Analysis of Prospective Arabic Teachers' Technological Pedagogical Content Knowledge (TPACK)

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ENGLISH ABSTRACT

21st-century learning requires teachers to integrate technology into learning. Therefore, teachers need to improve their professional abilities in using technology. This research was conducted to obtain the TPACK profile of prospective Arabic language teachers who are currently studying for undergraduate program at Arabic Education department of IAIN Pekalongan. Furthermore, this research is survey research. Accordingly, primary data was collected by distributing questionnaires. In addition, researchers also used observation and documentation. In general, the TPACK for prospective Arabic teachers is categorized as "good". Howevers, there are some aspects that need to be improved, namely Content Knowledge, Pedagogical Content Knowledge, and Technological Pedagogical Content Knowledge itself. In addition, each item with lower value than the total average of all aspects needs to be considered as well. In addition, the results of this analysis provide information related to the TPACK for prospective Arabic teachers that is useful as evaluation material for interested parties, such as Lembaga Pendidikan Tenaga Kependidikan (LPTK) as an institution in higher education that is assigned to prepare professional teachers.

Keywords: *Technology Integration, Teacher Competence, Arabic Education, Profesionalism, Technological Pedagogical Content Knowledge (TPACK)*

INDONESIAN ABSTRACT

Pembelajaran abad 21 menuntut guru untuk mengintegrasikan tekonologi dalam pembelajaran. Karena itu, guru sebagai pelaksana pendidikan hendaknya meningkatkan kemampuan profesionalitasnya dalam menggunakan teknologi. Penelitian ini dilaksanakan untuk mendapatkan profil TPACK calon guru bahasa Arab yang sedang menempuh pendidikan strata 1 di program studi Pendidikan Bahasa Arab IAIN

Pekalongan. Lebih lanjut, penelitian ini merupakan penelitian. Sehubungan dengan itu, data primer dikumpulkan melalui angket. Di samping itu, peneliti juga menggunakan observasi partisipan dan dokumentasi. Secara umum, TPACK calon guru bahasa Arab termasuk dalam kategori "baik". Kendati demikian, terdapat pengetahuan-pengetahuan yang perlu ditingkatkan, yaitu *Content Knowledge, Pedagogical Content Knowledge,* dan *Technological Pedagogical Content Knowledge* itu sendiri. Selain itu, setiap butir pernyataan yang reratanya lebih rendah dari total rerata semua aspek perlu untuk diperhatikan juga. Tambahan lagi, hasil analisis ini menyuguhkan informasi terkait TPACK calon guru bahasa Arab yang bermanfaat sebagai bahan evaluasi bagi pihak-pihak yang berkepentingan, seperti Lembaga Pendidikan Tenaga Kependidikan (LPTK) sebagai lembaga dalam perguruan tinggi yang diberikan kewenangan untuk mempersiapkan tenaga pendidik profesional.

Kata kunci: Integrasi Teknologi, Kompetesi Guru, Pendidikan Bahasa Arab, Profesionalitas, *Technological Pedagogical Content Knowledge* (TPACK)

Introduction

Teachers play an important role in the academic success of their students (Yunus, 2016). Kirom quotes Hamalik stating that a teacher plays two roles, as a teacher and a mentor. In addition, Rusman classifies the teacher's role as a demonstrator, class manager, mediator, facilitator, and evaluator (Kirom 2017). This role is strengthened by the tasks carried out by teachers as stated in *UU No. 14 Tahun 2005* that says teachers have the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students (JDIH BPK RI, n.d.). Nowadays, the role of teachers is increasingly important and occupies a strategic position because national development is directed at increasing its human resources. These efforts rely on teachers to contribute to the national development in the field of education. Therefore, teachers should always improve their professionalism in every way (Nuryani and Handayani 2020).

In the 21st century, the development of science, technology, and art requires teachers to not only have knowledge about the material (content knowledge) but they also have to understand about how to teach it (pedagogical knowledge). However, they should also know technology and its use in the learning process (technological knowledge) (Rahmadi 2019b). That is, there is a need to integrate technology into the learning process (Sari and Sumardi 2020). Thus, teachers are expected to be able to utilize technology in learning. Rahmadi explained that in the 21st century, technology is used as a tool, process, and learning resource (Rahmadi, Khaerudin, and Kustandi 2018). In addition, Sari cites Eggen and Kauchak as asserting that the current benchmark of

learning is related to the use of technology (Sari 2016). Therefore, teachers are required to have competencies in order to contribute to the developments of the education (Amra 2016).

One of the knowledge frameworks that are relevant to the demands of the 21st century education is Technological Pedagogical Content Knowledge (TPACK) (Nevrita, Asikin, and Amelia 2020). This framework is the development of Pedagogical Content Knowledge (PCK) as described by Shulman which means pedagogic knowledge, practice, planning, and learning methods (Aditama and Pratiwi 2021). Then, this knowledge was supplemented by Mishra and Koehler with knowledge of educational technology, so that a new knowledge framework was developed, namely Technological Pedagogical Content Knowledge (TPACK) (Koehler and Mishra 2009).

That is, TPACK is a combination of content, pedagogy, and technology that can describe teacher knowledge in integrating technology in learning. In this regard, TPACK consists of three main components, namely Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). In addition, TPACK consists of four integrated components, namely Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK) (Rosenberg and Koehler 2015), as shown in Figure 1 below: http://tpack.org.
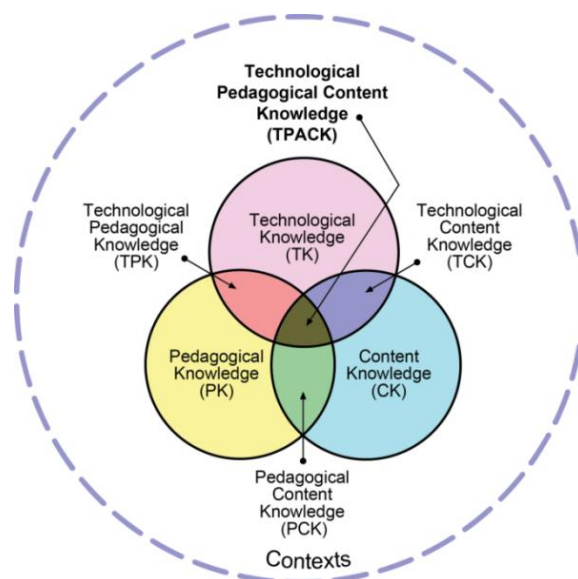

Figure 1. TPACK Framework and Its Components

Furthermore, TPACK has a positive effect on learning. Sholihah et al. found that TPACK affects the ability of prospective teachers in preparing learning tools properly (Sholihah, Yuliati, and Wartono 2016). Meanwhile, Absari et al. revealed that the teachers with good TPACK are tend to teach students in more optimal way (Absari, Priyanto, and Muslikhin 2020). In addition, Khaira et al. mention that combining technology and pedagogical competencies that are aligned with quality of material content will affect students' knowledge so that learning outcomes will increase as well (Khaira, Susilawati, and Renaldi 2021). In this regard, Taopan said that TPACK can be used to design, implement, and evaluate curriculum and also guide the use of technology. Thus, this can give a new insight to the institutions to realize the importance of technology in learning by providing adequate facilities (Taopan 2020).

In this context, Mutiani et al. mentioned that TPACK can be implemented in several subjects (Mutiani et al. 2021), including in the Arabic Education program as part of the Faculty of Education and Teacher Training of IAIN Pekalongan. The main objective of this program is to prepare the students to become the future professional Arabic teachers at the elementary to upper secondary levels (Anon n.d.-a). Therefore, mastering TPACK is important to assist teachers in improving the professionalism and quality of learning in the classroom (Yulisman et al. 2019).

Suyamto emphasized that professional teachers have adequate TPACK (Suyamto, Masykuri, and Sarwanto 2020). Moreover, the teaching and learning process is currently being conducted through online platforms as mandated by the government in *Surat Edaran No. 4 Tahun 2020*. In this regard, Wurayningtyas and Setyaningsih stated that online learning refers to a combination of the three main components in TPACK, namely Content, Pedagogic, and Technology knowledge (Wuryaningtyas and Setyaningsih 2020). Thus, a study to determine the TPACK level of students as prospective Arabic language teachers needs to be carried out.

Many previous studies that investigate the TPACK of prospective teachers have been carried out. For instance, Rahmadi analyzed the TPACK of prospective Pancasila and Citizenship Education teachers at Pamulang University (Rahmadi, 2019). Busono investigated the TPACK of prospective SMK teachers (Busono, Mardiana, and Dwidayati 2021). Supriyadi et al. revealed the TPACK for prospective physics teachers at Musamus University (Supriyadi et al., 2018). In line with Supriyadi et al., Muslim et al. revealed the

TPACK for prospective Physics teachers at Tadulako University (UNTAD) (Muslim, I Komang Werdhiana, and Kade 2020). These studies on TPACK were not carried out in the field of language education. In other words, researchers have not found a TPACK analysis study on the prospective Arabic teachers. Therefore, this study needs to be carried out to complement the previous studies by obtaining the TPACK profile of prospective Arabic language teachers who are currently studying at Arabic Education Program at IAIN Pekalongan.

Methods

To find out the TPACK of prospective Arabic teachers, the researcher uses a survey research that can be carried out on large or small populations (Kurniawan and Puspitaningtyas 2016). The respondents of this research are 7th semester students of Arabic Education program at IAIN Pekalongan who have completed the Field Experience Practice (PPL). About 110 students have conducted this program at Islamic junior high schools (MTs), Islamic senior high schools (MA) for 2 months (August-September 2021). Meanwhile, the sample for this study was determined using the convenience sampling technique. This sampling technique, also known as Haphazard Sampling and Accidental Sampling, is a type of non-random sampling in which the selected members of the population should meet certain criteria. In this regard, the sample in this study consisted of students who were willing to participate in the research (Etikan, Musa, and Alkassim 2015).

The researcher used survey research because the primary data in this study was collected through questionnaire. In addition, researchers also used participant observation and documentation. In this case, the researcher has developed a special questionnaire to analyze the students' TPACK by adapting it from Rahmadi (Nursyifa, Rahmadi, and Hayati 2020). The questionnaire consists of 58 items that can be categorized into seven aspects, namely Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). The details of the items are 18 TK, 8 PK, 6 CK, and 7 PCK, 7 TCK, 7 TPK, 5 TPACK. Furthermore, the researcher used a 4-point Likert scale response ranged from Strongly Disagree (SD), Disagree (D), Agree (A), and Strongly Agree (SA).

All instrument items were tested for its validity using external validity. This test involved 7th semester students of the Arabic Education program at Islamic University of Sunan Kalijaga Yogyakarta. The collected data was analyzed using Pearson Product Moment Correlation and showed that 15 items were invalid, while the other 43 were valid. Meanwhile, the reliability was measured using Cronbach's Alpha with a result of 0.97.

Questionnaires were filled out by students online through the Google Form application by sharing the link to the class WhatsApp group. In the introduction to the questionnaire, it is written that the data provided is purely for research purposes, is confidential, and will not affect grades in any courses. In addition, the researchers also used non-participant observation techniques in the fifth semester of Arabic Education program of IAIN Pekalongan, and documentation to complete the research data.

Then, the collected data were analyzed using descriptive statistical techniques. The average of each item and section is calculated using the formula in Figure 2, then categorized according to the average, as shown in table 2 (Mardapi 2012).

$$x = \frac{\Sigma x}{n}$$

Figure2. The Mean Formula

Description
x : Mean score f each aspect
n : Number of raters
Σx : Total score

Table 1. The Mean Category

No	Mean	Category
1	3,26 – 4,00	Excellent
2	2,51 – 3,25	Good
3	1,76 – 2,50	Bad
4	1,00 – 1,75	Worst

Result and Discussion

There are 27 out of 110 students who filled out the questionnaire. In this regard, Arikuto said that if the population is less than one hundred, it is better to take all of the population. However, if the object is large it can be taken between 10-15% or 20-25%

(Arikunto 2014). The details of the respondents from this study have been classified according to gender, age, and teaching experience as follows:

Table 2. Respodents' Profile

Gender			
Men		Women	
6 (22,2%)		21 (77,8%)	
Age			
20 y.o	21 y.o	22 y.o	23 y.o
2 (7,4%)	15 (55,5%)	7 (25,9%)	3 (11,1%)
Teaching Experience			
Inexperienced	**Experienced**		
	< 1 year		2-4 years
21 (77,8%)	3 (11,1%)		3 (11,1%)

Table 1 shows data on respondents who have filled out the TPACK questionnaire. About 77,8% of the respondents are women, while the other 22,2% are men. Then, more than half of the respondents are 21 years old (55,5%), while the respondents aged 22 are 25,9%. The number of respondents aged 20 and 23 years is almost the same, they are 7,4% and 11,1% respectively. In addition, as many as 77,8% of them do not have teaching experience. However, there are 11,1% of respondents with teaching experience for < 1 year. This percentage is the same as the percentage of respondents who have teaching experience for 2-3 years.

TPACK for Prospective Arabic Teachers at the Arabic Education Program IAIN Pekalongan

Next, the researcher will describe the results of the analysis of the TPACK of prospective Arabic teachers. The researcher will first explain the concept of each aspect of TPACK. The general concept of each aspect is based on the definition stated by Mishra and Koehler (Koehler and Mishra 2009). Meanwhile, the researcher's special concept was taken from relevant previous studies (Jang and Tsai 2013). This concept can be seen in each statement item in the questionnaire (Rahmadi, Hayati, and Nursyifa 2020).

Technological Knowledge (TK)

Technological Knowledge (TK) can be defined as the ability to understand information technology well to be implemented in productive learning. In addition, TK

helps teachers to recognize when information technology can help and hinder the achievement of learning goals. In addition, TK encourages teachers to continuously adapt to the rapid changes in information technology, so that teachers can develop and complete different tasks in different ways. At the end of their explanation, Mishra and Koehler emphasized that this concept will continue to develop because of our close interaction with technology. Accordingly, more specific concepts regarding TK can be found in each statement in the questionnaire below.

Table 3. The TK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I keep up with new technologies that are important to me	12	13	2	0	3,37	Excellent
2	I often play with tech tools to find out more	6	18	2	1	3,04	Good
3	I know different kinds of computer technology	3	14	9	1	2,67	Good
4	I know how to use a word processing program (example: Microsoft Word)	12	13	2	0	3,7	Excellent
5	I know how to use communication applications on the internet (example: Email)	18	8	1	0	3,63	Excellent
6	I know how to use social media applications on the internet (example: Facebook, Instagram, Whats App, Youtube)	19	7	1	0	3,67	Excellent
7	I know how to use LMS based applications (example: E-Learning, Google Classroom, Moodle)	14	12	1	0	3,48	Good
8	I can use conferencing software. (example: Zoom Cloud Meeting, Google Meet, Ms. Teams)	10	15	1	0	3,22	Good
9	I can store data in digital form (example: CD, DVD, Flash Disk)	11	12	4	0	3,26	Excellent
10	I can save and convert data in various formats (example: converting MS. Word file to PDF)	16	9	2	0	3,52	Excellent
11	I can use printers, projectors, scanners, and digital cameras.	10	10	7	0	3,11	Good
Total						**3,31**	Excellent

Table 3 shows the TK scores of prospective Arabic teachers who are currently pursuing undergraduate education at Arabic Education program of IAIN Pekalongan. They have an excellent technological knowledge. The highest mean score was found on the iten about how to use word processing programs (3,7). Meanwhile, knowledge of various computer technologies has the lowest mean score (2,67). This score is below the total (3,31). Likewise with the other four statements. thus, the technological knowledge of prospective Arabic teachers is still weak especially on the LMS-based applications, conference software, and computer hardware. This could be due to a lack of desire to find out more about different technologies.

Pedagogical Knowledge (PK)

The second aspect in TPACK is Pedagogical Knowledge (PK), namely teacher knowledge about teaching practices starting from the planning stage to assessment. Therefore, knowledge of learning methods applied in the classroom; class management; student character; and assessment strategies to evaluate student achievement on the material. In line with this, Farikah and Firdaus citing *Peraturan Pemerintah Republik Indonesia No. 19 Tahun 2005* states that pedagogical knowledge is the ability of teachers to manage learning which includes planning, implementing learning, evaluating learning outcomes, and understanding students so that teachers can optimize and actualize all students' potential (Farikah and Firdaus 2020).

Table 4. The PK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I know how to plan lessons in class	8	16	3	0	3,18	Good
2	I know the general procedure for implementing learning in class	7	18	2	0	3,18	Good
3	I know how to organize and manage classes	3	21	3	0	3	Good
4	I can adjust my learning process based on what students already understand and don't understand	4	17	6	0	2,92	Good
5	I can use various models, approaches, strategies, methods, media, techniques, and learning tactics in the classroom	4	18	5	0	2,92	Good

		SA	A	D	SD		
6	I can find out students' misunderstandings about a concept or material	3	20	4	0	2,92	Good
7	I can assess student learning using different types of assessment	4	16	7	0	2,89	Good
Total						**3**	**Good**

Table 4 shows the PK scores of the respondents. The highest mean score is found in the knowledge of how to plan lessons and general procedures for implementing learning in the classroom. Both got a score of 3.18. Meanwhile, knowledge about how to assess student learning using various types of assessment is the statement with the lowest mean score (2,89). Overall, the pedagogic knowledge of prospective Arabic teachers is in the "good" category. However, some statements are below the average. It means that the pedagogic knowledge of prospective Arabic teachers needs to be improved in adapting learning to students' understanding; using models, approaches, methods, and so on; knowing students' misconceptions about a concept, and assessing student learning outcomes.

Content Knowledge (CK)

Content Knowledge (CK) is defined as the teacher's knowledge of the content or learning materials that students will learn. Shulman in Mishra and Koehler stated that CK includes knowledge of theories, concepts, frameworks, facts, and the efforts made by teachers to develop knowledge which in this case is knowledge of Arabic language.

Table 5. The CK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I have good knowledge of Arabic material	4	18	5	0	3,63	Excellent
2	I have various ways and strategies to	4	16	7	0	2,89	Good

	develop my understanding of Arabic material						
3	I follow scientific developments and the latest issues in the field of ArabicEducation	3	13	11	0	2,7	Good
Total						**2,84**	**Good**

Table 5 describes the CK scores of the whole respondents. Overall, the material knowledge of prospective Arabic teachers is in the "good" category. The highest mean score is found in good knowledge of Arabic material (3,63). Students' knowledge about the latest scientific developments and issues in the field of Arabic Education has the lowest score (2,7) which falls below the average score. Therefore, prospective Arabic teachers should be able to participate in activities that can increase their knowledge about Arabic Education. For example, by reading the latest published books or journal articles and attending seminars/webinars or other similar academic activities. This is inseparable from the role of institutions to facilitate these needs by organizing activities that raise the latest issues in the field of Arabic Education.

Pedagogical Content Knowledge (PCK)

Pedagogical Content Knowledge (PCK) was initiated by Shulman. According to him, PCK occurs when the teacher prepares learning materials, finds the right method to present them, and adapts the material to the students' prior knowledge. With PCK, teachers know the importance of being aware of students' misunderstandings about the material, integrating one material with another and even other disciplines. Finally, teachers who have PCK strive to provide more effective learning.

Table 6. The PCK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I can make my own Learning Implementation Plan in Arabic subjects	9	16	2	0	3,26	Excellent
2	I can choose models, approaches, strategies, methods, media, techniques, and learning tactics that are in accordance with the Arabic language material	3	23	1	0	3,07	Good
3	I can make difficult-to-understand subject matter easy for students to	1	19	7	0	3,48	Excellent

No	Item	SA	A	D	SD	Mean Score	Desc.
	understand						
4	I can integrate one material and another in Arabic subjects	1	19	7	0	3,48	Excellent
4	I can integrate Arabic subject matter and other subject matter	2	17	8	0	2,78	Good
5	I can use various learning resources to teach Arabic material	5	20	2	0	3,11	Good
6	I can develop my own evaluation test on Arabic subjects	6	19	2	0	3,15	Good
Total						**2,97**	**Good**

Table 6 presents the PCK scores of prospective Arabic teachers. They have high ability to make the difficult subject easier for students to understand and relate one material to another. Both got a score of 3,48. Meanwhile, their ability to integrate one material in Arabic subjects with the material in other subjects is the lowest average (2,78). Although their pedagogical knowledge is classified as "good", their ability to integrate the learning materials they present to learning materials from other subjects needs to be improved.

Technological Content Knowledge (TCK)

In their paper, Mishra and Koehler defined Technological Content Knowledge (TCK) as knowledge of this content technology with an understanding of how technology and learning materials can influence and limit each other. The implication is that teachers should master the supporting learning materials. In addition, teachers should understand the learning materials that can be presented based on technology.

Table 7. The TCK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I know various technologies that I can use to learn Arabic material	6	18	3	0	3,11	Good
2	I can use certain computer applications to make itu easier for me to understand Arabic material	8	15	3	1	3,07	Good
3	I use technology in the form of the internet as a learning resource to search for Arabic material	12	15	0	0	3,44	Excellent
Total						**3,2**	**Good**

Table 7 describes the TCK scores of prospective Arabic language teachers who are currently pursuing undergraduate education at Arabic Education program of IAIN Pekalongan. Overall, content technology knowledge of prospective Arabic language teachers is in the "good" category. The highest average is found in the use of the internet as a learning resource and looking for Arabic language material (3,44). The ability to use computer applications to facilitate understanding Arabic material has the lowest category (3,07). The score is also below the average mean value. Therefore, prospective Arabic teachers should begin to recognize more deeply about various applications that can make it easier to understand Arabic material.

Technological Pedagogical Knowledge (TPK)

Technological Pedagogical Knowledge (TPK) is an understanding of how to change the technology-based teaching and learning process with certain steps. In addition, knowledge of affordability and technological constraints is also part of the TPK. Furthermore, the most important part of TPACK is knowledge of technology accompanied by knowledge of how to use it according to changing contexts and purposes. Therefore, teachers should be innovative and creative in developing their skills in using technology, compiling, and adapting it for pedagogical purposes.

Table 8. The TPK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I can choose technology that can improve learning strategies in the classroom	4	22	1	0	3,11	Good
2	I think more deeply about how technology can affect the learning strategies I use in class	2	20	5	0	2,89	Good
3	I can choose technology that can increase student attractiveness during the learning process in class	7	18	2	0	3,18	Good
4	I think critically about how to use technology in classroom learning	3	19	5	0	2,92	Good
5	I can adapt the use of technology to various learning activities in the classroom	5	19	3	0	3,07	Good
6	I can choose technology that can be used to improve learning outcomes in the classroom	4	21	2	0	3,07	Good

7	I can help other teachers to use technology in classroom learning	2	21	4	0	2,92	Good
Total						**3,02**	**Good**

Table 8 shows the TPK score of the respondents. The highest mean score is the selection of technology that can increase student attractiveness during learning process (3,18). However, the attempt to think more deeply about how technology can influence learning strategies is the statement with the lowest mean (2,89). Overall, the TPK of Arabic language teachers is in "good" category. However, several other statements are below the average total, so they need to be optimized. For example, thinking about using technology in the classroom and helping other teachers use technology.

Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge (TPACK) knowledge is defined as knowledge about how to use the technology in the appropriate pedagogical method to teach certain materials effectively. TPACK arises from the interaction between Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). This knowledge starts from the teacher's ability to integrate (choose, use, and combine) technology to the teacher's ability to help colleagues use the right technology in appropriate pedagogic methods to teach certain learning materials effectively in the classroom.

Table 9. The TPACK Score of Prospective Arabic Teacher

No	Item	Responses				Mean Score	Desc.
		SA	A	D	SD		
1	I can use the right technology in the appropriate learning strategy to convey Arabic material effectively in the classroom	6	17	4	0	3,07	Good
2	I can choose the right technology to improve students' understanding of the Arabic material that is taught using certain learning strategies in the classroom.	4	19	4	0	3	Good
3	I can choose the right technology to assess student learning outcomes in the Arabic subjects I teach using certain learning strategies in the classroom	2	22	3	0	2,96	Good
4	I can carry out good learning by	3	21	3	0	3	Good

	combining the use of appropriate technology and appropriate learning strategies for Arabic subjects in the classroom						
5	I can help other teachers to use the right technology in learning strategies that are suitable for certain Arabic language materials in classroom learning	2	20	5	0	2,7	Good
Total						**2,97**	**Good**

Table 9 shows the TPACK scores of the Arabic Education students. Overall, their knowledge of pedagogical technology content is categorized as "good". The highest mean score is found in the use of appropriate technology inappropriate learning strategies to convey Arabic material effectively in the classroom (3,07). Meanwhile, efforts to help other teachers to use the right technology in learning strategies that are by certain Arabic materials in classroom learning are the statements with the lowest mean score (2,7). This score is below the total (2,97). Likewise with the selection of the right technology to assess student learning outcomes in Arabic subjects taught using certain learning strategies in the classroom. Therefore, these two statements need to get more attention.

The findings of this study revealed that the Arabic Education students who participated in this study have good TPACK competencies. The highest score they have is on the Technology Knowledge (TK). However, there are several components that need more attention, namely Content Knowledge (CK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPACK) because they have a lower mean value compared to other components as shown in figure 3.
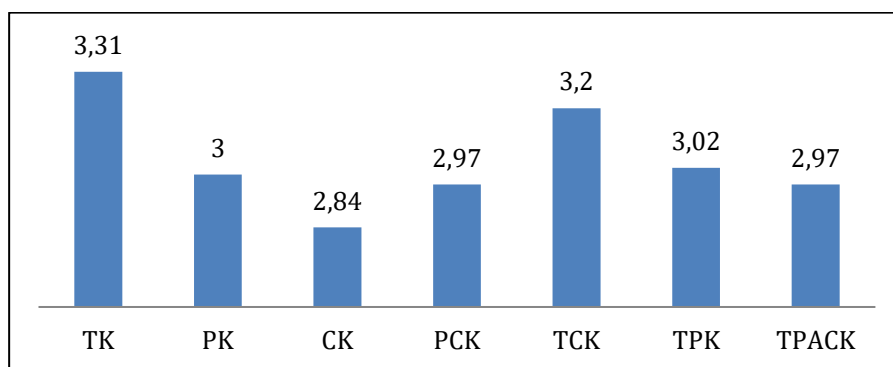

Figure 3. Average Comparison of All TPACK Components

Content Knowledge (CK) or content knowledge is knowledge related to learning materials. In general, the prospective Arabic language teachers have good content knowledge. However, statements that have a lower mean score than the average score need to be improved, namely knowledge of scientific developments and the latest issues in the field of Arabic Education. This demands them to be active in making certain efforts, such as reading written works and attending seminars or other similar activities. The institution is also expected to facilitate the needs of its students.

Besides, they also need to improve their Pedagogical Content Knowledge (PCK) and Technological Pedagogical Content Knowledge (TPACK) itself. Both obtained the same total average, which is 2.97. Even though they are in the good category, the PCK of prospective Arabic teachers who are currently studying for undergraduate education at PBA IAIN Pekalongan needs to be improved. As for TPACK, it is their ability to help other teachers to use the technology in learning process that are in accordance with certain Arabic language materials.

The above results are relevant to the findings from previous studies. The TPACK of prospective teachers is in the good category as found by Busono et al. and Muslim et al (Muslim, I Komang Werdhiana, and Kade 2020). Furthermore, Busono, et al. found that the Technology Knowledge (TK) component is the component with the highest total average (Busono, Mardiana, and Dwidayati 2021). This means that they have excellent technological skills. Meanwhile, other components are in good category. Likewise with what Rahmadi found in his research that CK and TPACK need to get more attention (Rahmadi, 2019). Thus, this study highlighted the importance of preparing prospective Arabic language teachers who have an adequate TPACK.

Technological knowledge is one of the important knowledge that needs to be owned and mastered by a teacher today. Research conducted by Majid and Ismail found that Arabic teachers' TPACK has a very good effect on learning creativity (Majid and Ismail 2018). In addition, Nofrion et al. mention that TPACK can be a good way to ensure the learning goals can meet the demand of the society need (Nofrion et al. 2018). This is confirmed by Septiyanti et al. that one of these demands is the ability about technological knowledge (Septiyanti, Inderawati, and Vianty 2020). In addition, Nindiasari et al. revealed that the use of technology can increase the effectiveness of learning (Nindiasari, Restiana, and Pamungkas 2021). Similar statement was conveyed

by Rustanto et al (Rustanto, Nur, and Mitriana 2020). Therefore, language teachers, including Arabic language teachers, are expected to integrate the use of technology in process (Alivi 2019), (Sahin 2011). This opinion is supported by *KMA No. 183 Tahun 2019* that applying technology in learning is one of the criteria for 21st-century learning (Anon 2019). Thus, this research emphasizes the importance of preparing prospective teachers with good TPACK.

Conclusion

In conclusion, the TPACK level of prospective Arabic teachers who are currently studying at Arabic Education department of IAIN Pekalongan can be categorized as good. However, they still need to improve their CK, PCK, and TPACK so that they can keep up with scientific developments and the latest issues related to Arabic teaching and learning, be able to integrate Arabic material with those from other related disciplines, help colleagues in integrating technology in learning process, and be able to use technology to assess student learning outcomes.

Also, every item with mean score that falls below the total mean score in each aspect should not be taken for granted. This study is limited to one study program in a university. Therefore, further research can be carried out in many porgrams and universities to find out the extent of progress in preparing prospective teachers according to the learning needs in the 21st century. This research gives an insight and enriches the literature related to TPACK. Meanwhile, practically, this study can be used as material for evaluating lectures on the Arabic Education program at IAIN Pekalongan and improving the quality of the study program.

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