. They expect to:

1. see more technology integration in their own courses at their own faculties
2. take more technology-oriented courses
3. learn more practical Web 2.0 tools that they can use in their future classes
4. be able to apply the theoretical knowledge they have learned at the faculty into practice

The following responses of the PELTs present their expectations from the faculty:

I was expecting to learn lots of new and informative websites, forums, applications, and video channels for my future lessons. (PELT 4)

*I was expecting to learn how to put the theory to practice.* (PELT 38)

I expected my lecturers to use more technology during their courses at the faculty. (PELT 29)

More specifically, it was revealed that PELTs expected to learn more about practical online teaching tools so that they could make use of them in their future lessons. In this regard, Alhamami and Costello (2019) drew similar results from their study in that no matter how many technology-integrated courses are available in their training, PELTs expect to learn more about practical and useful online teaching tools for their future lessons in Saudi Arabia. In support of this, PELTs in the Turkish context believed that their students in the future would have higher expectations in terms of technology-integrated EFL classrooms (Merç, 2015). Hence, it can be argued that PELTs expect to learn how to put the theoretical input into action when they start teaching real classes. On the other hand, Hien (2020) observed opposite results in that PELTs give more importance to issues such as classroom management, assessment, and evaluation rather than integrating online teaching tools into EFL classrooms in the Vietnamese context. Thus, the expectation of PELTs from their training is to assist them in developing themselves in areas such as classroom management, assessment, and evaluation.

R.Q.2. What are the positive and negative aspects of integrating technology into EFL classrooms?

The purpose of this final research question is to find out the positive and negative aspects of integrating technology and online teaching tools into English language classroom practices from the perspectives of PELTs. A summary of the findings is presented in Table 5.

Table 5. Findings of the research question 2 by codes and themes
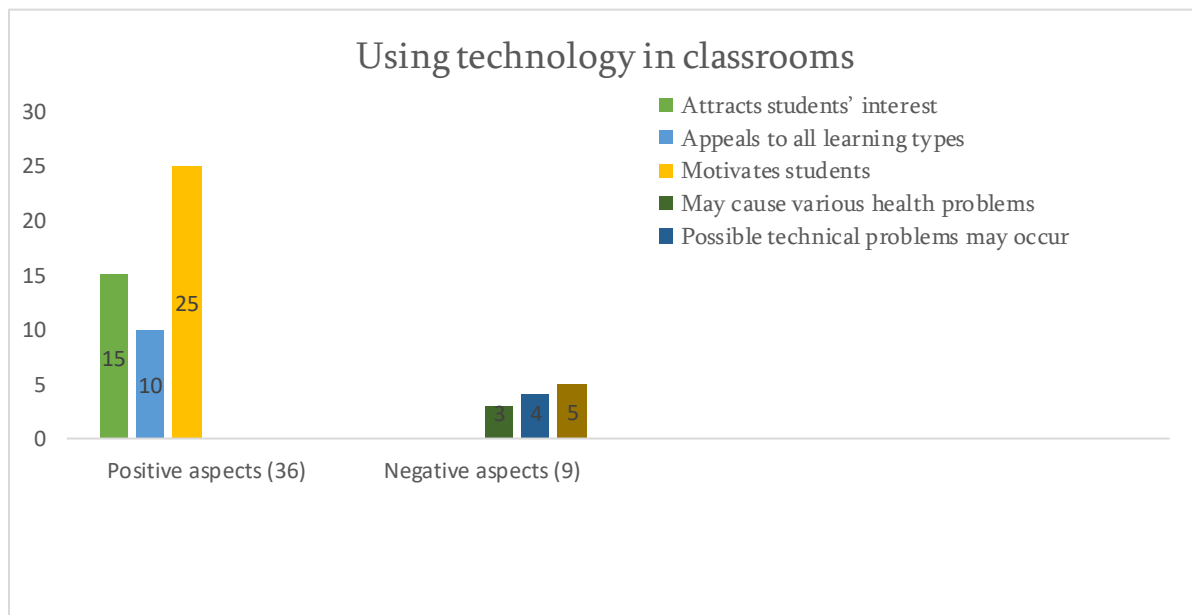
According to Table 5., all of the PELTs provided both positive and negative aspects of integrating technology into EFL classrooms in their responses to the survey item. However, most of the PELTs (n=36) focused more on the positive aspects of integrating technology into

EFL classrooms by putting forward the reasons to highlight its positive aspects such as providing authentic materials, attracting students' attention and interest, motivating them, and also its effectiveness to address all learning styles.

> *Technology can be useful for making the input fun and effective for students. Also, we can provide them authentic materials.* (PELT 5)

> *As positive effects of integrating technology and online teaching tools, using visual and aural materials appeal to both visual and auditory intelligence by this way these enhance the permanence of knowledge and provide an interactive environment in class so students want to participate in class more eager.* (PELT 1)

On the negative side, as seen in Table 5., some of the PELTs (n=9) focused more on the negative aspects of integrating technology into EFL classrooms by asserting that some health problems may occur as a result of overexposure to technology. In addition, potential technical problems and the digital divide are seen as other disadvantages.

> *As negative effects of integrating technology, technological problems may set limits for using online teaching tools.* (PELT 10)

> *Looking at a screen for a long time is harmful to everybody as well as to them.* (PELT 18)

> *As a barrier, sometimes not all of the students can reach the technology. Their economic conditions should be taken into consideration.* (PELT 5)

The findings demonstrate that there are both positive and negative aspects of technology integration in EFL classrooms according to the viewpoint of the PELTs, but most of the PELTs highlight its positive aspects. It should also be noted that PELTs refer to such advantages as enhancing learners' motivation, and being practical and authentic in terms of technology integration into EFL classrooms (Alkhudair, 2020; Boonmoh et al., 2022; Jayanthi & Kumar, 2016; Park & Son, 2009) in Arabian, Thai, Indian and Korean contexts, respectively. Consistent with the current study, Khatoony and Nezhadmehr (2020) discovered that the integration of technology motivated students and also enabled PELTs to address different learning styles in the Iranian context.

Concerning negative aspects of technology integration in terms of health, technical and digital divide problems, Alkhudair (2020) found out parallel results with the current study in terms of health problems; more specifically, it was argued that students may suffer from neck and backaches as well as eye problems, and also technical problems may impede learning in the Arabian context. Similarly, it was reported that possible technical problems and the digital divide may constitute a serious problem in integrating technology into the classroom on the grounds that teachers do not receive adequate training to cope with them in the Qatari and Indonesian contexts, respectively (Chaaban & Ellili-Cherif, 2016; Taopan et al., 2020). In the

Kuwaiti context, cases where teachers' failure to cope with technical problems is coupled with no technical support from the school administration (Alghasab et al., 2020). In a similar vein, inadequate access to the internet and technological tools (such as smartphones, tablets, computers, etc.) is seen as a major problem in the Kuwaiti and Indonesian contexts (Alghasab et al., 2020; Taopan et al., 2020). In line with the current study, Çakıcı (2017) also revealed that the cost of up-to-date technological equipment was perceived as a barrier by teachers to integrating technology into EFL classrooms in the Turkish context.

Conclusion and Recommendations

In the light of the results of the first research question, it is obvious that even though PELTs state that they do not receive enough technology-integrated courses throughout their training, they perceive themselves as competent enough to integrate technology and ready to teach online in EFL classrooms. In terms of the expectations from the faculty, it was emphasized by PELTs that they preferred to have more information about practical online teaching tools. Therefore, most of the PELTs are of the opinion that more importance should be given to micro-teaching sessions during their undergraduate education process, on the grounds that these sessions are highly beneficial by providing opportunities to learn and use online teaching tools.

On the other hand, many PELTs also stress that there is no specific course in their faculty that prepares them for online teaching. In this regard, it is highly recommended that greater time should be allocated to microteaching sessions so that PELTs have the chance to put theory into practice. However, in order to do that, a suitable environment and program should be prepared for PELTs, so that microteaching sessions can be included into the scope of many courses in the faculty. At this point, when the English Language Education undergraduate program specified by HEC is examined, it is seen that there are many courses that could house microteaching sessions such as 'Teaching English to Young Learners', 'Teaching English Language Skills' and many other elective courses that are offered by the faculties of education. Therefore, it is highly suggested within the framework of HEC's program that lecturers should give more place to microteaching sessions in every course as far as possible to render PELTs familiar with online instructional tools. In a similar vein, since many PELTs believe that there is no course that prepares them for online teaching, it would be justified to argue that the program specified by the HEC should be updated in line with the requirements of the *new normal* period because online education has now become an indispensable part of the education process. In this regard, some infrastructure has been set off for unexpected conditions even after the pandemic, such as snow holidays and/or when a teacher wants to make up for a lesson that could not be conducted face-to-face. Likewise, the fact that many higher education institutions now offer certain courses completely online indicates that online education will secure its position rather than disappearing. At this point, what is expected from teachers is not only to do online teaching in unexpected conditions but also to adopt the online system at any time.

Another remarkable finding is the fact that PELTs believe that using technology has certain pros as well as cons. On the positive side, most of the PELTs put forward that using technology is beneficial in terms of motivating students who have different learning styles. The findings from the current study are in line with Aydin (2012) in terms of the benefits of

integrating technology into EFL classes for increasing student involvement besides its practicality in various teaching contexts. However, on the negative side, PELTs remark on potential technical problems to be experienced during online lessons as they do not feel capable of coping with such technical problems. Given this situation, PELTs seem to be motivated to integrate technological tools into their classrooms. Nevertheless, PELTs also worry about their incompetency to cope with technological problems. To simply put, PELTs are even not proficient in the use of smart boards, so their use of certain technological tools does not mean that they can adapt it effectively in EFL classrooms because nowadays a teacher's knowledge of some word processing programs or good use of social media does not guarantee that they can adapt it to their online teaching practices. At this point, there are some similar findings between the current study and Aydin and Börekci (2019) with regard to EFL teachers' insufficient use of technology. Namely, even if EFL teachers use and manage their social media accounts, when they tried to integrate those social platforms into their EFL classrooms, it was found that they had a hard time adapting those platforms into their classes in terms of communication and producing content for their students. Thus, teachers need to gain new technical qualifications to keep themselves up-to-date as well as having the capability of adapting various online tools to their teaching environments Last but not least, the limitation of this study is that the population consisted of only one state university. Hence, it is believed that a similar study with a larger study group encompassing participants from both state and private universities would yield more generalizable and reliable results.

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The Investigation of School Administrators' English Self-efficacy Beliefs

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The investigation of school administrators' English self-efficacy beliefs

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Abstract

The purpose of this study is to determine the English self-efficacy beliefs of school administrators. The research adopts the cross-sectional survey model to determine the English self-efficacy beliefs of school administrators. The sample of the study consists of 305 administrators working in schools in the districts of Konya, Türkiye. In the study, the "English self-efficacy belief scale" developed by Hancı Yanar and Bümen (2012) was used to determine English self-efficacy beliefs. The measurement tool used in the study was applied in April 2022. According to the results of the study, school administrators' English self-efficacy beliefs are at a low level (the level of "very little fits"). While the level of English self-efficacy beliefs of school administrators showed a significant difference according to the variables of duty, professional seniority and administration seniority, there was no significant difference based on gender, age, educational status and school type variables. Language activities can be organized in schools with the participation of all education stakeholders in order to increase the English self-efficacy of school administrators depending on the language training to be carried out.

Note(s) from the author(s)
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Introduction

Foreign language education has been increasing in importance in our country in recent years. In today's world, where scientific studies and technological developments exceed national borders, the need to transmit and share information in an effective way makes it necessary to learn other world languages, especially English, which has become a global language (Ünsal, 2021). Therefore, in order to keep up with worldwide development, foreign language courses are given importance in our country, as in many countries (Özer & Korkmaz, 2016).

Language learning ability varies depending on many factors such as age, culture, motivation and aptitude but according to recent studies (Kasap, 2021; Ünsal, 2021; Tunç & Kozikoğlu, 2022), individual differences form the basis of these factors. The learning speed of each student differs individually or understanding of something for each student cannot be achieved at the desired level. It is thought that these individual differences may be due to students' beliefs (Oxford, 1990). One of the most important individual differences in the learning process is the concept of self-efficacy. Undoubtedly, self-efficacy belief is one of the factors that affect the desire and motivation to learn (İlbeği & Çeliköz, 2020). It is very important to develop self-efficacy beliefs in students for an effective education since the student achieves success to the extent that he believes he can succeed. In other words, the student who does not believe in himself cannot make the necessary effort to achieve something or to fully fulfill the tasks assigned to him (Arslan, 2012). In addition, Duman (2007), in his study conducted with the English self-efficacy scale he developed, revealed that self-efficacy greatly affects student achievement. The self-efficacy belief of a person in learning a second language is not what or how much is known about the language, but the determination of what he/she can do in activities consisting of four basic skills of this language. The extent to which an individual finds himself/herself competent in these four skills is directly proportional to his/her self-efficacy belief in this matter (Büyükduman, 2006). Language education consists of these four basic skills (reading, writing, listening and speaking), and these four basic skills are integrated and in harmony with each other (Gömleksiz & Kılınç, 2014).

One of the most significant factors affecting language learning process is self-efficacy belief. Bandura (1994) defines self-efficacy as an individual's self-judgment about his ability to successfully organize the activities needed to perform a certain action. Self-efficacy beliefs are a factor that has an impact on people's motivation, determining their attitudes and directing their lives (Akyürek, 2020). Self-efficacy is associated with work-related performance such as productivity, coping with difficult tasks, career choice, learning and attainment, adapting to new technology (Gist & Mitchell, 1992). According to Senemoğlu (1999), self-efficacy is defined as a person's ability to deal with various issues, his/her ability to perform a certain activity, and his/her belief in one's own capacity. In other words, self-efficacy is the individual's thoughts about his own ability and effectiveness in any field (Woolfolk, 2016.) As a result, self-efficacy belief in foreign language education is one of the most important factors that language educators should evaluate (Büyükduman, 2006). In this context, there are also some institutions regarding language education and self-efficacy should be considered and given importance. These include schools. It can be stated that the language skills and competencies of the administrators who lead the development of schools are very significant and the most important reason for this is that the administrators should develop themselves and closely follow the current international developments in education and management. The role of leadership in ensuring school

effectiveness and school improvement is indisputable. It has been observed that a school administrator with effective leadership characteristics influences teacher and student success (Aydoğan, 2018). Effective instructional leadership behaviors of school administrators are effective in improving student outcomes through improving teacher practices and providing highly effective, professional learning opportunities (Campbell, Chaseling, Boyd & Shipway, 2019).

Having a sufficient level of self-efficacy beliefs of school administrators is important in terms of ensuring the effectiveness in schools because there is a strong belief that one can achieve or realize a task in line with a goal in schools will enable to reach the goal (Akyürek, 2020). The school administrator is a manager who has effective communication competence, speaks a foreign language, has command of communication technology, manages information, and believes in education (Açıkalın, 2016). School administrators who have self-efficacy in foreign language have goals such as following the developments in the world, the scientific studies in the target language, communicating with different cultures and people, and self-development (Can & Can, 2014). Therefore, it is important to examine the self-efficacy of school administrators for a more effective school management. Efficacy is a tool that serves to understand the thoughts and the motivation of the school administrators. At the same time, efficacy is related to the behavior of administrators and the school environment they create (McCollum & Kajs, 2007). Leithwood and Jantzi (2008) group the school leader's perception of efficacy into two groups; his beliefs about his self-efficacy to improve teaching and learning (Leader's Self Efficacy) and his beliefs about the collective capacity of colleagues in surrounding schools to improve learning (Leader's Collective Efficacy). In both groups, the practices and behaviors of the school leaders are effective on the school and classroom environments and the learning of the students. It is stated that this effect is mutual (Leithwood & Jantzi, 2008).

English language education continues to gain great importance in Türkiye. In Türkiye, foreign language education is compulsory at various levels, starting from primary school to undergraduate education as in other countries. However, when we look at the studies, it is observed that teaching and learning a second foreign language is not yet at the desired level (Arslan & Akbarov, 2010; Can & Can, 2014). In this context, it is very important for the education stakeholders in schools, who need to follow the current developments of the age according to globality, to be able to use English, which is widely used and functional in the world, at a level to follow the developments about education. Prapphal (2008) claims that educational quality and standards at different points in the teaching and assessment process can be achieved by providing teachers, learners, administrators and stakeholders, or end users to recognize the goals, nature, benefits and drawbacks of each testing and assessment method when evaluating English language learning outcomes. School administrators, who have the primary responsibility for improving schools, need to learn and use English at a sufficient level in order to lead the school and develop it in parallel with the developments in the world. The fact that school administrators in Türkiye do not take place as separate staffs from teaching and are not subjected to a training process has also affected the English self-efficacy beliefs. There is no need for English or no other foreign language requirement in the criteria determined for the assignment of school administrators for four years. In addition, the sufficient level of English self-efficacy of school administrators will enable the monitoring and implementation of global developments in education in schools. Thus, success and development in schools will be increased. In this context, no research was found in

the measurement of English self-efficacy levels of school administrators, especially according to some demographic variables (gender, age, duty, educational status, administration seniority and school type). In terms of seeing the effect of these demographic variables, the study will contribute to the literature. Therefore, examining the English language efficacy of school administrators in Türkiye can guide education politicians and decision makers, and may contribute to the education literature. In this context, the aim of the study is to determine the English self-efficacy beliefs of school administrators. The sub-problems determined in this direction are as follows:

1. What is school administrators' level of English self-efficacy beliefs?
2. Do school administrators' English self-efficacy beliefs differ in terms of demographic characteristics (gender, age, duty, educational status, administration seniority and school type)?

Methodology

Model of the study

This study is in the cross-sectional survey model to determine the English self-efficacy beliefs of school administrators. In the survey model, the individual or the subject in the study is tried to be described as it is in the conditions in which it is located (Karasar, 2015). In the cross-sectional survey model, the variables to be described are measured one at a time. English self-efficacy levels of school administrators were defined in this way at one time through an existing validated and reliable scale.

Population and sample

The population of the study consists of 1360 administrators (principals and assistant principals) working in schools in the districts (Karatay, Meram and Selcuklu) located in the city center of Konya in Türkiye (Ministry of National Education [MNE], 2022). According to the 95% confidence interval, the lower limit for the sample size of the study is 306 (Gürbüz & Şahin, 2014). The sample of the research consists of 305 administrators (principals and assistant principals) working in schools in the districts (Karatay, Meram and Selcuklu) located in the city center of Konya in the 2021-2022 academic year. The number of samples according to the population in this study is sufficient according to the 95% confidence interval (Gürbüz & Şahin, 2014). Sampling of administrators was carried out by simple random sampling. Randomness refers to the situation in which the units based on the sampling are equally likely to be selected for the sample (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2012). In particular, a list was made and the participants were randomly selected.

In Table 1, descriptive statistics regarding the demographic characteristics of the participants (gender, age, duty, educational status, administration seniority and school type) are given.

Table 1. Descriptive statistics on demographic characteristics of the participants

Variables			*N*	*%*
Gender	Female		31	10.2
	Male		274	89.8
Age	21-30		16	5.2

	31-40	130	42.6
	41-50	118	38.7
	51 and older	41	13.5
Duty	Principal	135	44.2
	Assistant principal	170	55.8
Educational Status	Undergraduate	223	73.1
	Postgraduate	82	26.9
Management Seniority	1-5 years	121	39.7
	6-10 years	87	28.6
	11-15 years	41	13.4
	16 years and over	56	18.3
School type	Kindergarten	16	5.4
	Primary school	81	26.6
	Secondary school	155	50.8
	High school	53	17.4
Total		305	100

When Table 1 is examined, according to the gender variable, it is seen that men are more common than women with 89.2%. This may be due to the fact that female school administrators are given limited duties in Türkiye or that women prefer this duty less because of their different responsibilities in administration. According to the age variable, the highest rate is 31-40 with 41.5%, and the lowest rate is 5.5% with managers in the 21-30 age group. According to the duty variable, it is seen that the assistant principals are more than the principals with 55.4%. According to the variable of educational status, it is seen that those with undergraduate are more than those with postgraduate, with 71.7%. According to the management seniority variable, the highest rate is 1-5 years with 39.4%, and the lowest rate is 13.2% with 11-15 years managers. According to the school type variable, the highest rate is composed of secondary school with 49.8% and the lowest rate is composed of administrators working in kindergarten with 5.5%.

Data collection tool

In the study, the "English self-efficacy belief scale" developed by Hancı Yanar and Bümen (2012) was used to determine English self-efficacy beliefs. The scale is a five-point Likert type scale. The measurement tool was developed in the form of 34 items and based on 4 theoretical dimensions. These dimensions are; reading (1-8 items), writing (9-18 items), listening (19-28 items) and speaking (29-34 items). In this context, confirmatory factor analysis was performed to confirm the factor design of the instrument. As a result of confirmatory factor analysis, the t values of the latent variables explaining the observed variables were found to be significant at the .01 level. Since significant t values were obtained for all items in the model, all indicators were included in the model. The results of the confirmatory factor analysis of the English self-efficacy belief scale are given in Table 2.

Table 2. The results of confirmatory factor analysis of the self-efficacy belief scale in English

Compliance measurements	Measured value	Reference range
p	.00	< .01
X^2/sd	2.57	≤ 3

RMSEA	.07	≤ .08
SRMR	.02	≤ .05
NNFI - CFI	.95 - .95	≥ .95

When the table is examined, it is seen that the p value is significant at the .01 level. In many confirmatory factors analyzes, it is normal for the p value to be significant due to the large sample size. For this reason, alternative fit indices regarding the fit between the two matrices were evaluated. In this context, it can be stated that the X²/sd, SRMR, NNFI and CFI values are excellent, and the fit index of the RMSEA value has a good fit. As a result, it can be stated that the four-factor structure of the 34-item self-efficacy belief scale (reading factor 8, writing factor 10, listening factor 10 and speaking factor 6 items) was confirmed as a model. In this direction, within the scope of reliability analysis, first of all, item analysis was examined by using item-total correlation. In addition, the reliability of the scale was checked by using Cronbach's alpha. The results of the reliability analysis of the English self-efficacy belief scale are given in Table 3.

Table 3. Reliability analysis results of the self-efficacy belief scale in English

	Alpha value	Item-total correlation
Reading	.91	.59-.76
Writing	.85	.73-.55
Listening	.95	.63-.86
Speaking	.96	.68-.88
English self-efficacy (General)	.99	.31-.91

The internal consistency coefficient (Cronbach's alpha) of the English self-efficacy belief scale is .99. In this context, it can be interpreted that the internal consistency coefficient of the English self-efficacy belief scale is sufficient for the reliability of the scale scores. Item-total correlations for all items in the scale ranged from .31 to .91. When the item-total correlations are examined, it can be interpreted that the items in the scale distinguish individuals well.

Data collection and analysis

The measurement tool used in the study was applied to 305 school administrators working in Konya, Türkiye, in April 2022, by the researchers, and the data were collected. The data were transferred to digital media by coding in order to be ready for analysis. Within the scope of the analysis of the data, firstly, the condition of meeting the normality assumption of the data set was examined. The kurtosis and skewness coefficients and the mean, mode and median values were examined. The values of kurtosis, skewness and standard deviation calculated for the scale are as follows; .55, 1.02, .92. The kurtosis and skewness values in the study are between ±2. These results are interpreted as the data set has a normal distribution (George & Mallery, 2010). In addition, in the analyzes conducted, it was determined that the arithmetic mean was 2.01, the mode value was 1.00 and the median was 1.83. The closeness of these values indicates that the data set is normally distributed (Hair, Ringle, & Sarstedt, 2011). In addition to these, the predicted sample size is usually shown as 30 and larger in order to put forward an assumption that the distribution does not deviate excessively from the normal distribution.

However, most research in the social sciences is done on smaller groups. In the literature, there are studies showing that the use of a parametric statistic does not cause a significant deviation in the "p" significance level to be calculated in the analysis, if the sizes of each of the subgroups are 15 or higher (Büyüköztürk, 2013). In this context, parametric test techniques were chosen and used to test the sub-problems of the research. In this context, within the scope of the analysis of the data, firstly descriptive statistics such as percentage and frequency analyzes were conducted. In addition, t-test was applied for independent samples in variables with two subcategories, and one-way analysis of variance (ANOVA) was applied for variables with three or more subcategories. Dunnett's C multiple comparison test was used as the group variances were not equal in order to determine which groups had significant differences between the group means as a result of ANOVA. In the interpretation of the findings, the significance value was taken as $p < .05$. The grading range of the English self-efficacy belief scale is as follows; It does not suit me at all (1.00-1.79), it does not suit me very little (1.80-2.59), it does not suit me a little (2.60-3.39), it fits quite well (3.40-4.19), it suits me completely (4.20-5.00).

Findings

Within the scope of the first sub-problem of the research; The level of English self-efficacy beliefs of school administrators was examined. Table 4 includes descriptive statistics on the level of English self-efficacy beliefs of school administrators.

Table 4. Descriptive statistics on the level of English self-efficacy beliefs of school administrators

Dimensions	N	$\bar{x}$	SS
Reading	305	2.08	1.01
Writing	305	1.98	.91
Listening	305	2.01	.95
Speaking	305	1.91	1.00
English self-efficacy (General)	305	2.00	.92

When Table 4 is examined; it is seen that school administrators' English self-efficacy beliefs are at the level of "very little fits" ($\bar{x} = 2.00$). In addition, when the English self-efficacy beliefs of school administrators are examined on the basis of dimensions, it is seen that they are at the level of "very little fit" in the dimensions of reading ($\bar{x} = 2.08$), writing ($\bar{x} = 1.98$), listening ($\bar{x} = 2.01$) and speaking ($\bar{x} = 1.91$). When the level of English self-efficacy beliefs of school administrators on the basis of dimensions is examined; the highest dimension was reading and the lowest dimension was speaking.

Within the scope of the second sub-problem of the research; English self-efficacy beliefs of school administrators were examined according to demographic characteristics (gender, age, duty, education level, seniority of management and school type). Table 5 shows the findings regarding the level of English self-efficacy beliefs of school administrators according to the gender variable.

Table 5. T-test results on the level of English self-efficacy beliefs of school administrators by gender variable

Dimensions	Gender	N	$\bar{x}$	SD	df	t	p
Reading	Female	31	2.07	.92	303	.05	.95
	Male	274	2.08	1.02			
Writing	Female	31	1.96	.86	303	.17	.86
	Male	274	1.99	.92			
Listening	Female	31	2.02	.96	303	.04	.96
	Male	274	2.01	.96			
Speaking	Female	31	1.80	.86	303	.70	.48
	Male	274	1.93	1.01			
English self-efficacy(General)	Female	31	1.97	.85	303	.18	.85
	Male	274	2.01	.93			

*p< .05

According to Table 5, The level of English self-efficacy beliefs of school administrators does not show a significant difference in terms of gender (t(303)= .18, p> .05). Reading (t(303)= .05, p> .05), writing (t(303)= .17, p> .05), listening (t(303)= .04, p> .05) and speaking (t(303)= .70, p> .05) dimensions of school administrators' English self-efficacy beliefs do not show a significant difference according to the gender variable.

The findings regarding the level of English self-efficacy beliefs of school administrators by age variable are given in Table 6.

Table 6. One-way analysis of variance results regarding the level of English self-efficacy beliefs of school administrators by age

Dimensions	Age	N	$\bar{x}$	SD	F	p	Significant Difference
Reading	21-30(1)	16	2.64	1.23	9.92	.00*	1-3, 2-3, 2-4
	31-40(2)	130	2.35	1.14			
	41-50(3)	118	1.80	.72			
	51 and older (4)	41	1.84	.95			
Writing	21-30(1)	16	2.52	1.02	9.12	.00*	1-3, 1-4, 2-3, 2-4
	31-40(2)	130	2.21	.96			
	41-50(3)	118	1.76	.74			
	51 and older (4)	41	1.72	.91			
Listening	21-30(1)	16	2.57	1.07	9.01	.00*	1-3, 1-4, 2-3, 2-4
	31-40(2)	130	2.24	1.03			
	41-50(3)	118	1.80	.78			
	51 and older (4)	41	1.70	.89			
Speaking	21-30(1)	16	2.54	1.07	8.70	.00*	1-3, 2-3
	31-40(2)	130	2.14	1.09			
	41-50(3)	118	1.64	.78			
	51 and older (4)	41	1.75	.98			
English self-efficacy (General)	21-30(1)	16	2.57	1.06	9.95	.00*	1-3, 1-4, 2-3, 2-4
	31-40(2)	130	2.24	1.01			
	41-50(3)	118	1.76	.70			

| | 51 and older (4) | 41 | 1.74 | .89 | | | |

According to Table 6, there is a significant difference in the level of English self-efficacy beliefs of school administrators according to the age variable (F= 9.95, p< .05). According to the results of Dunnets' C test, which was conducted to find out between which groups there are differences among age groups; The level of English self-efficacy beliefs of school administrators in the 21-30 age group ($\bar{x}$= 2.57-"it fits very little") is higher than that of the administrators in the 31-40 age group ($\bar{x}$= 2.24-"very little fits"). In addition, the level of English self-efficacy beliefs of school administrators in the 31-40 age group ($\bar{x}$= 2.24-"very little fits") was between the ages of 41-50 ($\bar{x}$= 1.76-"doesn't fit me at all") and 51 years and older ($\bar{x}$= 1.74-"doesn't suit me at all") is higher than the administrators in the groups.

A significant difference was determined according to the age variable regarding the reading (F= 9.92, p< .05), writing (F= 9.12, p< .05), listening (F= 9.01, p< .05) and speaking (F= 8.70, p< .05)dimensions. The level of English self-efficacy beliefs about reading, writing, listening and speaking dimensions of school administrators in lower age groups is relatively higher than that of administrators in higher age groups.

The findings regarding the level of English self-efficacy beliefs of school administrators according to the duty variable are given in Table 7.

Table 7. T-test results on the level of English Self-efficacy beliefs of school administrators by duty variable

Dimensions	Duty	N	$\bar{x}$	SD	df	t	p
Reading	Principal	135	1.94	.99	303	2.18	.02*
	Assistant principal	170	2.19	1.02			
Writing	Principal	135	1.87	.91	303	1.96	.04*
	Assistant principal	170	2.07	.90			
Listening	Principal	135	1.87	.94	303	2.47	.01*
	Assistant principal	170	2.13	.95			
Speaking	Principal	135	1.81	1.01	303	1.74	.08
	Assistant principal	170	2.00	.98			
English self-efficacy (General)	Principal	135	1.88	.92	303	2.21	.02*
	Assistant principal	170	2.10	.92			

According to Table 7; The level of school administrators' self-efficacy beliefs in English shows a significant difference in terms of the duty variable (t(303)= 2.21, p< .05). The level of English self-efficacy beliefs of assistant principals ($\bar{x}$= 2.10-"very little fits") is higher than that of principals ($\bar{x}$= 1.88-"very little fits").

According to the duty variable, the dimensions of reading (t(303)= 2.18, p< .05), writing (t(303)= 1.96, p< .05) and listening (t(303)= 2.47, p< .05) a difference has been detected. The level of English self-efficacy beliefs of assistant principals regarding the reading, writing and listening dimensions is relatively higher than that of principals. In addition, the level of English self-efficacy beliefs of school administrators regarding the speaking dimension does not show a significant difference in terms of the task variable (t(303)= 1.74, p> .08).

The findings regarding the level of English self-efficacy beliefs of school administrators according to the variable of educational status are given in Table 8.

Table 8. T-test results on the level of English self-efficacy beliefs of school administrators according to the variable of educational status

Dimensions	Educational Status	N	$\bar{x}$	SD	df	t	p
Reading	Undergraduate	223	2.00	1.04	303	2.39	.01[*]
	Postgraduate	82	2.29	.91			
Writing	Undergraduate	223	1.94	.93	303	1.36	.17
	Postgraduate	82	2.09	.86			
Listening	Undergraduate	223	1.96	.98	303	1.56	.11
	Postgraduate	82	2.14	.89			
Speaking	Undergraduate	223	1.87	1.04	303	1.27	.20
	Postgraduate	82	2.03	.88			
English self-efficacy (General)	Undergraduate	223	1.95	.95	303	1.73	.08
	Postgraduate	82	2.14	.84			

[*]$p< .05$

According to Table 8; The level of English self-efficacy beliefs of school administrators does not show a significant difference in terms of the variable of educational status (t(303)= 1.73, p> .05).

The level of English self-efficacy beliefs of school administrators regarding the reading dimension shows a significant difference in terms of the variable of educational status (t(303)= 2.39, p< .05). The level of English self-efficacy beliefs regarding the reading dimension of school administrators with a graduate degree ($\bar{x}$= 2.29-"it fits very little") is higher than that of administrators with a bachelor's degree ($\bar{x}$= 2.00-"it fits very little"). In addition, the dimensions of writing (t(303)= .17, p> .05), listening (t(303)= .04, p> .05) and speaking (t(303)= .70, p> .05) the level of English self-efficacy beliefs of school administrators does not show a significant difference according to the variable of educational status.

Table 9 shows the findings regarding the level of English self-efficacy beliefs of school administrators according to the seniority of administration variable.

Table 9. One-way analysis of variance results on the level of English self-efficacy beliefs of school administrators according to the seniority of administration variable

Dimensions	Seniority of administration	N	$\bar{x}$	SD	F	p	Significant difference
Reading	1-5 years (1)	121	2.34	1.12	6.37	.00[*]	1-4
	6-10 years(2)	87	2.03	.96			
	11-15 years(3)	41	1.94	.94			
	16 years and over(4)	56	1.70	.74			
Writing	1-5 years(1)	121	2.18	.97	6.04	.00[*]	1-4, 2-4
	6-10 years(2)	87	2.03	.92			
	11-15 years(3)	41	1.80	.84			
	16 years and over(4)	56	1.63	.67			
Listening	1-5 years(1)	121	2.26	1.05	7.21	.00[*]	1-3, 1-4, 2-4
	6-10 years(2)	87	2.01	.91			

	11-15 years(3)	41	1.79	.93			
	16 years and over(4)	56	1.64	.64			
Speaking	1-5 years(1)	121	2.14	1.11	4.48	.00*	1-4
	6-10 years(2)	87	1.87	.98			
	11-15 years(3)	41	1.78	.91			
	16 years and over(4)	56	1.61	.71			
English self-efficacy (General)	1-5 years(1)	121	2.24	1.01	6.59	.00*	1-4, 2-4
	6-10 years(2)	87	2.00	.90			
	11-15 years(3)	41	1.83	.86			
	16 years and over(4)	56	1.65	.64			

*$p < .05$

According to Table 9, there is a significant difference between the level of English self-efficacy beliefs of school administrators in terms of administration seniority variable ($F = 6.59$, $p < .05$). According to the results of Dunnets' C test, which was conducted to find out between which groups there are differences among managerial seniority groups; The level of English self-efficacy beliefs of school administrators in the 1-5 years ($\bar{x} = 2.24$-"very little" level) and 6-10 ($\bar{x} = 2.57$-"very little" level) years groups is higher than that of the administrators in the 16 ($\bar{x} = 1.65$-"doesn't suit me at all") years and above group.

A significant difference was determined according to the seniority of administration variable regarding the reading ($F = 6.37$, $p < .05$), writing ($F = 6.04$, $p < .05$), listening ($F = 7.21$, $p < .05$) and speaking ($F = 4.48$, $p < .05$) dimensions. The level of English self-efficacy beliefs of school administrators in lower seniority groups regarding reading, writing, listening and speaking dimensions is relatively higher than that of higher seniority groups. Table 10 shows the findings regarding the level of English self-efficacy beliefs of school administrators according to the school type variable.

Table 10. One-way analysis of variance results on the level of English self-efficacy beliefs of school administrators by type of school variable

Dimensions	Types of School	N	$\bar{x}$	SD	F	p	Significant Difference
Reading	Kindergarten(1)	16	1.77	.69	.95	.41	---
	Primary school(2)	81	2.05	1.04			
	Secondary school(3)	155	2.08	1.01			
	High school(4)	53	2.22	1.05			
Writing	Kindergarten(1)	16	1.85	.69	.39	.76	---
	Primary school(2)	81	1.97	.87			
	Secondary school (3)	155	1.97	.91			
	High school(4)	53	2.09	1.03			
Listening	Kindergarten(1)	16	1.76	.77	.71	.54	---
	Primary school(2)	81	1.99	.87			
	Secondary school (3)	155	2.01	.97			
	High school(4)	53	2.13	1.08			
Speaking	Kindergarten(1)	16	1.72	.73	.38	.76	---
	Primary school(2)	81	1.91	.96			
	Secondary school(3)	155	1.91	1.01			
	High school (4)	53	2.00	1.09			

English self-efficacy (General)	Kindergarten(1)	16	1.78	.70	.64	.59	---
	Primary school(2)	81	1.99	.89			
	Secondary school(3)	155	2.00	.93			
	High school (4)	53	2.12	1.02			

*p< .05

According to Table 10, there is no significant difference between school administrators' level of English self-efficacy beliefs according to the school type variable (F= .64, p> .05). The level of English self-efficacy beliefs of school administrators regarding reading (F= .95, p> .05), writing (F= .39, p> .05), listening (F= .71, p> .05) and speaking (F= .38, p> .05) dimensions does not show a significant difference according to the school type variable.

Discussion and Conclusion

Within the scope of the first sub-problem of the research; it was concluded that school administrators' English self-efficacy beliefs were at a low level. This is a negative quality for effective and successful schools. By following the international developments and qualified practices in education, international cooperation can be increased through projects and similar practices. Only these elements are not the quality of successful schools, but they are an indication that there is little cooperation in schools and that they are not successful. The result of the research shows partial similarity with the findings of the research conducted by Gömleksiz & Kılınç (2014). Although the results are not directly related to school administrators, this study, which is considered in the sample of high school students, shows similarity in English self-efficacy among school stakeholders. According to the results of the research conducted by Gömleksiz & Kılınç (2014); it was determined that high school students' English self-efficacy beliefs were at a moderate level. Students who spend more time on English have higher English self-efficacy beliefs. Based on these results, it can be said that low self-efficacy beliefs negatively affect students' attitudes, behaviors and academic achievements towards English (Gömleksiz & Kılınç, 2014). Similarly, Mikulecky (1996) concluded in his study that the success rate of students with high self-efficacy perceptions is high, while the success rate of students with low self-efficacy perception is similarly low. According to the current study, it was determined that the level of English self-efficacy beliefs of school administrators was low on the basis of dimensions; the highest-level dimension was reading, and the lowest-level dimension was speaking. According to this result, it can be said that all dimensions affect the level of English self-efficacy beliefs of school administrators, but the reading dimension is comparatively higher than the other dimensions.

Within the scope of the second sub-problem of the research; English self-efficacy beliefs of school administrators were examined according to demographic characteristics (gender, age, duty, educational status, administration seniority and school type). The level of school administrators' English self-efficacy beliefs did not show a significant difference in terms of gender. This may be due to different cultural and social characteristics of the sample groups. Along with the general average, the gender factor does not have a significant effect on the basis of dimensions. There is no study similar to the current study before, but there are some studies that do not overlap with the results of the current research when evaluated in terms of school stakeholders. Aktamis et al. (2016) found that male students had higher self-efficacy levels in

terms of gender. In the study conducted by Valizadeh (2021), a significant difference was found between the self-efficacy of men and women in favor of women. Sample group differences or socio-cultural differences may be the source of the results of these studies, which do not match the results of the current research.

A significant difference was found between the level of English self-efficacy beliefs of school administrators according to the age variable. The level of both general English self-efficacy beliefs and English self-efficacy beliefs related to reading, writing, listening and speaking dimensions of school administrators in the younger/lower age groups is relatively higher than that of the administrators in the older age groups. This may be due to individuals in younger/lower age groups being more open to innovations and wanting to improve themselves or due to their up to date English education

The level of school administrators' self-efficacy beliefs in English showed a significant difference in terms of the duty variable. The level of English self-efficacy beliefs of assistant principals is higher than that of principals. This may be due to the fact that assistant principals want to reach foreign resources in order to both promote themselves or may be that assistant principals are younger than the principals. The level of English self-efficacy beliefs of assistant principals regarding the reading, writing and listening dimensions is relatively higher than that of principals. In addition, the level of English self-efficacy beliefs of school administrators regarding the speaking dimension did not show a significant difference in terms of the duty variable. This may be a sign that school administrators lack the language skills necessary to adequately express their emotions and ideas in English.

The level of school administrators' English self-efficacy beliefs did not show a significant difference in the overall scale and in the dimensions in terms of the variable of educational status. Regarding the reading dimension, postgraduate graduates have higher English self-efficacy beliefs. This may be due to the fact that postgraduate administrators do more foreign-sourced readings for professional development purposes.

A significant difference was found between the level of English self-efficacy beliefs of school administrators, according to the variable of seniority of administration. It was concluded that administrators with less professional seniority (less experienced) perceive the level of self-efficacy beliefs in English higher than administrators with more professional seniority (experienced). It can be stated that less experienced administrators have stronger beliefs about their ability to reach a goal and fulfill a responsibility in English or may be that administrators with less professional seniority are younger than the administrators with more professional seniority. A significant difference was found according to the seniority of administration variable regarding the dimensions of reading, writing, listening and speaking. The level of English self-efficacy beliefs of school administrators in lower seniority groups regarding reading, writing, listening and speaking dimensions is relatively higher than that of higher seniority groups. It can be said that experienced administrators do not consider themselves sufficient in expressing and communicating in English.

There was no significant difference between the level of English self-efficacy beliefs of school administrators according to the school type variable. The level of English self-efficacy beliefs of school administrators regarding the dimensions of reading, writing, listening and speaking did not show a significant difference according to the school type variable. In addition, the research finding does not coincide with the research findings conducted by Bozkurt and

Ekşioğlu (2018). In the study conducted by Bozkurt and Ekşioğlu (2018), the level of English self-efficacy showed a significant difference according to the school type variable. The sample group differences may be the reason why this study's findings don't coincide with the findings of the study conducted by Bozkurt and Ekşioğlu (2018).

According to the results of the research, school administrators' English self-efficacy beliefs are at a low level. While the level of English self-efficacy beliefs of school administrators showed a significant difference according to the variables of age, duty, professional seniority and administration seniority; there was no significant difference according to gender, age, educational status and school type variables. Suggestions regarding the research results are as follows:

- School administrators can be provided with theoretical and practical English language training.
- Language activities can be organized in schools with the participation of all education stakeholders in order to increase the English self-efficacy of school administrators depending on the language training to be carried out.
- In this study, school administrators' English self-efficacy beliefs were examined. Similar studies can be conducted in relation to school administrators' English self-efficacy beliefs and variables such as effective school, school leadership, school climate, school culture.
- In this study, school administrators were taken as a sample. Similar studies can be conducted by sampling teachers in order to determine both the school and class-based aspects of English self-efficacy beliefs.

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Designing a Science Lesson: Developing Pre-service Teachers' Lesson Planning Skills Based on Real-life Context-based Approach

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Designing a science lesson: Developing pre-service teachers' lesson planning skills based on real-life context-based approach

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Abstract

In this study, it was aimed to support pre-service primary and science teachers' ability to implement real-life context-based course design in the 5E Model and to use current science education approaches in lesson designs. For this purpose, action research, one of the qualitative research types, was adopted. 13 pre-service primary and science teachers participated in the research. The data of the study were obtained from pre-post measurements, lesson plans developed by the pre-service teachers and observations made by the researchers as participant observers. The data were analyzed with descriptive and content analysis methods. The preliminary results show that pre-service teachers could not use basic teaching approaches such as the real-life contextual approach, nature of science, scientific reasoning, STEM activities, Web 2.0 tools, laboratory implementations. At the end of the trainings, pre-service teachers' competencies in preparing a science lesson plan based on context-based science teaching and in accordance with the current and basic science education paradigm increased significantly. This study supported the pre-service teachers' science self-efficacy for introducing current practices related to science teaching during their undergraduate education to become classroom and science teachers and to gain skills on how to reflect these practices in lesson plans. The findings indicate that there is a need for practical training in teacher training due to field studies in Turkey, and that pre-service teachers should adopt the 21st century science teaching approach.

Note(s) from the author(s)
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» The ethics committee approval was obtained from Selcuk University with a document number of E.69778 on 06/05/2021.

Introduction

Today's education systems are faced with the effort to develop the knowledge, skills, attitudes and values necessary to prepare individuals for rapid economic, environmental and social changes, jobs that have not yet been created, technologies that have not yet been invented, and solving unexpected social problems (Organisation for Economic Co-operation and Development [OECD], 2018). Science education is one of the main areas with effective importance in developing these knowledge, skills and attitudes that are necessary for today and the future. As a matter of fact, the importance of the value that societies attach to science education during the COVID-19 pandemic has once again come to light. For example, vaccine studies and vaccine hesitations (Kinali et al., 2022), individuals' conscious behavioral tendencies towards the pandemic and their reactions to scientific studies (Valladeres, 2021) are reflections of the science education that societies have. Thanks to science education, it is aimed to raise students as individuals who use scientific knowledge in their daily lives, comprehend science-technology-society and environmental relations, and perhaps most importantly, participate in the socio-scientific debates of the future informedly (Ağlarcı-Özdemir, 2020). Teachers play the most important role in fulfilling this clear goal. At this point, this study focuses on the education of pre-service teachers who have an active science teaching role in the basic education period. This is because the practicum in pre-service teacher curriculum is the longest and most intensive exposure to the teaching profession experienced by pre-service teachers (Cohen et al., 2013). From the perspective of Turkey, as a society with a population of approximately 23 million children (Turkish Statistical Institute, 2022) taking measures to ensure that this process is carried out effectively and efficiently is undoubtedly an important element in raising individuals who are better prepared for life. For this reason, developing qualified science teaching designs of pre-service teachers constitutes the main vision of the study.

One of the main issues in raising an individual who is better prepared for life with science education is to show the student that science is widely applicable in nature and life and in different aspects of life. When the national and international literature is examined (Badeli, 2017; Can, 2017; Gilbert, 2006; Hoşbaş, 2018; King, 2009; Konur & Ayas, 2010; Pilot & Bulte, 2006; Sak, 2018; Stolk et al., 2009) it is possible to see the findings that there is an isolation between science lessons and real life. Kwok (2018) states that science education at all levels of education is generally seen as abstract and irrelevant to real life, and that students think they cannot relate science discipline content and materials to the real world. When the research on science teaching programs from the past to the present is examined, it is often stated that the curriculum is intensive and intangible structure, and that there are instructional problems caused by teachers' inability to understand the curriculum sufficiently (Gilbert, 2006; Karaman & Karaman, 2016; King, 2009; Konur & Ayas, 2010; Özcan & Düzgünoğlu, 2017; Pilot & Bulte, 2006; Saraç & Yıldırım, 2019; Schwartz, 2006). Also, in the World Economic Forum's large-scale global research on the output of Education 4.0, when the curricula/working principles of the schools chosen as the schools of the future are examined, it is observed that they adopt a science teaching approach that has an answer to real-life problems (The World Economic Forum [WEF], 2020, pp. 12-20). Along with the necessity of transforming the knowledge gained through the science course into a skill in real life, the science education paradigm of nations is evolving into real-life context-based science education understanding (Bennett et al., 2006; De Jong, 2006; Eilks &

Hofstein; 2017; Kwok, 2018). In this context, the real-life approach in science teaching was chosen as the focal element in developing the lesson design.

The Real-life Context-Based Learning Approach is a learning-teaching approach based on shaping the teaching and assessment process with a context that includes real-life situations familiar to the student in which teaching is carried out based on the need to know (Bulte et al., 2006). In this approach, teaching starts with a context that the student is familiar with from his/her socio-cultural environment, concepts are taught within this selected context, and the effectiveness process is increased by associating the taught concepts with other contexts (Aydın-Ceran, 2018). The Real-life Context-Based Approach is a 21st century science teaching approach that offers a teaching environment focused on gaining science literacy (Gilbert, 2006), conceptual understanding skills (Aydın-Ceran, 2018; Akpınar, 2012; King, 2009), scientific process skills (Glynn & Koballa, 2005), STEM skills (Sevian, Dori, & Parchmann, 2018), understanding of nature of science (Duruk, 2017). As a matter of fact, the Program for International Student Assessment (PISA), which we can qualify as one indicator of international education and which is conducted by the OECD, associates students' science literacy with their success in daily life contexts. The science literacy term used in PISA evaluates students' ability to apply scientific knowledge to real life, as well as what they know in science (OECD, 2019). From this point of view, in this study, the issue of teacher training who teaches science in the context of real life and adopts the 21st century current science education approach is given importance.

When the literature is examined, studies focusing on the lesson plan development practices of pre-service teachers are encountered. Spooner et al. (2007) developed a Universal Design for Learning that can help teachers design an accessible lesson plan for all students. Jacops et al. (2008) developed and validated the Science Lesson Plan Analysis Instrument (SLPAI) for quantitative evaluation of teacher-generated multiday lesson plans. Goldstone et al. (2013) centered on the psychometric examination of the structure of an instrument, known as the 5E Lesson Plan (5E ILPv2) rubric for inquiry-based teaching. Srikoom (2020) has focused on the development of STEM integrated lesson plans. Also, there are also studies that examine the lesson plans developed by pre-service teachers according to various parameters. (Aşiroğlu & Koç-Akran, 2018; Canbazoglu-Bilici et al., 2016; Çolak & Yabaş, 2017; Kim & Bolger, 2017; Saraç & Uygun, 2020; Ültay et al., 2018). When the related literature is examined, it can be said that the lesson design trainings that deal with the current and basic dynamics of science teaching in teaching practice are limited. Therefore, in this study, the necessity of creating a multidimensional education package has been a driving force in developing lesson designs that include basic and current applications within the framework of the 21st century science education paradigm. In this context, real life element in science teaching was chosen as the focus in developing lesson design. With in this focus, a holistic and multidimensional design approach was tried to be developed with dynamics such as 5E, STEM, nature of science, scientific reasoning, web 2.0 tools, scientific inquiry and science laborotary.

Zeichner (2003) states that teaching is a clinical practice profession, just like clinical psychology and medicine. This view, which sees teaching as a clinical practice profession, attaches more importance to practical activities than theoretical knowledge. Pre-service teachers should be equipped with an appropriate academics curriculum and developed a policy for effective lesson plans (Hafiz et al., 2021; Terra et al., 2020). It is seen in the literature that science and primary teachers experience uncertainty about how they will contribute to the learning of

each child in science teaching, and that they have practice-oriented problems, especially in gaining field-specific skills (Çelik & Avcı, 2018; Kanat, 2018; Kubat, 2015; Loxley et al., 2016; Tatar & Ceyhan, 2018). For this reason, it is important that pre-service teachers in science lessons, which are based on experiment and observation but have many field-specific dynamics, have sufficient experience in terms of lesson plan development, implementation and evaluation context of 21st century current science education. Within the framework of all these, with the focus on transforming scientific knowledge into real life skills, the development of pre-service teachers' course design skills that include current and basic science teaching practices has a high value in terms of science teaching in the classrooms of the future. In this context, with this research, it was aimed to develop the skills of pre-service teachers in making holistic and multidimensional lesson design based on context-based science teaching. Within the framework of holistic and multidimensional lesson design approach, focused on the development of pre-service teachers' skills to use basic and contemporary approaches in lesson designs such as scientific inquiry, nature of science, STEM, Web 2.0 tools, and the 5E Model. In line with this general framework, the sub-objectives of the research are as follows:

1. What is the self-evaluation of pre-service teachers for designing a science lesson?
2. How do the trainings help pre-service teachers develop their lesson plans?
3. What is the self-evaluation of pre-service teachers in designing a post-education science course?

Methodology

Research model

In this study, the action research type of qualitative research method was adopted. Action research in education is research that teacher use to solve a problem they encounter in their classrooms, to improve the learning level of their students in any subject, and to increase their own professional performance (Creswell, 2012). According to Elliot (1991, p. 49), the main purpose of action research in education is "to develop practice rather than to produce knowledge". For this reason, action research is focused on providing "change and development" (Gürgür, 2017, p. 39). In this research, it is aimed that pre-service teachers can develop lesson and activity plans in the 5E Model based on the context-based science teaching principles. The research was conducted according to the action research type of practice-oriented approach. The action research process followed in the research is visualized in Figure 1.
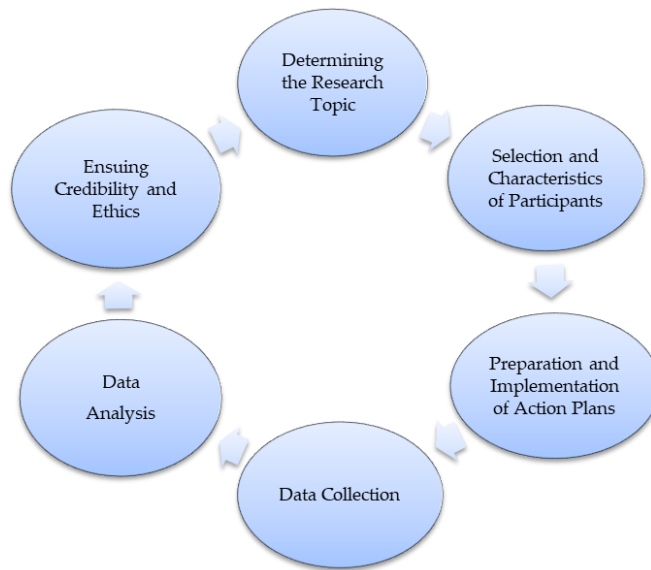
Figure 1. Research process

According to Figure 1, the studies carried out during the research process can be explained under the relevant headings as follows:

Determining the research topic

The subject of the study was determined during the scientific talking between first author who had many years of experience in science teaching, and the second author who had experience in classroom teaching. As a matter of fact, these observations cover the shortcomings of pre-service teachers in designing and developing science lessons, associating them with real life, and in making lesson designs based on the current and basic approach in science teaching. The researchers adopted a principal decision about the necessity of designing a lesson based on the learning needs of each student in classroom in line with their public school experiences and the observations of pre-service teachers on internship practices. Based on their experiences and observations, the researchers adopted an approach based on the real-life element in science teaching. Within the framework of this approach, they decided to use the 5E model, which is known for its usefulness and functionality, as a skeleton model in their lesson plans. In the lesson designs to be developed in the 5E Model based on real-life contexts, it is aimed that pre-service teachers adopt basic and current science teaching approaches and use them in their lesson plans. In the study, the nature of science, scientific reasoning, scientific process skills, STEM, laboratory applications and Web 2.0 tools were included in basic and current science teaching approaches. Thus, it was thought that the professional development of pre-service teacher can be strengthened and that teachers who are better equipped in science teaching will make significant contributions to future learning environments (Hafiz et. al., 2021; Terra et. al., 2020).

Participants

In the selection of the participants of the research, pre-service teachers at the education-teaching level, where the science course is carried out as an independent course, were determined as the target population. Criterion sampling and chain sampling techniques were used to reach the participants. According to this, the first participants who met the condition of

not having taken part in similar research before were reached among the pre-service primary school teachers who would actively conduct the science lesson at the 3rd and 4th grades and the pre-service science teachers. Then, other participants with similar characteristics were reached through the first participants and the study group of the research was expanded. Reaching people who meet the criteria by determining certain criteria and then expanding the sample by adding other people who meet the criteria to the study group with the guidance of the previous participant is a sampling technique suitable for the nature of qualitative research (Creswell, 2012; Patton, 2018). Pre-measurement was applied to 15 participants, of whom nine were pre-service primary teacher and six were pre-service science teachers selected under this technique. Since two of the participants did not give a voluntary participation statement, these pre-service teachers were not included in the research process. There were 13 pre-service teacher in the final study group. The most distinctive feature of the participants, obtained from the pre-tests, is that they considered themselves inadequate in developing an activity/lesson plan for lesson structuring, the real-life context-based science teaching principles and current science education approach. In addition, the other characteristics of the participants can be expressed in Table 1 as follows:

Table 1. Demographic characteristics of the participants

Branch	Gender	Grade	University
PST1	F	4	Gazi University
PST 2	F	3	Gazi University
PST 3	F	4	Karamanoglu Mehmetbey University
PST 4	M	3	Gazi University
PST 5	M	4	Necmettin Erbakan University
PST 6	F	3	Necmettin Erbakan University
PST 7	F	4	Gazi University
PST 8	M	4	Necmettin Erbakan University
PST 9	F	3	Necmettin Erbakan University
ST1	F	3	Necmettin Erbakan University
ST2	F	3	Necmettin Erbakan University
ST3	F	3	Necmettin Erbakan University
ST4	F	3	Necmettin Erbakan University

Note. In Table 1, the abbreviation PST indicates a pre-service primary teacher, and the abbreviation ST indicates a pre-service science teacher.

Action plans

A preliminary evaluation was made through Google forms to determine the current status of the pre-sevice teachers within the scope of the research topic. Then, the relevant literature was reviewed. In this context, topics that are considered important in terms of basic and current science education was determined based on real-life contextual approach. Because of the multidisciplinary nature of the science course in the trainings, attention was paid to include applications of concepts and achievements for all disciplines, such as physics, chemistry, biology, the environment, and health. In line with this plan, the action plans were implemented via an online platform for 33 lesson hours over a period of four days. Then, the process was completed by applying the post-tests to the pre-service teachers. In the research, 33 action plans, either theoretical or practical, were implemented in nine modules. The nine modules included

in the action plans are given in Table 2, and the detailed action plan table is given in the Appendix.

Table 2. Modules in action plans

Module Name	Duration of Implementation (min)
Daily Life and Scientific Reasoning: Developing Inquiry-Based Reasoning Skills	180
Elements of Daily Life in Chemistry Subjects; Event Design and Implementation Based on Real-Life Contexts	225
Activity Development for Daily Life Elements and Real-Life Problems in the Design of STEM Activities	180
The Place of Real-Life Context-Based Science Education in Curricula in the World and in Turkey According to International Education Indicators	90
How to Develop a Lesson Plan Based on Real-Life Contexts: How is it applied?	135
Cleaning Agents Used in Daily Life, Health Hazards and Safety Precautions	90
Context-Based Nature of Science Lesson Plan Development and Implementation	315
"Environmental Pollution" as a Real-Life Context: Developing and Implementing Activities Appropriate for Science Curriculum Outcomes	225
Use of Interactive Web 2.0 Tools in Science Teaching Based on Real-Life Contexts and Sample Practices	180
Total	1620

The developed action plans were implemented via an online platform within the scope of a program comprising 36 lesson hours (one lesson hour was calculated as 45 minutes) over a period of four days between 18.10.2021 and 21.10.2021. The responses of the participants to the preliminary measurements were effective in the creation of the action plans. In this direction, the first action plan drafts were prepared. The action plans were reviewed by both the researchers and the validity committee. After the revisions and changes were made to the action plans in line with the recommendations of the validity committee, each action plan was put into practice by academics who were experts in the subject.

Data collection tools

The data of the study were obtained from pre-post measurements, lesson plans developed by the pre-service teachers and observations made by the researchers as participant observers.

Pre- and post-measurements

Preliminary measurements of the research were made between 07.10.2021 and 17.10.2021 before implementing the action plans. A semi-structured interview form was used in the preliminary measurements. In the first part of the interview form, six closed-ended questions were included for some demographic information of the participants. In the second part, questions that aimed to evaluate their competence to structure lessons based on context-based science teaching principles and develop lesson-activity plans in accordance with current and basic science education dynamics were included. Some of these questions are as follows:

"How would you describe your ability to develop a lesson plan for a science lesson?",

"Do you have any information about the Life/Context-Based Teaching Approach? If the answer is 'yes', can you briefly explain what you know?",
"How would you explain the Nature of Science?"
"Can you create an idea for a context-based activity based on Scientific Reasoning?"
"How would you describe your ability to use the 5E Model in creating lesson plans?"

In addition, in order to better understand the proficiency status of pre-service teachers, guiding questions such as the following were included:

"When you started your profession, did you consider yourself competent to design a lesson plan about science teaching? What are the reasons for your answer?",
"Can you give examples of national and international practices related to teaching and assessment and evaluation approaches within the scope of life-based science education?",
"Do you consider yourself competent in integrating STEM with your lesson design? Can you explain why?"

The final measurements were made between 19.10.2021 and 29.10.2021 after implementation of the action plans was completed. In the last measurements, some questions asked to the pre-service teachers in order to determine the contribution of the education they received within the framework of the action plans are as follows:

"What are the subjects, concepts or practices that you have had the opportunity to learn for the first time in science education with this training?".
"How did this education contribute to your feeling ready for the teaching profession and improving your professional skills? ".

Lesson plans developed by pre-service teachers
In line with the action plans realized within the scope of the research, pre-service teachers were asked to design a lesson plan based on context-based science teaching principles and in the 5E Model for one of the science lesson curriculum topics or achievements. In addition, pre-service teachers were asked to integrate into their lesson plans at least one component (STEM, WEB 2.0, the Nature of Science, scientific reasoning, etc.) from the subjects they were trained in. The lesson plans of the pre-service teachers were checked by the researchers at regular intervals. During these checks, various pieces of feedback were given to the pre-service teachers. In line with this feedback, 13 lesson plans, which were completed by the pre-service teachers, were obtained.

Participant observation
Participatory observation helps the researcher to develop a good understanding of events by providing a holistic view of behaviors and interactions in a real context (Schoen, 2007). In this study, both researchers were participant observers at every stage of the research. The data obtained as a result of the participant observations were used to create the action plans and interpret the findings.

Data analysis
Descriptive and content analysis methods were used in the analysis of the data. For content analysis the researchers came together from time to time and compared their coding. In

this comparison process, common and different codes were determined. While the common codes were accepted by both researchers, re-evaluations were made on the differences. This process was carried out under the supervision of a different colleague. At the end of this process, 40 codes and 15 categories were created. The theme and code relationship is interpreted in detail under the relevant themes. Direct statements of pre-service teachers are also presented to show the basis of the theme and code formation processes. A code name such as "PST1" or "ST2" was used for each participant (PST1 shows the pre-service primary teacher who is the first participant, while ST2 shows the pre-service science teacher who is the second participant).

The presence of both researchers as participant observers during implementation of the action plans enabled the observations of the whole process to be evaluated from a different perspective. The results of these observations made it possible to make some determinations by mutually discussing issues such as the effectiveness of the applications made in the data analysis process, the shortcomings, the development of the participants, the suggestions of the participants, etc. In analysis of lesson plans, a descriptive analysis of the data obtained was made and the percentage and frequency values of the category/codes were determined. For this, both researchers analyzed the lesson plans prepared by the pre-service teachers after the training in line with 2 different criteria. These are the Real-life Context-Based Lesson Plan Criteria Table developed by Tekbıyık (2010) and revised by Aydın-Ceran (2018), the Stages Model of the Real-life Context-Based 5E Model developed by Aydın-Ceran (2018).

Credibility and ethics

Reliability in qualitative research is directly related to the reliability of the researcher's observation and the detailed presentation of each stage of the research (McMillan & Schumacher, 2010). By using more than one data collection method and technique together, a data triangulation approach is adopted and an attempt is made to minimize the possibility of the researcher making "systematic mistakes" (Yıldırım & Şimşek, 2008). In this study, an attempt was made to increase the validity and reliability of the research by using three types of data collection methods: interview, observation, and document review.

Another method used to increase credibility in qualitative research is peer debriefing (Holloway & Wheeler, 1996). All the action plans used in this study were examined by the validity committee made up of 8 academicians, including the researchers. As a result of these examinations, it was decided that the action plans can overcome the inadequacies in lesson structuring, lesson plan and activity development based on real-life context-based science teaching principles and can raise awareness current and basic science education dynamics. In addition, a pilot application of the pre- and post-measurement questions created to ensure credibility in the research was conducted on nine participants. The questions were examined by two academicians who are experts in the field.

Citations and stories are very important to establish the confirmability of a study. For this purpose, the findings should include the participants' own statements rather than the researcher's prejudices or opinions (Lincoln & Guba, 1985). In this research, direct quotations were made from the statements of the participants as the basis of the categories created by following a similar path. The Miles & Huberman (1994) coefficient of agreement was calculated for agreement between the researchers. This coefficient showed that there was 93% agreement between the researchers. At the beginning of the research process, a voluntary participation

statement was obtained from all participants. In addition, the identities of the participants were kept confidential by using codes such as "PST1" or "ST2" in the analysis processes for each participant.

Findings

Pre-service science and primary school teachers' self-evaluations on designing a science lesson

The data obtained from the interviews and observations with the 13 pre-service teachers were analyzed before the trainings. Based on these analyses, the categories related to pre-service teachers' self-evaluations on planning and designing a science lesson can be explained as follows:

In the "proficiency" category, a significant number of pre-service teachers (76%) stated that they did not consider themselves competent in developing a context-based lesson plan and designing lessons in accordance with the current and basic science teaching dynamics, that they needed support in this regard and that they did not have serious experience. This finding has been the launching pad for the creation of an education and training program by researchers. Some views of the pre-service teachers regarding the "proficiency" category are as follows:

> *"I have never had experience of preparing a science lesson plan in classroom teaching classes. But I can create a simple lesson plan based on the lesson plans we prepared in other lessons." PST6.*

> *"I don't think I gained the skill of preparing a lesson plan in the faculty. However, I am trying to prepare a lesson plan in line with the 5E plan with the lessons I took in the previous semesters." ST2.*

In the category of "focus in lesson design", the basic elements that pre-service teachers focused on in creating a course design were examined. It has been determined that the focal elements in this category are grouped under four different codes. These are "lesson plan preparation principles (47%)", "content selection (32%)", "teaching methods-techniques (%28)", and "student's affective characteristics (24%)". Focusing on the principles of lesson plan preparation in lesson design, the pre-service teachers focused on principles such as suitability for the level of the student and suitability for the subject. In the selection of content, it was seen that the pre-service teachers emphasized the necessity of the content to be real-life-based, multidisciplinary and simple. On the other hand, in the teaching methods and techniques code, it was seen that the pre-service teachers focused on the lesson plan being student-centered and based on active learning approaches. Some views on these categories and codes are as follows:

> *"The course should be prepared in accordance with its aims, objectives and gains. The lesson plan should be flexible and applicable, and should be prepared by paying attention to individual differences. A learner-centered course design should be created that will make the student active." PST3.*

> *"The lesson should be made interesting. It should be reconciled with daily life. It is important to teach at the level of any age group." ST2.*

In the category of "problems in the integration of basic dynamics", it was found that pre-service teachers had problems in using the elements that constitute the basic dynamics of science teaching in a lesson design, such as the nature of science, scientific reasoning, STEM, laboratory and Web 2.0. In addition, pre-service teachers stated that they did not consider themselves

competent in terms of these basic dynamics. Pre-service teachers stated that they could not receive adequate education in some science teaching practices in the faculty, especially that the trainings involving such subjects coincided with the distance education period in the COVID-19 pandemic, and therefore, that the courses were inefficient. This finding of the research has guided the researchers in the planning of trainings to integrate the dynamics expressed by the pre-service teachers into the context-based course design. Some of the pre-service teachers' opinions are as follows:

> *"I do not consider myself competent in areas such as STEM and the nature of science. I am familiar with these concepts, but I think I will have difficulty integrating them into course designs." PST8.*

> *"Unfortunately, I don't consider myself competent in how to use STEM, scientific reasoning, and life skills to develop a context-based lesson plan. Since it coincided with the COVID-19 pandemic process, I could not even take adequate laboratory courses in the 1st and 2nd grades. That's why I'm so deficient." ST2.*

In the category of "professional anxiety", pre-service teachers expressed concerns such as not being able to follow current developments in their teaching careers or not knowing the means of self-development. When this category is examined, there are two codes: "personal factors (56%)" and "external factors (51%)". When the personal factors code is examined, it can be said that the pre-service teachers emphasized the inadequacy of their own learning efforts or the need for more learning activities. The external factors code includes the problems in the structure of the undergraduate curriculum and the limitations of distance education in the COVID-19 period. Some opinions regarding this category are as follows:

> *"Sometimes I do not consider myself competent in teaching appropriately for raising scientifically literate individuals. Not performing the necessary practices and not being able to put my theoretical knowledge into practice are the reasons for this answer." PST3.*

> *"I search for experiments that can be done on the subjects in the curriculum so that my students can learn by experiencing as much as possible. However, I don't feel competent because I can't obtain the best results from distance education. I think I have a lot to learn." PST7.*

Lesson designs developed by pre-service teachers after the training

The lesson plans developed by the pre-service teachers were evaluated by the researchers according to 2 different criteria tables. A descriptive analysis of the data obtained in this process was made and the percentage and frequency values of the categories/codes are given in Table 3 and Table 4. The criteria given in Table 3 were scored by the researchers. Each criterion has a value between 1-4 points (totally adequate=4, highly adequate=3, partially adequate=2, inadequate=1). The highest score that can be obtained according to the criteria table is 44, and the lowest score is 11.

Before the values in the table were recorded, a separate scoring was made for each pre-service teacher's lesson plan, and the total mean scores of the 13 pre-service teachers from each criterion are reflected in Table 3.

Table 3. Analysis of pre-service teachers' lesson plans according to real-life context-based lesson plan criteria table

	X	Totally Adequate		Highly Adequate		Partially Adequate		Inadequate	
		f	%	f	%	f	%	f	%
1. The lesson begins with a context chosen from daily life that will interest the student.	3.61	8	61.53	3	23.07	2	15.8	-	
2. The context is such that it can be easily associated with science concepts.	3.53	8	61.53	4	30.76	1	7.69	-	
3. The context will increase the student's interest and motivation towards science.	3.53	7	53.84	6	46.15	-		-	
4. Guiding questions are asked to enable the student to establish a connection between the context and scientific knowledge and concepts.	3.23	6	46.15	6	46.15	1	7.69	-	
5. It makes students feel that learning scientific concepts is a necessity.	3.53	5	38.46	7	53.84	1	7.69	-	
6. Regarding the events that the student encounters in daily life, it enables them to find solutions by using scientific process skills, such as accessing information, interpreting information, analyzing information and making decisions.	3.07	5	38.46	5	38.46	2	15.38	1	7.69
7. It enables the student to find solutions to the events he/she encounters in daily life by using scientific knowledge.	3.07	5	38.46	5	38.46	2	15.38	1	7.69
8. It allows the student to relate the concept to the context (recognizing the connections between concepts and real-world applications).	3.53	6	46.15	5	38.46	2	15.38	-	
9. It allows the student to transfer the context to other concepts and contexts (transfer important links from one field to another).	3.23	6	46.15	5	38.46	1	7.69	1	7.69
10. It contains contextual assessment questions to determine whether the content is understood by students.	3.61	8	61.53	5	38.46	-		-	
11. It enables students to realize the social importance of science.	3.46	7	53.84	5	38.46	1	7.69	-	
Criteria Average	3.40		49.64		39.15		9.08		2.09

When the lesson plans prepared by the pre-service teachers are examined according to the life-based lesson plan criteria table, it is seen that the mean value of the lesson plans in the context of all criteria is 3.40. When this mean value is compared with the highest score that can be obtained, it can be said that the level of designing a lesson plan in accordance with the principles of a real-life context-based lesson plan is 85%. According to the real-life context-based lesson plan criteria of the lesson designs, on average, 49.64% were totally adequate, 39.15% were highly adequate, and 9.08% were partially adequate. However, it can be observed that a very low rate of the lesson plans, namely 2.09%, were not at an adequate level in terms of some criteria (6-7-9). If a detailed examination is made in the context of the criteria, it can be said that the

lesson plans were adequate in terms of criteria 1-2-3-5-8 and 10. However, pre-service teachers had difficulties in designing their lesson plans in terms of the 6th, 7th and 9th criteria.

Lesson plans were analyzed according to the stages of the Real-Life Context-Based 5E Model (Aydın Ceran, 2018) as presented in Table 4 within the framework of these criteria.

Table 4. Analysis of teacher pre-service teachers' lesson plans according to the stages of the real-life context-based 5E model

Stages	Criteria	Frequency	Percentage (%)
Engage	Guiding questions that invite students to question and making an introduction to the course with a context that attracts the student's interest and provides acceptance, and revealing students' questions (Beasley and Butler, 2002; King, 2009b).	12	92.30
Explore	Elaborating the context, framing the problem/hypothesis in context, need-to-know (Beasley and Butler, 2002).	10	76.92
	Student activities based on the scientific research process, including daily life situations on the basis of research and inquiry.		
Explain	Teaching knowledge and content on the basis of making learning a need (King, 2009).	10	84.61
Elaborate	Relating and transferring the concept and context (King, 2009b).	9	69.23
Evaluate	Exiting the real-life context; student's presentations or reports to implement knowledge, reflect and inform (Beasley & Butler, 2002; King, 2009b), life-based contextual questions and preparation for the next lesson.	10	76.92

The lesson plans of the pre-service teachers were examined according to the Real-Life Context-Based 5E Model and the 5E Model updated by Bybee in 2014. In line with this review, it can be said that pre-service teachers were quite successful in integrating the lesson plans, especially the engagement phase with context-based understanding. For example, PST3 used the context of "Bulb" in the lesson plan she prepared for the teaching of Simple Electrical Circuits in the 4th grade. PST3 started the lesson with a story called "My Brilliant Team" to attract students' attention to the lesson. Then, she asked guiding questions that made the students feel the relationship between the light bulb context and scientific concepts and invited the students to research and question. The design of PST3 at the introductory stage is as follows:

"1. The teacher reads the story "My Brilliant Team" to the students.

2. He/she asks the following questions to the students listening to the story:
· What problems would we have if we did not have bulbs and lights in our homes?
· What materials did the nano-bright bulb use to create its team?
· Can you give an example of the structures created by Nano in your environment?
· What did the nano-bright bulb use to run its team?" PST3.

In the exploration phase, some pre-service teachers (PST1, PST3, ST2) had difficulties in designing an inquiry-based activity that would enable students to make knowledge a need. For example, PST1 used the context of obesity in the teaching of our 4th grade food/healthy lifestyle

topic. With the videos and visuals that she showed at the stage of arousing curiosity, she created a desire to learn in the students and asked guiding questions that enabled them to associate scientific concepts related to healthy life and foods in the context of obesity. However, in the exploration phase, instead of designing an activity that would enable students to develop their scientific process skills and explore healthy living dynamics within the context of obesity, a nutrient matching study was carried out.

It has been observed that approximately 77% of the pre-service teachers were at the desired level in making a design that allows the student to make the first explanation during the explanation phase (Bybee, 2014). These pre-service teachers used an organization in their designs that guided them to explain the relationship between the student's exploratory experiences and the scientific concept and real-life context. However, some pre-service teachers (PST1, PST5, PST6) preferred a design that started with their own explanations rather than a design that allowed the student to explain before the explanation phase.

In the elaboration phase, approximately 70% of the pre-service teachers achieved the desired level of success in establishing a relationship between the context they used in the engagement phase and the concept and transferring it to other contexts. The problem observed in pre-service teachers who could not make the desired design in establishing this relationship was to move away from the real-life context used and to go to a new context configuration.

When examined according to the evaluation stage, it can be said that the course designs were at a good level, especially in creating real-life context-based questions. In the evaluation phase, pre-service teachers designed activities that enable the student to make inferences and reason by associating scientific concepts in line with the real-life context. It was found that pre-service teachers designed activities with the theme of completing the story, observing in nature, designing a STEM activity, concept map-caricature, scientific journal and newspaper news without breaking the relationship with the real-life context used in the elaboration phase.

Pre-service teachers' self-evaluations on designing a science lesson after the training

After the training given on the design of context-based science lessons, the data obtained from the interviews and observations with the 13 pre-service teachers were analyzed. Based on these analyses, the categories related to pre-service teachers' self-evaluations on planning and designing a science lesson can be explained as follows:

In the "lesson design approach" category, pre-service teachers focused on the impact of the trainings on developing a lesson design. This focus has been evaluated around two different codes. These are "implementation and comprehension (62%)" and "the connection between science and life (51%)". Regarding the implementation and comprehension code, the pre-service teachers stated that they were aware of the current and basic science teaching approaches, but that they understood this dynamics better in many aspects through the trainings. In addition, they stated that they gained skills in making implementations about 5E, Real-life Context Based Science Teaching, natue of science, STEM and web 2.0 tools. Also, they emphasized that they gained an understanding that the necessity of establishing the science-life connection is an important component of today's science education understanding. Some opinions regarding this category are as follows:

"It made me realize that there is an education that is intertwined with life outside of the traditional approach and that this education is more appropriate for our age." PST7.

> *"I understood the necessity of considering the basis of real-life in all course designs that I will make in science teaching. Of course, the effectiveness of a science education that is far from the real world will be very low."* PST2.

> *"It gave me an important competence in integrating scientific process skill, nature of science and web 2.0 tools in science into a context-based course design."* ST4.

The category of "21 st century teacher", pre-service teachers stated that they gained awareness about the characteristics that a teacher teaching science lessons should have today. In this category, the prominent findings are that a teacher has 21st century skills and gives students scientific reasoning, research and questioning skills. Also, pre-service teachers stated that a teacher should have a vision that integrates science with real life in science teaching. In addition, another prominent feature is that teachers should constantly improve their pedagogical, technological and professional knowledge-skills by following the current science education dynamics.

> *"A science teacher allows the student to explore and experience. While doing this, it should provide guidance on where to use science in daily life."* ST3.

> *"A teacher should be an individual who can develop himself in line with constantly developing science and technology, besides his/her field and pedagogical knowledge, and who can question and make students question."* PST2.

In the category of "contribution to professional skills", pre-service teachers emphasized the professional gains of the education they received. It can be said that there are five codes in this category. These are professional self-confidence, professional competence, technological-pedagogical content knowledge, activity-lesson design skills, and integration of science into real life. The pre-service teachers mentioned that the education they received increased their competence in designing a science course, improved their self-confidence, and improved their competence in transforming scientific knowledge and concepts into real-life skills. In addition, they stated that the trainings increased their knowledge and skills in technological-digital applications in science and provided support in feeling more ready for the profession. Some opinions about this category and codes are as follows:

> *"I knew the expectations of the 21st Century Science Education Understanding from the teachers before the project, but I had felt incompetent about how I should foster these skills in the students. There are serious tips from this education that I received. I will face my students with more confidence because a teacher with an effective lesson plan will reach the hearts and minds of their students more quickly."* PST3.

Findings from participant observers' notes

In this study, both researchers were participant observers at every stage of the research. Participant observers' notes are discussed in three categories. These categories are before and at the beginning of the trainings, the training process, and the completion of the trainings.

In the category of "before and at the beginning of the trainings", the observers determined that the pre-service teachers could not give satisfactory answers to the questions posed on basic topics such as international and national education indicators, real-life context based science teaching, nature of science, scientific reasoning, and Web 2.0 tools used in science

education. It was observed that the pre-service teachers did not have enough self-confidence in these matters, and that they were shy in answering the questions, though they had more self-confidence in STEM and 5E subjects. However, in the pre-assessments and in the interviews about the lesson plans before the trainings, it was seen that there was wrong learning about the use of both STEM and 5E. Based on these findings, the action plans were shaped.

In the category of "the training process", it was observed that pre-service teachers were very interested, curious about education issues, took part actively, worked in cooperation, and asked questions to educators both in and outside the online classroom frequently. In the category of "completion of the trainings", it was observed that the pre-service teachers gave more confident and correct answers to the questions directed to them, were enthusiastic about performing different activities, and were highly motivated to improve themselves in science teaching.

Discussion, Conclusion, and Recommendations

With this research, it was aimed to develop the skills of pre-service teachers in making holistic and multidimensional lesson design based on context-based science teaching. In this context, revealing the existing knowledge, skills and ideas of pre-service teachers before the training was the first problem of the research. According to the results obtained from the first sub-problem of the research, it can be understood that the pre-service teachers did not consider themselves competent in preparing a science lesson plan based on the Context-Based Science Teaching approach. In addition, the participant observers findings show that pre-service teachers' prior knowledge and skills in context-based teaching, nature of science, scientific reasoning and international science education indicators in the first lessons were inadequate. Therefore, the preliminary results show that pre-service teachers could not use basic dynamics such as the nature of science, scientific reasoning, STEM activities, Web 2.0 tools, laboratory implementation that can be included in a holistic and multidimensional lesson design based on real-life context-based science teaching. When the national literature is examined, although this study was conducted with pre-service teachers, the results are in line with the studies conducted with in-service teachers. In fact, it is concluded in the literature that teachers cannot understand the context-based approach, cannot apply it in their lessons, have difficulties in time management of the implementation, do not have adequate skills in preparing/selecting the context, and interpret as only presenting examples from daily life (Ayvacı et al., 2013; Karamustafaoğlu & Tutar, 2020; Mete & Yıldırım, 2016; Topuz et al., 2013; Yıldırım & Gültekin, 2017). Also, Yıldırım (2018) found that teachers had difficulties in integrating STEM fields into their context-based lesson plans. In addition, the fact that pre-service teachers felt inadequate about their ability to design a holistic and multidimensional science lesson based on the Real-life Context-Based Science Teaching approach caused them to have professional anxiety. At this point, pre-service teachers believed that they had an openness to improvement in conducting future science lessons. This result was observed similarly in the results of previous studies. As a matter of fact, it is seen in the literature that science and primary teachers experience uncertainty about how they will contribute to the learning of each child in science teaching, and that they have practice-oriented problems (Goodnough, 2010; Kanat, 2018; Loxley et al., 2016). Based on these results, it is thought that the lack of these skills in pre-service teachers will cause problems in on-the-job science teaching.

According to the second problem situation of the research, it is seen that pre-service teachers were able to make lesson plans that meet the criteria of developing real-life context-based lesson plans according to 5E after their education. Pre-service teachers were able to develop an adequate level of lesson plans in accordance with criteria such as being able to choose a context from daily life, understanding the relationship between context and concept, increasing interest and motivation towards science and need to know scientific knowledge. When the lesson plans of the pre-service teachers are examined, it is observed that they are more successful especially in the engage, explore, explain and elaborate stages. In addition, it was observed that they used STEM, nature of science, laboratory applications and web 2.0 tools in the stages of 5E in line with the real life context they chose in their lesson plans.The least success was achieved in the elaboration phase. The efforts of the pre-service teachers to create a new context by breaking away from the initial context were effective in their failure to achieve the desired success at this stage. In addition, there were pre-service teachers who were able to transfer the real-life context to new concepts and contexts. In addition, they asked the educators questions about these issues both in the classroom and outside the classroom and shared them with the educators in the course by conducting in-depth research. These results of the research, which emerged at the point of integrating the 5E method and the context-based teaching approach, are important in terms of giving a unique perspective to the literature. When the studies in the field are examined, the studies on the teaching of context-based teaching practices to pre-service teachers are quite limited. In addition, studies have been found in which the training given to pre-service teachers was done with context-based teaching (Demircioğlu & Özdemir, 2019; Ültay & Usta, 2016). Ültay et al. (2018) discussed the comparison of primary teachers' lesson plans in accordance with the REACT and 5E Model. The results of this study, on the other hand, present a detailed education plan and a analysis of this action plan in terms of 5E, context-based teaching and current science education dynamics with lesson plans. In this context, this study is a pioneer in this field of study in terms of fostering the skills specified for pre-service teachers and increasing their competencies.

According to the third problem situation of the study, pre-service teachers' self-evaluation in preparing a science lesson plan based on context-based science teaching understanding and current science education dynamics significantly at the end of the trainings. Pre-service teachers stated that they improved in understanding, applying and awareness of current science education dynamics in the design of a science lesson plan. In addition, pre-service teachers realized that the nature of science, scientific reasoning, STEM, laboratory and Web 2.0 tools should be included in the lesson plans of activities that could enable the use of. At this point, the pre-service teachers emphasized the necessity of scientific reasoning, research and questioning, and the ability to recognize and know science in daily life and to transform it into a skills in real life for teachers with 21st century skills. In addition, the necessity of a teacher to be open to change and transformation from a professional point of view is among the other 21st century teacher qualifications that were emphasized. Finally, according to participant observers' notes and final evaluation data, pre-service teachers stated that they gained professional self-confidence and competence in the contribution of education to their professional skills, their technological-pedagogical content knowledge increased and they developed in activity planning. Based on this fact, it can be said that in raising science-literate individuals who can adapt to the new world order, there is a need for a teacher who can first establish the science-life bond himself

and reflect this bond in his/her lessons. It should not be forgotten that this understanding can be realized by teachers who are trained with a high level of awareness on this subject during the pre-vocational education stage, as seen in our research results. Therefore, it can be suggested that theoretical and applied contents be added to pre-vocational teacher training programs (especially at primary and secondary school level) based on real life and in the light of current 21st century science education dynamics. Küçük et al. (2013), in their study examining the science teaching self-efficacy of primary teachers, observed that the science teaching self-efficacy of new teachers (1-3 years' experience) was much higher than that of experienced primary teachers. The reason given for this was that the science courses taught at the faculty and the school practices yielded positive results (p. 62). Similarly, Güder and Demir (2018) found that as the age level of primary teachers increased, their self-confidence in technological and pedagogical content knowledge decreased. This study supported the pre-service teachers' science self-efficacy for introducing current practices related to science teaching during their undergraduate education to become primary and science teachers and for gaining skills on how to reflect these practices in lesson plans. These results suggest that the added value of quality science teaching practices to be offered in the pre-service period will be high in the coming years. In summary, the findings indicate that there is a need for practical training in teacher training due to field studies in Turkey.

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Appendix

Action plans and implementation times

Module Name	Action Plan	Duration of Implementation (min)
Daily Life and Scientific Reasoning: Developing Inquiry-Based Reasoning Skills	Developing Inquiry-Research-Based Reasoning Skills	45
	Fossil Footprints Mysterious Car Vanilla Ice Cream A Prediction Story: Mysterious Bones	45
	Prerequisites of Scientific Reasoning Scientific Reasoning and Some Professional Groups	90
Elements of Daily Life in Chemistry Subjects; Event	Elements of Daily Life, Activity Development and Application in Chemistry Subjects	45

Design and Implementation Based on Real-Life Contexts	Occupational Health-Safety and Chemistry Applications as a Daily Life Context	45
	Occupational Health-Safety and Chemistry Applications as a Daily Life Context	45
	Elements of Daily Life in Chemistry Subjects	45
	Elements of Daily Life in Chemistry Subjects -Solution Preparation	45
Activity Development for Daily Life Elements and Real-Life Problems in the Design of STEM Activities	STEM (Role of Sound in Hearing)	90
	STEM (Role of Sound in Hearing)	45
	Forest trip	45
The Place of Real-Life Context-Based Science Education in Curricula in the World and in Turkey According to International Education Indicators	A Perspective on Real-Life Context-Based Science Education in Turkey in the Light of Current Data	45
	A Global Perspective on Real-Life Context-Based Science Education in the Light of Current Data	45
How to Develop a Lesson Plan Based on Real-Life Contexts: How is it applied?	Context Selection and Integration of Context into the Lesson Plan Process	90
	Context Selection and Integration of Context into the Lesson Plan Process	90
Cleaning Agents Used in Daily Life, Health Hazards and Safety Precautions	Cleaning Agents Used in Daily Life, Health Hazards and Safety Precautions-1	45
	Cleaning Agents Used in Daily Life, Health Hazards and Safety Precautions-2	45
	Cleaning Agents Used in Daily Life, Health Hazards and Safety Precautions-3	45
Context-Based Nature of Science Lesson Plan Development and Implementation	What is the Nature of Science?	45
	Mysterious Footprints	45
	The Nature of Science and Scientific Inquiry	45
	Mysterious Bones Event	45
	The Nature of the Pedagogically-Based Science Lesson Plan Preparation Process	90

		Unconscious and Excessive Lighting, Do Not Cause Light Pollution!	45
"Environmental Pollution" as a Real-Life Context: Developing and Implementing Activities Appropriate for Science Curriculum Outcomes		Unconscious and Excessive Lighting, Do Not Cause Light Pollution!	45
		Give up plastic bags for a sustainable environment, choose cloth bags!	45
		Give up plastic bags for a sustainable environment, choose cloth bags!	45
Use of Interactive Web 2.0 Tools in Science Teaching Based on Real-Life Contexts and Sample Practices		Animaker	45
		Animaker	45
		Algodoo	45
		Algodoo	45
		Padlet & Edpuzzle	45
		Padlet & Edpuzzle	45
Total	9	33	1620

Book Review: New Ways in Teaching with Games

Hatice Okyar

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Book review: New ways in teaching with games

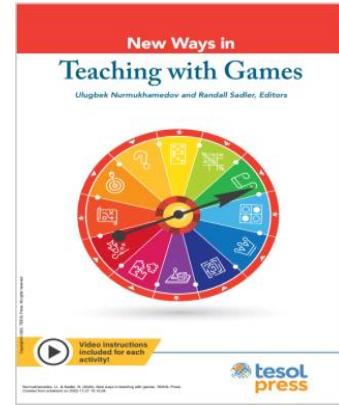**Reviewed by Hatice Okyar**

New Ways in Teaching with Games (2020)

Ulugbek Nurmukhamedov & Randall Sadler (Eds.)
TESOL Press
Pages: ix+256
ISBN: 9781945351747 (paper)
Cost: $ 51.95 U.S.

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The book *New ways in teaching with games* edited by Nurmukhamedov and Sadler (2020) aims to contribute to effective language teaching through games in both English as a second and foreign language (ESL/EFL) learning contexts. This book, prepared with the contributions of many educators, introduces 94 games in various categories (e.g. online games, board games) in detail to improve the language skills of students of different levels and groups (e.g. beginner level young learners) in a fun, engaging, and interactive way. The target audience of the book especially comprises ESL and EFL educators. The book consists of an introduction part and six chapters illustrating the following game types: a) traditional pencil and paper games, b) dice games, c) board games, d) card games, e) technology-mediated games, and f) miscellaneous games.

In the introduction part, the editors clearly explain the content of the book, its purpose, target audience, brief history of the games, and valid reasons and opportunities regarding the use of games in ESL/EFL classes. In each chapter, the following information is provided in a table for each of the games: a) levels of students, b) aims of the game, c) class time required for the game, d) preparation time for the game, e) resources required for the game, e) cost of the game, if any. This short and informative table is followed by a detailed and comprehensive procedure part, which includes pre-, while-, and post-game explanations, in other words, lesson instructions. In the third step, caveats and options section related to the games is presented. After that, the appendix part is also given for some games. In each chapter of the book, language instructors can find a variety of games for students, from beginner to advanced levels. The cost range, depending on the features of the games, varies from free to over 20 U.S. dollars. Most of these games are interactive, involving pair, group and team work, and they primarily aim to improve language-related skills such as vocabulary, grammar, pronunciation, listening, reading, writing, and speaking. Additionally, most of them bring together both collaborative and competitive spirit in the learning environment. As there are many games in each part of the book and it is difficult to mention all of them here one by one, this book review will focus only on a few game examples.

Part 1 of the book is comprised of a total of 21 traditional pencil and paper games. Examples of resources used by some games in this group are charts, handouts, cards, dictionaries, etc. Out of 21 games, 20 of them are free of cost and one has both free and paid options. An example game in this category is Margherita Berti's game "Lost on a Deserted Island", which is intended to improve learners' speaking and writing skills in a meaningful context. This game is free to use and is for intermediate to advanced level learners. The class time required for the game is 15 min or more, and the preparation time is 3 min. In this game, student groups are asked to imagine that they are lost on a deserted island and they need to select 3 items (e.g. a small torch) from the list provided to them to survive in the island, and each group writes their sentences in 5 min, and explains the reasons behind their choice to the class. This game also encourages students to think creatively and fosters their argumentative skills.

The second part of the book consists of seven dice games in total. All of the dice games have a free version, but there are also paid versions. Some examples of materials used in this category are dice, coins, story cubes, game boards, etc. As well as contributing to learners' language skills, some game-related activities also stimulate learners' creativity. For instance, in Randall Sadler and Ulugbek Nurmukhamedov's game called "Storytelling, Coherence, and Transition Devices", learners create and tell a story about the pictures on each dice. This game also helps learners' storytelling skills improve. As for Christine Haverington's game "Let's! Read,

Do, and Go Game", it includes rolling the dice to move forward on the game board, reading instructions, and performing role-plays for different scenarios. This game contributes to the learners' vocabulary, pronunciation and reading comprehension.

In part 3, nine board games are introduced to the readers. For example, the game "Bingo Listening Activity With Lyrics" by Paula Rolim and Abdulsamad Humaidan is a kind of board game that mainly aims to improve the listening skills of learners. This game is free of charge. The class time and preparation time for this game are at least 10 and 15 min, respectively. It is for intermediate to advanced level learners. In this game, students draw a bingo grid on a paper and choose 9 words out of 15 randomly and write them on their bingo grids. While listening to the song, they cross out the words they hear. This game fosters learners' listening for detail or listening for specific information skills. In addition to developing learners' language skills, some games in this category raise learners' cultural and pragmatic competence as well.

As for the part 4 of the book, it presents 22 card games to the readers. For instance, in the game "Crazy Conjunction Combinations" provided by Christina Abella for intermediate and above levels, students are encouraged to use different types of conjunctions to join clauses. In this game, there are two sets of cards: one set is for conjunctions, the other set is for clauses. The card set for the clauses also has four blank cards to encourage students to create their own clauses in addition to the given ones. In this game, students work in pairs or groups of four. While each group reads their sentences that they formed, the rest of the students in the class evaluate whether they are grammatically correct or not, and each correct sentence is awarded 1 point. This game aims to improve learners' speaking and writing skills as they bring clauses together in a meaningful context.

Part 5 provides readers with 18 technology-mediated games. Most of the games in this part are free of cost. The games in this category require Internet access and digital devices such as computers, tablets, smartphones, projectors, cameras and so on. To give an example of a game in this category, Arthur Wendorf and Jeffrey Maloney's "Guess Who?: Movie Characters" game for beginner-level students uses a website in which pictures of famous people and other characters are presented. The teacher secretly picks one of the characters shown on the website and students ask questions related to the physical appearance, such as "Is the person young?" to find out the person selected by the teacher. With this game, students improve their oral skills in language and they learn how to form questions.

The final part of the book covers 17 miscellaneous games. For example, Gabriela dos Santos Garcia gives information about the game "Hot Potato" as one of the miscellaneous games. This game is for all levels and it requires 10 min or more of class and preparation time. In this game, students stand or sit in a circle. The teacher starts the music, and while the music is playing, learners pass the bag containing the written papers with phrases (e.g. play the piano) to the next one in the circle. When the teacher stops the music, the student with the bag chooses one paper and makes a sentence about himself/herself based on the written paper and grammar topics they learned before. The game continues until all the written papers are used. This game helps develop learners' speaking and sentence formation skills.

One of the most important features and strengths of the book is that TESOL press, as the publisher of the book, offers game videos that were prepared by the creators of the games at www.tesol.org/teachingwithgames website. Since the videos show and exemplify how to play these games in practice, this will greatly facilitate the work of teachers. Another particular

strength of the book is that the caveats and options part offers extra suggestions for smooth implementation of the games, and alternative ways to use the games more productively. Teachers can use the games both as presented in the book or by adapting them to the needs of their student groups. Another advantage of this book is that readers have the opportunity to find game examples for all levels of ESL/EFL learners in a single book. Undoubtedly, these various game resources will greatly enrich the language learning environment.

Despite its many strengths, the book also has some minor shortcomings and areas that need improvement. For example, the game chapters in the book directly provide examples of games before defining the game type in general. Instead, it would be better to give a brief definition and general features of the games types (e.g. dice games refer to..../ board games are defined as…) in each chapter introduction just before presenting the game examples. This could help readers gain more insights about each game type. It would also be useful to provide a more detailed explanation or a mini glossary with examples for some specific terms mentioned in some game activities such as *persuasive rhetoric, circumlocution, and speech act.* I believe that this would make the book more reader-friendly. I also think that it would be better if brief information about each of the authors who contributed to the book was given at the end of the book. Finally, although it is stated in the book that appendices are provided as a supplementary material on the TESOL press website, they do not seem available on the website anymore. As mentioned earlier, these are very minor limitations of the book. However, the elimination of them in future editions can make the book much more useful and rich in content. All in all, generally speaking, this book is definitely a valuable and comprehensive resource for both ESL and EFL teachers with a rich variety of games, lesson instructions, and practice-oriented videos it offers.