



TPACK Implementation in Economic Learning Innovation at SMA Negeri 2 Salatiga

Kristina Dwi Apri Astutik, Bambang Ismanto, Destri Sambara Sitorus

^{1,2,3}*Universitas Kristen Satya Wacana*

e-mail: 162017022@student.uksw.edu, bambang.ismanto@uksw.edu, destri.sambara@uksw.edu

Submitted: 15-08-2021

Revised: 01-09-2021

Accepted: 03-10-2021

ABSTRACT. This study aims to determine the application of TPACK in innovations made by teachers in economic learning. The method used in this research is descriptive with a qualitative approach. The subjects in this study were economics teachers and students. Data collection techniques carried out in this study used the methods of observation, interviews, and documentation. The results of this study state that schools have implemented TPACK in economic learning by making innovations to develop students' understanding of economics learning. All teachers already understand technology, so teachers use technology, especially in economics learning. In the economics learning process, teachers use various strategies, models, and learning methods that have been compiled in the lesson plans and innovate through approach, models, and learning methods. In addition to integrating technology and pedagogy, teachers innovate in material knowledge. Along with the development of the curriculum, economics teachers develop themselves to better master the economics material and, thought training could add insight to teachers in mastering the material. TPACK is a new research topic in the world of education in Indonesia. Therefore, the Education Office and related agencies are expected to provide and explain throughout socialization and conduct training on TPACK to add references in the world of education.

Keywords: *TPACK, Learning Innovation, Economic Learning*



<https://dx.doi.org/10.32678/tarbawi.v7i02.4952>

How to Cite Astutik, K. D. A., Ismanto, B., & Sitorus, D. S. (2021). TPACK Implementation in Economic Learning Innovation at SMA Negeri 2 Salatiga. *Tarbawi: Jurnal Keilmuan Manajemen Pendidikan*, 7(02), 243-252. doi:10.32678/tarbawi.v7i02.4952.

INTRODUCTION

A teacher is an educator who interacts with students compared to the educational power of others in the school. The educator or teacher must convey the material with both the current activities of learning to teach. Learning can improve the knowledge, ethics, and skills that are new to the students that can be of interaction and variety of information, because of things that teachers are required to convey the material or information to the right and right on target. Knowledge of material that is given as a right is done through activities pedagogical the good and faithful.

Educators and staff education is a profession that has the responsibility of humanity. Most primary things are associated with education as a next-generation successor to the nation as teachers must have high professionalism to improve teacher performance. Labor education should be able to develop the profession in terms of the experience of science knowledge, skills to improve the quality of the process of learning professional, technology the way through the competence of professionals (Mulyani, 2019). According to Turmuzi and Kurniawan (2021),

teachers have the role of principal and Avant- forward in education nationwide. Its educators or teachers influence the quality of education in a country.

Law No. 20 to 2003, which stated on System National Education, explained that the increased potency, interest, and intelligence of the student curriculum must be developed and implemented. There are many elements of the source of the power of education. One of the elements that can contribute significantly to realize the process of developing the students' quality and potential is the curriculum. The curriculum must be aligned with what is becoming the need skill Century 21, which can be seen through the cultivation of creativity and innovation, solving problems, awareness of global cooperation, using the technology of information with sage, and has the character and morals are strong.

Technology is getting increasingly sophisticated, one of them in the world of education. Students will be required to think creatively, innovate, think critically and metacognitive, and make the students have the ability to communicate and collaborate. With the increasingly sophisticated technology hoped capable of changing the face of education becomes better. The role of a teacher as an educator must be more creative and innovative in developing learning and integrate it during the learning process. Technology can improve aspects of learning that are practical and serves the interactive content, provide feedback through the good and fast, presenting how effectively the difficulty of learning the students. Currently, the integration of technology in learning is an important action for teachers. A teacher must also be able to choose the right technology and learn materials and learning strategies (Hidayati *et al.*, 2019). The use of technology in education is awe-inspiring in educating and guiding the students who have models of learning and background behind are different (Anuar & Zakaria, 2015).

Activity learning so balanced as teachers or educators must have four competencies (Law of the Republic of Indonesia No. 14 Year 2005), which is the first of pedagogy is the ability to manage the learning participant learners, designing, and implementing learning, evaluating the results of learning, and develop the participant students in actualizing various competencies are possessed. Both personalities are the ability of the steady, mature, wise, steady, and authoritarian personality, have morals noble and can be an example for the participant students. All three of the professional is the ability to master the material of learning is broad and deep that enable it to guide the participant students meet the standards of competence. Fourth of social is the ability of educators as part of the community to communicate and get along effectively with a peer educator, personnel education, participant students, the parents (guardians) of participants students, and the community around.

Along with the passage of time and the increasing needs of students, teachers must deliver learning materials by utilizing or applying technology in the learning process, as teachers are also required to do a model of learning that is innovative and creative. With the case of the teacher is expected to be able to create and make the atmosphere in the learning process becomes more fun and can facilitate students to understand the material. According to Rasyid (2016) and Ningsih (2019), it is stated that a prospective teacher and teacher is being faced with enormous challenges in changing pedagogy, technology, and learning materials as well as the context of the classroom at this time.

Knowledge about the technology, pedagogy, and material knowledge is already included in the part integral of the program of education of teachers to prepare the prospective teachers to teach to use or take advantage of technology in teaching or delivering the material. The principal who made a teacher in integrating technology that significantly on learning to do with submitted at the time of teaching so that teachers can analyze the materials. Teachers should consider teaching materials and strategies with technology, which are included in pedagogical knowledge. So in integrating technology with good and faithful, a teacher should be able to master the knowledge of

learning, technology, and pedagogy. These three things are one each other mutually associated Technological Pedagogical Content Knowledge (TPACK).

Technological Pedagogical Content Knowledge (TPACK) the first time coined by Shulman in the year 1987 on PCK which is a blend between the Pedagogical Content Knowledge as compiled by Content Knowledge and Pedagogical Knowledge which explains the teacher in understanding the technology education and interaction PCK between one to the other to create an atmosphere learning process that is useful and can be understood by students. In addition to technology, other aspects are used as learning media, namely pedagogical aspects, which are essential aspects that must be considered in the learning process. Aspects of pedagogy are not just about developing the art of time teaching and designing completeness of instruments process up to vote in the process of learning, but teachers also need to pay attention to and understand the students in the biological and psychological (Quddus, 2019).

According to Sholihah *et al.* (2016), TPACK is the knowledge needed so that the teacher can use the technology that is right and appropriate based on the analysis of the character of the material and the analysis of aspects of pedagogy. Not only able to operate technology alone, but in conveying the material, the teacher should be able to create a process of learning to teach with creativity and innovation, to take advantage of technology expected of students more easily to understand the material teacher presents. TPACK has six components of knowledge, namely Technological Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK) (Harris *et al.*, 2009; Juhji & Nuangchalem, 2020; Subhan, 2020). According to Srisawasdi (2012) and Sholihah *et al.* (2016), a teacher or educator must have TPACK that can affect how teachers deliver the materials of learning.

TPACK is basic in teaching that is effective to utilize the technology and things that teachers are expected to have the innovation in the delivery of the material. Mechanical pedagogy with the use of technology by way of constructive to convey the material, knowledge about what makes a concept becomes difficult or easy to learn, and how the technology can assist in overcoming some of the problems that faced the students. The purpose of TPACK is to develop the basic knowledge of teachers when studying and understanding the subject matter and how technology can increase student learning opportunities and find out the correct pedagogy used to improve the content in learning. TPACK explained that knowledge of content integration technology and the skills of pedagogy is a condition that is very important to make the process of learning to teach more innovative and creative with how to utilize and apply the technologies that exist in the process of learning.

A complex activity that involves various kinds of knowledge, namely teaching. Teaching is based on knowledge about the materials that will be delivered by the teacher (content knowledge), about how the way teachers teach a material (pedagogical knowledge), and of the knowledge in the use of the various technologies (technological knowledge) three things that have interconnections that can support the same others (Mishra & Koehler, 2006; Rahmadi (2019). Technology has a very active role, which became the tools, processes, and sources of learning and is used to carry out the study.

In economics learning, the material can be delivered by various methods. Of course, by utilizing technology in delivering economic material, especially at the high school level. At the time of the learning economy, as teachers are required to have creativity and be innovative in delivering the material, conveying the material is expected the students to understand them easily. In addition to things, teachers must understand the state of the class and the character of students that each class and students have the circumstances and the characters are different.

SMA Negeri 2 Salatiga is one of the senior high schools located in the city of Salatiga. SMA Negeri 2 Salatiga also already has the means infrastructure that can support the use of technology

to teach. So that in the application of TPACK in economic learning today, if the teacher has increased learning innovation, it is expected to be able to apply TPACK, which not only teaches material but as a teacher must be able to utilize technology so that the material that has been prepared can be accepted quickly by students and does not waste time. Teacher eye subjects economy should recognize the state of the class and character of students at SMA Negeri 2 Salatiga.

Based on these problems, the formulation of the research problem is how to apply TPACK in economic learning innovation so that students can receive the material that has been conveyed through the use of technology efficiently and still pay attention to pedagogic knowledge, which is expected to be able to create a pleasant classroom atmosphere so that the material is appropriately conveyed. The goal to be achieved in this research is to implement the application of TPACK in the innovations made by teachers in economic learning to encourage researchers to research SMA Negeri 2 Salatiga.

METHOD

This research is included in qualitative research with descriptive method. Research qualitative serves a variety of phenomena and facts related to the implementation of TPACK in innovation teaching economics at the neighborhood school. This research was conducted at SMA Negeri 2 Salatiga. Research is carried begin in the month March 2021 until August 2021. The object of this research is the application of TPACK and economic learning innovation. At the same time, the subjects in this study were economics teachers, vice-principal of the curriculum section, and students of SMA Negeri 2 Salatiga. This data study has presented theories, concepts, and literature related to the application of TPACK in economic learning innovation. The author uses the type of primary data by way of obtaining the data is direct, with a way to observe and record through observation, interviews, and documentation and the type of data the secondary are obtained through books, journals, and the internet. The data were analyzed using the Miles and Huberman model with data collection steps, data reduction, data display, and concluding.

RESULT AND DISCUSSION

Result

Implementation TPACK in Innovation Learning Economy

Based on the interviews with the deputy head of the school field of curriculum (47 years), SMA Negeri 2 Salatiga has implemented TPACK in the process of learning when SMA Negeri 2 Salatiga has planned will lead to the digitalization of the school. Hope in the year 2024, and the school had started to go in the direction of digitizing school. To support that implementation of the school's expectations when it did revamping start of the means of infrastructure, strengthening the network of WiFi. In a situation pandemic school when it did strengthen the more the teacher associated with the use of applications that require teachers to use the system of learning distance away.

Mr. Sugiyono said, "with the change in curriculum, the development of SKL to master the material for economics teachers continues to seek the latest information and develop themselves through the internet, BSE and also participate in training so that it can help teachers to better master the material". The teacher is a source of information for students, so that a teacher must understand and master the material that will be delivered to students. The teacher is also a facilitator who knows following his field.

Innovation is done by the teacher economics of the content knowledge; one of them is "teacher economy to enrich themselves with the event or phenomenon of nature that was going on and the condition when it is associated with the material economy. Teachers also take

advantage of opportunities during pandemic conditions like this to increase knowledge and develop themselves by participating in webinars about the economy, so that teacher's economies have a chance that more lots. In the delivery of materials, teachers associated with the matter with the state when it or the circumstances around, read books, and there are real examples".

In terms of pedagogical knowledge, at the time the process of learning takes place, teachers pay attention to the students, if students already understand the material or not. Teachers economics says, "when learning online, a teacher also did approach the excellent example of the methods that are used it should be fitted with the material economy". For example, economic market competition is perfect for providing the material and giving the video the circumstances around and be given an explanation that relates to material market competition is perfect, so the things that will make the students better understand the material market competition is perfect.

Teacher Innovation in Utilizing Technology in the Economic Learning Process

The vice-principal of the curriculum said that all teachers already understand the technology and use technology tools to support the learning process. An economics teacher, Pak Sugiyono, said that "currently, schools are already using E-RPP so that almost all of them are at the forefront of technology and the internet. More and more teachers are using technology to support their learning process as well as outside of learning such as to access lesson plans, materials, and learning materials". At the beginning of the pandemic, the school used a simple application, which means that at the time of learning, the teacher could only send material, give, and send assignments in the form of photos or writing. Then some teachers are experiencing difficulties conveying material that is only done by way of sending the material and assignments. So, there is a matter that requires clarification that is more. The existence of some difficulties and applications lacks the maximum so that the school made the application "SMANDA Media Didik" that in the application are not only able to send material and tasks but also there is a live meet which can be used teacher to explain the matter to clear to the students.

Based on the description of the teacher, the whole teachers use applications that together so that teachers do not require the application of others used in the process of learning, in the application of the already become one by sending the material, tasks, and modules so that teachers do not need to send a link to the meeting are online via the live meet. In the application of the whole matter lesson already scheduled following the schedule of each material subject, at the time of learning of students automatically be able to directly enter the live meet to follow the process of learning to hope the same as when the lesson in the classroom. Deputy head of the school field of curriculum says that "hope is the application of this can be useful for the future and increasingly growing, can help teachers and students, are expected by the application is still be used even if after the pandemic."

The economics teacher, Mr. Sugiyono, said that in the economic learning process before online learning or during the pandemic, teachers had used technology, and during the pandemic, teachers used technology more often in the economic learning process. If seen in the portion after the pandemic, teachers more often use technology in the learning economy. In the use of owned applications, schools certainly are obstacles that the application is still slow if used in time are the same, with the constraint that, but applications are already able to help the process of learning online becomes much better. It can assist students in understanding the material that is read and described through the application of the. In this application, the teacher says that they are always trying to update the application so that it can be accessed by parents and becomes an added value in the application used. In the application, there are also features of the general lecture model to run according to schedule and under admin control.

Students also said that before the "AMANDA Media Didik" at the time of the learning process, students' difficulties in understanding the material because students only can read the materials are delivered by teachers, and sometimes students are challenging to understand the

material if only the reading. After the application of the teachers and students are significantly aided an explanation directly from the teacher even though learning to do it online, so with the live meet, much-helping students understand they will matter the economy, students and teachers are very enthusiastic to follow the learning through the application of the.

Innovation Master in Creating Atmosphere Class the Creative and Innovative

At the moment, the learning process takes place not only to convey the material alone, but teachers also pay attention to students' reactions. Teacher economy said, "every teacher has a record recaps students, so teachers understand the students' attitude." In addition, to pay attention to students' reactions, teachers are also always motivating to continue the spirit of the following learning. The teacher is not only a teacher but also an educator who can shape students' character to be good.

Learning distance away is the teacher using the methods and means the same. The teacher said, "with the current situation it is not possible to use various methods, but the school does not limit teachers to using various methods, models, and learning strategies." At the time of learning online teacher economy still will use a variety of methods, but not the maximum, so that teachers give or explain material by using a more exciting method.

Teacher economy Mr. Sugiyono said that "when learning online, the teacher did approach the right, for example, a method that is used fitted with the material economy. Economics teacher Pak Sugiyono said that "when learning online, teachers take the right approach, for example, the method used fits the economics subject matter. Because right now, during a pandemic, online learning sometimes makes students less understanding of lesson content, so teachers must choose the right media, methods, and strategies so that students can understand the material taught by the teacher." Student responses, "Teachers who are innovative in delivering material and can create a creative and innovative classroom atmosphere, can help students understand economics material, where the teacher provides examples of surrounding conditions that students often encounter, this makes it easier for students to remember the content of the material of lessons." Teachers doing innovations in terms of pedagogical knowledge by means continue developing various methods, models, and strategies for others so that the learning is more exciting and varied.

Discussion

Teachers' economy has been doing integration TPACK in an innovation learning economy. It has been shown from interviews with the vice-chairman of the curriculum, economics teachers, and students. In the integration of TPACK, the economics teacher of SMA Negeri 2 Salatiga uses technology to support the learning process. Technology has a significant influence and has a significant role in the ongoing process of economic learning. The existence of constraints experienced by teachers and students, SMA Negeri 2 Salatiga conducts evaluations that create applications specifically for SMA Negeri 2 Salatiga, namely "*SMANDA Media Didik*" with an application that has been helping students and teachers to deliver and understand the material.

Not only are making special applications used in the economic learning process, but teachers continue developing themselves to continue learning about technologies such as using tools to write on a computer screen or laptop and others. A teacher should continue to seek out things new about the technology and learn to understand and utilize that can support learning because the technology continues to evolve at a rapid (Sintawati & Indriani, 2019). For example, technology in software such as Lectora, Adobe Captivate, Adobe Flash, Zoom, Google Meet, Google Classroom, and others. Technology in the form of hardware as a tool for writing monitored or mouse pen, a pen stylus, and others can help fluency in learning.

According to Pulungtana and Dwikurnaningsih (2020), the use of technology used to support the process of learning is the influence essential to the understanding of students.

Teachers also feel more easily assisted when utilizing the technology to the learning process that is not only using books alone but also looking for information, reference the other through the internet with sage. Their technology teacher is much more accessible to search for information to more innovation in learning, even when it is not just the process of learning that utilizes the technology but outside the classroom. They also take advantage of the technology, for example, E-RPP, administration, and others.

According to Sintawati and Indriani (2019), knowledge about lesson development plans, student character, and evaluation of learning outcomes is significant for teachers and teacher candidates. In pedagogical knowledge related to the ability of teachers to adapt and learn models or methods of the latest or better can create a strategy of learning the appropriate state of the class. In learning distance, away from most great teachers use methods and mean the same but do not limit those teachers should use the methods and means the same. Although most great teachers use methods and means the same, the teacher provides the materials, assignments, and grades, but teachers continue trying various ways so that the material can be conveyed clearly to the students. So that teachers can find out whether their students can understand the material being taught, the teacher evaluates the delivery of material where each student is given questions about the material that has been delivered. The method that is used teachers to deliver materials that correspond to the state of the class as well as character, the students stated that the Pedagogical Knowledge could help students more quickly to accept and understand the material that although the learning that is done in line with the implementation of TPACK in learning economics can help students be optimal.

The teacher's ability to master the material and develop the material is good. The curriculum is changing and different from the previous curriculum and the developing SKL. Economics teachers continue to develop themselves and continue to seek information in various ways actively. In conveying the material, economics teachers use a variety of ways so that the material can be conveyed with clear and de n gan their application "*SMANDA Media Didik*" teachers can explain in detail to respect the time the application of these helped these students and not only read the material just yet described in detail by the teacher. On learning online when this with the application "*SMANDA Media Didik*" students more zeal in following the teaching economics with applications that students more easily to understand the material so that students not only accept material in the form of a file, but the students also got an explanation as detailed as the process of learning in face-to-face.

Same as with the research carried out by Feladi and Puspitasari (2018) that teachers master the material that will be delivered. Before learning, teachers approach with students and subsequent approach to teachers and students on the material. The goal is to approach the teacher with students not to feel tense and bored when receiving learning. In addition, the teacher also gives assignments to students in the form of material that will be discussed together. Teachers' economy in SMA Negeri 2 Salatiga also evaluates the process of learning that has been done. In the beginning, teachers do preparation materials, media, models, and methods of learning into the RPP further to carry out the approach between teachers and students deliver material, and subsequently carry out the evaluation. With the evaluation, the teacher can determine whether what the teacher has prepared in the lesson plans can run properly and well in the classroom and whether the models and methods follow the material and class conditions.

According to Sintawati and Indriani (2019), teacher at the time of delivering the material to the students not only provides the material, but the teachers also use a variety of strategies specified that following the material. The accuracy of the teacher in choosing the approach or strategy should be on adjusting to the state of the class and character of students because each strategy is not all be suitable to use on all materials.

Innovations that do teachers economy, by the way, continue to dig information via the event or phenomenon of nature associated with the material economy. In addition to this, the teacher attends webinars related to the material. Innovations that do teachers economy by developing tools of learning are used. So that the material is conveyed more clearly, the teacher also uses tools that can be used to write on the screen, the explanation of the material is not only the teacher speaks and shares the material, but the teacher also innovates with tools by utilizing technological advances. For example, the material demand and offer if only described without any sample and tool aids the material demand and offer are not easily understood by students, so the teacher gives an example and using the tool aids to clarify the material so that the material can be conveyed to clear.

Implementation TPACK easier for teachers and students to express and understand the material, that the implementation of the Technological Knowledge, Knowledge and Pedagogical Content Knowledge greatly assist teachers and students, especially at the time of learning online when. Are not directly teachers are forced to always associate technology in the process of learning online with attention to models or methods that are used must be following the state of the class with the purpose that the materials were submitted to understand the students that the purpose of learning can be achieved with maximum by implementing TPACK.

CONCLUSION

Based on the discussion of research, the above can be concluded that the economy teacher of SMA Negeri 2 Salatiga has implemented TPACK in learning. It is done as for things that are a unity in which the state of the current is that technology is a thing that is very important so that teachers can take advantage of things that to innovate, with the technology teachers more easily search for and obtain information more widely. The teacher also integrates content, the teacher masters the material to be taught. The selection of models and learning methods are expected to help teachers and students express and understand the material with ease. Once done learning, teachers perform evaluations related to the plan of learning arranged in the RPP are already following the material and state of the class. SMA Negeri 2 Salatiga has an application specifically for the activity of learning that is "*SMANDA Media Didik*" where the application can be accessed by teachers, students, and the elderly. Applications are highly transparent for the parents so that the parents can monitor the activities of learning of students. Each teacher also has notes for students, so the teacher knows how the students' abilities and attitudes are. If students are slow in receiving material, the teacher takes an extraordinary approach to these students.

SUGGESTION

Based on the conclusions that have been derived from the results of the research, a gar performance of teachers is getting increased, and professionals are expected of teachers continue to develop knowledge of the material by way of following training or workshops, always learning and update information, add insight knowledge through various media and utilize technology as a supporting process learning. Teachers are expected to integrate TPACK in innovation learning by way of using technology to understand the material, using the technology in order to understand the students, integrating technologies for the design of the curriculum and policies, integrate TPACK in the strategy of learning, applying TPACK as the management of learning, especially the economy so that the material can be conveyed with good and according to the expected goals. Schools are expected to pay more attention to educational facilities in the form of infrastructure and one of the essential components, teacher performance competence. The efforts of teachers in integrating TPACK be maximized return on the whole matter of learning and able to develop the technology of learning that is more creative and innovative. Because things can increase the motivation to teach students more and provide innovation to the teacher,

the learning process can be achieved with an excellent and appropriate destination. TPACK is a new research topic in the world of education in Indonesia because the Department of Education and the agencies that related expected able to give and explain the way of socialization and conduct training on TPACK to add a reference in the world of education.

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