

## TPACK PROFILE OF PHYSICAL EDUCATION TEACHER IN BANDUNG CITY

**Masruri Ramdani Pathurohman<sup>1</sup>, Agus Mahendra<sup>2</sup>, Dian Budiana<sup>3</sup>,  
Hasanul Fitrah Alba<sup>4</sup>**

Universitas Pendidikan Indonesia<sup>1,2,3,4</sup>

[Masruri900@gmail.com](mailto:Masruri900@gmail.com)<sup>1</sup>, [agusmhndr@yahoo.com](mailto:agusmhndr@yahoo.com)<sup>2</sup>, [dianbudiana@upi.edu](mailto:dianbudiana@upi.edu)<sup>3</sup>,  
[hasanulfitrahalba@gmail.com](mailto:hasanulfitrahalba@gmail.com)<sup>4</sup>

### **Abstract**

*Physical teacher education is required to develop using technology, namely to improve planning and application in learning, but there are obstacles for a teacher to innovate by combining technology in Physical education. Integration of technology and learning Physical education demands the incorporation of surrounding pedagogy into knowledge, pedagogy, content and technology (TPACK), is a framework for integrating technology into learning that can be used in all subjects in general. Especially in physical education, of course, it has a unique relationship with technology when compared to other subjects, because physical education is fundamentally different from teaching other subjects, many the way in which some studies have touched on the framework of TPACK and Physical Education. The TPACK framework describes the type of knowledge required by teachers for successful integration of technology in teaching expands the work and argues that teachers should develop a complex, located, and integrated body of knowledge, known as technological pedagogical content knowledge (TPCK), or more recently as technological, pedagogical, and content knowledge (TPACK). Technological Pedagogical Content Knowledge (TPACK) is a framework that identifies knowledge, teachers need to teach effectively with a technological framework. As follows: TPACK was first introduced The instrument used is a questionnaire that has 7 components of the TPACK with 20 questions using a likert scale with respondents, namely physical Education teachers in the city of Bandung with the category of State Elementary Schools. Results of the study*

**Keywords:** *TPACK Profile; Teacher; Physical Education*

Submitted : 03<sup>th</sup> of January 2023

Accepted : 28<sup>th</sup> of January 2023

Published : 31<sup>th</sup> of January 2023

Correspondence Author: Masruri Ramdani Pathurohman, Universitas Pendidikan Indonesia, Indonesia.

E-Mail: [Masruri900@gmail.com](mailto:Masruri900@gmail.com)

DOI <http://dx.doi.org/10.31851/hon.v6i1.10525> 



Jurnal Laman Olahraga Nusantara licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)

## INTRODUCTION

Professional identity forms the understanding of teachers about how to understand and behave in teaching work (Lai and Jin 2021). Thus, it has an important role in determining how teachers and technology are right for learning and teaching activities. It is also that teachers must have a standard of competence. Based on Law Number 14 of 2005 concerning Teachers and Lecturers, it is explained that the Teacher Competency Standards are developed as a whole from 4 main competencies, namely: 1. Pedagogic Competence, 2. Personality Competence, 3. Social Competence, 4. Professional Competence. It is stated that the teacher is a person who has the ability to design learning programs and is able to organize and manage classes so that students can learn and ultimately can reach the level of maturity as the ultimate goal of the educational process.

of course, it also changes to the world of education, especially in Indonesia, in the end, technological advances continue to penetrate the whole community (Phelps et al. 2021). These advances have evolved and brought new technologies to the educational environment with the potential to change learning innovations, knowledge and teaching skills (Ince 2012). Therefore, a strong effort from a teacher to create smart, creative and innovative learning in accordance with the characteristics of the field of study. Of course, these innovations teachers can use technology effectively, they must use the incorporation of pedagogy around subject content, delivered with appropriate technology, also known as technological, pedagogical, and content knowledge, or TPACK.

This framework builds on Lee Shulman's construction of pedagogical content knowledge (PCK) to include Knowledge teknologi. The development of TPACK by teachers is essential for effective teaching with technology. (Mishra and Koehler 2006) on TPACK's work framework for technological, pedagogical, and content knowledge broadening teacher knowledge. (Shulman, 1986) to explicitly consider the role that

can be brought together by technological knowledge in effective learning. Specifically 3 three main knowledge components form the basis of the TPACK framework as follows:

1. Content Knowledge (CK) refers to the knowledge of any subject matter that a teacher is responsible for teaching. The content knowledge component is very important to help students learn and always be able to master the content of the learning eye (Knobe 2019).
2. Pedagogical knowledge (PK) refers to the teacher's knowledge of how instructional practices, strategies, and methods to promote student learning. Management, school organization and interaction between teachers and students (Jain, Kumar, and Chakrabarti 2018)
3. Technology knowledge (TK) refers to the knowledge of teachers and traditional and new technologies that can be integrated into the curriculum. This technology includes computers or laptops, internet, video, and so on (Chee et al. 2017). The four components in the TPACK framework, discuss how these three knowledge bandas interact, limit, and the framework of knowledge, as follows:
4. Technological content Knowledge (TCK) is knowledge that refers to the knowledge of how technology can create new representations for specific content (D. a. Schmidt et al. 2009) and impact on practice and scientific disciplines (Liu and Gong 2017). Technology content knowledge refers to the knowledge of how technology can create new representations for certain content.
5. Pedagogical Content Knowledge (PCK) is defined as an understanding of how certain features of the subject matter are planned, adapted, and transformed to strengthen student learning (Shulman 1986). In other words PCK is the knowledge that teachers develop over time, and through experience, about how to teach certain content in a certain way to lead to an improvement in students' understanding.
6. Technological Pedagogical Knowledge (TPK) Pedagogical knowledge of technology refers to the knowledge of how various technologies can be used in

teaching, and to understand that the use of technology can change the way teachers teach.

7. Technological Pedagogical Content Knowledge (TPACK) Technological pedagogical content knowledge refers to the knowledge required by teachers to integrate technology into their teaching in any content area. Teachers have an intuitive understanding of the complex interactions between the three basic components of knowledge (CK, PK, TK) by teaching content using appropriate pedagogical methods and technologies

The TPACK framework shows that teachers need to have a deep understanding of each of the above knowledge components to organize and coordinate technology, pedagogy, and content into teaching. TPACK is a new form of knowledge that goes beyond knowledge of content, pedagogy and technology taken individually but rather in dynamic transactional. With the existence of learning methods, technology and teachers as innovation or teaching material for students. (Harris and Koehler 2020).

The practical application of technology integration into physical education is quite common ((Lee, Chang, and Liang 2020). Compared to other disciplines, physical activity has peculiarities of physical activity and traits. His teaching methods are very different from other disciplines. Therefore Technology-assisted physical education not only breaks down the classroom barriers of traditional physical education, but also expands the horizons and knowledge space of Physical education the infinite. Of course, also learning from the field of physical education can use the TPACK model. Especially educational ecology has been known to have a positive impact on teaching and learning in physical education (Phelps et al. 2021). The rapid development of this new technology has encouraged the physical teacher education program to prepare innovations and experiences rooted in the knowledge of technological pedagogy content. (TPACK). most important this model has been used by the United States and has the 2008 National Standard for the Education of Sports Teachers (NSIPETE)

(National Association for Sports and Physical Teachers, 2008). Although this standard is very helpful in guiding future physical education teachers, TPACK preparation can be challenging due to the dynamic context of the Physical education environment (Roth 2014). There is more diversity of learners, so teachers must use technology to increase the effectiveness of their teaching for diverse learners (Arslan 2015). Physical education teachers learn how to integrate technological knowledge into learning and make TPACK knowledge support physical education more important (Lee, Chang, and Liang 2020).

## METHOD

### Participants

This participant involved a teacher in Bandung. The participants of this research were carried out with the number of physical education teachers as many as 60 people with criteria schools in the city of Bandung

### Instruments

the research used in this study is the Descriptive Kualitative research. (Mishra and Koehler 2006) (D. A. Schmidt et al. n.d.) introduced questionnaires or survey instruments used in this study based on the TPACK Model. The TPACK instrument adapted from (Mishra and Koehler 2006) in Indonesian refers to the operational definition developed into an indicator that is developed into 20 question items using the Likert or guttman scale such as in the following table :

**Table 1.** Likert scale answer score

Likert Scale	Score
Not Good	1
Not Good Enough	2
Good Enough	3
Good	4
Excellent	5

Through descriptive statistics will be known average, minimum score, maximum score and standard deviation of the total score of Technological Pedagogical Content Knowledge (TPACK). The results of the descriptive statistical analysis will be

obtained from the results of the measurement of the level of Technological Pedagogical Content Knowledge (TPACK) in the city of Bandung.

**Table 2.** Score Interpension Criteria

NO	Mean Range	Likert Scale
1	0,00 – 1,00	Not Good
2	1,01 – 2,00	Not Good Enough
3	2,01- 3,00	Good Enough
4	3,01- 4,00	Good
5	4,01 – 5,00	Excellent

**Table 3.** components and indicators on the TPACK questionnaire

No	Knowledge Type	Operational Definition	Quisoner Item Examples
1	Technology Knowledge (TK)	Introduction to Technology Either Standard or Advanced	I'm keeping up with important new technologies.  I know about many different technologies  I have the technical skills I need to use technology
2	Pedagogical Content Knowledge (PCK)	An Introduction to How to Teach Physical Education	I know how to choose an effective teaching approach to guide students' thinking and learning in my teaching subjects  I know how to develop the right tasks to encourage students' complex thinking about my teaching subjects
3	Technoogical Pedagogical Content Knowledge (TPACK)	Understanding and Combining Three Components: Technology, Teaching and Physical Education	I can use strategies that combine the content, technology, and teaching approach I learned  I can choose technologies that improve content for lessons

			I can choose technologies to use in my classroom that improve what I teach, how I teach, and what students learn
4	Content Knowledge (CK)	Knowledge of physical education material/ content that must be taught	I have sufficient knowledge of the subjects I teach
			I want to know the basic theories and concepts of the subjects I teach
			I know the history and development of important theories in my subject
5	Technology Content Knowledge (TCK)	Knowledge about technology in service education	I know how the development of technology has changed my subject area
			I can explain what technologies have been used in research in my field
			I know how to use important technologies that are specific to my subject
6	Pedagogical Knowledge (PK)	Knowledge of the process and Pratik or teaching methods Physical education	I can tailor my teaching based on what current students understand or don't understand
			You know how to organize and maintain classroom management
			I can assess students' learning in a variety of ways

7	Technological Pedagogical Knowledge (TPK)	Knowledge of how to teach using technology	I can choose technologies that improve the teaching approach for a lesson.  I can adapt the use of the technology I learned for different teaching activities  My teacher education program made me think more deeply about how technology can influence approaches Teaching I use in the classroom
---	---	---	---

This data is based on the responses of questionnaire respondents who were shared with sports teachers assisted by using google forms. The results of the data are tabulated in excel microsoft for youth to be converted using the help of winstep 4.0.1 software

### Results

This research has obtained validation and reliability values. On modeling via Win steps 4.01 software the TPACK instrument satisfies the validity that says quite well. Thus in the curbing of TPACK teachers in the city of Bandung using the TPACK model. this is so that this research instrument will be better if the application of the model in innovative learning, especially in physical education in elementary schools. So that it can be used as a better research tool to obtain research data.

### CONCLUSION

The main purpose of this study is to describe the TPACK profile of physical education teachers after being given the TPACK framework method initiated by (Shulman 1986) and developed again by (Mishra and Koehler 2006) reviewed from the aspect of basic knowledge in TPACK. That of the 7 components of TPACK for physical education teachers in the city of Bandung gives good results in the development of TPACK. The results of the Winteps processing that have been carried out indicate that the item question reliability index and respondent reliability are



sufficient. Therefore, the TPACK instrument is very helpful for prospective teachers, teachers and teachers in any field and can make the next research party as a reference.

## REFERENCES

- Arslan, Yunus. 2015. "Determination of Technopedagogical Content Knowledge Competencies of Preservice Physical Education Teachers: A Turkish Sample." *Journal of Teaching in Physical Education* 34(2): 225–41.
- Chee, Jain, M N Mariani, Abdul Jalil Othman, and M R Nor Mashitah. 2017. "International Journal of Advanced and Applied Sciences Exploring the i Ssue of Content , Pedagogical and Technological Knowledge among Preschool Teachers." 4(3): 130–36.
- Gibbone, Anne, Paul Rukavina, and Stephen Silverman. 2010. "Technology Integration in Secondary Physical Education: Teachers' Attitudes and Practice." *Journal of Educational Technology Development and Exchange* 3(1).
- Harris, Judi, and Matt Koehler. 2020. "What Is Technological Pedagogical Content Knowledge ?" 3(August 2014): 576–83.
- Herring, Mary C., Matthew J. Koehler, and Punya Mishra. 2016. Handbook of Technological Pedagogical Content Knowledge (TPACK) for Educators: Second Edition *Handbook of Technological Pedagogical Content Knowledge (TPACK) for Educators: Second Edition*.
- Ince, Mustafa Levent. 2012. "Pre-Service Physical Education Teachers ' Technological Pedagogical Content Knowledge , Technology Integration Self-Efficacy and Instructional Technology Outcome Expectations Pre-Service Physical Education Teachers ' Technological Pedagogical Content Know." (June 2015).
- Jain, Prachi, Pankaj Kumar, and Soumen Chakrabarti. 2018. "Type-Sensitive Knowledge Base Inference Without Explicit Type Supervision." : 75–80.
- Knobe, Joshua. 2019. "Philosophical Intuitions Are Surprisingly Robust Across Demographic Differences Philosophical Intuitions Are Surprisingly Robust Across Demographic Differences 1." (January).
- Krause, Jennifer M., and Brandy M. Lynch. 2018. "Faculty and Student Perspectives of and Experiences with TPACK in PETE." *Curriculum Studies in Health and Physical Education* 9(1): 58–75.  
<https://doi.org/10.1080/25742981.2018.1429146>.
- Lai, Chun, and Tan Jin. 2021. "Computers & Education Technology Integration ☆." *Computers & Education* 175(August): 104314.

- <https://doi.org/10.1016/j.compedu.2021.104314>.
- Lee, Hung Ying, Ching Wei Chang, and Jyh Chong Liang. 2020. "Research on TPACK and Teacher Professional Development of Secondary Physical Education Pre-Service Teachers." *ICCE 2020 - 28th International Conference on Computers in Education, Proceedings 2*(November): 579–85.
- Liu, Shan, and Yeming Gong. 2017. "Social Capital , Motivations , and Knowledge Sharing Intention in Health Q & A Article Information :." (September).
- Marriott, J., H. Purdie, J. Crossley, and J. D. Beard. 2011. "Evaluation of Procedure-Based Assessment for Assessing Trainees Skills in the Operating Theatre." *British Journal of Surgery* 98(3): 450–57.
- Mishra, Punya, and Matthew J. Koehler. 2006. "Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge." *Teachers College Record: The Voice of Scholarship in Education* 108(6): 1017–54.
- Phelps, Ashley et al. 2021. "A Qualitative Exploration of Technology Use among Preservice Physical Education Teachers in a Secondary Methods Course." *Teaching and Teacher Education* 105: 103400.  
<https://doi.org/10.1016/j.tate.2021.103400>.
- Roth, Kristi. 2014. "Journal of Physical Education, Recreation & Dance." (October).
- Schmidt, Denise a. et al. 2009. "Survey of Preservice Teachers' Knowledge of Teaching and Technology." *Iowa State University, ...*: 1–8.
- Schmidt, Denise A, Ann D Thompson, Matthew J Koehler, and Tae S Shin. "Technological Pedagogical Content Knowledge ( TPACK ): The Development and Validation of an Assessment Instrument for Preservice Teachers." 42(2): 123–49.
- Shulman, Lee S. 1986. "Those Who Understand: A Conception of Teacher Knowledge." *American Educator* 10(1): 4–14.  
<http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ333816%5Cnapers3://publication/uuid/E77F7FFC-98B3-40B5-90D2-50050B024672>.
- Zhang, Wei, and Junhong Tang. 2021. "Teachers' TPACK Development: A Review of Literature." *Open Journal of Social Sciences* 09(07): 367–80.