

## Technological, Pedagogical, Content Knowledge (TPACK): A Discursions in Learning Innovation on Social Studies

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### Abstrak

Terobosan berpikir dan kebaruan merupakan satu tantangan yang harus dijawab dalam abad 21. Tantangan tersebut harus direspon oleh pendidikan guna menyiapkan sumber daya manusia yang berkualitas dan melek terhadap perkembangan teknologi. Pengintegrasian informasi, komunikasi, dan technology dalam pembelajaran dikenal dengan Technological Pedagogical Content Knowledge (TPACK). Artikel ini bertujuan mendeskripsikan telaah konseptual TPACK sebagai inovasi dalam pembelajaran IPS. Artikel diuraikan dengan studi literatur yang memanfaatkan mesin pencari dalam mendapatkan ebook dan jurnal. Pembahasan yang diuraikan dalam artikel melingkupi tujuh domain pengetahuan dalam TPACK dan kaitannya dengan pembelajaran IPS. TPACK dalam pembelajaran IPS diyakini sebagai satu role model pembelajaran yang berorientasi pada perubahan dan tuntutan abad 21 dalam merespon era pengetahuan. Pengorganisasian materi akan bersifat kontekstual. Guru dapat mengembangkan materi yang bersifat aktual.

**Kata kunci:** Abad 21, TPACK, dan Pembelajaran IPS.

### Abstract

Breakthrough thinking and novelty are a challenge that must be answered in the 21st-century. This challenge must be responded to by education to prepare quality human resources literate for technological developments. The integration of information, communication, and technology in learning is known as Technological Pedagogical Content Knowledge (TPACK). This article aims to describe the conceptual analysis of TPACK as an innovation in social studies learning. The articles are described by literature studies that use search engines to find ebooks and journals. The discussion described in the article covers the seven domains of knowledge in TPACK and their relation to social studies learning. TPACK in social studies learning is believed to be a role model of learning-oriented towards the changes and demands of the

21st century in responding to the era of knowledge. Organizing the material will be contextual. Teachers can develop actual material.

**Keywords:** 21st Century, TPACK, and Social Studies Learning.

### **PRELIMINARY**

The development of technology is inevitable. The 21st-century is marked as an era of openness by promoting a borderless system (Mutiani, 2019, p. 21). Thus, human life in the 21st century has undergone a fundamental change that is different from the system of life in the previous century. These changes are not limited to the geographic area of a country. The 21st-century is also interpreted as a century that asks for quality in all human efforts and results (Hosnan, 2014). Therefore, the 21st-century needs quality human resources. The quality of human resources is produced by institutions that are managed professionally to produce superior results.

The demands of all aspects of novelty require breakthroughs in thinking, conceptualization, and action. A new paradigm is needed in facing new challenges, as stated by Thomas Khun (Kuhn, 2002; Suriasumantri, 2007). New challenges are faced by using the old paradigm so that all efforts will fail. The new challenge demands a breakthrough in thinking if the desired quality is a quality output that can compete with an open world. New challenges and breakthroughs are an essential agenda for education to answer the demands of the 21st century (Anderson et al., 2013).

Education should ideally be able to bridge the integration of information, communication, and technology in learning. Of course, this requires teachers' readiness in one concept, namely Technological Pedagogical Content Knowledge, abbreviated as TPACK (Polly & Brantley-Dias, 2009). Theoretically, TPACK is the knowledge needed to integrate technology in learning. TPACK in learning is not something that must be shunned. Based on research results Kereluik, K., Mishra, P., & Koehler, MJ (2011). "On learning to subvert signs: Literacy, technology and the TPACK framework" explains that TPACK is a form of knowledge that teachers must have to integrate technology in their teaching successfully. TPACK proposes teachers as curriculum designers who reuse existing technical tools for pedagogical purposes (Kereluik et al., 2011).

TPACK integration has been responded to by several subjects, including Social Studies. The application of TPACK in social studies subjects is intended to describe teachers' opportunities to utilize technology. Social studies teachers have made innovations by utilizing smartphones in learning (Koehler & Mishra, 2008; Mishra et al., 2011; Tilaar & Mukhlis, 1999). However, this can still be explored by utilizing other gadget devices in learning. This article aims to describe the

conceptual analysis of TPACK as an innovation in social studies learning. Thus, being able to provide input to increase the integration of technology in learning.

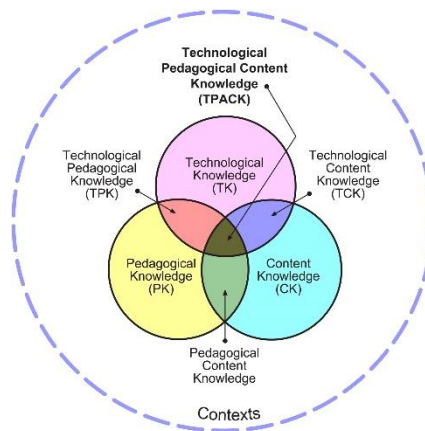
## **METHOD**

This article was written using literature study techniques. A literature study is understood as a theoretical study based on books, journals, and other relevant references (Abdurahman, 1998; Nasution, 2003). Specifically, concepts were selected related to technological, pedagogical, content knowledge, and social studies learning. This article is descriptive with a structured narrative description (Arikunto, 2003). The entire literature used is intended to construct the author's thoughts well (Gunawan, 2013; Nasution, 2003).

## **RESULTS AND DISCUSSION**

Technological Pedagogical Content Knowledge (TPACK) emerged formally in the early 2000s. TPACK is based on the development of Pedagogical Content Knowledge (PCK) proposed by Shulman (1986) (Guerrero, 2010; Koehler & Mishra, 2008). TPACK is defined as a framework for integrating technology in teaching (Koehler, Mishra, Ackaoglu, & Rosenberg, 2013). Quality learning requires an intricate understanding of the interconnectedness of the three primary sources of knowledge, namely technology, pedagogy, and content, and how these three sources are applied according to their context. There are seven domains of knowledge in TPACK, namely: 1) pedagogical knowledge, 2) content knowledge, 3) technology knowledge, 4) pedagogical content knowledge, 5) technological content knowledge, 6) technological pedagogical knowledge, and 7) technological pedagogical content knowledge (Loughran et al., 2012; Mishra et al., 2011). The following is the framework of TPACK between related intersections:

**Picture 1. TPACK Structures and Knowledges Component**



Sources: (<http://TPACK.org/>)

First, pedagogical knowledge (PK) is understood as knowledge about the nature of teaching and learning, including teaching methods, classroom management, learning planning, assessment of student learning (Anderson et al., 2013). This matter, of course, relates to processes, strategies, procedures or steps, and methods of teaching and learning. In the first aspect, PK is expected to improve the ability of social studies teachers, especially in concocting learning based on the needs of students. Social studies learning that puts forward integrated essential principles. Thus, social studies learning becomes powerful.

Second, content knowledge (CK) is knowledge related to the subject matter being taught (for example, mathematics, language, social, art, and so on) (Baran & Uygun, 2016). In this aspect, social studies teachers can understand the lessons to be taught, including knowledge of facts, concepts, theories, and procedures in specific fields, knowledge of a framework that can organize and connect ideas and knowledge about rules, and evidence of content. In practice, social studies teachers can connect social science interrelations in certain materials such as Human, Place, and Environment in grade VII semester 1. Social studies teachers can use more than one discipline to deliver material comprehensively to students (Abbas, 2020b; Mutiani et al., 2020).

Third, technology knowledge (TK) is knowledge-based sustainability and development, including knowledge about technology (Harris & Hofer, 2011; Kereluik et al., 2011). This knowledge is used to process information, communicate, solve problems, focus on productive applications integrated into social studies learning. Social studies teachers can take advantage of several technologies that support social studies learning, namely: laptops and projectors (LCD) to display videos in learning. Besides, teachers can use the quizizz web tool to create questions related to students' social studies subjects.

Fourth, pedagogical content knowledge (PCK) is knowledge about pedagogy, teaching practice, and planning processes applicable and appropriate to be taught on the given subject matter (Loughran et al., 2012). PCK knowledge is included in choosing what learning approach or method to choose to teach specific content. The choice of approach or method in teaching mathematics differs from the approach or method of teaching other fields such as Indonesian, Natural Sciences, or Social Sciences. PCK deals with the representation and formulation of concepts, pedagogical techniques, knowledge of what makes a concept difficult or easy to learn, and also knowledge of knowledge from previous learners' epistemological theories (Koehler & Mishra, 2008)

Correct conceptual representations are needed to overcome learning difficulties and misunderstandings to create more meaningful learning. PCK includes knowledge about creating a conducive learning atmosphere in implementing the learning process, including the provision of facilities that can support the optimal learning process (Anderson et al., 2013). The fourth point PCK for social studies teachers can reinforce that academic skills and technological literacy are one unit. This is reinforced by the challenges of changing times that require students to understand technology as a whole.

Fifth, technological content knowledge (TCK) is knowledge about the relationship between subject and technology. This includes knowledge about technology influential and used in exploring a given content discipline (Baran & Uygun, 2016). An example is linking material with currently developing technology, such as Social studies teachers elaborate social studies materials related to social change with society's technological needs. In TCK, teachers must be fluent in choosing teaching materials and relating them to technological developments. Of course, this must be supported by an established concept of the development of knowledge and science.

Sixth, technological pedagogical knowledge (TPK) is knowledge about the effect of technology on teaching and learning and the advantages and constraints of technology related to pedagogical design and strategies (Niess, 2011; Pamuk et al., 2015). TPK for social studies teachers is the ability to apply several tools and software that support learning. In contrast to the conception of kindergarten in the TPK, teachers can apply technology, but it is still relevant to strategies and learning methods. The existence of TPK for social studies teachers can support social studies learning that is reflective of the needs of technological developments. Besides, students also get new learning experiences.

The seven technological pedagogical content knowledge (TPCK-TPACK) is knowledge about complex interactions between the domains of knowledge principles (content, pedagogy, technology) (Anderson et al., 2013). Learning in modern times requires the understanding of teachers to be able to collaborate with technology. So it is not only aspects of Pedagogy; aspects of content and technology are also considered in implementing modern and innovative classroom learning (Brantley-Dias & Ertmer, 2013). TPACK integrates complex technology in learning by paying attention to three aspects such as pedagogy, content, and technology itself in learning that is developed by the teacher effectively.

The seven components above are related to one another. Social studies learning is to provide space for innovation so that social studies learning becomes fun. The essence of integrated social studies learning is intended for students to develop knowledge, values, attitudes, and skills of society, nation, and state (Abbas, 2018, 2020a). The social studies learning paradigm's construct must shift teacher-centered, textbook-centered, and monomedia learning to student center (Samiha, 2017). Social studies learning must prioritize Social Studies, an integrated study of social and human sciences in civic competence development (Wahidmurni, 2017).

TPACK elaboration and social studies were learning to provide flexibility for students to determine the speed of learning and choose the sequence of learning activities according to heterogeneous students' needs (Wahidmurni, 2017). Social studies teachers can explore the material in social studies learning by displaying concrete examples (presented on the screen) so that they are easy to understand. Besides, social studies teachers can provide project-based assignments that are integrated with students' use to increase learning participation (Sumaatmadja, 1998; Syaharuddin & Mutiani, 2020). The existence of TPACK in social studies learning is interpreted as an innovation to mobilize student participation by utilizing technology.

Of course, this will require time and training for social studies teachers. However, the existence of TPACK in social studies learning is believed to be a role model of learning that is oriented towards changes and demands of the 21st century in responding to the knowledge era. Organizing the material will be contextual. Teachers can develop actual material. Various phenomena of everyday life can be raised as the theme of the subject matter. The subject matter is more verbal learning. Various intellectual skills in nature can develop in students, ranging from fact-finding skills to knowing facts to evaluate or judge facts.

## **CONCLUSION**

The development of the times becomes a necessity that cannot be avoided. The dynamics of the 21st century certainly require teachers to be established in utilizing technology. The interaction between students and teachers and learning resources in the 21st century is carried out in a learning environment that is rich in technology. Technology plays a role not only as a tool but also as a process and a source. In the early 2000s, an approach is known as Technological Pedagogical and Content Knowledge (TPACK) emerged. TPACK is a piece of knowledge and framework used to analyze teachers' ability to use the right technology in appropriate pedagogical methods to teach specific content well. TPACK can be implemented in various subjects without

exception for social studies. The existence of TPACK in social studies learning requires teachers' ability to elaborate teaching materials following the needs of the times and technological developments. This matter is intended to provide strength in reflective social studies learning practices and stimulate technology-based students' participation.

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