

Technological Pedagogical Content Knowledge for Arabic Teachers in Secondary School: A Design Base on Praxeological Approach

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Abstract

This research explores the Technological Pedagogical Content Knowledge (TPACK) problem in Arabic language learning and how to design TPACK based on a praxeological approach for Arabic language teachers to solve issues faced by students learning Arabic in secondary school. In this context, the TPACK design, based on a praxeological approach, is ideal for solving Arabic language learning problems. This research was carried out using the Systematic Literature Review (SLR) method with data collection using the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) method regarding praxeology-based TPACK research in teaching Arabic in schools. Researchers used data sources, including journals, books, and other supporting sources, in this research. The findings in this research indicate that the main problems regarding the implementation of TPACK in Arabic language teaching are (1) the teacher's weak desire to achieve learning goals, (2) limited technological resources, and (3) the teacher's weak pedagogical competence. This problem occurs continuously because Arabic teachers need to have basic guidelines regarding the main steps to implement TPACK. Therefore, the TPACK design is based on a praxeological approach, which includes the see, act, and judge cycle and can help teachers diagnose the problems faced by students in detail. Teachers can take more directed, targeted, and practical actions when teaching Arabic.

Keywords: Arabic Teaching; Praxeology; TPACK; Teacher Competency

INTRODUCTION

The 21st century focuses on teachers' skills in delivering material by integrating the use of technology as a benchmark for the success of learning at both school and college levels (Griffin & Care, 2015; Larson & Miller, 2011; Sauri et al., 2021; Sanusi et al. al., 2023). Many teachers are required in terms of abilities and skills to design a learning system relevant to the 21st century, both in content and teaching methods (Sojanah et al., 2021). Therefore, along with the rapid progress of information technology, it has become necessary for teachers in schools, especially Arabic language teachers, to master technology, which is then used as supporting media in the learning system. Advances in science and technology can be used as techniques to improve the quality of Arabic language learning in schools. In this case, the approach that can be applied to learning Arabic at school is TPACK (Technological Pedagogical and Content Knowledge) (Rizqiyah, 2021; Nurbayan & Sanusi, 2025). TPACK is a framework that combines technological knowledge (Technological Knowledge), pedagogical knowledge

(Pedagogy Knowledge), and content knowledge (Content Knowledge) in a learning context (Efthimiadou & Sansoniou, 2020; Kusuma, 2021; Quddus, 2019; Rahmadi, 2019). Therefore, TPACK capabilities for teachers are an essential thing that must be possessed because TPACK aims to develop capabilities in material mastery, pedagogical capabilities, as well as teachers' capabilities in technological literacy (Abbitt, 2011; Agustini, 2019; Alivi, 2019). Especially when learning Arabic online, digital technology facilities are needed as a medium for learning interaction between teachers and students (Nayar & Koul, 2020). Moreover, higher education is one of the national education subsystems required to produce quality Human Resources (Setyarini et al., 2020).

However, Arabic Language Education teachers in Indonesia have yet to be able to maximize TPACK in learning. This is due to the need for teachers to understand technology integration when teaching in foreign language classrooms. Apart from that, they also need help in maximizing technology to improve the quality of their teaching (Febriani & Anasruddin, 2020) in line with the research results of Mufidah et al. (2019), which emphasizes that the level of teacher skills, especially in the field of education, is still in the relatively good category. On the other hand, research from Wargadinata et al. (2020) emphasized that teachers' TPACK abilities still need to be optimal in learning because their teaching experience, training, facilities and infrastructure, self-confidence, and teaching motivation tend to be low.

Another problem in teaching Arabic in schools is that teachers only focus on teaching in class if they systematically look at the most crucial aspects that must be done first in teaching (Sahrir et al., 2022). As a result, the methods teachers use in teaching are different from the actual problems students face in learning, so learning objectives are not achieved effectively. Therefore, teachers must apply a praxeological approach in teaching, which consists of three cycles: (1) See cycle: teachers identify student learning problems. (2) Act cycle: The teacher determines the appropriate action in solving learning problems using TPACK. (3) Judge cycle: assess the effectiveness of the actions taken by the teacher in achieving learning goals (Sanusi et al., 2022). Thus, technological advances and demands for achieving quality learning goals require teachers to implement a praxeological approach-based TPACK in teaching Arabic in schools.

Additionally, previous research conducted by Majid et al. (2023) and Ibda et al. (2023) showed that TPACK is more widely used for curriculum development and supporting the Arabic language learning process. However, previous research has yet to integrate TPACK and the praxeological approach in teaching Arabic in schools. The praxeological approach can help teachers identify detailed problems students face so that they can re-realize quality learning. Apart from that, every Arabic student will have different learning problems. Therefore, the praxeological approach can be a guide in teaching more focused, targeted and effective Arabic.

Considering the importance of TPACK based on a praxeological approach in realizing the goals of Arabic language learning in the 21st century, it is necessary to develop a TPACK based on a praxeological approach ideal for Arabic language teachers. In addition, by adopting the TPACK framework based on a praxeological approach, this research is responsive to international standards in Arabic language teaching. This research also encourages the integration of sustainability principles contained in the 4th Sustainable Development Goals (SDGs), namely quality education (Boeren, 2019). Thus, developing the praxeological approach-based TPACK instrument in this research is an effort to fulfil SDG 4, where this research contributes to improving the quality of

education in Indonesia, especially in the context of teaching Arabic in schools. The following are the research questions in this study what are the problems with TPACK in teaching Arabic? What is the ideal design of TPACK based on a praxeological approach in teaching Arabic?

METHOD

The research design used in this research is descriptive. This research was conducted using the Systematic Literature Review (SLR) method with data collection using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) method regarding praxeological approach-based TPACK research in teaching Arabic in schools. Research using SLR aims to obtain information from existing research from databases such as Google Scholar, Researchgate, ScienceDirect, and Taylor & Francis. Apart from that, using SLR also helps researchers understand what problems are related to TPACK in teaching Arabic in the digital era and the ideal indicators of praxeology-based TPACK for Arabic language teachers in schools.

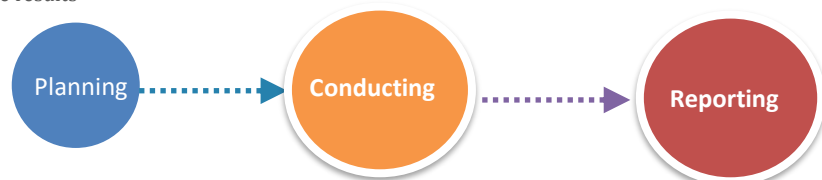
This research's population consists of scientific journal articles discussing TPACK sourced from the Google Scholar, Researchgate, ScienceDirect, and Taylor & Francis databases. Meanwhile, this research's sample is the teacher pedagogical competence problem after the COVID-19 pandemic.

Data collection in this research used the PRISMA method. This method focuses on aspects of identifying research, selecting research, assessing research, and synthesizing research results. This method aims to modify the structure and presentation of data items to facilitate the implementation of the PRISMA method (Page et al., 2021). Data searches begin by determining a digital library or data source. Researchers choose the correct data sources to increase the chances of finding relevant articles. Popular databases have a broad perspective and a wide range of literature that has good credibility. Therefore, researchers used digital databases to search for data sources, such as Google Scholar, Researchgate, ScienceDirect, and Taylor & Francis. The next stage is to determine the keywords. Keywords used for data collection vary. The keywords are TPACK, language teaching, praxeology, and the digital era. After that, initial data collection from search results was carried out in as many as 205 studies from four databases. Then, the researcher made a selection based on the title and abstract, and 72 studies were selected.

SLR Research Procedure

Figure 1. SLR Research Procedures (Amelia et al., 2024)

- Identify the need for systematic review
- Develop the review protocol
- Evaluate the review protocol
- Presenting the results



- Primary data research
- Choose the primary data
- Perform data extraction from primary data
- Conduct a quality assesment on primary data
- Perform data synthesis

This research uses the SLR approach to determine, compare, and identify praxeology-based TPACK research in Arabic language teaching. In this study, researchers did not include research data from proceeding articles because they needed to go into depth in the discussion, so they did not answer the research questions. Jorgensen & Shepperd (2007) emphasized that proceeding articles cannot be used as data sources because they need to provide in-depth discussion. Meanwhile, Catal & Diri (2009) used research sourced from proceeding articles due to the lack of literary sources on the topics discussed (Catal & Diri, 2009) emphasized that to understand the results of the synthesis and check the validity of the conclusions presented, researchers applied an evaluation of the quality of the literature study. Data synthesis attempts to collect evidence or information from specific research to address research problems. Both quantitative and qualitative research data were collected for this review. Researchers use this method to synthesize data sources narratively.

RESULTS AND DISCUSSION

TPACK Problems in teaching Arabic

Teaching Arabic in schools is essential for developing students' competence in understanding and using the language. In the context of language teaching, the concept of TPACK becomes relevant to consider. TPACK represents the idea of using technology, teaching techniques that use technology to teach the material, and knowledge that can help students build existing knowledge (Celik, 2023). TPACK combines technological, pedagogical, and content knowledge in a learning context (Muhlis et al., 2023). Thus, TPACK is a framework for teachers to integrate technology into teaching activities.

The components in TPACK function to increase active and student-focused learning (Valtonen et al., 2023). In other words, learning initially centred on teachers will shift to students. The context needed for teachers is knowledge of the effectiveness of TPACK learning integration, which combines technology, learning content, and pedagogical strategies related to each other to create fun, technology-based learning. Moreover, teaching Arabic in the 21st century requires teachers to make innovative changes to prepare students with four core skills: critical thinking and problem-solving, communication, collaboration, and creativity (4C), and information, communication, and technology (ICT) skills (Rudianto et al., 2022). Thus, education in the 21st century focuses on teachers' skills in delivering material by integrating technology to measure learning success, especially in higher education.

Undoubtedly, the application of TPACK in Arabic language teaching is not without its challenges, often leading to ineffective and inefficient learning. It's crucial to acknowledge these challenges to better support teachers in overcoming them.

1. Weak teacher desire to achieve learning goals

The research results of Nurbayan et al. (2023) show that the crucial problem currently occurring is that Arabic language teachers in Indonesia only focus on teaching Arabic language knowledge from one meeting to another without looking at the problems students experience in learning Arabic. In other words, the teacher comes to class only to abandon his obligation to deliver the material without paying attention to the internal and external factors of the difficulties experienced by the students. Even though the teacher in the process of delivering the material has used technological media, he still needs to learn the students' difficulties in learning Arabic in detail. This causes learning to be meaningless, so the learning objectives must be achieved

effectively and efficiently. Therefore, diagnosing students' difficulties in learning and resolving them is a fundamental thing that teachers must do; this shows teachers' strong desire to achieve learning goals. When teachers lack the drive or passion to teach well, the quality of their teaching may suffer. This could mean a lack of preparation, a lack of innovation in teaching methods, or a lack of attention to individual student needs (Shernoff et al., 2017).

In this regard, Sanusi et al. (2020) emphasized that as a professional Arabic teacher, he must have the ability to understand the vision and mission of teaching. With this vision and mission, a teacher can create a priority scale so that teaching is more focused. This means that a teacher must understand that teaching is not just a matter of routine and presence in the classroom. Syihabuddin's (2017) research results reveal that teachers must carry out various activities at school, with the primary motivation being to teach. If teachers appear weak and lack motivation to teach, students will be negatively impacted, and their motivation to learn will decrease. However, factors that influence teachers' low motivation include a lack of appreciation for teachers' efforts and achievements (Dewi, 2015). Thus, the goal of learning Arabic will be achieved if one has a strong desire to teach, including resolving difficulties experienced by students.

2. Limited technological resources

The issue of limited technological resources is a pressing concern in implementing TPACK in Arabic language teaching. Many schools, especially those in rural areas, lack adequate access to technology, such as computers, the internet, or relevant learning software. This significantly hampers teachers from creating interactive and engaging learning experiences using technology. In line with the findings of Kusuma's (2022) research, limited access to technology is a widespread problem. Urgent action is needed to address this issue and ensure that all students have equal opportunities for quality education. Explicitly, the problem of limited technological resources in rural schools is the need for learning hardware such as computers, laptops or tablets (Sundeen & Sundeen, 2013). This device is the foundation for using technology in teaching. With these devices, teachers can access digital resources and use learning software that enriches students' learning experiences. In addition, an internet connection can help access online and web-based learning (Barrera, 2021; Octaberlina & Muslimi, 2020; Widodo et al., 2020). This reduces teachers' ability to use digital learning materials or communicate with students intensively.

The research results of Truong et al. (2021) also added that obstacles related to limited technological resources are due to the existence of learning software, which requires high costs and limited school budgets. As a result, teachers need more choices of learning tools to use in teaching. However, the research results of Nuraini et al. (2022) emphasized that if schools have access to technology. However, teachers need more knowledge or skills to integrate technology into teaching, and learning will still not be able to increase student motivation and learning achievement. Apart from classroom management factors, comfort in the classroom, and student enthusiasm, the use of technology as a learning medium in the classroom also positively influences student learning achievement (Ahmad et al., 2020). Furthermore, the research by Gemiharto & Priyadarshani (2022) brings to light another critical issue-the digital divide. Limited access to technology can widen the gap between schools that have access and those that don't, exacerbating inequalities in learning opportunities. This

underscores the urgent need for comprehensive measures, including adequate training and support from the government and schools, to address this digital divide and ensure equitable access to technology for all students.

3. Weak teacher pedagogical competence

Pedagogical competence is teacher competence directly related to the teaching process (Sanusi et al., 2022). *Pedagogical competence* is a distinctive competence that distinguishes teachers from other professions and determines the level of success of the learning process and the outcomes of students. Therefore, in the teaching process, Arabic teachers must be able to utilize information and communication technology for learning purposes. This is because teacher competence in teaching must support adequate technological resource facilities. In other words, even though schools have inadequate technological resources, the learning objectives will be achieved if teachers have the skills or knowledge to integrate technology into their Arabic language teaching. Another pedagogical competency problem is implementing TPACK in teaching Arabic as a foreign language; teachers often need help finding relevant and appropriate content for their students' needs (Sahrir et al., 2022). This can hinder the development of exciting learning materials and the applicable curriculum. Technology can potentially enhance Arabic language learning, and integrating technology into teaching can challenge teachers. Many Arabic teachers need adequate training in technology use for more innovative and creative teaching purposes. As a result, they may feel uncomfortable or unsure about using technology in their teaching. Thus, the problems described above influence the implementation of TPACK in Arabic language teaching, especially concerning the Arabic language teacher's desire to achieve learning goals. Therefore, to solve these problems, teachers should apply TPACK based on a pragmatic approach. The pragmatic approach requires identifying student problems first in the learning process so that teachers can be directed in teaching according to the problems they experience. In addition, by implementing this approach, teachers will be able to evaluate the way they teach so that if deficiencies are found in teaching, they are required to improve teaching continuously tenuously

The TPACK Design Based On A Praxeological Approach In Teaching Arabic

Based on the current problem of implementing TPACK in Arabic language teaching, many teachers need a strong desire to achieve the learning objectives set. In other words, teachers only focus on delivering Arabic language learning material at every meeting without having the desire to investigate the difficulties experienced by students in participating in Arabic language learning in class. Apart from that, teachers who have used technological media in teaching have yet to be able to address students' needs in learning Arabic. Therefore, implementing praxeology-based TPACK is necessary because by combining TPACK and praxeological approaches, Arabic language teachers must diagnose what actions they must take first in teaching to take appropriate actions in teaching and, ultimately, the learning objectives. This can be achieved effectively and efficiently.

Meanwhile, the TPACK design, based on a praxeological approach, is divided into three cycles: the see cycle, the act cycle, and the judge cycle. If the three cycles have been implemented in teaching, then Arabic teachers must make continuous teaching improvements.

Figure 2. Praxeology cycle in Arabic teaching



Figure 2 explains that the final step after going through the see, act and judge cycle, continuous improvement is the last step that must be taken. Continuous improvement is an effort to improve the quality of teaching sustainably. Improving the quality of teaching by teachers is a step toward achieving SDGs 4 Quality Education. The following table depicts the TPACK indicators based on a praxeological approach to teaching Arabic more clearly.

Table 1. TPACK Indicators Based On A Praxeological Approach

Aspect	Praxeology Cycle	Indicators
TPACK	See	Teachers diagnose problems experienced by students in cognitive, affective and psychomotor learning
	Act	Teachers have the desire/vision and mission to solve problems experienced by students in learning Arabic
		Teachers use various media and technology-based learning strategies according to students needs
		Teachers present Arabic language material according to the problems faced by students and students needs
		Teachers provide an online discussion forum in each lesson
		Teachers develop digital learning resources such as e-modules or e-learning that support students needs
		Teachers provide students with reference resources for learning Arabic and other foreign languages by utilizing blogs, vlogs, YouTube channels, etc
	Judge	Teachers examine the achievement of learning objectives after conducting formative and summative evaluations
		Teachers make teaching improvements so that learning becomes more effective and efficient at the next meeting

Table 1 explains the TPACK indicators using a praxeological approach, focusing on three cycles. This is explained in detail below;

1. See cycle

In the see cycle, the teacher must first diagnose the problems students experience in cognitive, affective, and psychomotor learning. The cognitive aspect includes students' ability to understand and use Arabic effectively, including grammar, vocabulary, and sentence structure. Teachers must diagnose cognitive problems such as difficulty understanding grammar rules, processing information, or articulating ideas in Arabic (Begam, 2018; Rakhlin et al., 2021). Additionally, the teacher's role extends to diagnosing the affective and psychomotor aspects of learning Arabic. This

includes being sensitive to affective problems such as anxiety about difficulties in learning a foreign language, shyness in speaking, or reluctance to participate in class activities (Dörnyei, 1998). The psychomotor aspect involves students' physical and motor skills in using Arabic orally and in writing. By addressing these aspects, teachers can create a supportive learning environment that fosters students' emotional and physical development (Saajidah & Mustofa, 2023). By understanding and diagnosing problems in these three aspects, Arabic teachers can design appropriate learning strategies, provide appropriate support, and facilitate compelling learning experiences for their students using technological media.

2. Act cycle

After the teacher has succeeded in diagnosing the problems experienced by students in learning Arabic, he must have a strong determination, desire, vision and mission to help students deal with the problems they experience in learning Arabic (Husseinali, 2006; Hargreaves & Fullan, 2015). With a sincere desire and determination to help students overcome the obstacles or difficulties they face in learning Arabic. Furthermore, in classroom learning, teachers must be able to utilize various learning strategies based on media and technology and adapt to the individual needs of each student. Researchers agree that using technological media has great potential in improving the learning process (Gan et al., 2015; Lacka et al., 2021). Therefore, various types of technological media, such as audio, video, images, and animation, can enrich Arabic learning material. For example, teachers can use instructional videos to explain complex concepts or images to visualize specific ideas. However, with students having different learning styles and different needs and preferences in accessing information, teachers must use various media and technology-based learning strategies to meet the needs of individual students (Grasha & Yangerber-Hicks, 2000; Wulan et al., 2025). For example, students more responsive to visual learning may benefit from using videos. In contrast, students who prefer interactive learning may be accommodated through educational games or online platforms. This learning strategy can be carried out in turns during one Arabic learning meeting. Using media and technology-based learning strategies that are diverse and tailored to student needs, teachers can create an inclusive, exciting and effective learning environment, allowing each student to reach their maximum learning potential. In the act cycle, the teacher not only conveys learning material in general but also pays special attention to the problems faced by students and their needs in learning Arabic while still paying attention to the learning objectives that have been set. Therefore, the presentation of the material must be based on students' problems, where the teacher pays close attention to the problems students face in understanding or mastering Arabic language material (Febriani et al., 2020). Teachers respond directly by presenting learning materials to overcome student difficulties or confusion (Brown, 1992). For example, if most students struggle with specific Arabic grammar, the teacher can provide more detailed explanations or tailored exercises.

Teachers can also apply a differentiation approach when presenting Arabic language material (Alomari & Alarfaj, 2023). Teachers provide various materials, resources and learning approaches to meet the needs of students with diverse learning characteristics. This may include group-based learning or diverse learning technologies (Eady & Lockyer, 2013). By presenting Arabic language material according to students' problems and needs, teachers help students understand and

master Arabic more efficiently and increase their motivation and involvement in learning. Additionally, to enhance intensive and high-quality Arabic language learning, teachers can establish permanent discussion forums on online learning platforms. These forums serve as a space where students can freely ask questions, engage in discussions, and share information related to their learning. The provision of such online discussion forums in every lesson fosters interaction and collaboration among students, stimulates the exchange of ideas, and cultivates an active and supportive learning environment (Onyema, 2019).

In the context of learning outside the classroom, teachers also have a role in developing digital learning resources that suit students' needs (Hinostroza, 2018). This must be done because it can increase the effectiveness of Arabic language learning by following technological developments in education. Apart from that, teachers must also use digital platforms to provide learning resource references to students to increase accessibility, engagement and effectiveness of learning (Zhang et al., 2020). Thus, teachers developing digital learning resources that suit students' needs and utilizing digital platforms are essential in increasing the effectiveness of learning Arabic outside the classroom.

3. Judge cycle

After the teacher has gone through the see and act cycle in learning Arabic, the last cycle that must be carried out is the judge cycle, where in this cycle, the teacher is required to be able to assess the achievement of learning objectives after carrying out formative and summative evaluations (Bhat & Bhat, 2019). By examining the achievement of learning objectives, teachers will get a more detailed picture of the extent to which students have achieved the learning objectives that have been set (Biggs, 1999). Apart from that, teachers can also evaluate the effectiveness of the teaching methods and make adjustments and improvements in subsequent teaching (continuous improvement). Following the teacher's provision of feedback to students about their achievements and guidance for further improvement (Selvaraj et al., 2021), students gain a clearer understanding of areas that require enhancement and their comprehension of Arabic learning materials improves. This underscores the crucial role of the judge cycle, where teachers review the results of formative and summative evaluations to assess students' achievement of learning goals and provide tailored feedback to foster effective learning.

CONCLUSION

The change towards a digital lifestyle has influenced how educational elements view Arabic language learning in schools. Integrating technological, pedagogical, and learning content knowledge is essential for teachers to master teaching Arabic in the digital era. As professional educators, teachers require a different teaching approach and must innovate and reform teaching to realize quality Arabic language learning. The TPACK concept is based on a pragmatic approach that offers a framework to assist teachers in combining technology, pedagogy, and materials simultaneously in Arabic language learning. The TPACK concept is based on a praxeological approach that includes three primary cycles: the see, act, and judge. This approach is taken to help teachers diagnose the problems faced by students in detail. Teachers can take more directed, targeted, and practical actions when teaching Arabic. This research only focuses on the design of TPACK based on a praxeological approach in teaching Arabic in

secondary schools, so further studies need to be carried out regarding implementing TPACK based on a praxeological approach in the pursuit of Arabic in schools and universities.

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