



Application of TPACK in 21st Century Learning

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Abstrak

Pembelajaran pada abad 21 tentunya tidak lepas dari perkembangan yang terjadi pada zamannya dan teknologi bukan lagi menjadi kebutuhan sekunder dalam kehidupan, melainkan kebutuhan primer yang harus dipenuhi salah satunya adalah dunia pendidikan. Tujuan yang ingin dicapai melalui kegiatan pengabdian masyarakat ini adalah memberikan wawasan pembelajaran dan keterampilan berbasis Technological Pedagogical Content Knowledge (TPACK) bagi guru-guru sekolah dasar di Gugus Wahidin Sudiro Husodo Kabupaten Jumapolo. Pengabdian kepada masyarakat ini dilaksanakan dengan metode yang terdiri dari persiapan (koordinasi, pembuatan instrumen, penyusunan lansam, publikasi, lokasi, dokumentasi), pelaksanaan kegiatan (pembukaan, penyajian materi, diskusi, praktik, dan tanya jawab, penutup), dan pemantauan. Kegiatan pengabdian masyarakat ini dilaksanakan pada hari Selasa, 17 Mei 2022 di ruang SD Gugus Wahidin Sudiro Husodo Kecamatan Jumapolo dengan pola waktu pelaksanaan 6 jam yaitu dimulai pukul 08.30 WIB sampai dengan 14.35 WIB. Kegiatan pengabdian ini menyasar seluruh guru Sekolah Gugus Wahidin Sudiro Husodo Kabupaten Jumapolo. Dari hasil sesi tanya jawab dan praktik, diketahui bahwa secara umum para peserta cukup baik dalam memahami dan mengembangkan kemampuan pedagogik di bidang teknologi. Peserta juga memahami dan setuju bahwa pembelajaran berbasis Technological Pedagogical Content Knowledge (TPACK) dan 21st century skills sangat menarik untuk diterapkan. Pelayanan ini berjalan dengan lancar dan efisien serta para peserta sangat antusias menyambut pelayanan ini.

Kata Kunci: Technological Pedagogical Content Knowledge (TPACK), Keterampilan Abad 21

Abstract

Learning in the 21st century will definitely not be separated from the developments that occurred in its era and technology is no longer a secondary need in life, but a primary need that must be fulfilled, one of which is the world of education. The goal to be achieved through this community service activity is to provide learning insights and skills based on Technological Pedagogical Content Knowledge (TPACK) for elementary school teachers in the Wahidin Sudiro Husodo Group, Jumapolo Regency. This community service is carried out by a method consisting of preparation (coordination, instrument making, lansam preparation, publication, location, documentation), implementation of activities (opening, presentation of material, discussion, practice, and questions and answers, closing), and monitoring. This community service activity was carried out on Tuesday, May 17 2022 in the Gugus Wahidin Sudiro Husodo Elementary School room, Jumapolo District with a 6-hour implementation time pattern, which starts at 08.30 WIB to 14.35 WIB. This service activity targets all Gugus Wahidin Sudiro Husodo School teachers, Jumapolo Regency. From the results of the question-and-answer session and practice, it was found that in general the participants were quite good at understanding and developing pedagogic abilities in the field of technology. Participants also understand and agree that learning based on Technological Pedagogical Content Knowledge (TPACK) and 21st century skills are very interesting to apply. This service went smoothly and efficiently and the participants were very enthusiastic in welcoming this service, as evidenced by the many positive responses and requests for similar outreach in the future.

Keywords: Technological Pedagogical Content Knowledge, 21st century skills

1. INTRODUCTION

Learning in the 21st century that is currently being carried out aims to develop the quality of education in Indonesia which is increasingly adaptive to the times (D. R. Dewi,

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2019; Malik, 2018; Pratiwi et al., 2019). The learning subjects in formal education are teachers and learners. The learning process involves the process of providing education and training to students in order to achieve learning outcomes. The development of science and technology in the 21st century has changed the characteristics of students so that they require orientation and innovative ways of learning. The changes that occur can be in the form of changes in knowledge, understandings, attitudes, behaviors, skills, capacities and skills, creativity and responsiveness, receptivity, etc. that lead to individual learning. Adjustment of the teacher's role needs to be done mainly because there is a change in the characteristics of millennial generation students to become the characteristics of the z generation, a term that represents the 21st century generation (N. K. Dewi et al., 2022; Schmid et al., 2021; Suwanto, 2022). In the 2013 curriculum, the learning process of the learning units is designed to be interactive, stimulating, fun, challenging, and to encourage active participation, and is designed to foster talents, interests, physical and psychological development. Provide learners with ample space to exercise their initiative, creativity, and competence accordingly.

TPACK implementations support the development of 21st century skills that students also need to meet (Koh et al., 2015, 2017). Future generations must acquire 21st-century skills in order to live properly in the 21st century in the international community. These skills consist of 16 skills that fall into his three broad categories of basic literacy, a category of abilities better known as 21st century competencies, and a category of character qualities (Jang, 2016; J. Voogt & Roblin, 2012). The basic literacy category includes his six literacy skills: language and literature, numeracy, science, finance, information and communication technology, culture, and citizenship. The 21st century competency categories consist of four skills (4C/4K): critical thinking and problem solving, creative thinking and innovation, and communication and collaboration. The personality category, on the other hand, includes six skills: curiosity, initiative, never give up, adaptability, leadership, and socio-cultural.

There are changes in 21st century learning including changes in learning patterns, changes in the orientation of needs, and changes in the learning habits of 21st century students. This provides opportunities for teachers to think critically and creatively (Fernández-Santín & Feliu-Torruella, 2020; Guggemos & Seufert, 2021; Liu et al., 2015). So as to help teachers and students communicate actively, collaborate, express ideas, find problems, determine alternative solutions to problems and interact with each other (Rahmatika, 2022; Septikasari & Frasandy, 2018; Westbroek et al., 2019). Agree with the previous study which states that education must be able to improve the quality of students who have critical and creative abilities (Bedir, 2019; Suchyadi et al., 2020; Sumarni & Kadarwati, 2020). Other studies stated that the latest skills of teachers are (1) Technology literacy, (2) Knowledge deepening, and (3) Knowledge creation (Durriyah & Zuhdi, 2018; Falloon, 2020; Tan et al., 2021). 21st century learning is simply defined as learning that provides 21st century skills to students, namely 4C which includes: (1) Communication (2) Collaboration, (3) Critical Thinking and problem-solving, and (4) Creative. Referring to 21st century learning that leads to the 4C is TPACK, a framework for integrating technology into learning that combines knowledge about pedagogy, knowledge about content, and knowledge about technology (Juwandani et al., 2022; Kereluik et al., 2013; Santos & Castro, 2021; Seufert et al., 2021).

The 21st century skills of the 2013 curriculum are integrated with character development and strengthening basic literacy (Aesaert et al., 2013; Gretter & Yadav, 2016). Strengthening character education includes faith and piety, love of the motherland, curiosity, initiative, perseverance, adaptability, leadership, social awareness, and culture. By strengthening character education, it is hoped that students will be able to cope with the ever-changing environment.

At present there are still many teachers in elementary schools in carrying out learning that is still classical and traditional, meaning that as usual, it is still a daily routine with a monotonous educational language of communication. Other phenomena that exist currently show that student learning activities are generally still limited to carrying out teacher instructions, students are less active, and students do not have the courage to express their own opinions spontaneously if they are not given opportunities and teacher questions (Handini & Soekirno, 2019; Sailer et al., 2021).

Learning has not integrated technology into learning that combines knowledge about pedagogy, knowledge about content, and knowledge about technology (Absari et al., 2020; Suprpto et al., 2021). The learning atmosphere in the classroom becomes not conducive and tends to be stiff. This situation becomes a teacher's problem in the learning process so the teacher's role becomes very dominant in this problem (Kuswanto, 2014; Joke Voogt & McKenney, 2017).

2. METHOD

All the teachers of Gugus Wahidin Sudiro Husodo Elementary School, Jumapolo District participated in this charitable step. This activity will last for nine months from January 2022 until he September. The stages of this non-profit activity include: (1) Preparation. The preparation phase is the first phase before implementing the service. This phase includes (a) internal coordination performed by the team to conceptually and operationally plan the implementation, (b) external coordination performed with relevant external parties, and (c) services such as: Some work needs to be done, such as creating means, (d) ransom preparation, publication, location, documentation, and other preparations, such as attendance, media; (2) performance of activities; This phase is the phase of socialization that takes place and includes (a) initiation of the community service program, (b) presentation of materials, discussion, exercises and Q&A, (c) conclusion, and (3) monitoring. Monitoring is conducted by examining the evolution and 21st century capabilities of TPACK implementations in terms of learning design and practice. This design shows how a teacher has integrated her TPACK and her 21st century skills into lesson plans and learning tools. Not only the design, but the implementation of the integration of TPACK and 21st Century Skills can also be seen in the learning practices conducted by teachers.

3. RESULTS AND DISCUSSION

Results

The first activity in this study began with a participatory approach to the school principal through a request to carry out community service activities at Gugus Wahidin Sudiro Husodo Elementary School, Jumapolo District, explaining the aims and objectives of carrying out community service activities at the school and determining an agreement on the implementation time. The second activity provides community service in the form of discussion forums and presentations through TPACK implementation training through 4C in 21st century learning for elementary school teachers in Gugus Wahidin Sudiro Husodo, Jumapolo District. The implementation was carried out in the form of discussion forums and presentation of material as well as case-based interactive question and answer and problem solving to the level of understanding of SD Gugus Wahidin Sudiro Husodo teachers in Jumapolo District about the implementation of TPACK through 4C in 21st Century learning for elementary school teachers in Wahidin Sudiro Husodo Jumapolo District (Elassy, 2015; Sumiati & Ahmad, 2021).

The implementation of TPACK through 4C in 21st century learning for elementary school teachers in the Wahidin Sudiro Husodo Cluster, Jumapolo District, was carried out with partner schools (participation), namely SD in the Wahidin Sudiro Husodo Cluster, Jumapolo District with the Job description as follows: Partner as a center, namely providing facilities and training infrastructure for participants participating in socialization and implementation. Partners as tutors, namely providing training to teachers through Community Service, provide a scientific basis for Elementary School teachers in understanding the essence of TPACK Implementation through 4C in the 21st Century Era which consists of Communication, Collaboration, Critical Thinking. critical) and Creativity (creativity). And provide theoretical clarity and a better understanding of learning (C. A. Dewi & Mashami, 2019; Wiguna, 2016). 21st century skills or termed 4C (*Communication, Collaboration, Critical Thinking and Problem Solving*, and *Creativity and Innovations*), referring to 21st century learning that leads to the 4C is TPACK, a framework for integrating technology into learning that combines knowledge about pedagogy, knowledge about content, and knowledge about technology (Absari et al., 2020; Westbroek et al., 2019).

The third activity was in the form of a discussion forum and presentation on the implementation of TPACK through 4C in 21st century learning for elementary school teachers in Wahidin Sudiro Husodo District, Jumapolo District and discussing it. The activity steps in implementing TPACK through 4C in 21st century learning for elementary school teachers are as follows: (1) Preliminary activity: Community service presenters conduct apperception with questions about the implementation of TPACK through 4C in 21st century learning for elementary school teachers in Gugus Wahidin Sudiro Husodo, Jumapolo District; (2) Core activities: Presentation of TPACK implementation material through 4C in 21st century learning for elementary school teachers in Gugus Wahidin Sudiro Husodo, Jumapolo District and Problem Solving followed by problem-based discussions carried out by the community service team (Ali Al-Mutawah et al., 2021; Ferreira & Trudel, 2012); (3) Closing Activities: Teachers and Principals provide each other with input regarding the commitment and agreement on implementing TPACK through 4C in learning and a variety of supporting media that are relevant in learning.

Discussion

Teachers and Principals provide each other with input on TPACK patterns through 4C starting from Critical Thinking, Collaboration, Creativity and Communication which can be applied in integrative thematic learning. then reflect on the learning outcomes as a learning evaluation at the next meeting (Nuryati & Darsinah, 2021; Wardani, 2018). The results of the implementation of this service can provide an understanding of the implementation of TPACK through 4C in 21st century learning providing a scientific basis for Elementary School teachers in understanding the essence of TPACK through 4C in learning to support the smooth learning process as well as theoretical clarity and a better understanding of learning, objects learning and learning situations and conditions in elementary schools (Hamdu et al., 2020; Quddus, 2020).

TPACK implementation training for elementary school teachers in the Wahidin Sudiro Husodo Group, Jumapolo District a total of 48 teachers, both class teachers and sports teachers, religion teachers and art teachers from parallel classes at the school. With the hope that in the learning process in class all aspects of teacher knowledge and skills will increase and provide a scientific basis for elementary school teachers in understanding the essence of implementing TPACK through 4C in 21st century learning which consists of Communication, Collaboration, Critical Thinking. Critical thinking and Creativity based on TPACK which focuses on content learning with technology can provide theoretical clarity

and a better understanding of learning, learning objects and learning situations and conditions in elementary schools.

TPACK implementations support the development of 21st century skills that students also need to meet (Koh et al., 2015, 2017). Future generations must acquire 21st-century skills in order to live properly in the 21st century in the international community. These skills consist of 16 skills that fall into his three broad categories of basic literacy, a category of abilities better known as 21st century competencies, and a category of character qualities (Jang, 2016; J. Voogt & Roblin, 2012). The basic literacy category includes his six literacy skills: language and literature, numeracy, science, finance, information and communication technology, culture, and citizenship. The 21st century competency categories consist of four skills (4C/4K): critical thinking and problem solving, creative thinking and innovation, and communication and collaboration. The personality category, on the other hand, includes six skills: curiosity, initiative, never give up, adaptability, leadership, and socio-cultural.

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4. CONCLUSIONS AND SUGGESTIONS

Community service aims to provide a scientific basis TPACK for Elementary School teachers in understanding learning in the 21st Century Era as well as providing theoretical clarity and a better understanding of TPACK through 4C (*communication, collaboration, critical thinking, creativity*) deep learning in the 21st Century Era. Community service is carried out by presenting teachers and principals in material presentation events and interactive question and answer up to the level of teacher mastery SD Wahidin Sudiro Husodo Group, Jumapolo District.

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