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Research Paper

Pedagogical Content Knowledge (PCK) as an Evaluation Lens for Iranian EFL Teacher Education Programs: A Glocal Approach

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Abstract

This study, contrary to the conventional research on PCK, which attempted to enhance the teachers' PCK and single out its driving factors, aims to use PCK as an outcome-based lens for evaluating Iranian EFL teachers' programs. To this end, two current EFL teacher-education programs (i.e., State and Islamic Azad universities on the one hand and Farhnagian Teacher Education University on the other), each with its specific approach to developing EFL teachers' PCK, were selected. Along with administering a glocally developed and validated PCK questionnaire among 263 student-teachers, this study ran a one-on-one semi-structured interview with 80 student-teachers to capture a crystal-clear evaluation of the outcomes the programs were to cultivate. The results of running qualitative and MANOVA analysis methods showed the student-teachers trained in the program with a more finely-tuned PCK instruction, which was accompanied by four continuous courses of teaching internship, were more cognizant of the role of PCK in their professional development and enjoyed a statistically significant index of developed PCK. Although there existed some similarities between these programs in terms of reviewing high school English course books, evaluation and assessment, and applying technology in teaching English, student-teachers in both programs were not completely aware of different components of PCK, including curriculum design and materials development, language teachers' technological knowledge, and professional development. The results imply that content knowledge, PCK, and internship should be fettered together. The findings suggest that EFL teachers' PCK can be applied as an effective lens for delving deeply into teacher training programs.

Keywords: Pedagogical Content Knowledge (PCK), EFL Teachers, Program Evaluation, Teacher Education

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PCK is regarded to be an amalgamation of pedagogical and content-based factors contributing to EFL learners' learning (Shulman, 1987). Being projected as an intermediary-translating agent between content knowledge and pedagogical knowledge (Shulman, 1987), pedagogical content knowledge (PCK) has been testified to play a determining role within the field of teacher education and teachers' professional development (Blömeke et al., 2011; Fritsch et al., 2015; Kleickmann et al., 2012) knowing that PCK can deliver an efficacious instruction which positively leads to students' achievement (Dapaepe et al., 2013; Nilsson & Loughran, 2012).

When it comes to the evaluation studies focusing on international teaching programs, one can face a number of worthwhile research cases pivoting around the effectiveness of international EFL programs (Dunworth, 2008), the evaluation of teacher delegation conventions (Yang, 2009), and EFL programs held in a Turkish university (Karats & Fer, 2009). Peacock's (2009) criteria for the evaluation of EFL teacher training programs mainly considered the extent to which the leader's expectations are met, as well as witnessed upsides and downsides.

Nationally speaking, the Iranian EFL teacher training program is a 4-year specified program commissioned to a number of universities ranging from the State, Islamic Azad universities to Farhangian Teacher Education University. In the last one, not only the CK development is emphasized, but also PCK enjoys a scientifically supported notion. The four skills and language components, as well as their teaching methods, are introduced to the student-teachers both theoretically and operationally. Moreover, the program is enriched by psychology and general education courses along with apprenticeships. Another specific feature of this program is that it offers some courses in classroom management, rules and regulations of education in Iran, and Islamic ethics (Alavi Moghadam et al., 2014).

State and Islamic Azad universities have also developed a TEFL program at the BA level, which is both prior to and similar to that of Farhnagian University. However, it does not offer apprenticeships for student-teachers, nor does it offer specific courses related to the Ministry of Education, regulations of education in high schools, ethics, etc. In addition, State and Islamic Azad universities offer two other EFL-oriented disciplines, namely English Literature and English Translation Studies at the BA level, which are intended to train literary researchers, translators, and interpreters.

Contrary to some commonalities, the curriculum, syllabus, and the implementation of them at Farhangian University seem to be a bit different from those of the State and Islamic Azad universities. In terms of PCK courses, the curricular features of all of the

aforementioned universities are similar with regard to the PCK courses pertained to: Reviewing high school English course books, Evaluation and Assessment, and Applying Technology in the classroom. However, the curriculum of Farhangian Teacher Education University encompasses specific courses such as Educational Measurement, General Issues in English Education, Educational Planning in ELT, Professional Development, Final Research Project, and four continuous courses in Internship instead of which State and Islamic Azad Universities propose two courses entitled Operational Teaching 1 and 2. Furthermore, Farhangian University PCK courses are more teacher-education oriented than the PCK courses of other universities, and while the PCK program developers of State and Islamic Azad Universities have attempted to develop similar PCKs, their assumptions seem to be different and not mainly based on the needs of the department of education, but they have considered the teaching of English in the institutes as well. In spite of many studies examining the impact of PCK on teaching and learning in other areas and fields of education and science (Gatbonton, 2008; Gess-Newsome et al., 2016; Van et al., 2002), there is still room in the field of teaching English as a second/foreign language in general and in the Iranian EFL setting in particular.

Literature Review

PCK is the integration of content knowledge and pedagogical knowledge, but some studies offer three dimensions to it, including the knowledge of content subject matter (CK), pedagogical knowledge (PK), and knowledge of learners (Gess-Newsome et al., 2016; König et al., 2016; Liu, 2013). To this end, Ashton (Cochran et al., 1993) holds that pedagogical content knowledge is unique to the teachers and is determined by the way teacher relates it to their PK and to their subject matter knowledge (SMK). So, it is the synthesis of the teacher's PK and SMK, which comprises PCK.

CK is taken as the core knowledge of teachers such that some researchers focused on the discussion of its impacts on students' achievement (Darling-Hammond, 2000; Loewenberg et al., 2008.; Ozden, 2008., Washburn et al., 2016). In parallel, PK, as another element inside PCK, refers to the ability to deliver an effective teaching and learning atmosphere. According to Shulman, PK is the knowledge, theory, and belief about the act of teaching and the process of learning.

Comparing experienced and novice ESL teachers in terms of PK, Gatbonton found that experience plays a key role in developing teachers' PK. So, teachers' educational background and teachers' training may develop pedagogical knowledge, as supported by Hudson, who conducted a study in Australia with math and science pre-service teachers.

His study revealed that coursework, mentoring, and fieldwork for pre-service teachers have positively contributed to teachers' PK (Liu, 2013., Moradkhani et al., 2013).

As far as teaching English as a subject matter is concerned, some studies have focused on English teachers' PCK and the way it works in the teaching-learning process. For example, Liu focused on it as a case study of the elementary teacher (Liu, 2013) in the US. Liu's understanding of PCK as the integration of subject and pedagogy gave insight into the way the teacher elaborates the subject matters into well organized and accommodates students' needs and abilities.

Similarly, (Irvine Niakaris & Kiely, 2015, p.57). characterized PCK-equipped teachers as the ones with "mental cognition including how to think, know, and believe in complex nature of teaching to enhance the effectiveness of teacher education." So, the PCK is characterized by "teachers' understanding of subject learners, curriculum, context, and pedagogy. Then, four components are the cornerstone of PCK: 1) domain of knowledge of curriculum includes the competency of pedagogy; 2) knowledge of subject matter integrates with teachers' professional competence; 3) knowledge of learners integrates with pedagogy and social competencies, and 4) pedagogical knowledge integrates with pedagogy and professional competencies.

Although PCK has driven many studies into the development of student-teacher practice in higher education programs, they are still focused on enhancing teachers' domain-general knowledge of a specific field of interest (Kind, 2019). As such, PCK research in English language teaching demands more studies (Evens et al., 2016). Knowing the domain-specificity of PCK, it is not simply a straightforward task to generalize the PCK findings in science and mathematics to other fields, such as ELT domains (Canagarajah, 2013; König et al., 2016). In this line of rationale, Gao and Zhang (2020) argued that English language teachers are required to opt for PCK strategies, which are more of a narrative base than of paradigmatic base.

As said, PCK development in the Iranian teacher education programs is approached differently. One program focuses on PCK more scientifically as all four skills and language components, as well as their teaching methods, are integrated into the program both theoretically and operationally. It is enriched by psychology and general education courses along with apprenticeship and accommodates issues of classroom management, rules, and regulations of education (Alavi Moghadam et al., 2014). However, State and Islamic Azad universities do not offer apprenticeships, nor do they try to accommodate the needs and expectations of the Ministry of Education. They instead offer English Literature and English Translation Studies at the BA level, following particular aims.

The major question that has not been addressed much in the Iranian EFL context is the nature and process of PCK development in general and the extent to which, comparatively, each of the mentioned programs is educationally successful in developing the student-teacher PCK.

In an attempt to address these problems, this study outlines a progression towards utilizing EFL student-teacher PCK as a framework for evaluating the mentioned programs based on outcomes, as proposed by McNamara (2006). More specifically, amalgamating global and local standards, this study attempted to evaluate the two ELT programs in the Iranian context in the process of addressing the following issues:

- To what extent does Farhangian University's EFL teacher education program contribute to the development of the student-teachers' pedagogical content knowledge (PCK)?
- To what extent do State and Islamic Azad universities' EFL teacher education programs contribute to the development of the student-teachers' pedagogical content knowledge (PCK)?
- Are there any significant differences between the developments of the student-teachers' pedagogical content knowledge (PCK) under Farhangian and Sate and Islamic Azad universities' EFL teacher education programs?

Method

Participants

Two groups of participants were randomly selected for this study: The first group consisted of 263 student-teachers who graduated from Farhangian University, who were asked to complete a close-ended questionnaire aiming at exploring the PCK perception of EFL student-teachers in the Iranian educational context, and the second group was included 80 student-teachers of both genders (40 from State/ Islamic Azad universities and 40 from Farhangian University) who ranged from 20 to 36. The data from interviews with 80 TEFL major teachers (40 from Farhangiagn and 40 from other universities) were analyzed based on thematic analysis relying on open and axial coding procedures. All participants had at least 2 years of teaching English and were interested in their career and were asked to sit for a session of one-on-one semi-structured interviews as shown in Table 1.

Table 1.

Descriptive Statistics: Participants

Phase	Student-teachers	University	
		FRU	S/A U
Interview	80*	40	40
PCK Questionnaire	263	117	146

*10 student-teachers from each academic year

Data Collection Instruments

Interview

A semi-structured interview was developed based on a thorough global literature review (Darling-Hammond, 2000; Gess-Newsome et al., 2016; König et al., 2016; Loewenberg et al., 2008; Ozden, 2008;) to name a few, this study attempted to evaluate two ELT programs (including three universities) through building upon a developed and validated PCK questionnaire and a semi-structured one-on-one interview with students-teachers. And consulting with informed experts, who were PhD graduates of TEFL and applied linguistics. The researchers developed the questions for the interview guide, and the items were re-examined by two language experts who were TEFL PhD holders and experienced in teacher education in terms of language and content. Hence, the interview guide's content and construct validities were confirmed through expert judgment validity criteria (Creswell & Clark, 2017). The framework for carrying out the interview was based on Dornyei's (2007) guidelines. The interview had 11 items pertained to the courses that the interviewees thought could help them develop their PCK courses. During the interview, the issues concerning the teachers' sense of autonomy and preferred teaching styles were fully discussed.

Research Validity

The conversations were recorded for accurate interpretations (Maxwell, 1992); while participants were engaged in discussions, notes were taken, and member checking was incorporated (Padgett, 1998) by returning transcripts to participants for respondents' verification. Hence, bearing in mind a researcher's status can impact some of the participants' responses, I tried to establish a trusting professional relationship with the participants.

Trustworthiness

Trustworthiness or reliability of methods and research practices in qualitative research is concerned with dependability (Lincoln & Guba, 1985) or the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions (Silverman, 2000). Therefore, the dependability of the research was increased in three ways. Firstly, all participants were provided with the same questions, which were carefully worded (Robson, 2002). Secondly, interviews were transcribed as accurately as possible and returned to participants for verification. Finally, according to Radnor (2001), all procedures of the research, including transcripts, drafts, and final reviews of data, were documented, according to which the study could be replicated or reconstructed.

PCK Questionnaire

A 39-item glocally valid and reliable questionnaire developed and validated for the purpose of this very study (under press, 2024) was administered among the participants. The questionnaire enjoyed a .90 reliability index and its construct validity was assured through Exploratory Factor Analysis (EFA). In order to estimate the reliability indices of the questionnaire, sub-components, and the whole questionnaire, Cronbach's alpha-correlated analyses were run.

Results and Discussion

Results

Regarding the first two research questions, the data from interviews with 80 TEFL majors (40 from Farhangian and 40 from other universities) were analyzed based on the thematic analysis showed that Farhangian University's EFL teacher education program highly contributed to the development of the student-teachers' pedagogical content knowledge (PCK). The data pertained to each item of the questionnaire, analyzed in the light of open and axial coding processes, will be presented along with its frequency and percentages in Tables 2 to 12. Then, the two research questions will be answered orderly. Item 1: *Do you know which courses can/could help you to develop your Pedagogical Content Knowledge (PCK)?*

As displayed in Table 2, the main theme elicited from the interviews was "developing PCK," manifested in three main categories, namely, *PCK definition areas, awareness of PCK course*, and *other assumptions*.

Table 2.

The Courses Helping in the Development of PCK; by the Universities

IAU+SU		FR Uni.		Axial Codes	Open codes	Theme
%	*f*	%	*f*			
30.23	13	69.76	30	Teachers' knowledge of students' understanding	PCK Definition (Areas)	Developing PCK
33.33	14	66.66	28	Teachers' knowledge of instructional strategies.		
37.50	12	62.50	20	Teachers' knowledge of and beliefs about their subject and how to teach it		
35.71	10	64.28	18	Teachers' knowledge of the educational curriculum		
20.00	2	80.00	8	Teachers' knowledge of assessment and testing		
43.90	18	56.09	23	Methodology and Teaching Strategies in English Education	Awareness of Courses	
45.94	11	70.27	26	Internship+ Specific experience in language teaching		
48.14	13	51.85	14	Educational Planning in ELT +Instructional materials design		
47.82	11	52.17	12	Classroom Management + Specific experience in language teaching		
46.66	7	53.33	8	Reviewing high school English course books		
27.27	3	72.72	8	Professional Development		
57.14	32	42.85	24	Applying Technology in the English classroom		
50.00	4	50.00	4	Educational Measurement		
33.33	3	66.66	6	Classroom Research	Other Assumptions	
28.57	2	71.42	5	Academic writing		
55.55	5	44.44	4	Translation and Four skills		
66.66	4	33.33	2	Engage with research on literacy and language development for children		

Item 2: *Could such (PCK) courses help you improve your language teaching skills? How?*

As displayed in Table 3, the main theme elicited from the interviews was "PCK and improving language teaching skills ", manifested in two main categories namely, *learning how to improve language skills* and *learning how to teach language skills.*

Table 3.

PCK Courses in the Improvement of Language Teaching Skills

IAU+SU		FR Uni.		Axial Codes	Open codes	Theme
%	*f*	%	*f*			
48.27	28	51.72	30	Improving teaching methods and classroom management	Learning how to improve	
53.44	31	46.55	27	Learning from experiences		
47.91	23	52.08	25	Learning through bridging practical and theory		
47.82	22	52.17	24	Improving four language skills		
47.36	18	52.63	20	Improving self-autonomy in learning		
50.00	18	50.00	18	Enhancing how to make use of different materials		
54.05	20	45.94	17	Improving student-teachers' skills in application of technology, apps, and websites		

IAU+SU		FR Uni.		Axial Codes	Open codes	Theme
%	*f*	%	*f*			
44.44	12	55.55	15	Giving student-teachers new idea to organize their mind for presenting teaching methods	language skills	PCK & Improving Language Teaching Skills
44.11	30	55.88	38	Controlling the classroom …..	Learning how to teach language skills	
46.66	28	53.33	32	Helping learners practice more effectively through self-practices		
50.81	31	49.18	30	Helping learners find their problems in language skills		
48.97	24	51.02	25	Teaching different skills to students		
52.63	20	47.36	18	Presenting the desired assignments		
42.87	12	57.14	16	Helping learners practice language skills through using websites		
46.42	13	53.57	15	Increasing learners' understanding of the subject matter		
44.00	11	56.00	14	Transferring English knowledge to students		

Item 3: *Which of the PCK courses you have taken (will take) have been (will be) more attractive to you?*

As displayed in Table 4, the main theme elicited from the interviews was "Course Desirability," manifested in the experienced PCK courses. The most attractive courses for FU student-teachers were *Internship* (f= 35, % 70.00), *Methodology and Teaching Strategies in English Education* (f= 32, % 58.18), and the rest as given in the table.

However, state and Islamic Azad universities' participants reported *Methodology and Teaching Strategies in English Education* (f=23, % 41.81) and *Practicing Teaching Experiences* (f=15, % 30.00) as the most attractive PCK courses they had experienced.

Table 4.

Desirability of PCK Courses; by Student-Teachers

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	%	*f*			
30.00	15	70.00	35	Internship & practicing teaching experiences	PCK Courses Experienced	Attraction of Courses (Course Desirability)
41.81	23	58.18	32	Methodology and Teaching Strategies		
18.75	6	81.25	26	Pedagogy and Professional Development		
36.84	14	63.15	24	Applying Technology		
13.04	3	86.95	20	Classroom Management + Specific experience in language teaching		
05.00	1	95.00	19	Educational Planning and instructional Materials Design		

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	%	*f*			
30.76	8	69.23	18	Reviewing high school English course books		
20.00	3	80.00	12	Educational Measurement and assessment		

Item 4: *To what extent can the PCK courses at your university help you improve your language teaching strategies?*

As displayed in Table 5, the main theme elicited from the interviews was the effect of PCK courses on the improvement of EFL student-teachers' language teaching strategies manifested in 5 notions (codes) such as 1) strategies to teach skills, 2) strategies to use teaching aids and technology, 3) strategies to focus on learners' needs and background.

Table 5.
PCK Courses Affecting Language Teaching Strategies

Universities				Axial Codes	Open codes	Theme
IAU+SU		FRU				
%	*f*	%	*f*			
48.97	24	51.02	25	Incorporating small group and pair work in lessons	Strategies to teach skills	PCK & Improving Language Teaching Strategies
55.55	25	44.44	20	Using elaborated input by various means …..		
52.63	20	47.36	18	Providing corrective feedback on grammar or pronunciation errors		
51.51	17	48.48	16	Making students learn how to learn and deal with their problems		
46.15	12	53.48	14	Encouraging peer- correction and self-correction		
55.55	15	44.44	12	Teaching learners how to be self-regulated and self-organized		
55.55	28	44.44	24	Using different websites to learn grammar and writing	Strategies to use teaching aids and technology	
52.38	22	47.61	20	Using podcasts to improve listening and reading		
52.63	20	47.36	18	Making use of interactive speaking and reading websites		
46.66	14	53.33	16	Learning from YouTube and other applications		
50.87	29	49.12	28	Checking learners' background knowledge through initial tests	Strategies to focus on learners' needs and background	
45.45	25	66.66	30	Relying on learners' needs in content and skills		
4.44	16	55.55	20	Focusing on learners' interests and values		

Universities				Axial Codes	Open codes	Theme
IAU+SU		FRU				
%	f	%	f			
48.57	17	51.42	18	Respecting multilingual background of learners, their accents, and their mother tongues		
48.71	19	51.28	20	Focusing on the relationship between learning techniques and culture	Strategies to focus on learners' cultural norms	
48.57	17	51.42	18	Respecting multicultural backgrounds of learners		
52.63	20	45.94	17	Balancing the target language and mother tongue cultural norms		
52.38	22	47.61	20	Making use of quizzes and tests	Strategies to assess learners' development	
51.61	16	48.37	15	Focusing on both assessment and testing		
52.00	13	48.00	12	Making use of both summative and formative assessment types		

Among the strategies focusing on learners' cultural norms, the one f*ocusing on the relationship between learning techniques and culture* (f= 20, % 51.28, FU; f=19, % 48.71, IAU+SU) enjoyed the highest frequency, while among the strategies assessing learners' development, the one known as *making use of quizzes and tests* (f= 20, % 47.61, FU; f=22, % 52.38, IAU+SU) was the most frequently mentioned one.

Item 5. *To what extent can the PCK courses at your university help you improve your classroom management?*

As displayed in Table 6, the main theme elicited from the interviews was "PCK and improving classroom management," manifested in 1) strategies in non-verbal communication and classroom management, 2) strategies in verbal communication and classroom management, and 3) general strategies to manage the classroom.

Table 6.
PCK Courses Affecting Classroom Management

IAU+SU		**FRU**		**Axial Codes**	**Open codes**	**Theme**
%	*f*	*%*	*f*			
47.82	22	52.17	24	Using body language		
47.50	19	52.50	21	Using postures and gestures		
48.37	15	51.61	16	Holding up a hand to "STOP" students from talking or doing something they shouldn't be doing.		
46.15	12	53.84	14	Focusing on the ignored students		

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	f	%	f			
53.71	15	46.42	13	Using different eye movements	Strategies in Non-verbal Communication and Classroom Management	PCK & Improving Classroom Management
55.55	12	45.45	10	Stop talking, even in mid-sentence, and waiting patiently staring at the talking student.		
49.18	30	51.61	32	Asking the students to answer the questions	Strategies in Verbal Communication and Classroom Management	
47.16	25	52.83	28	Delivering lectures and addressing learners to cooperate		
49.93	23	53.06	26	Involving learners through tasks and practices		
52.38	22	47.61	20	Asking questions at the middle of teaching		
48.57	17	51.42	18	Moving in the class, writing on the board, and drawing learners' attention through changing voice tone		
48.37	15	51.61	16	Asking students to shout gently when they are happy.		
44.44	20	55.55	25	Calling the roll	General Strategies to Manage the Classroom	
46.66	21	53.33	24	Being disciplined		
42.85	15	57.14	20	Being on /in time		
48.57	17	51.42	18	Behaving in justice and respecting all learners equally		
45.45	10	54.54	12	Putting rules and regulations and following them		

Item 6. *To what extent can the PCK courses at your university help you improve your language teaching curriculum design?*

As displayed in Table 7, the main theme elicited from the interviews was" PCK and improving language teaching curriculum designing and materials development," which was manifested in 1) curriculum designing and 2) materials development. The highest frequency notion for *curriculum designing* was 'how to design programs for big and heterogeneous classes' (f= 21, % 91.30, FU; f=15, % 42.85, IAU+SU).

Table 7.

PCK Courses Affecting Language Teaching Curriculum Designing

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	*%*	*f*			
08.69	2	91.30	21	Design programs for big and heterogeneous classes	Curriculum Designing	PCK & Improving Language Teaching Curriculum Designing and Materials Development
05.26	1	94.73	18	Design specific models to teach speaking and listening		
00.00	0	100.0	15	How to design specific models to teach grammar and writing		
12.50	2	87.50	14	Design specific models to teach reading and reading strategies		
20.00	3	80.00	12	Design a program to teach English to different age groups, especially kids		
07.40	2	92.59	25	Use existing materials and adopting them in the EFL classroom	Materials Development	
04.16	1	95.83	23	Adapt materials to be used in the classroom		
00.00	0	100.0	20	Use extracurricular materials for the highly proficient learners		
10.00	2	90.00	18	Select materials for weak students		
00.00	0	100.0	16	Use materials from internet sources for English classes		
13.33	2	86.66	13	Make use of short stories and songs in the classroom		

For *materials development*, *how to use existing materials and adopt them in the EFL classroom* (f=25, % 92.59, FU; f=2, % 07.40, IAU+SU), how to adapt materials to be used in the classroom (f=23, % 95.83, FU; f=1, % 04.16, IAU+SU), and how to use extracurricular materials for the highly proficient learners (f=20, % 100, FU; f=0, % 00.00, IAU+SU) had the highest frequency.

Item 7. *To what extent can the PCK courses at your university help you improve your assessment abilities and assessment literacy in language teaching*?

As displayed in Table 8, the main theme elicited from the interviews was" PCK and improving language teachers' assessment abilities and assessment literacy", which was manifested in 1) assessment literacy and 2) assessment practices, giving respectively rise to the subcomponent *student-teachers are provided with very useful materials that enhance their knowledge of evaluation* (f= 32, % 86.48, FU; f=5, % 13.51, IAU+SU) for

the former, and *student-teachers practice developing tests and assessment tasks* (f= 16, % 57.14, FU; f=12, % 42.85, IAU+SU) for the latter.

Table 8.

PCK Courses Improving Language Teachers' Assessment Abilities and Assessment Literacy

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	*%*	f			
13.51	5	86.48	32	Student-teachers are provided the materials enhancing their assessment literacy	Assessment Literacy	PCK & Improving Language Teachers' Assessment Abilities and Assessment Literacy
11.76	4	88.23	30	Student-teachers get acquainted with testing processes		
22.22	8	77.77	28	Student-teachers know how to develop scoring rubrics		
18.75	6	81.25	26	Student-teachers learn how to use peer assessment		
20.00	5	80.00	20	Student-teachers get familiar with assessment alternatives		
30.76	8	69.23	18	I don't have enough knowledge about evaluation, assessment, and testing		
42.85	12	57.14	16	Student-teachers practice developing tests and assessment tasks	Assessment Practices	
36.36	8	63.63	14	Student-teachers practice discussing the result of exams		
40.00	6	60.00	9	Student-teachers work with rubrics in evaluating language skills		
50.00	7	50.00	7	Student-teachers analyze with high-stake tests to see their forms and functions		
33.33	3	66.66	6	Student-teachers practice using assessment alternatives		

Item 8. *To what extent can the PCK courses at your university help you improve your ability in course book evaluation?*

As displayed in Table 9, the main theme elicited from the interviews was" PCK and improving language teachers' ability in the course book evaluation, "which was manifested in 1) quality of course books, whose most significant notion is *analyzing the content clarity of the existing course books of high schools* (f=32, % 53.33, FU; f=28, % 46.66, IAU+SU), and 2) effects on teaching, with the most significant factor as *PCK courses are truly helpful in getting to know about the local course book purposes and functions*" (f=33, % 62.26, FU; f=20, % 37.73, IAU+SU).

Table 9.

PCK Courses Improving Language Teachers' Ability in Course book Evaluation

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	*%*	*f*			
46.66	28	53.33	32	Analyzing the content clarity of the course books	Quality of Course books	PCK & Improving Language Teachers' Ability in Course book Evaluation
45.45	25	54.54	30	Analyzing the existing course books with regard to learners' interests		
50.90	28	49.09	27	Analyzing teaching methodology suitable for the course books		
48.27	28	51.72	30	Analyzing the existing course books with regard to their authenticity		
50.00	25	50.00	25	Analyzing the course books with regard to their appropriate balance of skills		
56.66	21	53.33	24	Helping student-teachers understand the course books		
52.38	22	47.61	20	Analyzing the appearance, attractiveness, and face validity of the course books		
52.63	20	47.36	18	Analyzing the linguistic and psychological aspects of the course books		
48.37	30	51.61	32	Very useful for student-teachers because of higher relevance to the issues of ELT	Effects on Teaching	
45.45	25	54.54	30	Very valuable to find which aspects of the lessons are more important		
50.90	28	49.09	27	Very good in familiarizing students with weak points and strengths of the course books		
50.98	26	49.01	25	Valuable in comparing the course books with the ones available in the market		
37.73	20	62.26	33	Truly helpful in getting to know about the locally course book purposes and functions		

Item 9. *To what extent can the PCK courses at your university help you improve your technological knowledge (using a computer, laptop...) in your teaching?*

As displayed in Table 10, the main theme elicited from the interviews was "PCK and improving language teachers' technological knowledge," which was manifested in 1) research software and 2) teaching software. Regarding the former, *student-teachers are provided with training in terms of using different systems for searching scientific articles related to the desired research field*" (f=25, % 53.19, FU; f=22, % 46.80, IAU+SU), and as regards the latter *student-teachers learn that technology enables teachers to adapt classroom activities*" (f=23, % 53.65, FU; f=19, % 46.34, IAU+SU) were the largest frequent significant subcomponents.

Table 10.

PCK Courses Improving Language Teachers' Technological Knowledge

IAU+SU		FRU		Axial Codes	Open Codes	Theme
%	*f*	*%*	*f*			
46.80	22	53.19	25	Student-teachers are provided with training in searching for scientific articles	Research Software	PCK & Improving Language Teachers' Technological Knowledge
46.51	20	53.48	23	Student-teachers get acquainted with the software for designing free online questionnaires in ELT		
45.94	17	54.05	20	Student-teachers learn to develop an online questionnaire		
46.34	19	53.65	22	Student-teachers learn that technology enables them to adapt classroom activities.	Teaching Software	
48.78	20	51.21	21	Student-teachers learn to make PowerPoints, simple animations, and use Office more skillfully.		
50.00	20	50.00	20	Student-teachers learn how to use helpful speaking and listening websites		
45.45	10	54.54	12	Student-teachers use internet to adopt /adapt teaching materials		

Item 10. *To what extent can the PCK courses at your university help you improve your professional development?*

As displayed in Table 11, the main theme elicited from the interviews was" PCK and improving language teachers' professional development (PD)", which was manifested in 1) goals of PD, including *increasing job satisfaction through considering salary, incentives, and job security"* (f=32, % 94.11, FU; f=2, % 5.88, IAU+SU) as the highest frequent factor, 2) using narrative research in PD, having *using narrative research in classroom research* (f=30, % 100) as the most frequent item, and 3) the role of in-service and pre-service teacher training in PD, implying *increasing PD through taking part in in-service training courses* (f=30, % 94.11, FU; f=2, % 5.88, IAU+SU) as the highest frequent factor.

Table 11.

PCK Courses Improving Language Teachers' Professional Development

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	*f*	*%*	*f*			
05.88	2	94.11	32	Increasing job satisfaction through some financial incentives	Goals of PD	PCK & Improving
06.45	2	93.53	29	Increasing PD through teachers' mastery over teaching skills		
06.66	2	93.33	28	Increasing PD through teachers' mastery over using technology		
10.34	3	89.65	26	Increasing PD through teachers' contact with students and their parents		

IAU+SU		FRU		Axial Codes	Open codes	Theme
%	f	%	f			
18.51	5	81.48	22	Increasing PD through teacher growing their teaching practices.		Language Teachers' Professional Development
00.00	0	100.0	30	Using narrative research in classroom research	Using Narrative Research in PD	
06.89	2	93.10	27	Relying on action research principles		
3.44	1	96.29	26	Using lesson research in their classes		
14.28	5	85.71	30	Increasing PD through taking part in in-service training courses	The Role of In-service and Pre-service teacher Training in PD	
06.66	2	93.33	28	Increasing PD through being active as a member of professional communities of teachers.		
15.15	5	84.84	28	Increasing PD through using colleague's experiences		

Item 11. *To what extent can the PCK courses at your university help you improve your teaching practices through internship or practical teaching?*

As displayed in Table 12, the main theme elicited from the interviews was" PCK and improving language teachers' teaching practices through an internship or practical teaching," which was manifested in 1) the significance of internship (only FU students enjoying familiarity with all aspects, and *analyzing students' needs in a real classroom context*" (f=35, % 94.59, FU; f=2, % 5.40, IAU+SU) with the highest frequency), 2) school environment familiarity (with *getting familiar with the real situation of school classes and their physical status*" (f=35, % 94.59, FU; f=2, % 5.40, IAU+SU) as the highest frequent for FU students), 3) teaching practices (giving *participating in teaching and learning activities during the semester*" (f=35, % 76.08, FU; f=11, % 23.91, IAU+SU) as the most significant item), and 4) assessment practices (including *observing how the teacher assesses learner s' performance*" (f=34, % 82.92, FU; f=5, % 12.19, IAU+SU) at the highest frequent point).

Table 12.

PCK Courses Improving Language Teachers' Teaching Practices Through Internship

%	f	%	f			
5.40	2	94.59	35	Analyzing students' needs in a real classroom context	Significance of Internship	PCK & Improving
12.50	5	87.50	35	Identifying different learning styles in language classroom		
8.57	3	91.42	32	Observing and learning how to motivate students to learn		
18.91	7	81.08	30	Helping student-teachers get ready to bridge theory to practice		
5.40	2	94.59	35	Getting familiar with real situation of school classes		
8.57	3	91.42	32	Putting aside teaching anxiety through observing the school teacher's behaviors		

%	f	%	f			
6.25	2	93.75	30	Observing and learning classroom management in reality	School Environment Familiarity	Language Teachers' Teaching Practices Through Internship or Practical Teaching
6.66	2	93.33	28	Identifying affective factors influencing the classroom context		
23.91	11	76.08	35	Participating in the process of teaching and learning activities	Teaching practices	
25.53	12	68.08	35	Independent implementation of activities under the supervision of the school teacher		
21.95	9	78.04	32	Designing lesson plans under the supervision of the school teacher		
33.33	15	66.66	30	Identifying and then practicing teaching principles and methods		
26.31	10	73.68	28	Practicing teaching language skills and components		
12.19	5	82.92	34	Observing how the teacher doing performance assessment	Assessment Practices	
15.78	6	84.21	32	Developing tasks and tests under the supervision of the school teacher		
26.82	11	73.17	30	Assessing small groups of learners in the school		
31.57	12	68.42	26	Helping the school teacher in designing test and scoring them		

The third research question wondered if there were any significant differences between the developments of the student-teachers' pedagogical content knowledge (PCK) under Farhangian and State or Islamic Azad universities' EFL teacher education programs. A Multivariate Analysis of Variance (MANOVA) was run to compare the Farhangian and State/Azad groups' means on components of the PCK questionnaire.

Table 14 displays the results of MANOVA. The results ($F (9, 253) = 8.35$, $p < .05$, $p\eta^2 = .229$ representing a large effect size) indicated that there was a significant difference between the Farhangian and State/Azad groups' overall means on the PCK questionnaire. Thus, the fourth null-hypothesis pertained to the seventh research question was rejected. The results will be discussed below Table 15.

Table 14**.**

Multivariate Tests Overall PCK Questionnaire by Universities

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.97	1320.64[b]	9	253	.000	.97
	Wilks' Lambda	.02	1320.64[b]	9	253	.000	.97
	Hotelling's Trace	46.98	1320.64[b]	9	253	.000	.97
	Roy's Largest Root	46.98	1320.64[b]	9	253	.000	.97
Group	Pillai's Trace	.22	8.35[b]	9	253	.000	.22
	Wilks' Lambda	.77	8.35[b]	9	253	.000	.22
	Hotelling's Trace	.29	8.35[b]	9	253	.000	.22
	Roy's Largest Root	.29	8.35[b]	9	253	.000	.22

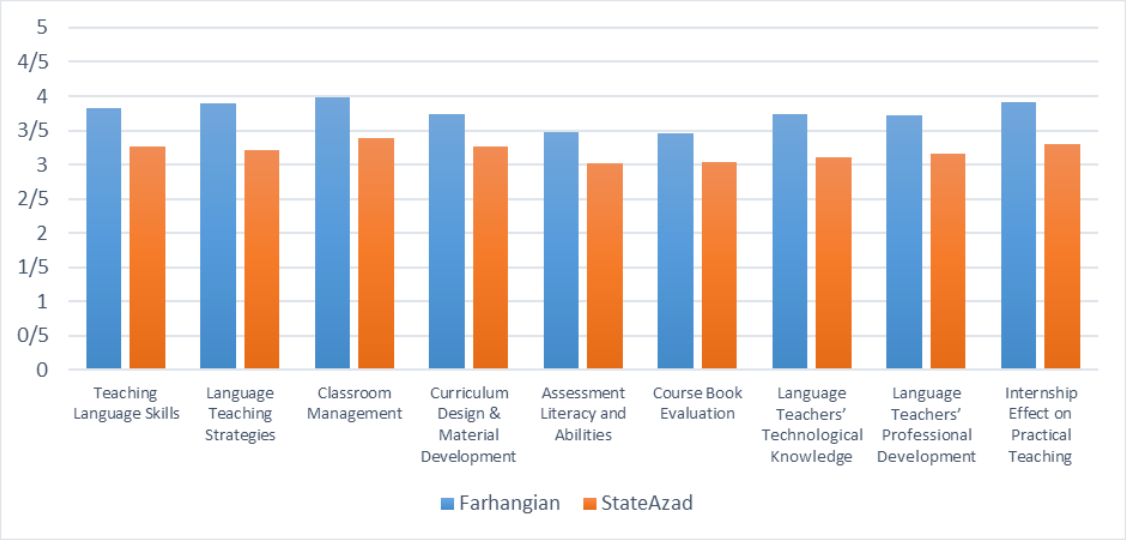
Table 15 displays the results of the Between-Subject Effects. Based on these results and the means displayed in Table 13 it can be concluded that;

Table 15.
Tests of Between-Subjects Effects Components of PCK by Universities

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	TL Skills	20.91	1	20.91	38.76	.000	.12
	LT Strategies	30.18	1	30.18	59.68	.000	.18
	C Management	22.17	1	22.17	46.79	.000	.15
	CDM Development	14.40	1	14.40	31.62	.000	.10
	AL Abilities	13.00	1	13.00	40.51	.000	.13
	CB Evaluation	12.35	1	12.35	25.52	.000	.08
	LTT Knowledge	25.58	1	25.58	39.05	.000	.13
	LTP Development	21.21	1	21.21	38.34	.000	.12
	IEP Teaching	24.79	1	24.79	51.26	.000	.16
Error	TL Skills	140.82	261	.54			
	LT Strategies	131.98	261	.50			
	C Management	123.68	261	.47			
	CDM Development	118.88	261	.45			
	AL Abilities	83.75	261	.32			
	CB Evaluation	126.38	261	.48			
	LTT Knowledge	170.97	261	.65			
	LTP Development	144.40	261	.55			
	IEP Teaching	126.25	261	.48			
Total	TL Skills	3413.31	263				
	LT Strategies	3412.68	263				
	C Management	3652.96	263				
	CDM Development	3302.75	263				
	AL Abilities	2822.93	263				
	CB Evaluation	2870.40	263				
	LTT Knowledge	3216.81	263				
	LTP Development	3214.75	263				
	IEP Teaching	3501.81	263				

The Farhangian teachers displayed a higher mean than the State/Azad group on teaching language skills (moderate effect size), language teaching strategies (large effect size), classroom management (large effect size), curriculum design and materials development (moderate effect size), assessment literacy and abilities (large effect size), course book evaluation (moderate effect size), language teachers' technical knowledge (moderate effect size), language teachers' professional development (moderate effect size), and internship effect on practical teaching (large effect size).

Figure 1. Means on Components of PCK Questionnaire by Universities



Discussion

The results of interview data revealed that Farhangian University's EFL teacher education program contributed to the development of the student-teachers' PCK more than State/Islamic Azad universities. The findings revealed significant differences between Farhangian and State/Islamic Azad student-teachers' overall means on the PCK questionnaire. Likewise, the Multivariate ANOVA comparing the means of Farhangian and State/Azad groups' means on components of the PCK questionnaire revealed that Farhangian student-teachers had a higher mean than State/Islamic Azad student-teachers on all the components of the PCK questionnaire. The results showed that student-teachers in both Farhangian and Islamic Azad universities were not completely and comprehensively informed of different components of PCK, highlighting the weakness of these EFL teacher education programs in meeting their objectives. Meanwhile, Farhangian University student-teachers were more aware of the significant role of PCK in their future profession compared to the student-teachers in Islamic Azad University. The reason might lie in the fact that the PCK program of this university is a comprehensive one (Maghsoudi & Khodamradi, 2019), though it has not been put into practice adequately enough.

The results pertained to the teacher-educators concerning PCK of EFL teachers showed that irrespective of their higher PC knowledge over their student-teachers, they also had the highest means of Internship Effect on Practical Teaching, Language

Teachers' Professional Development, and Classroom Management, while they had the lowest mean on Assessment Literacy and Abilities, and Language Teachers' Technological Knowledge. This signifies that not only student-teachers but also teacher educators are weak in PCK factors such as Assessment Literacy, Technological Pedagogical Knowledge, Curriculum Design, and Language Teachers' Professional Development.

The results of interview data revealed that Farhangian University's EFL teacher education program contributed to the development of the student-teachers' pedagogical content knowledge (PCK) more than State/ Islamic Azad universities. In some aspects of PCK, such as "the improvement of language teaching skills," "teachers' knowledge of instructional strategies," "educational planning in ELT and classroom management," "reviewing high school English course books," "language teaching strategies," "improving EFL teachers' classroom management," "improving EFL teachers' assessment abilities and assessment literacy," "EFL teachers' ability in the course book evaluation," "improving EFL teachers' technological knowledge," both programs showed some similarities, Farhnagian university program, based on the interview results, gave more priority to these factors.

Moreover, with respect to some specific aspects of PCK, this is Farhangian University's PCK which enforces factors such as "internship," "desirability of PCK courses," "Pedagogy and Professional Development," "language teaching curriculum designing," "materials development," "teachers' professional development," "narrative research," "action research," and "lesson research," "getting familiar with the real situation of school classes and their physical status," "putting aside teaching anxiety through observing the school teacher's behaviors," "independent implementation of activities under the supervision of the school teacher," "observing how the teacher assesses learner s' performance," and "developing tasks and tests under the supervision of the school teacher" were mainly highlighted by Farhnagian University student-teachers. These findings are in line with the results of studies that emphasize the necessity of PCK in teacher education programs, such as Fernandez (2014), Franklin et al. (2018), and Mavhunga (2020).

With respect to the capability of teacher-educators in preparing student-teachers for their future job, the findings are in line with the notion of teacher-educator professionalism and professional development of ESL teachers proposed in the literature (Abeywickrama, 2021; Ravandpour, 2019; Tabatabaee-Yazdi et al., 2018). Accordingly, it can be argued that teachers paying attention to enhancing their PCK are more successful

in the classroom context and enjoy higher perceived self-efficacy levels (Ravandpour, 2019).

Another significant point in the findings was insufficient awareness of student-teachers about the role of technology in the EFL classroom, irrespective of some successful practices of teachers in the technologically supported classroom. This is in line with the findings of some research conducted in the Iranian context: Dashtestani (2015), who studied the integration of Computer-based Testing (CBT) into the EFL curriculum, found that EFL teachers' PCK was weak in this respect and required more attention. In addition, Alimirzaee and Ashraf (2016), in their investigation concerning the impact of online peer knowledge sharing on Iranian EFL teachers' professional development (PD), found that PCK is an integral part of EFL teachers' PD. Moreover, Maghsudi (2021), in his reflection on the undergraduate teaching English as a Foreign Language (EFL) curriculum at Farhangian University from the TPACK perspective, argued that in order to further improve the current curriculum for TEFL at Farhangian University, within the domain of PCK, specified attention should be paid to technology knowledge (TK).

Additionally, the present study findings, in terms of incomplete awareness of EFL student-teachers of state/Azad universities about PCK components, are in line with Maghsoudi and Khodamradi's (2019) study on the undergraduate curriculum of English language teaching for Farhangian University, reporting that the program is almost comprehensive and is able to provide student-teachers with a high degree of professionalism. However, it is not followed in the parallel universities, i.e., Islamic Azad University which offers a similar program in TEFL.

The findings are also in line with Peng's (2013) study focusing on the PCK for business English teaching. Similar to the present study findings, Peng found that English for Academic Purposes (EAP) teachers need to be informed of the role of PCK in classroom management, language teaching strategies, teaching language skills, and materials development. However, he did not report on the role of PCK in assessment, curriculum design, course book evaluation, and professional development of the teachers. In addition, the present study findings are in line with Franklin et al.'s (2018) study findings, which focused on teaching math in English to refugees and immigrants to the UK, arguing that PCK plays a significant role in the professional development of teachers, their classroom management, and teaching language skills. Similarly, the findings, in terms of the awareness of EFL student-teachers about the role of PCK in successful teaching, yield support to Rollnick and Mavhunga's (2015) study on PCK notions and

functions in South Africa, where PCK is considered the summit of the teaching profession.

The findings also can take support from some of the studies focusing on the skills and pedagogical abilities conducive to the success of EFL teachers in the classroom context (Alavian, 2019; Alavian & Shayestehfar, 2019; Fernandez, 2014; Olsen, 2016). Moreover, in line with Shulman's (1987) argument that successful teaching is not possible unless the teacher is equipped with PCK, the present study findings, with respect to the relative PCK awareness of student-teachers, are in line with Gunckel et al.'s (2018) study discussing that PCK helps the teacher transfer both knowledge and experience s/he has gained to the learner. Accordingly, PCK paves the ground for the teacher to make use of his/her content knowledge (CK) more effectively in the classroom context, as PCK relies on social, cognitive, pedagogical, and psychological aspects of learning (Lee et al., 2019; Luft et al., 2019).

Conclusion and Implications

The study findings revealed significant differences between Farhangian and State/Islamic Azad student-teachers' overall means on the PCK questionnaire. Likewise, the Multivariate ANOVA (MANOVA) comparing the means of Farhangian and State/Azad groups' means on components of the PCK questionnaire revealed that Farhangian student-teachers had a higher mean than State/Islamic Azad student-teachers on all components of the PCK questionnaire.

In addition, the significance of PCK in the educational domain, and more specifically in the EFL area, can find support in previous studies carried out in the education of green chemistry (Abedini & Sabbaghan, 2015), teaching science (Alavian, 2019; Kind, 2015), developing lesson plans (Mavhunga, 2020), teaching chemical equilibrium (Mavhunga & Rollnick, 2011), teachers' professional development (Park & Oliver, 2008a, 2008b), and broadening teachers' teaching knowledge (Shing et al., 2018).

It is of prime significance to note that the lack of internship and practical high school teaching projects in Islamic Azad University has degraded the quality of preparing student-teachers for their future job. Also, it was expected that Farhangian student-teachers be more aware of the PCK components and their applications and effect in their job. The reason for this misconduct might come from the issues brought up by the COVID-19 pandemic, which reduced the presence of pre-service teachers in both the university and the schools where they usually attend for four continuous semesters to learn about practical teaching (internship), do narrative research, help the in-service

teachers at highs schools and learn from them, and get acquainted with different aspects of PCK in the real classroom context. Therefore, EFL teacher education programs should take PCK, as a must, into consideration. Moreover, successful classrooms and constant PD among EFL teachers are bound to the teachers' efforts in terms of enhancing their CK and PCK, especially with respect to the knowledge of technology, which is most required in the current situations affected by the virtual education and augmented reality (Tabatabaee-Yazdi et al., 2018).

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