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Evaluating the Efficiency of In-Service Programs on Iranian EFL Teachers' Knowledge Base: A Delphi Study

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Abstract

The present study investigated high school English language teachers' perspectives on the usefulness of In-service Education and Training (INSET) classes on their Knowledge Base (KB). Three rounds of the Delphi study were designed: one qualitative study using semi-structured interviews and two quantitative ones. Twenty-nine teachers were selected based on purposive sampling. The criterion for sample selection was teachers' participation in the INSET classes held by the Education and Training Organization of Guilan Province. The teachers were familiar with the Prospects and Vision textbook series and agreed to participate in the study. After conducting semi-structured interviews, common issues related to the teachers' KB were extracted using MAXQDA version 12. Then, based on EFL teachers' responses to the interview questions in the first Round (R1), the second Round (R2) was conducted, resulting in the development of a 27-item questionnaire on a five-point Likert-type scale addressing teachers' KB to which the participants responded. The third Round (R3) was performed with the same questionnaire and participants to verify their views stated in R2. Paired samples t-tests were used to analyze the data in R2 and R3. The results showed conformity among teachers' responses to the interviews and R2 and R3 questions. Teachers expected the classes to be more practical, focusing on step-by-step instruction and planning to enhance their pedagogical, technological, and content knowledge bases. The findings suggest that appropriate INSET programs need to be developed and implemented to promote teachers' quality of practice and, thus, students' learning.

Keywords: in-service education and training (INSET), knowledge base, Delphi study, high school English teachers, pedagogical knowledge, technological pedagogical, content knowledge

Introduction

In this continuously changing digital era, teachers' Knowledge Base (KB) has been affected by modifications that educational systems undergo, especially in developing countries. In-service Education and Training (INSET) programs focus on teacher development and help them build their knowledge about teaching, learning, and educational needs that result from such modifications. One instance of such improvement is the renewal of English textbooks in Iran, which have been changed to "Prospects" and "Vision" series at junior and high school levels due to learners' needs and in response to social and educational demands. The innovations in the content and methodology of teaching adopted in the new textbook series persuaded the Ministry of Education set up some INSET classes to help teachers improve their profession and gain self-efficacy (Mahmoudi et al., 2019) and provide opportunities for prospective teachers to learn "through their vast experience as learners" (Borg, 2003, p. 86). Undoubtedly, training skillful and knowledgeable teachers would not only reduce the time, energy, and expense spent on the learning of the English language but also bring about a change to English language teaching in schools which would make the situation of language learning more desirable (Mahmoudi et al., 2021). Therefore, as Ertmer and Newby (2013) argue, teacher education programs, especially INSET, require reconceptualization and rethinking by embedding Technological Pedagogical Content (TPACK) within other aspects of teachers' knowledge, consisting of Content Knowledge (CK), Pedagogical Knowledge (PK), and Pedagogical Content Knowledge (PCK).

English as a foreign language (EFL) teacher education researchers have primarily focused on investigating the impact of teacher education on teachers' beliefs about their pre-service education (e.g., Cuskon & Daloglu, 2010; Khanjani et al., 2016; Mouza et al., 2014; Peacock, 2001; Sahragard & Bagheri, 2018; Zheng, 2009). However, fewer studies have explored how teachers believe INSET classes could improve their knowledge base (Mahmoodi et al., 2019). Such investigations could show teachers' perceptions about the courses and act as a needs analysis. Focusing on how teachers view the usefulness of INSET classes and altering their content knowledge according to practical needs can motivate teachers to modify

their teaching methods. Attention to their viewpoints can also promote their professional identity and increase their self-efficacy.

Moreover, growing interest in implementing technology in classes has pushed policymakers to update the INSET courses to encourage teachers to gain expertise in teaching. Therefore, the present study explored EFL high school teachers' perspectives on INSET classes during the school year. It explored to what extent the classes successfully familiarized EFL teachers with the newly developed English books in general and technology-based language teaching in particular. Undoubtedly, teachers' perspectives would shed light on the INSET course design and process. To this end, the researchers used the Delphi methodology to delve into teachers' perceptions regarding the INSET courses. Delphi is a beneficial method in educational settings; it can contribute to developing curricula, enhancing learning experiences, and establishing guidelines. Models constructed based on findings from the Delphi method can help educators predict trends in academic settings (Green, 2014**;** Habibi et al., 2015).

Literature Review

One way to examine the efficacy of a policy or program is to employ program evaluation against a set of standard criteria, which can guarantee the betterment of the program. Program evaluation examines whether a program has achieved its objectives, caused improvement, or confirmed the decisions made by stakeholders to change it (Brewer, 2011). Several factors, such as students, teachers, and institutions, are involved in program evaluation. However, the evaluation model used in each study is different according to the evaluators' objectives to "measure progress in achieving objectives, improve program implementation, produce accountability information to stakeholders, assure funding institutions about effectiveness, and increase improvement" (Brewer, 2011, p. 130). The present study addressed English teachers' viewpoints, who had the experience of participating in INSET classes. The current researchers believe that such indulgences could provide a clear picture of the advantages and disadvantages of INSET courses. Thus, the present study employed the Delphi method to elicit an accurate picture of the programs implemented for English teachers in Iran. However, several studies in the literature have used program evaluation to delve into teacher training and preparation programs.

For instance, Coskon and Daloglu (2010) evaluated Turkey's pre-service English teacher education program components using Peacock's (2009) evaluation model. They collected data from teachers and fourth-year student teachers using questionnaires and interviews. The results indicated that teachers and student-teacher participants shared similar perceptions about some of the program's features; however, they had different perceptions regarding the emphasis the program should put on linguistic and pedagogic competencies. In another study, Cimer et al. (2010) used semi-structured interviews to examine the efficiency of in-service courses in informing teachers about the changes adopted in the school curricula in primary and secondary schools. The findings showed the ineffectiveness of the quality of the instructors, teaching methods, duration of courses, and support after training.

Using the Waterford evaluation, Llosa and Slayton (2009) found helpful information about how program evaluation could affect the education of EFL learners in the complicated environment of US K-12 education. Their evaluation study verified that the Waterford program could have been more successful in showing its intention and deficiencies in the specific context of the Los Angeles Unified School District. Using various sources of data collection and appropriate data analysis methods, they could recognize teachers' inefficacy in adapting instruction for individual students and English language learners' hesitation to engage in the program. In another study, AL Ofi (2021) used a questionnaire and semi-structured interview to evaluate the effectiveness of three Continuous Professional Development (CPD) courses for English language teachers in Oman. The findings showed that crowded classes, workload, and time constraints are challenges that prevent teachers from implementing new knowledge and skills in their classes.

Mahmoodi et al. (2019) also explored the role of in-service training courses on EFL teachers' KB by employing Kirkpatrick's four-level (reaction, learning, behavior, result) evaluation model in four stages: standardization of the questionnaire, discovering English language teachers' knowledge base, interview with teachers, classroom observations, and questioning the students. The results revealed the positive effect of INSET

classes on teachers' reactions, learning, and behavior. Önal (2019) evaluated pre-service teachers' reflective reports and their perceptions through content analysis. The participants video-recorded their microteaching performances and watched their performances several times before writing a reflective report on their performances. The researcher found that this technique yielded benefits, particularly regarding the feedback stage and improving pre-service teachers' reflective skills compared to the traditional implementation of the microteaching technique.

In another study, Mahmoudi et al. (2021) conducted research using Mishra and Koehler's (2006) Technological Pedagogical and Content Knowledge (TPACK) model to explore to what extent In-service Education and Training (INSET) courses were influential in developing teachers' knowledge base. The researchers first developed the English Language Teachers' Knowledge Base (ELTKB) questionnaire to understand EFL teachers' perceptions regarding the efficacy of INSET classes. Then they ran paired sample t-tests to discover whether the participants' KB components had changed before and after participating in the courses. The data was triangulated using semi-structured interviews, which delved into the participants' viewpoints about the content of the INSET courses. The results reflected teachers' dissatisfaction with the content of the INSET classes.

Teachers' KB is a broad term that may be controversial in designing appropriate and related content for INSET classes. As the results of the evaluation studies revealed (Mahmoudi et al. 2019, 2021), teachers were not pleased with the content of the INSET classes, partially related to the lack of clarity in the authentic instructions that can tap teachers' knowledge base. Therefore, many scholars have focused on conceptualizing teachers' KB (e.g., Koehler & Mishra, 2009; Mishra & Koehler, 2006; Richards, 1998; Shulman, 1986; Oliveria, 2015). Mishra and Koehler's (2006) TPACK model is suitable since it provides new ways of thinking and pedagogical decisions by introducing technological knowledge. This model contains overlapping TK, PK, CK, PCK, TCK, TPK, and TPCK constructs. However, since the boundaries among the constructs of this model were considered fuzzy and unclear (Archambault & Barnett 2010; Cox & Graham 2009), the researchers of the present study decided to consider Content

Knowledge, Pedagogical Knowledge, and Technological Pedagogical Content Knowledge as three primary constructs of teachers' knowledge base which would be defined as follows.

As Banegas (2009) put it, CK means knowledge about the language and the development of the different components of communicative competence. It includes the communicative language ability model proposed by Canale and Swain (1980) and later modified by Canale (1983). The model consists of four components: grammatical competence, discourse competence, sociolinguistic competence, and strategic competence. Moreover, Mishra and Koehler (2006) defined PK as the methods and processes of teaching, including knowledge in classroom management, assessment, lesson plan development, and student learning. Schmidt et al. (2009) defined TPCK as "a useful frame for thinking about what knowledge teachers must have to integrate technology into teaching and how they might develop this knowledge" (p. 125).

Delphi method has been employed in various fields such as education, psychology, management, and engineering. Aharony and Bronstein (2013) used the Delphi study to evaluate e-learning settings by considering the views of 35 e-learning experts. The study showed that employing new technologies in e-learning can result in drastic changes in theories of education and teaching approaches. Besides, e-learning instructors need to develop new skills to meet the requirements in the field. Macintyre-Hite (2016) also used the Delphi methodology to evaluate Competency-Based education programs in higher education programs. He gathered expert opinions about effective practices for developing competencies, assessments, and learning resources. Ten specialists took part in three rounds of interviews. After coding and categorizing the data, he could introduce twelve valuable practices to enhance learning resources in this program.

The Delphi methodology relies on the opinion of experts and is applicable in educational settings (Green, 2014). Thus, to obtain a reliable consensus of group members' views and avoid compulsory conformation (Clayton, 1997), the present study used the method to answer the following questions:

RQ1. What essential elements of teachers' Knowledge Base (KB) do English teachers expect to be improved in INSET classes?

RQ2. Do EFL teachers agree on the content of current INSET programs in Iran?

Method

Participants

Out of 36 EFL teachers of secondary schools in Rasht, 29 teachers agreed to participate. Since the concern of the study was the teachers' perspectives about the INSET classes, the researchers selected those who had experienced the INSET classes held by the Education and Training Organization of Guilan province and were familiar with new English school books, Prospect and Vision series. To this end, 29 participants, selected based on purposive sampling, consented to take part in interviews for the first, second, and third rounds. The number of male participants (18) was more than that of female participants. Their academic degrees were BA (13.1%), MA (76.4%), and Ph.D. (10.4%), and their teaching experiences ranged from 5 to 15 years.

Instruments

The present study employed three rounds of the Delphi method (mixed methods) to obtain inclusive results. Several scholars agree that using three rounds of the process is adequate (e.g., Fan & Cheng, 2006; Habibi et al., 2014; Somerville, 2008) and that more rounds do not add significant value to the study (Clayton, 1997). Therefore, the investigation began with a qualitative phase followed by two quantitative ones. The rounds took place every two months.

First, semi-structured interviews (Appendix A) were conducted to investigate common issues related to the teachers' KB. To this end, three English language teachers, two INSET program instructors, and one English language professor reviewed the interview questions. The wording of the items was modified, and the number of questions was reduced following their feedback. The interviewees signed informed consent and permitted the researchers to record their voices. The interviews (approximately 30 minutes for each individual) were transcribed using MAXQDA version 12. First, all transcribed papers were transformed into electronic versions. The

appropriate terms related to the teachers' KB were elicited in the coding process from the interviewees' responses. For example, when the respondents stated: "teachers lack competency in speaking, reading comprehension, listening and writing," the term "content knowledge" was considered a related code. All responses with a common theme were categorized under the same code. The teachers' opinions about evaluation, critical thinking, students' learning style, and classroom management were coded under the PK category. The technological issues expressed by prospective teachers were categorized under the TPCK component. The researchers continued the coding process until no other characteristics could be elicited.

R2 was prepared based on the EFL teachers' responses to R1 questions and the common themes from the interviews. The questionnaire (Appendix B) contained 27 items with a five-point Likert-type scale that asked questions about teachers' CK (6 questions), PK (14 questions), and TPCK (7 questions) to examine whether the programs covered all KB components the teachers expected. As explained, the researchers developed the questionnaire items based on the teachers' responses to the interview questions in R1. To determine the questionnaire's content validity, the researchers asked ten professionals in applied linguistics, statistics, and teacher training experts to rate the items based on a Likert scale from *not important* to *somehow necessary*, *important*, and *extremely important* to include in the survey. An item with a 70 percent agreement was kept; otherwise, it was discarded. Moreover, Cronbach's alpha computed to estimate the reliability of the questionnaire showed an acceptable reliability index (r=0.87). Therefore, central tendency measures helped the researchers determine the consensus from R2. Then, to triangulate the data and ensure the integrity and accuracy of the results, as Rodwell (1998) mentions, R3 was implemented with the same questionnaire and participants. The round allows the participants to re-evaluate their opinions stated in the previous round and reach a final consensus.

Results

Table 1 shows the results of the interviews in R1 with the emergence of three major themes of Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Pedagogical Content Knowledge (TPCK) and their components.

Table 1

Teachers KB Subcategories, Properties, & Frequencies

CK	1. Lack of attention to teachers' grammatical knowledge (28) 2. Lack of focus on pronunciation (11) 3. Insufficient instruction in word-building (18) 4. Insufficient attention to teachers' reading skills (15) 5. Lack of attention to the teachers' listening skills (19) 6. No place to teach writing skills in INSET classes (25)
PK	1. Lack of sufficient information about cultivating cooperative learning among students (27) 2. Lack of sufficient instruction on how to learn about students' learning styles (12) 3. Insufficient instruction on classroom management (18) 4. Not introducing new teaching methodologies (21) 5. Not introducing appropriate evaluation procedures (23) 6. Lack of encouragement on critical thinking skills of teachers (4) 7. Lack of attention to localization (10) 8. No instruction on cultural differences (3) 9. Lack of attention to students' needs (17) 10. No introduction of side books to facilitate learning (21) 11. Lack of introduction of strategies to involve students in active learning (17) 12. Lack of instruction on error correction (19) 13. Lack of instruction in giving feedback (12) 14. Lack of attention to parent-teacher contribution (18)
TP CK	1. Not troubleshooting the technological instruments (8) 2. Not introducing new apps to improve teachers' language skills (listening, speaking, reading, and writing) (23) 3. No introducing new apps to improve students' language skills (listening, speaking, reading, and writing) (12) 4. No instruction on using technological devices for performing some learning strategies (25) 5. No instruction on applying technological devices for implementing new teaching methodologies (22) 6. No instruction on group working with the help of technological devices (Laptop, cellphone, tablet, etc.). (17) 7. No instruction on applying technological devices to enhance teachers-parents contribution (24)

As Table 1 shows, each sub-section of teachers' KB was extracted with the frequency of occurrence in the respondents' answers. For example, "lack of attention to teachers' grammatical knowledge" was mentioned by 28 participants.

Content Knowledge (CK)

Looking at the frequencies of teachers' perspectives about their expectations from their INSET classes, teachers believed they needed more opportunities to develop their CK, especially grammatical knowledge (96%) and writing skill (86%). They also reported the programs' lack of attention to listening skills (65%), vocabulary building (62%), reading skills (51%), and word pronunciation (37%), respectively.

Nearly all interviewees believed the INSET classes did not affect their general English proficiency or language skills (reading, writing, listening, speaking, vocabulary, and grammar). For example, one of the interviewees stated:

"Unfortunately, English teachers' knowledge is not being tested before starting their teaching profession. Moreover, teachers' involvement in their careers hinders them from strengthening their language proficiency. The result is a lack of competency in speaking, reading comprehension, listening, and writing."

Besides, most teachers (t2, t4, t6, t7, t8, t15, and t20) objected to the Persian medium of instruction in INSET classes. They believed that using Persian reduced the opportunity for teachers' exposure.

As the interview revealed, some teachers believed they needed to master four language skills, gain control over pronunciation, phonology, and morphology, and know the cultural differences between the two languages.

Teacher 10, a Ph.D. holder, stated:

"Teaching language is different from teaching the other subjects, such as Mathematics, Physics in that we need to be familiar with western culture and their social events and ceremonies because teaching language is not just teaching about grammar."

The respondents believed that CK is not simply knowledge of language skills; knowing about scientific issues enables teachers to discuss the topic of the lessons with students. Teachers also suggested some afternoon classes to improve English language teachers' proficiency. Thus, the present study agrees with Pawlak (2011), who viewed CK as a prerequisite for language teaching that is often neglected in in-service teacher training because of focusing on the "development of theoretical disciplinary knowledge and

specific teaching skills" (p. 21). To conclude, despite considering listening, speaking, reading, writing, grammar, and pronunciation as the component of CK, cultural and linguistic knowledge were the other components that English language teachers recommended as essential issues.

Pedagogical Knowledge (PK)

As shown in Table 1, EFL teachers were unsatisfied with not introducing cooperative learning (97%), students' evaluation procedures (79%), teaching methodologies (72%), not introducing appropriate side books (72%), and error correction procedures (65%), respectively.

Lack of attention to cooperation between teachers and parents (72%), classroom management and active learning strategies (62%), giving appropriate feedback (41%), and familiarity with students' learning styles (41%) were other issues mentioned by the teachers. Moreover, lack of attention to localization (34%) and teachers' critical thinking (13%) were underestimated in the INSET classes.

As the interviewees stated, although approaches and methods to language teaching were reviewed to familiarize participants with the CLT approach, the lack of attention to primary CLT aspects was disappointing. For example, teacher 11 mentioned:

"Teaching based on the CLT procedures could be an interesting section of the classes. However, I observed a few activities and techniques proposed in CLT."

As the prospective teachers reported, familiarity with Task-based Language

Teaching, evaluation procedures, cooperative learning, and group work

activities had to be the main section of the INSET classes. Teacher 17 pointed out:

"The INSET classes are making a good effort to give a wide range of instructions regarding teaching methodologies; however, teaching methodologies are inconsistent with the objective of the lessons in the new books. Moreover, model teaching is a good strategy for introducing CLT. Because teachers need not only what of teaching but how of it."

Teachers believed classroom management was more than legislating rules and determining rewards and punishment. Paying attention to teacher-student relationships, teacher talk, student talk, classroom activities,

motivating students with the help of cooperative learning activities, and providing a secure environment were essential issues in managing classes that the respondents believed had to be covered in INSET classes. About 62 percent of the interviewees maintained that the INSET classes overlooked classroom management issues. By referring to their personal experiences, they pointed out some techniques and strategies they employed to manage their classes. Teacher 9with 29 years of teaching experience in public and private schools, believed that INSET classes provided only a few theoretical or practical lessons regarding classroom management. She asserted:

"My experience tells me that teachers must be well-prepared for their classes because it increases their self-confidence and affects their students' attitude and motivation. Providing a safe environment and engaging students in group work make the lesson attractive and classroom management easy".

Evaluation and assessment, as the subcategory of PK, were also included in the interviews. Such questions helped the researchers discover the usefulness of INSET classes in preparing teachers to employ appropriate evaluation and assessment procedures. However, most teachers (79%) were unsatisfied because they believed the INSET classes could not provide relevant insights and knowledge about the practical ways of student assessment. The general topics discussed in the INSET classes were introducing summative and formative assessments and considering assessment and evaluation as two separate themes. The respondents reported teachers and students were more concerned about the university entrance exam than accurate assessments. Therefore, grammar and reading comprehension comprised the main content of the English classes; thus, listening and speaking skills were almost neglected. This finding was in contrast with the educational policy that gave priority to the CLT approach. The INSET program was expected to focus not only on the ways of teaching but also on student evaluation. Teacher 25 was worried about teachers' lack of familiarity with employing effective techniques to evaluate students' language skills and argued:

"The tendency of evaluation moved from traditional ways toward a constructivist approach in that the concern of evaluation is not just an

immediate and limited knowledge of students. Rather it is more concerned about evaluating learners' knowledge through active involvements, group discussion, and oral performances."

Reflective teaching is another critical component of PK that helps prospective teachers consciously observe their teaching practices and knowledge. Some prospective teachers (13%) mentioned not incorporating reflection into the INSET programs. They agreed that reflective teaching implication helps teachers improve their teaching practice and enhance the students' achievements. Teacher 8, who held an MA in TEFL, argued:

"Reflective teaching was not an important agenda in the INSET program. There is no systematically organized program of training how to think critically and be a reflective practitioner."

Teacher 19 criticized the INSET classes for disregarding teachers' awareness and practice in reflective teaching activities. He commented*:*

"A great deal needs to be done to teach reflectivity to the teachers. Reflection could enhance teachers' knowledge and subsequently students' achievements."

Technological Pedagogical Content Knowledge (TPCK)

EFL Teachers complained about the lack of instruction of learning strategies with the help of technological devices (86%) and applying technological devices to enhance teachers-parents contribution (82%). The teachers were also unsatisfied with their INSET classes in that no attention was paid to introducing new English learning apps (79%). The other problem teachers felt in their INSET classes was no instruction in applying technological devices for implementing new teaching methodologies (75%). Teachers (58%) other complaint was the lack of instruction regarding group work activities with the help of technological devices (laptops, cellphones, tablets, etc.). The respondents (41%) believed introducing new apps to improve students' language skills (listening, speaking, reading, and writing) was also not noticed in INSET classes. Additionally, teachers (27%) complained about the lack of troubleshooting of the technological instruments used in their classrooms.

As teachers 23 and 29 put forth, combining technology and teaching strategies could enhance students' learning. Representing subject matter

with the help of technology was unlikely to be practiced in the INSET classes. For example, teacher 20 stated:

"Familiarity with technology and using it to teach English were not adequately considered in the technology classes."

Audio and visual aids also assist teachers in involving students with different learning styles in classroom activities. For instance, teacher 10 pointed out:

"Recognizing students' learning styles and using appropriate technological aids make language learning enjoyable; however, technology class did not familiarize teachers with this issue."

The interviews showed that the teachers knew the benefits of applying technology during teaching activities. However, nearly all participants complained about the time limitation in INSET classes for preparing them to integrate their PK and TK. Although teachers were literate regarding the use of computers, the ability to put their TK into practice requires additional training.

In response to the interview questions regarding TK improvement, participants seemed unsatisfied with their INSET classes. They believed they needed more strict classes with highly prepared instructors to teach technology. Some of them complained about the allotted time for such an important subject. Technological INSET classes were held separately in the summer, and all English teachers were supposed to participate. These classes were practical, and teachers were supported by their instructors and had the opportunity to get more feedback. However, the classes were unsatisfactory since they did not meet the teachers' expectations. Teacher 13 commented:

"It was better if the instructors were English teachers who were aware of the needs of the teachers and students."

Teacher 5 complained about their theory-based classes and stated*:*

"We could learn how to attach texts or make a video theoretical; however, we didn't have enough opportunity to practice what we have learned theoretically."

Thus, teachers believed such classes needed to show how to use language teaching strategies with the help of technology. Moreover, teachers needed

more facilities, primarily technological devices such as laptops, the Internet, and DVD players. They unanimously stated that a program would be successful if the authorities were open to changes; otherwise, the results would be worthless. For example, teacher 27 said:

"When there is no technological facility and authoritative support, spending money and time for these classes is not logical."

Although teachers reported that the technology classes comprised some activities that could help the participants get familiar with new teaching strategies, they felt they were insufficient. Some teachers complained about the need for more practice using technology in the classrooms. All teachers expected more technological support from authorities to implement what they had learned in the INSET classes.

The Second and Third Rounds of the Delphi Study

This section shows the statistical description of English teachers' perceptions of their CK, PK, and TPCK. Paired samples t-tests helped the researchers determine the agreements between R2 and R3.

Content Knowledge (CK)

Table 2 shows the descriptive statistics of teachers' perspectives regarding CK in R2 and CK in R3 after the INSET class attendance.

Table 2

Descriptive Statistics of English Teachers' Perceptions of CK in Rounds 2 & 3

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	CK1	4.2414	29	.68947	.12803
	CK1NEW	4.0690	29	.79871	.14832
Pair 2	CK2	3.7586	29	1.09071	.20254
	CK2NEW	3.9310	29	1.19317	.22157
Pair 3	CK3	3.6207	29	1.17758	.21867
	CK3NEW	3.8966	29	.85960	.15962
Pair 4	CK4	4.3448	29	.72091	.13387
	CK4NEW	3.9310	29	1.19317	.22157
Pair 5	CK5	4.3103	29	.71231	.13227
	CK5NEW	3.8966	29	.85960	.15962
Pair 6	CK6	4.1724	29	.71058	.13195
	CK6NEW	3.9310	29	1.19317	.22157

CKNEW is the round 3 component

The top-ranking statements reported by the teachers in R2 were CK4 (INSET classes helped improve teachers' reading skills), CK5 (INSET classes helped teachers' listening skills), CK1 (INSET classes helped enhance the teachers' grammatical knowledge, and CK6 (INSET classes helped teachers' writing skills) with mean scores of 4.34, 4.31, 4.24, 4. 17, which are not very different from R3 mean scores except for the mean scores of CK4 and CK5 that slightly changed to 3.39 and 3.89, respectively.

Table 3 shows the results of the paired samples t-test for the respondent's perceptions regarding their CK.

Table3

Paired Samples T-Test, Teachers' Perceptions of Their CK

					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	CK1 - CK1NEW	.17241	1.22675	.22780	-.29422	.63905	.757	28	.455
Pair 2	CK2 - CK2NEW	-.17241	1.44096	.26758	-.72052	.37570	-.644	28	.525
Pair 3	CK3 - CK3NEW	-.27586	1.53289	.28465	-.85894	.30722	-.969	28	.341
Pair 4	CK4 - CK4NEW	.41379	1.54728	.28732	-.17476	1.00235	1.440	28	.161
Pair 5	CK5 - CK5NEW	.41379	1.26822	.23550	-.06861	.89620	1.757	28	.090
Pair 6	CK6 - CK6NEW	.24138	1.32706	.24643	-.26341	.74617	.980	28	.336

CKNEW is the Round3 component

As Table 3 illustrates, the teachers' perceptions regarding their CK1R2 and CK1R3 (p=0.45), CK2R2 and CK2R3 (p=0.52), CK3R2 and CK3R3 (p =0.34), CK4R2 and CK4R3 (p=0.16), CK5R2 and CK5R3 (p=0. 9), and CK6R2 and CK6R3 (p=0.33) reveal no significant differences between the first and second round of CK questions. Therefore, the researchers could conclude that there is a consensus among the EFL teachers' views about the problematic issues related to CK in their INSET classes.

Pedagogical Knowledge (PK)

Table 4 shows the descriptive statistics of teachers' perspectives regarding PK in R2 and PK in R3 after their INSET class attendance.

Table 4
Des

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PK7	3.9655	29	1.01710	.18887
	PK7NEW	3.8966	29	.85960	.15962
Pair 2	PK8	4.0690	29	.70361	.13066
	PK8NEW	3.9310	29	1.19317	.22157
Pair 3	PK9	4.3448	29	.66953	.12433
	PK9NEW	3.8966	29	.85960	.15962
Pair 4	PK10	4.3448	29	.66953	.12433
	PK10NEW	4.0690	29	.79871	.14832
Pair 5	PK11	4.3571	28	.67847	.12822
	PK11NEW	3.8214	28	1.09048	.20608
Pair 6	PK12	4.3448	29	.66953	.12433
	PK12NEW	3.9310	29	1.19317	.22157
Pair 7	PK13	4.3448	29	.66953	.12433
	PK13NEW	3.8276	29	1.10418	.20504
Pair 8	PK14	4.3448	29	.66953	.12433
	PK14NEW	4.0690	29	.79871	.14832
Pair 9	PK15	4.3448	29	.66953	.12433
	PK15NEW	3.8966	29	.85960	.15962
Pair 10	PK16	4.3448	29	.66953	.12433
	PK16NEW	3.9310	29	1.19317	.22157
Pair 11	PK17	4.3103	29	.71231	.13227
	PK17NEW	4.0690	29	.79871	.14832
Pair 12	PK18	4.3103	29	.71231	.13227
	PK18NEW	3.9310	29	1.19317	.22157
Pair 13	PK19	4.3103	29	.71231	.13227
	PK19NEW	3.8966	29	.85960	.15962
Pair 14	PK20	4.2414	29	.68947	.12803
	PK20NEW	3.9310	29	1.19317	.22157

PKNEW is the Round 3 component

As shown in Table 4, almost all items related to PK received a high mean score of 4. However, the top highest mean scores are related to items PK11 (INSET classes helped learn appropriate students' evaluation procedures), PK16 (INSET classes helped familiarize with side books to facilitate learning), PK9 (INSET classes helped the management of the classroom), PK14 (INSET classes helped me notice cultural differences), PK13 (INSET classes helped consider localization), PK19 (INSET classes helped me know how to give feedback), PK20 (INSET classes helped me pay attention to parent-teacher contribution), and PK8 (INSET classes helped familiarize with students' learning styles) with mean scores of 4.35, 4.34, 4.24, and 4.06 in R2, which decreased to the mean score of 3.82, 3.93, 3.89, 4.06, 3.82, 3.93, respectively in R3.

Table 5. Paired Samples T-test, Teachers' Perceptions of their PK

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	PK7 - PK7NEW	.06897	1.06674	.19809	-.33680	.47473	.348	28	.730
Pair 2	PK8 - PK8NEW	.13793	1.48141	.27509	-.42557	.70143	.501	28	.620
Pair 3	PK9 - PK9NEW	.44828	1.18280	.21964	-.00164	.89819	2.041	28	.051
Pair 4	PK10 - PK10NEW	.27586	1.16179	.21574	-.16606	.71778	1.279	28	.212
Pair 5	PK11 - PK11NEW	.53571	1.40059	.26469	-.00738	1.07880	2.024	27	.053
Pair 6	PK12 - PK12NEW	.41379	1.54728	.28732	-.17476	1.00235	1.440	28	.161
Pair 7	PK13 - PK13NEW	.51724	1.42980	.26551	-.02663	1.06111	1.948	28	.061
Pair 8	PK14 - PK14NEW	.27586	1.16179	.21574	-.16606	.71778	1.279	28	.212
Pair 9	PK15 - PK15NEW	.44828	1.18280	.21964	-.00164	.89819	2.041	28	.051
Pair 10	PK16 - PK16NEW	.41379	1.54728	.28732	-.17476	1.00235	1.440	28	.161
Pair 11	PK17 - PK17NEW	.24138	.95076	.17655	-.12027	.60303	1.367	28	.182
Pair 12	PK18 - PK18NEW	.37931	1.37357	.25507	-.14317	.90179	1.487	28	.148
Pair 13	PK19 - PK19NEW	.41379	1.26822	.23550	-.06861	.89620	1.757	28	.090
Pair 14	PK20 - PK20NEW	.31034	1.33907	.24866	-.19901	.81970	1.248	28	.222

PKNEW is the Round3 component

As Table 5 indicates, the teachers' perceptions regarding their PK1R2 and PK1R3 (t*p*=0.73), PK2R2 and PK2R3 (*p*=0.62), PK3R2 and PK3R3 (*p*=0.51), PK4R2 and PK4R3 (*p*=0.21), PK5R2 and PK5R3 (*p*=0.53), PK6R2 and PK6R3 (*p*=0.16), PK7R2 and PK7R3 (*p*=0.61), PK8R2 and PK8R3 (*p*=0.21), PK9R2 and PK9R3 (*p*=0.51), PK10R2 and PK10R3(*p*=0.161), K11R2 and PK11R3 (*p*=0.18), PK12R2 and PK12R3 (*p*=0.48), PK13R2 and PK13R3 (*p*=0.09), PK14R2 and PK14R3 (*p*=0.22) reveal no significant differences between the first and the second round of PK questions. Therefore, researchers conclude that there is a consensus among the teachers' views about the problematic issues related to PK in INSET classes.

Technological Pedagogical Content Knowledge (TPCK)

Table 6 shows the descriptive statistics of teachers' perspectives regarding TPCKR2 and TPCKR3 after their INSET class attendance.

Table 6

Descriptive Statistics of English Teachers' Perceptions of TPCK in Rounds 2 & 3

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	TPCK21	4.2414	29	.68947	.12803
	TPCK21NEW	4.0345	29	.82301	.15283
Pair 2	TPCK22	4.0690	29	.70361	.13066
	TPCK22NEW	4.0690	29	.79871	.14832
Pair 3	TPCK23	4.3103	29	.71231	.13227
	TPCK23NEW	3.8966	29	.85960	.15962
Pair 4	TPCK24	4.3103	29	.71231	.13227
	TPCK24NEW	4.0345	29	.82301	.15283
Pair 5	TPCK25	4.2414	29	.68947	.12803
	TPCK25NEW	4.0690	29	.79871	.14832
Pair 6	TPCK26	4.2414	29	.68947	.12803
	TPCK26NEW	3.8966	29	.85960	.15962
Pair 7	TPCK27	4.3103	29	.71231	.13227
	TPCL27NEW	3.9310	29	1.19317	.22157

TPCKNEW is the Round 3 component

Table 6 reveals that all items related to TPCK received a high mean score of 4, except TPCK3 and TPCK6 in R2, with a mean score of 3.89, and TPCK7 in R3, with a mean score of 3. 93.

Table 7 displays the results of the paired samples t-test about the participants' perceptions of their TPCK.

Table 7

Paired Samples T-Test, Teachers' Perceptions of their TPCK

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	TPCK21 - TPCK21NEW	.20690	1.17654	.21848	-.24063	.65443	.947	28	.352
Pair 2	TPCK22 - TPCK22NEW	.00000	1.16496	.21633	-.44313	.44313	.000	28	1.000
Pair 3	TPCK23 - TPCK23NEW	.41379	1.26822	.23550	-.06861	.89620	1.757	28	.090
Pair 4	TPCK24 - TPCK24NEW	.27586	1.22172	.22687	-.18886	.74058	1.216	28	.234
Pair 5	TPCK25 - TPCK25NEW	.17241	1.22675	.22780	-.29422	.63905	.757	28	.455
Pair 6	TPCK26 - TPCK26NEW	.34483	1.04457	.19397	-.05251	.74216	1.778	28	.086
Pair 7	TPCK27 - TPCL27NEW	.37931	1.37357	.25507	-.14317	.90179	1.487	28	.148

TPCKNEW is the Round 3 component

As Table 7 indicates, the teachers' perceptions regarding their TPCK1R2 and TPCK1R3 (p=0.35), TPCK2R2 and TPCK2R3 (p=1.0), TPCK3R2 and TPCK3R3 (p=0.90), TPCK4R2 and TPCK4R3 (p=0.23), TPCK5R2 and TPCK5R3 (p=0.45), TPCK6R2 and TPCK6R3 (p=0.86), TPCK7R2 and TPCK7R3(p=0.48) show no significant differences between the first and the second round of TPCK questions. Thus, there is a consensus among the participants regarding the problems related to TPCK in INSET classes.

Discussion

Teacher-participants' responses to the interview questions and the questionnaire were illuminating regarding the challenges they encountered in INSET classes. Attention to teachers' viewpoints can enhance the quality of the classes and lead to the development of English language teaching in Iran. The findings revealed that all three components (CK, PK, TPCK) of INSET are required to be addressed and improved with higher expertise to prepare English language teachers to teach the new materials efficiently. Thus, the present study showed that all components of TPACK are necessary from teachers' viewpoints. Therefore, the INSET unit of the Education and Training Organization should equip English teachers with the relevant CK, PK, and TPCK and enable them to teach more skillfully and efficiently.

Regarding the importance of English language proficiency and viewing it as a fundamental characteristic of the teaching profession, the participants delineated their dissatisfaction with the INSET classes for the lack of attention to the teachers' language proficiency, subject matter knowledge, and cultural difference awareness which are crucial for teachers' CK. Thus, the present study agrees with Pawlak (2011), who viewed CK as a prerequisite for language teaching that is often neglected in in-service teacher training because of focusing on the "development of theoretical disciplinary knowledge and specific teaching skills" (p. 21). Despite considering language skills and sub-skills as the components of CK, the respondents believed that the INSET courses should emphasize cultural and

linguistic knowledge as additional components that English language teachers should possess.

The interviews revealed that the INSET classes did not provide enough training regarding PK, and teachers required more practical courses to replicate the integration of pedagogy into the contents, primarily when teachers' language proficiency was concerned. The interviews accord with Liu et al. (2014), who reported that PK development occurred through teachers' participation in INSET classes.

Clarifying TPCK improvement was another concern of the present study. The findings align with Ersanli (2016), who recommended policymakers consider technology in teacher preparation instruction. Moreover, the results of So and Kim (2009) and Jimoyiannis (2010), similar to the present study, revealed the conflicts in translating PK into designing pedagogically sound, technology-integrated lessons. Likewise, Mouza et al. (2014), by examining pre-service teachers' learning advancement on the use of technology and investigating its impact on participants' knowledge (i.e., TPACK) and practice through quantitative and qualitative data, found a satisfactory experience of pre-service teachers in gaining all TPCK constructs and applying their knowledge practically in their classroom context.

Although the positive effect of TPCK in language teaching and learning has been signified, Liu et al. (2014) state that its development is not a smooth route for teachers, so "the integration of technology into teachers' present knowledge system requires teachers to restructure their schema" that cannot be "force-fed to the teachers" (p. 689). As Liu et al. put forth, this movement toward the use of technology is a radical jump from the chalkboard to the smart board, which may be too difficult for teachers to cope appropriately with it. It could be inferred from teachers' assertions that they intended to have a practical technology class to coach them on teaching the subject matter with a specific technology.

Teachers' answers to R2 and R3 questions showed that the study could successfully detect prospective teachers' opinions and concerns regarding the INSET classes. It aligned with Macintyre-Hite (2016), who showed unanimous agreement among teachers' views about INSET classes.

Conclusion

The Delphi method was employed to evaluate the effectiveness of INSET classes by considering the prospective English language teachers' opinions in Guilan Province, Rasht. According to the teachers' views, the INSET classes required serious consideration. The shift from the traditional grammar-translation method to CLT and changing English textbooks demand teacher preparation programs. However, theory-oriented INSET classes do not help teachers address the challenges of teaching and learning in the classroom, as the focus of attention is not on teaching practices. Moreover, the lack of technological support from authorities at school and in INSET classes reveals that the program is overlooked.

The present study only considered high-school English language teachers' opinions in one city; future studies with more participants from different cities in Iran may provide a more extended result. Further studies can explore students' opinions about their teachers' teaching styles after their INSET class attendance. Likewise, other components, such as the content of the program, the objectives of the program, the program instructors' needs and perspectives, and instructional materials, are required to be investigated.

The role of tutors in teachers' teaching improvement after their INSET classes is also recommended. The issues mentioned by the prospective teachers are needed to be heard and considered by policymakers to provide systematic and standard INSET courses to train teachers more professionally so that they can convey what they have learned to their students.

Declaration of interest: none

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Appendix (Bibliography of the academic writing coursebooks sampled for evaluation)

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Appendix B
English Language Teachers' Knowledge Base Questionnaire

This questionnaire aims to collect data for evaluating the English teachers' INSET classes. All responses will be kept confidential. We would be grateful if you would give sincere and detailed answers to all questions. If there is any question, don't hesitate to contact maryammahmoudi75@yahoo.com. Thank you very much in advance for your time and patience.

Section I. Bio-data: In this section, please choose the one that applies to you.

1. Gender

1. Male 2. Female

2. Years of teaching experience

1. Less than 5 2. Between 5 to 20
3. Between 10 to 15 4. More than 15

3. University degree

1. BA 2. MA Student or M.A.
3. Ph.D. candidate or Ph.D.

4. The number of INSET classes you have taken part

1. Two to three times 2. Three to five times
3. More than five times

Section II: The following questionnaire examines the effect of the INSET programs on English language teachers' knowledge base (Content Knowledge, Pedagogical Knowledge, Technological Pedagogical Content Knowledge). Therefore, the items from 1(strongly disagree, SD), 2(disagree, DA), 3(neutral, N), 4(agree, A), and 5(strongly agree, SA) attempt to shed some light on the strengths and weaknesses of such programs. Please read the items carefully, then tick the scale which best represents your opinion.

INSET classes helped me…	5 SD	4 D	3 N	2 A	1 SA
1. improve teachers' grammatical knowledge 2. learn about pronunciation 3. word- building 4. improve teachers' reading skills 5. teachers' listening skills 6. teachers' writing skills 7. familiarize with cooperative learning among students 8. familiarize with students' learning styles 9. familiarize with classroom management					

10. familiarize with new teaching methodologies 11. learn appropriate student evaluation procedures 12. learn critical thinking 13. consider localization 14. notice cultural differences 15. pay attention to the student needs 16. familiarize with side books to facilitate learning 17. learn strategies to involve students in an active learning 18. learn error correction procedures 19. learn how to give feedback 20. pay attention to the parent-teacher contribution 21. troubleshoot the technological instruments 22. know about new apps to improve my language skills (listening, speaking, reading, and writing) 23. know about new apps to improve student language skills (listening, speaking, reading, and writing) 24. use technological devices to perform some learning strategies 25. apply technological devices for implementing new teaching methodologies 26. group working with the help of technological devices (Laptop, cellphone, tablet, etc.). 27. apply technological devices to enhance teachers-parents contribution					

Biodata

Maryam Mahmoudi is PhD in TEFL. She has been teaching English for 24 years. She has taught to students at different levels. She has also been teaching ESP and EFL at different Azad universities. She is running an English institute in Rasht since 2017. Her primary areas of interest include English language teaching methodology, teaching language skills, and research in education.

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