

Integration of TPACK in Smart Learning-Based Learning Tools for Wetland Contextual Reading Skills for Students of SMPN 8 Tamban

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Abstract:- This study aims to explain how Pedagogical Content Knowledge Technology (TPACK) is integrated into online learning programs used by Indonesian language teachers in wetlands. This research used a descriptive qualitative approach. The focus of this research is the Indonesian teacher at SMPN 8 Tamban and online lesson plans for Indonesian. To collect data for this study, documentation and interview methods were used. In this study, data was reduced, presented, and verified to perform data analysis techniques. The results showed that the integration of technological and pedagogical content knowledge (TPACK) was divided into four parts: technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK), and TPACK integration.

Keywords:- Indonesian Language Teachers, Online Learning Tools, Reading, Smart Learning, TPACK.

I. INTRODUCTION

Teachers' pedagogical skills in implementing learning must be based on skills in learning content, or Pedagogical Content Knowledge (PCK). Pedagogical Content Knowledge (PCK) is knowledge about pedagogy, practice, planning, and learning methods (Agustina, 2015; Anoh, 2021). Content Knowledge (CK) is conceptual knowledge from lessons (Agustina, 2015). Technological Knowledge (TK), namely knowledge about the use of digital technology, meanwhile, Pedagogical Knowledge (PK) is related to the teaching process (Agustina, 2015).

Technological Pedagogical Content Knowledge (TPACK) is a combination of content, pedagogy, and technology (Ariani, 2015; Samantray & Amulya, 2022). PCK integration evolves into TPACK. According to Rosyid (2016), the framework for implementing Technological Pedagogical Content Knowledge (TPACK) is a description of teacher knowledge about the effective use of technology in the classroom. The teacher's TPACK skills are needed to make lesson plans that meet the curriculum requirements to achieve the 2013 competencies.

Technological Pedagogical Content Knowledge (TPACK) is very important to learn because education is currently carried out online. Online learning requires many supporting factors in order to achieve learning goals. At SMPN 8 Tamban, online learning is used, and there are many supporting factors, such as data packages that allow students to use a variety of predefined applications for learning.

Face-to-face classes cannot be held during a pandemic; this is done to minimize direct contact between students and teachers. On March 18th, 2020, the Indonesian Ministry of Education and Culture issued a circular ordering all indoor and outdoor activities in all sectors to be temporarily suspended in an effort to prevent the spread of the COVID-19 virus, especially in the education sector. On March 24th, 2020, Circular Letter (SE) No. 4 of 2020 added that in an urgent situation with the spread of the virus, learning must be carried out at home through distance or online learning. SMPN 8 Tamban is one of the schools that implements online learning. Designing online learning begins with producing a learning environment that students understand.

For example, students download applications for online learning. Training in application usage, followed by utilizing e-learning, quickly bores students with learning through this approach. The efforts made to deal with online learning are as follows: 1) providing data packages for students to facilitate online learning; 2) creating interesting learning media so that students don't get bored easily; 3) making quizzes to replace daily tests, especially for learning Indonesian, with the aim of improving various online or online learning skills. Therefore, the researcher wants to describe the integration of Indonesian teachers' Technological Pedagogical Content Knowledge (TPACK) at SMPN 8 Tamban into the design of online lesson plans for Indonesian subjects.

II. LITERATURE REVIEW

A. Learning Integration

The effectiveness of technology in learning is very important. Many studies have shown that when technology is used appropriately in learning, students learn more, more deeply, and more meaningfully. However, teachers face their own challenges in using the right technology to teach. Drijvers (2013) states that there are three factors to consider when developing and integrating digital technology into learning: factors related to technology design, the teacher's role in technology application, and the pedagogical context in which technology is used. Meanwhile, the teacher's role factor is the extent of their role in the successful integration of technology into learning. In this case, the teacher's role must be clear about how and what the teacher must do to utilize technology in learning. Therefore, the successful integration of technology into learning has an impact on the ability of teachers and their professionalism in carrying out learning activities in technology-integrated classrooms (Aulia, Virsa, & Sangka, 2023; Erwinsyah et al., 2020; Sugiarto, 2020). Therefore, teachers need professional training to apply technology to learning.

B. Indonesian Language Learning in Class

Basically, the purpose of learning Indonesian is to teach students good and correct Indonesian language skills in accordance with their goals and duties. The aim of learning Indonesian is for students to be able to communicate effectively and efficiently, both orally and in writing, in accordance with applicable ethical standards, respect and be proud of Indonesian as the national language, and use and understand Indonesian effectively.

C. Online Learning

Online learning is an education system where there is no direct interaction between educators and students. Instead, learning is carried out online with the help of the internet. The teacher must ensure the teaching and learning process continues, even when students are learning online from their respective homes. Teachers must be able to use online media as an innovation in learning. This is in line with Circular Letter Number 4 of 2020 from the Minister of Education and Culture of the Republic of Indonesia concerning the

implementation of education policies in the crisis period of Corona Virus Disease (COVID-19).

D. Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge (TPACK) is a framework that enables teachers to use technology in learning (Permatasari, 2020). Meanwhile, Baran and Thompson in Pulungtana (2020) state that TPACK can be used as a tool to help teachers control technology during the educational process. The knowledge framework from TPACK includes technology, pedagogy, and content (Asma Hilmi et al., 2020). Mishra & Koehler in Prasetyo (2019) state that the knowledge framework from TPACK is the intersection of technology, pedagogy, and content. Meanwhile, Rahmadi (2020) states that TPACK is the intersection of technology, pedagogy, and content that influences learning.

E. Smart Learning

Smart learning is technology-enabled learning through modern ICT and network tools. Technology creates an environment in which learning can occur. Technology offers: connectivity between devices and individuals that enables interaction, collaboration, and communication between the two; remote connection in relation to providing learning resources and a learning environment to anyone, anytime, anywhere; and personalized learning for each student.

Smart learning is an educational system based on smart devices (artificial intelligence, IoT, wearable technology) and smart technologies such as big data, cloud computing, and others. This makes it possible to collect and analyze information for profiles, behaviors, and outcomes, which can then be used to improve learning.

Smart learning aims to take advantage of the potential of smart technology to create a learning environment that suits the needs and characteristics of students in modern society and the millennial era. Smart technology can change the way we learn and teach in the classroom.

F. Wetland Contextual Reading Skills

Besides being useful for expanding knowledge, reading skills can also expand the reader's vocabulary; the breadth of vocabulary mastery affects writing skills (Novrizta, 2018). Reading is also important for improving intellectual skills by learning the aesthetics of writing, making writing that others can understand, and turning ideas into values (Nurjanah, 2019). Students with good reading skills can write organized sentences because they have more vocabulary than students who have less reading skills. They can also express their creative ideas better. The level of students' reading skills affects their understanding and knowledge. The reading process must have a purpose and meaning so that students are always motivated to engage in reading activities.

Contextual learning is a learning concept that can help teachers relate the lessons being taught to students' real-life situations. This concept also encourages students to make connections between what they know and how it can be

applied in everyday life. The achievement of goals, which means students are able to understand something based on their learning experience, is the most important thing in the teaching process. Interpreting, interpreting, stating, or translating something systematically is called understanding. the relationship between what students learn and how that knowledge will help them understand academic concepts. Most of the area of South Kalimantan Province is a wetland. This is because wetlands have extraordinary biodiversity compared to other ecosystems and offer many advantages to humans in economic, ecological, and cultural terms. As a result, many cities and settlements were built around wetlands. Because South Kalimantan Province is located in a wetland area, teachers have the opportunity to develop learning tools that are appropriate to the wetland environment (Adawiyah, 2013). Wetland contextual learning is one of the adjustments made by the teacher to the surrounding environment. That way, students can connect what they learn with their daily lives in the wetland area.

III. RESEARCH METHOD

A. Research Stages

This research is a qualitative descriptive study. Qualitative descriptive research aims to understand the subject's phenomena in terms of behavior, actions, perceptions, motivations, and other issues (Moleong, 2017). The results of interviews with Indonesian teachers and the integration of TPACK into online lesson plans were described through the application of this qualitative research methodology. The data source for this research was the online lesson plans for the Indonesian language subject at SMPN 8 Tamban for the 2022/2023 academic year.

B. Research Stages

In this study, documentation and interview techniques were used to collect data. The documentation technique was carried out by collecting online lesson plans for Indonesian at SMPN 8 Tamban for the 2022/2023 academic year. Meanwhile, interviews were conducted by interviewing Indonesian teachers at SMPN 8 Tamban. The interview with the Indonesian teacher was aimed at obtaining more in-depth information about making the online lesson plan for SMPN 8 Tamban.

C. Research Stages

The teacher plays a pivotal role in ensuring the seamless continuity of the teaching and learning process, even as students engage in online learning from the comfort of their respective homes. The researcher carefully examined all the information from the informants about the integration of TPACK and the problems teachers faced when they made lesson plans online. In addition, Moleong (2017) stated that data presentation, verification, and reduction were the final steps in the qualitative data analysis process.

IV. RESULTS AND DISCUSSION

The researchers obtained media data, learning activities, and their knowledge of TPACK through interviews with teachers. Usually, they teach in class in a conventional way. Discussing TPACK with them by showing them this media made them sure they could increase students' interest and motivation in learning. Figure 1 shows what the media looks like. Figure 1 is an example of a material and quiz page display. This media can also view student learning histories and display graphs of student progress.

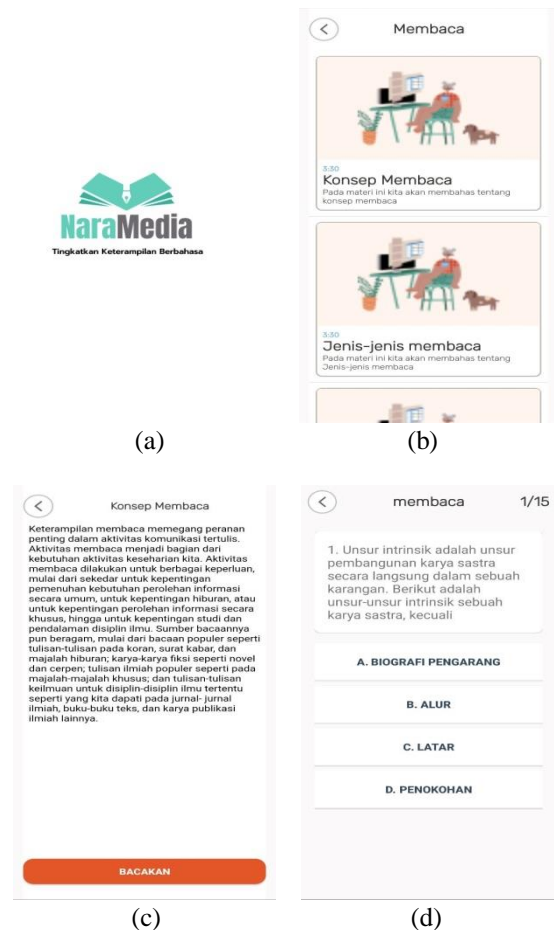


Fig. 1. (a) Initial Appearance of the Application, (b) Material List View, (c) Material Page Display, (d) Quiz Page Display

Videos, images, animations, and text are just a few of the different media pieces that this multimedia can integrate. In order to make learning sessions more engaging for students while using this media. Students appear motivated to study and are more focused on their learning activities, according to observations of how they use learning media. This is consistent with the notion that appealingly presented media might boost students' willingness to learn (Febrita & Ulifah, 2019).

The ability to incorporate different media elements, such as photographs, text, video, and animation, is a benefit of the interactive multimedia created for this study. Students have the capacity to be involved and active in learning activities when there are multimedia elements present, such

as videos, images, animations, and text (Widyatmojo & Muhtadi, 2017). The proper approach is to incorporate multimedia into problem-based learning. Multimedia can display a variety of events that are not always visible to the human eye. Students can also tackle challenges through problem-based learning. According to Balim et al. (2016), problem-based learning is a method of instruction that places a strong emphasis on student engagement in the learning process. Students' engagement in learning may rise thanks to problem-based learning (Mandasari, 2021).

This type of multimedia can improve the quality of educational activities. This is due to multimedia's benefit of combining different media aspects to create a more enticing appearance (Essel et al., 2016). Multimedia instruction using technology can inspire pupils to learn (Puji et al., 2014). It's crucial to employ multimedia to boost motivation. This is due to the fact that learning activities require motivation.

Learning components pertaining to the South Kalimantan wetlands and difficulties that arise in daily life are added to the interactive multimedia developed in this study based on problem-based learning. In order to increase the significance of learning activities, several elements must exist. Additionally, since these concepts relate to student life in wetlands, this seeks to make it simpler for kids to comprehend and recognize various concepts. Learning media can be utilized to transcend the constraints of the senses, space, and time, as well as to raise students' attention, clarify the presentation of information, and improve learning processes and outcomes (Zainiyati, 2017). So it's important to consider how the information is presented while creating interactive multimedia that is focused on problem-based learning. The subject matter needs to be presented in a more engaging manner in order to engage students in learning activities. This is because engaging content delivery might impact students' motivation to learn.

V. CONCLUSION

The use of interactive multimedia in learning activities significantly influences the effectiveness of learning. Therefore, the use of TPACK is required. Based on the results of interviews with teachers, they agree that multimedia can improve the quality of student learning in the classroom. The use of multimedia can increase students' interest and motivation in learning. This is also in line with the results of student observations. Students are more enthusiastic about learning when the teacher uses multimedia during the lesson.

Based on the conclusions above, the suggestion from the team is to use a different technology or multimedia to find out how it works for students and teachers. In addition, it is also necessary to conduct similar research at different school levels.

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REFERENCES

- [1]. Adawiyah, R. (2013). Pengembangan kearifan sikap dan perilaku melalui pendidikan lingkungan berbasis lahan basah. *Ilmu Kependidikan*, 8, 63–65.
- [2]. Agustina, P. (2015). Pengembangan Pck (Pedagogical Content Knowledge) Mahasiswa Calon Guru Biologi Fkip Universitas Muhammadiyah Surakarta Melalui Simulasi Pembelajaran. *Jurnal Penelitian Dan Pembelajaran IPA*, 1(1), 1. <https://doi.org/10.30870/jppi.v1i1.323>
- [3]. Anoh, J. N. (2021). Impact Assessment of Pedagogical Content Perception of Biology Teaching in Schools. *International Journal of Innovative Science and Research Technology*, 6(4). www.ijisrt.com
- [4]. Ariani, D. N. (2015). Hubungan antara Technological Pedagogical Content Knowledge dengan Technology Integration Self Efficacy Guru Matematika di Sekolah Dasar. *Jurnal Madrasah Ibtidaiyah*, 1(1), 79–91.
- [5]. Asma Hilmi, Zarima Mohd Zakaria, & Ai Fatimah Nur Fuad. (2020). Tahap Pengetahuan Guru Bahasa Arab Dalam Melaksanakan Kelas Berbalik. *Muallim Journal of Social Science and Humanities*, 4(3), 50–67.
- [6]. Aulia, Virsa, L. H., & Sangka, K. B. (2023). Dampak TPACK pada Pengembangan Profesionalisme Guru dalam Praktik Integrasi Teknologi. *Symposium Nasional Multidisiplin (SinaMu)*, 4, 235–242.
- [7]. Balim, A. G., Inel-Ekici, D., & Ozcan, E. (2016). Concept Cartoons Supported Problem Based Learning Method in Middle School Science Classrooms. *Journal of Education and Learning*, 5(2), 272. <https://doi.org/10.5539/jel.v5n2p272>
- [8]. Drijvers, P. (2013). Digital technology in mathematics education: why it works (or doesn't). *PNA. Revista de Investigación En Didáctica de La Matemática*, 8(1), 1–20. <https://doi.org/10.30827/pna.v8i1.6120>
- [9]. Erwinsyah, A., Pratiwi, W., & Pautina, A. R. (2020). Efikasi Diri, Pengalaman Mengajar, Dukungan Fasilitas, Pedagogik, Dan Pengembangan Profesional Guru Dalam Penggunaan Teknologi Komputer. *Irfani*, 16(2), 62–69. <https://www.journal.iaingorontalo.ac.id/index.php/ir/article/view/1968%0Ahttps://www.journal.iaingorontalo.ac.id/index.php/ir/article/download/1968/1092>
- [10]. Essel, H. B., Osei-poku, P., & Opoku-asare, N. A. (2016). Self-Paced Interactive Multimedia Courseware: A Learning Support Resource for Enhancing Electronic Theses and Dissertations Development. *Journal of Education and Practice*.

- [11]. Febrita, Y., & Ulfah, M. (2019). Peranan Media Pembelajaran Untuk Meningkatkan Motivasi Belajar Siswa. *Prosiding DPNPM Unindra 2019*, 0812(2019), 181–188.
- [12]. Mandasari, N. A. (2021). Penerapan Model Pembelajaran Berbasis Masalah Berbantuan Media Power Point untuk Meningkatkan Aktivitas dan Hasil Belajar Siswa di SDN Pandean Lamper 02 Semarang. *Jurnal Paedagogy*, 8(3), 328. <https://doi.org/10.33394/jp.v8i3.3886>
- [13]. Moleong, L. J. (2017). *Metode Penelitian Pendidikan Kualitatif*. PT Remaja Rosdakarya.
- [14]. Novrizta, D. (2018). Hubungan Antara Minat Membaca Dengan Keterampilan Menulis Karangan Narasi Siswa Sekolah Dasar. *Jurnal Review Pendidikan Dan Pengajaran*, 1(1), 104–124. <https://doi.org/10.31004/jrpp.v1i1.168>
- [15]. Nurjanah, I. (2019). *Pengaruh Penggunaan Metode Pembelajaran Dan Minat Baca Terhadap Kemampuan Menulis Paragraf Argumentasi Siswa Kelas X Mas Taman Pendidikan Islam Tahun Pelajaran 2017-2018*. UNIMED.
- [16]. Permatasari, D. A. (2020). Pentingnya Technological Pedagogical Content Knowledge (TPACK) Pada Matematika Di Era Revolusi Industri 4.0. *Jurnal Pendidikan*, 2(1), 272–278.
- [17]. Prasetyo, T., Yektyastuti, R., & Maulidini, Y. D. (2019). Pengaruh Literasi Tik Terhadap Technological Pedagogical Content Knowledge (TPACK) Guru. *Jurnal Improvement*, 6(1), 13–20. <http://journal.unj.ac.id/unj/index.php/improvement>
- [18]. Puji, K. M., Gulo, F., & Ibrahim, A. R. (2014). Pengembangan Multimedia Interaktif Untuk Pembelajaran Bentuk Molekul Di Sma. *Jurnal Penelitian Pendidikan Kimia: Kajian Hasil Penelitian Pendidikan Kimia*, 1(1), 59–65. <https://ejournal.unsri.ac.id/index.php/jurpenkim/article/view/2385>
- [19]. Pulungana, J. R., & Dwikurnaningsih, Y. (2020). Evaluasi Kinerja Mengajar Guru IPS Dalam Mengimplementasikan TPACK. *Jurnal Ilmu Sosial Dan Humaniora*, 9(1), 146. <https://doi.org/10.23887/jish-undiksha.v9i1.24672>
- [20]. Rahmadi, I. F., Hayati, E., & Nursyifa, A. (2020). Comparing Pre-service Civic Education Teachers' TPACK Confidence Across Course Modes. *Research in Social Sciences and Technology*, 5(2), 113–133. <https://doi.org/10.46303/ressat.05.02.7>
- [21]. Rosyid, A. (2016). Technological Pedagogical Content Knowledge: Sebuah Kerangka Pengetahuan Bagi Guru Indonesia Di Era MEA. *Prosiding Seminar Nasional Inovasi Pendidikan Inovasi Pembelajaran Berbasis Karakter Dalam Menghadapi Masyarakat Ekonomi ASEAN*, 446–454.
- [22]. Samantray, A., & Amulya, K. A. (2022). Effectiveness of ICT Integrated Pedagogy on Pre-Service Teachers' Teaching Competence in Mathematics: A Critical Review. *International Journal of Innovative Science and Research Technology*, 7(10). www.ijisrt.com
- [23]. Sugiarto, M. N. (2020). Keyakinan Guru Pada Peranan Teknologi Dalam Pembelajaran Matematika. *Semadik*, 3(1), 26–34.
- [24]. Widyatmojo, G., & Muhtadi, A. (2017). Pengembangan multimedia pembelajaran interaktif berbentuk game untuk menstimulasi aspek kognitif dan bahasa. *Jurnal Inovasi Teknologi Pendidikan*, 4(1), 38. <https://doi.org/10.21831/jitp.v4i1.10194>
- [25]. Zainiyati, H. (2017). pengembangan media pembelajaran berbasis ICT konsep dan aplikasi pada pembelajaran pendidikan agama islam. jakarta: kencana. *Kharisma Putra Utama*.