

Perception of Teachers in Decision Making Choosing Learning Applications: Systematic Review of Teacher Competencies in Indonesia In Designing Social Media-Based Learning During Pandemics

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Abstract

Learning activities during the pandemic in Indonesia developed with two approaches, namely professional innovation and adaptive innovation. Both approaches to innovation are influenced by the perception of teachers when facing learning situations. A teacher's knowledge of learning applications is the basis for a person to make decisions about using a particular application in the class they manage. This study systematically reviews various empirical studies related to teachers' situation in Indonesia under specific conditions. A total of 50 research articles from the emerald and Wiley databases have been used to review specific criteria. This study was included in the theoretical framework, design and methodological application as in the research studied. This research's design is collected from various comprehensive case studies with different methods to confirm large quantities of samples with standardized instruments. This study's findings state that (1) teachers with many positive experiences about learning competencies can transmit to other teachers through professional development programs. (2) The preparation of teachers to face learning during the pandemic is a crucial professional ability to use. (3) Teachers may determine the application according to the managed class following the knowledge and objectives of the learning. (4) teachers can easily interpret and identify their academic potential.

Keywords: professional innovation, adaptive innovation, learning competence, development and professionalism, decision making.

1. Introduction

The year 2021 becomes proof for the world of education that the ability to interact virtually (Traum et al., 2016) is the main competency (Uerz, Volman, & Kral, 2018) educators and learners out the learning process. Condition analysis shows that learning activities in 2021 are still affected by regulatory restrictions due to the covid-19 pandemic that occurs almost worldwide. Countries across Asia have imposed restrictions on all learning activities since one year ago - but some countries have lifted the ban.

Teachers' ability based on analysis from various studies shows that the process of finding self-competence (Mantzicopoulos, Patrick, & Samaratungavan, 2013) is based on the intensity of activities carried out during learning. The activities in question are all related to selecting (Karnes, Collins, Maheady, Harper, & Mallette, 1997) examples such as cooperative learning and teaching strategies (Boelens, Voet, & De Wever, 2018) in the classroom. Managing learning in a classroom by considering active learning activities' methods and needs is the learning process by finding new and more effective methods.

Some researchers have previously revealed the theory related to learning management ability and learning application selection criteria. However, today is a pandemic condition that distinguishes it from previous conditions (Inpress, 2009). The app is widely used by some teachers (Burri, Chen, & Baker, 2015). However, because of the various difficulties experienced in their respective countries' conditions, not all teachers can choose the same application. Good teaching ability is not determined by the ability to use the application but also the ability to manage the class manually (Oberle, Gist, & Cooraand. Mentioned in the research report (Hariri & Fassi, 2014) that learners' criteria should develop learning activities. The ability to customize these learning plans and strategies needs to be individually trained by teachers (Lemay, Doleck, & Bazelaïs, 2019). The management of a teacher's learning and teaching ability tends to lead to the habits and conditions he has experienced. This condition is an experience that is contained in the learning process during this teacher's work.

Design of learning during the pandemic (Aeni, Widhanarto, & Astuti, 2020) always pays attention to the school's readiness and students. According to the government in Indonesia, various habits that lead to today's learning design reveal the active participation of teachers, learners, and parents (Elyana, Utanto, Widhanarto, & Maretta, 2018). The portfolio assessment model has proven effective at improving student learning outcomes, despite the online adoption of this model (Utanto, Widhanarto, & Maretta, 2017).

In comparison, all these processes are ultimately determined by the quality assurance of education managed properly and structured by the management (Haryono, Prihatin, & Widhanarto, 2018). There is a connection between quality management and the learning process that takes place in the classroom. Teachers are tasked with managing by implementing technological learning innovations but are also given stimuli following the quality of standards desired by education.

Everyone has their own perception of what they think, see, and feel. This also means that perception determines what a person will do to fulfill various interests, both for himself, his family, and the community where he interacts. Perception is what distinguishes a person from another. Perception is produced from the concretization of thoughts, then gives birth to different concepts or ideas from each person even though the object seen is the same. The true definition of perception tends to be more in character Psychological rather than just a sensory process, there are several factors that influence, such as selective attention, individuals focus their attention on certain stimuli. Then the characteristics of stimulation, the stimuli that move between silent stimuli, will attract more attention.

Next are individual values and needs, and finally past experiences. Previous experiences have had a big impact how a person perceives his world. Perception is a sensing process, namely the process of receiving a stimulus by an individual through the senses or also called a sensory process. However, this process does not stop just like that, but the stimulus is continued and the next process is a perceptual process. Therefore the perceptual process cannot be separated from the sensing process, which is a preliminary process of the perceptual process.

Education is about interaction between educators and participants students in an effort to help students master goals education. Educational interactions can take place in the environment family, school, or community. In a family environment, Educational interaction occurs between parents as educators and children as learners. This interaction goes without a written plan. Parents often do not have a clear and detailed plan of where their children will be directed, in what ways they will be educated, and what the education will contain. Parents generally have certain expectations for their children, hopefully they will become pious, healthy, smart people, and so on, but the details of these characteristics for them are not clear. also they do not know what to give and how to give it so that their children have these qualities.

Analysis of relevant research has revealed that the use of applications in learning is not entirely the choice of teachers but also about the learners' perception and other components such as infrastructure (Davies et al., 2013). Related to the use of learning methods has also been revealed in the research report (Margot & Kettler, 2019), which states that teachers' learning methods reflect the dynamic of a defense. Geeraerts et al. (2016) also state that teachers' perception of students' abilities increases because their knowledge has surpassed emerging technologies. Learning treatment using social media help has also been proven (Arquero, Barrio-garcı, & Romero-fri, 2016). The use of applications during the pandemic begins with various analyses and perceptions in the past. As actors and policymakers of knowledge transformation in the classroom, teachers can choose an application according to the class's needs (Bal, Afacan, & Cakir, 2018). This is expected to be the same in various countries globally. Now, the academic position is at the same

level. Education in the world is undergoing mass reconstruction due to each country's policies that implement distance learning models and require the use of applications in the learning process.

This analysis leads to determining the variables required by education management (Amir, Mandler, Hauptman, & Gorev, 2017) in every country in the world. Indonesia is a developing country with many educational innovations (Druin, 2009) and done online (Hariri & Fassi, 2014). This innovation needs preliminary study (Peltola, 2016) to determine which pattern is most comfortable to use and follow teachers' competence today. The purpose and benefit of this research are to uncover Teachers' experiences about learning competencies, The preparation of teachers to face learning during the pandemic, Teachers using the application of the learning dan Teachers interpretation and identify their academic potential through systematic literature reviews using prism design. This research's benefit is that the systematic use of review literature can be used as the basis for the disclosure of new models for learning during pandemics. In the long term, the benefits of research can also be used to standardize the application of learning preparation components from the point of view of the use of applications that allow a teacher to teach with the right methods during the pandemic.

2. Method

This study uses systematic reviews as used by other studies (Stahnke, Schueler, & Roesken-Winter, 2016) by collecting data from the primary data source (Margot & Kettler, 2019). This primary data source is research that suits the condition of teachers in Indonesia. All research articles that have been collected with individual specifications are then sorted according to the variables that will be revealed (Creswell, 2014). After all data variables are categorized, systematic analysis is done by summarizing the entire article's review (Gunsekera, Bao, & Kibelloh, 2019) relating to research variables.

The category revealed in the primary data source is the teaching experience (C1) as presented by Nesselrod (1954), professional competence (C2) (Vélez, Olivencia, & Zuazua, 2017), online application (C3) (Amir et al., 2017), and literary interpretation (C4) (Malott, 2011). C1 data is obtained from the analysis of scientific articles containing the same variables as the required data. However, it does not close the possibility that the article also contains C2 data. In comparison, the C3 and C4 data are the decisions about what applications will be used in the classroom. This decision has passed the various considerations identified in C4 and is descriptively analyzed through Wiley and emerald articles.

3. Result and Discussion

3.1. Teachers' experiences about learning competencies.

Teaching experience for teachers continues to be improved as technology develops (Dao et al., 2018) by modifying the syllabus and learning plan following the curriculum design carried out. Some analyses also mention that this teaching experience (Maynard & Turowetz, 2017) is determined by the intensity of social communication and supporting facilities in learning. In some countries also progress in the learning process due to the condition of a teacher's teaching experience (Gibbs & Culleton, 2016).

Teacher readiness (Baltrinic, Jencius, & McGlothlin, 2016; Braaten, 2018; Porter, Payne, Burrack, & Fredrickson, 2016; Prestridge, 2017) calculated to provide a portion of teaching during the pandemic so that many teachers become ready because their experience is more than others. This analysis has been done in articles that have been published between 2020 and 2021. All articles have conveyed that experience is the main thing in teaching because it makes one person more competent than others (Schnaider, Gu, & Rantatalo, 2020). Digital technology is the most significant influence on today's learning, so many teachers and students are massively learning digital technology.

3.2. The preparation of teachers to face learning during the pandemic.

Some online applications learned by educators are preparing for teaching during the pandemic period in 2020 to 2021. Table 1 has shown results that online applications are selected because preparation during learning does not take long. Related to the time of use of the application and ease of use is also thought of in advance by teachers. The use of devices such as smartphones is also considered in preparing learning in the present. Teachers can use mobile-based applications because, in terms of flexibility, it is more beneficial to use in learning.

Table 1. teacher's teaching preparation

Source	Preparation
S. Alnusairat, Maani, Duaa Al., Al-Jokhadar, Amer (2020)	Teaching material of design studio using application/ online learning.
N. Eslamirad, S. Malekpour Kolbadinejad, M. Mahdavinejad et al. (2020)	Applying the machine learning method (SML) to create a new method, the human-based calculations.
S. Gumus, M. Bellibas. (2020)	Implementing types of professional development to know the self-perceived learning and centered leadership practices of Turkish principals.
C. Hunt, D. MacPhee (2020)	The teacher completed an assignment of literacy coaching cycle with a colleague, video-recorded, and critical discourse analysis (CDA).
B. Jayatilleke, et al.(2018)	Made existing printed course material into digitized content of mobile application through design-based research.
W. Kearney, J. Jurica, T. Entzi (2020)	Practice coaching skills using written feedback using near-peer video-based feedback in an educational leadership preparation program.
E. Leifler (2020)	Applying a three-session professional development (PD) program based on the lesson study.
K. Lui, S. Choy (2020)	The reasonable basis for curriculum development and instructional design of training programs for practice-based and work integrated-learning components of the vocational curriculum.
D. Siskind, D. Conlin, L. Hestenes et al. (2020)	Screen media devices and outdoor learning can help young children's cognitive, social-emotional, physical, and academic outcomes.
J. Konig, D. Jager-Biela, N. Glutsch (2020)	Teachers do: (1) providing online lessons, (2) introducing new content, (3) providing task differentiation, (4) providing feedback, (5) conducting online assessments.
G. Verma, T. Campbell, W. Melville et al. (2020)	Sent USB flash drives or hard copy materials to students (case in Africa). When science laboratories at the institute cannot be accessed from home, therefore faculty have tried to use digital and social media (case in India) Students use Zoom to access and interact, teachers set the task, while students worked in a study group with teachers available for them to ask questions (case in Australia)
J. Scull, M. Phillips, U. Sharma et al. (2020)	One Australian university implemented a fully online environment: conversion of all face-to-face coursework units into online units with synchronous and asynchronous learning opportunities.
R. Barnes, R. Hall, V. Lowe et al. (2020)	Most teacher preparation program of Western Governors University is delivered online; students complete observations and student teaching (teaching practice) in traditional classrooms.

3.3. Teachers using the application of the learning.

Table 2. use of learning applications

References	Application used
Davis, McDuffie, Drake, & Seiwell (2019)	Textbook
Powell & Bodur (2019)	OTPD Framework
Cheung Chan (2009)	Portable classroom
Margot & Kettler (2019)	STEM education
Chambers et al. (2017)	Ipad Application

Analysis of application usage in table 2 shows that teachers in different countries have used social media-based learning applications. The selection of this application was initially determined by the class's needs and the readiness of the learning environment facilities and infrastructure. Portable classroom usage (Cheung Chan, 2009) is the development of virtual classroom needs that are almost the same as traditional learning patterns by implementing synchronous systems.

The social media chosen by most teachers is the most frequently used app in learning. This application is also used for learning management systems widely by the community. With this social media application, learning weighs higher achievements compared to the quantity of use in learning. This decision is based on the ease of use of the application that allows all educational actors to use it properly.

3.4. Teachers interpret and identify their academic potential.

Learning conditions during the pandemic are adjusted to the availability of learning facilities in their respective environments. Learning facilities (Johnson, 2008), this can be a device (Armstrong & Georgas, 2006; Davis et al., 2019; Sabry & Alshawi, 2009; Seufert, Meier, Soellner, & Rietsche, 2019; Van Oordt & Mulder, 2016) and the power grid is expected, as it will be used for the learning process altogether. During the learning process during the pandemic, the interpretation of teachers raises a known positive perception of the many applications used in managing a class. Classroom management is analyzed to reveal the teacher's ability to adopt technology and apply it appropriately to the conditions he/she is experiencing. Pandemic conditions are an opportunity to increase the potential of teacher pedagogy in better management of learning.

4. Conclusion

Analysis from various articles that have been done in this research generates an in-depth perception for the selection of applications that are considered the best among others. This study's findings state that teachers with many positive experiences about learning competencies can transmit to other teachers through professional development programs. The preparation of teachers to face learning during the pandemic is a crucial professional ability to use. Teachers may determine the application according to the managed class following the knowledge and objectives of the learning. Teachers can easily interpret and identify their academic potential.

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Biography

Ghanis Putra Widhanarto, is a lecturer at Universitas Negeri Semarang; this young lecturer has several courses as a field of science that Educational Technology directs. Some of the mastered courses are *web-based learning* courses, *mobile learning*, contemporary educational media development, Computer Animation Learning, digital learning, and *e-learning development*. Strata-1 education is taken at The State University of Yogyakarta with the Education Technology Study Program, Strata-2 Education is taken at Sebelas Maret University Surakarta Education Technology Study Program. Interest in Educational Technology spawns writing and media works published in various conferences and centers of educational technology innovation studies.

Titi Prihatin is an associate professor at Universitas Negeri Semarang, majoring in curriculum and educational technology. Mastering school management and education management courses for S1, S2, and S3. He has produced a book with a management focus in elementary school that has been published in 2019. Several studies focusing on school management and total quality management have been published in reputable international journals in the range of 2010 to 2020.

Farid Ahmadi is an educator and an Indonesian author of nine books including Primary Teacher in Digital Era, Comparative Study China and Indonesia Education, and The Sun Over the Horizon in Jeddah. Farid writes for teachers and Ed-Tech enthusiasts. Farid believes that education is the most powerful weapon to change the world and together with utilization of technology, students get opportunities to see, change, and transform the world. Farid also achieved some scholarships such as Bachelor Scholarship from DINUS Organization, Non-Degree University of London's Scholarship, Doctoral IDB Jeddah's Scholarship. Research CSC Chin's Scholarship, and Post Doctoral ID8 Jeddah's Scholarship.

Octaviany Widyaningsih is a lecturer and researcher in the Educational Technology Department of Universitas Negeri Semarang, Indonesia. She earned a bachelor's degree in Curriculum and Educational Technology Department from Yogyakarta State University, Indonesia, and a Master's of Education from Sebelas Maret University, Indonesia. She has published journals and conference papers in the Educational field, especially about Educational Technology. Her research interests include teaching and learning, teacher training, and online education.