



Collaborative Process for Evaluating Education Technology in School

Ghanis Putra Widhanarto^{1✉}, Sukirman², Titi Prihatin³, Basuki Sulistio⁴, Novita Trisna Iriyanti⁵

¹²³⁴⁵Educational Tehnology, Universitas Negeri Semarang, Semarang, Indonesia

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Abstract

The purpose of this study is to uncover a collaborative process of educational technology in schools, they call evaluating, decision making, and applying. Through qualitative methods revealed how evaluative processes can include interdisciplinary stakeholders, and then to explore the process of applying technology in school in the context of teaching and learning in real terms on subjects. The research design begins with the identification of learning activities, the development of evaluation criteria that maps the objectives of learning activities and the needs of policy makers, and the interventions of educational technology activities in the teaching and learning process. The results of the study are identified evaluation methods that involve collaborating interdisciplinary stakeholders on teacher teaching abilities for the purpose of exposing several divergent perspectives and views. The implication for academics who need pedagogical is the exposure of patterns and completeness of administrative support.

INTRODUCTION

Educational technology is a way adopted by many education practitioners, this is one reason to increase the motivation of learning participants. Studies on the educational technology application have been reported that students who are in a situation with educational technology will be more open. This situation in terms of feedback and also the relationship of collaboration in the classroom (Wu, Corr, & Rau, 2019). This shows that the use of educational technology in learning will improve teacher performance (Fenwick, 2017) and student performance towards the objectives of a curriculum. Current trends in the world state that the atmosphere of learning is more desirable if there is an application of educational technology, then the rules of application must be considered by education policy (Hodgson, 2009) makers in a region. This statement is in line in a study of educational policy which states that applied patterns of educational technology must use good rules (Czerniewicz & Rother, 2018).

New educational technology is useful to help students become qualified in terms of increasing ability to adapt to the industrial world (Lal & Paul, 2018). The role of stakeholders in education (Elias, 2017) is very important to update the applied patterns of educational technology that are tailored to the needs of the industry,

so that new educational technology can be applied on an ongoing basis in the learning needs that are relevant to the industrial world today. The applied level of educational technology specifically must be thought of with the rules that appropriately perceives learning needs. In accordance with research reports which state that there is no student opinion about the success of the process with the application of educational technology in schools (Karich, Burns, & Maki, 2014).

From various relevant research considerations, it is very important to conduct research that reveals applied evaluation of educational technology. This applied evaluation is divided into several aspects of control, the stakeholder side is very interesting to study because it is directly related to the industrial world, so that the efficiency of the performance of education practitioners can be well structured.

The results of a study by Spannaus et al (2017) titled Educational Technology-Related Performance of Teaching Faculty in Higher Education stated that "With this dearth of empirical evidences, coupled with changes needed for innovative educational practices, an exploratory study was conducted on teaching faculty's educational technology-related performances (ETRPs) as potential predictors of effective management of eLearning solutions "(Spannaus, Larbi-Apau,

✉ Corresponding author

Address: A Building, Sekaran, Gunungpati,
Semarang City, Central Java, Indonesia 50229
Email : ghanisputra@mail.unnes.ac.id

Yaprak, Moseley, & Guerra-Lopez, 2017)

Research from power and laher (2009) titled Exploring the Influence of Educators' Access to and Attitudes towards Educational technology on the Use of Educational Technology in Johannesburg Schools states that "Educators' beliefs and attitudes towards technology largely influence integration of ET within the classroom such that educators who have more positive attitudes towards ET feel more comfortable with using the technology" (Daya & Laher, 2019)

Research from Kelly (2012) entitled A collaborative process for evaluating new educational technologies Article information : Campus-Wide Information Systems states that "Personal knowledge of contacts in both teaching and student support roles can be used as starting points in addition to targeting established networks of educational technology experts within the institution" (Kelly, 2012)

Theoretical study raises theoretical gaps which emerged through the analysis of empirical studies from research on applied educational technology in schools. The identified gap is the absence of research that reveals the role of stakeholders in evaluating educational technology. This is examined from the statement of potential stakeholders as an applied predictor of educational technology. It is needed to build a positive attitude and comfort in the school management process so that the mirror relationship between teachers and students is a reflection of success. an education (Spannaus, Larbi-Apau, Yaprak, Moseley, & Guerra-Lopez, 2017) (Daya & Laher, 2019) (Kelly, 2012). From this consideration, it is important to study from a collaborative evaluative point of view with stakeholder involvement as a predictor.

METHODS

This study begins with a theoretical gap analysis of several theories that discuss the application of educational technology, the results of this analysis are then arranged into research objectives.

Referring to Figure 1, the next step is the preparation of instruments through the description of the research objectives and followed by data collection and data analysis to formulate conclusions. This research identifies learning and teaching activities that involve educational technology, so that it becomes a consideration in developing evaluation criteria that are in accordance with the learning objectives map. Furthermore, this needs map is adjusted to the evaluati-

on criteria and needs of policy makers and finally after new patterns are discovered, they are then combined in the overall learning process.

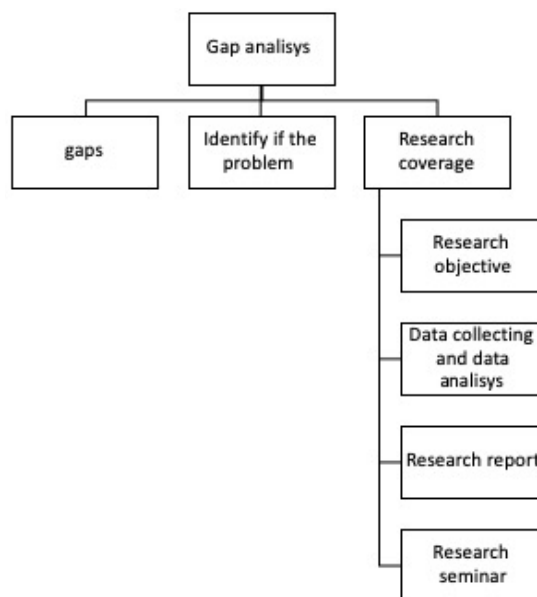


Figure 1. Flowchart of Research

RESULTS AND DISCUSSION

Respondents in this study were teachers, stakeholders and school principals from various educational institutions in Central Java. Table 1 below is a recapitulation.

From table 1 it can be concluded that almost all respondents are highly educated people, meaning that if the question is submitted then the possible answer is logical.

A stakeholder collaborative process for evaluating educational technology on learning.

This process is in the form of steps taken by the school and stakeholders in carrying out supervision and supervision of the school. Of the several behaviors obtained through the instrument, it is presented in the following Table 3.

Based on Table 3, data are obtained about the collaborative process of stakeholders who have already carried out activities or have been involved in evaluation activities. Some of the answers compiled showed a high average of implementing it, although not all of it, but there was a high involvement in the process of implementing the evaluation results, which was mean 3.4 which means that almost all schools involved stakeholders in evaluative follow-up.

Some stakeholders in the area of Java are involved in the planning of the evaluation of learning, meaning that there is a concern between

Table 1. Research Respondents in Central Java Province

No	Subjects Assisted in Latest	Teaching Experience	Education	Institutions Origin
1	Class Teachers	> 20 years	Bachelor Degree (S1)	SDN Gajah 2
2	Teachers Class	11 - 20 years	Bachelor Degree (S1)	Sidomulyo State Elementary School 04
3	languages indonesia	<10 years	Bachelor (S1)	SKB Ungaran
4	Acting	<10 years	Bachelor (S1)	MTs Al Hidayah
5	Physical education	<10 years	Bachelor (S1)	MTs Al Hidayah
6	Elementary school subjects	<10 years	Bachelor (S1)	Public Elementary School Sidomulyo 04
7	MATH	<10 years	Bachelor Degree (S1)	Islamic Middle School Al Hidayat Pringapus
8	PAI	11 - 20 years	Postgraduate (S2 / S3)	SD 4 Soco
9	Physical education	11-20 years	Bachelor (S1)	MI Keji
10	Productive Productive	<10 years	Bachelor (S1)	Vocational School Kartini's mother

Table 2. Level of Achievement Applied Technology Education in School

No.	Interest	Rate Outcomes
1	The collaborative process stakeholders to evaluate educational technology in teaching	It did however not yet complete
2	Describing the pattern of decision making concerning the application of Technology Education in the	school's been doing, but is not yet complete
3	Identify the types of applied technology education	The school has done it but not thoroughly

Table 3. Implementation of the Stakeholder Collaboration Process

Types of activities	Average implementation
1. Stakeholders are involved in preparing the learning evaluation plan	3.1
2. Stakeholders are involved in formulating the objectives of the evaluation implementation	3.1
3. Stake holders are involved in collecting evaluation data	3
4. Stake holders are involved in the data verification process	3
5. Stakeholders are involved in processing and analyzing data	3.1
6. Stakeholders are involved in providing interpretation of data and inferring data	3.1
7. Stakeholders are involved in following up on evaluation results	3.2
8. Stake holders are involved in applying the results of evaluations	3.4

stakeholders and the quality of graduates produced by the school.

Describe the decision-making patterns of the application of Educational Technology in schools.

While in terms of teacher readiness, analysis taken from research instruments shows that the majority of teachers have applied educational technology to the teaching and learning process.

Based on Table 4, it is obtained that all teachers have prepared the process of applying educational technology thoroughly. From the

identification of several activities that lead to the application of educational technology that have been systematically based on the order of table 3, can be described as follows on Figure 2.

The sequence of steps in the application of educational technology in schools is done in the model applied maisng are presented in the following Table 5.

Based on Table 5 that each application of educational technology in school decision making is done through several applied models. In the step *first*, analyzing and identifying problems is carried out by reviewing the ability of students, reviewing the conditions of the learning



Figure 2. Process of Determination of Applied Educational Technology

Table 5. Implementation Determination of Decree

No.	Type Applied	Model Applied
1	Conducting the analysis and identification of problems	Conduct a review of the ability of learners Conduct a review of the condition of the learning environment preparation of arguments for identification problem
2	Developing problem formulation	Determining crucial learning conditions Determining steps for finding solutions
3	Conducting data collection	Using journal entries Using evaluation sheets
4	Conducting relevant data analysis	Preparation of analytical framework Conducting decision making Conducting identification of key personnel
5	Conducting development of solutions	Performing determination of weaknesses learning system Determine user information needs
6	Compile evaluation	Data collection Make adjustments to the data analysis results Determination of aspects that will be evaluated i Develop an evaluation tool Use of benchmarks
7	Selection of the best alternatives	Determination of the most arguments
8	Implementation of decisions	Use of the best and effective solutions
9	Evaluate decision results	Use of process evaluation instruments

environment, and preparing arguments for problem identification. *Second*, the steps in compiling the formulation of the problem are carried out through the determination of crucial learning conditions and determining the steps to find a solution. *Third*, the data collection step is applied in the form of a diary journal and the use of evaluation sheets. *Fourth*, the steps in analyzing relevant data are applied in the form of compiling an analytical framework, identifying decisions and identifying key personnel. *Fifth*, steps in carrying out the development of alternative solutions are carried out in the form of determining the weak-

nesses of the learning system and determining the user's information needs. *Sixth*, the steps to compile the evaluation are carried out through data collection, making adjustments in the results of the analysis, determining the aspects to be evaluated, compiling evaluation tools and using assessment benchmarks. *Seventh*, the best alternative selection step is done by determining the most arguments. *Eighth*, the decision implementation step is carried out through the use of the best and effective solutions. *Ninth*, the step of evaluating the results of decisions made through the use of process evaluation instruments.

Identifying the Applied Forms of Educational Technology in Schools.

The form of applied educational technology in schools is then applied into a model of applied educational technology. Each type of applied educational technology in schools is presented in the following Table 6.

Based on Table 6 it can be seen that the intensity of applied educational technology in schools has a mean that varies with the average value of the majority above 3.0. although in the step of applying the domain design and instructional strategy has a score of 2.9 with the meaning that the implementation of applied educational technology in schools is not done but there are some that have. The step that gets the highest average score shows that the application of educational technology in schools can influence changes and the development of school curricula with the highest average score of 3.4. Each

type of applied educational technology at school is then presented with its applied model in the following Table 7.

Based on table 7, the type of applied educational technology in schools is done through its applied model. First, namely designing learning using information technology with its applied model through the use of instructional media, the use of online learning systems, the use of animation and video and the use of the internet as a learning resource. Second, namely the application of design domains and instructional strategies is done by compiling a needs analysis, analyzing student characteristics, learning tasks and learning conditions. Third, implementing a systematic structured learning management domain is carried out in the form of compiling learning program plans, compiling learning strategies, using fun learning methods, using learning evaluations and integrated self-evaluation.

Table 6. Applied Intensity of Educational Technology Applied

Type of Educational Technology Applied	Intensity
1. Designing learning by utilizing information technology	3.2
2. Applying the domain of design and instructional strategies	2.9
3. Applying the domain of systematic structured learning management	3.1
4. Influencing change and developing school curriculum	3.4
5. Minimizing traditional learning	3.1
6. Utilizing effective and efficient learning resources	3.2

Table 7. Applied Model of Educational Technology in Schools

No.	Types of Applied Education Technology Applied	Models
1.	Design learning by utilizing information technology	a. The use of instructional media b. use of online learning systems, c. use of animations and videos d. use of the internet as a source of learning
2.	Applying the domain of design and instructional strategies	a. make a needs analysis b. analyzing student characteristics, learning tasks and learning conditions c. compile learning modules d. arrange evaluation
3.	Implements systematic structured learning management domain	a. arrange learning program plans b. develop learning strategies c. the use of learning methods fun d. use of integrated learning evaluation and self-evaluation sheets
4.	Influencing changes and school curriculum development	a. use of learning strategies
5.	Minimize traditional learning	a. use of active learning models b. interactive communication c. use of thematic learning methods
6.	Make use of effective and efficient learning resources	a. use of interactive multimedia

Fourth, namely the application of educational technology in influencing changes and the development of the school curriculum carried out in the form of the use of learning strategies. Fifth, minimizing traditional learning is carried out in the use of active learning models, interactive communication and the use of thematic learning methods. Sixth, namely the application of educational technology in schools in utilizing effective and efficient learning resources through the use of interactive multimedia.

In a study (Crow, Albright, & Koebele, 2019) reported that stakeholder participation in decision making is a process desired by all parties, this strategic position allows focus on the ultimate goal (Lai, Li, & Wang, 2017) including students' self-directed use of technology for language learning outside the classroom. However, how teachers influence student behaviors may vary across cultures, and understanding how teacher influences vary across different cultures is critical to developing culturally adaptive approaches to enhance students' self-directed use of technology for learning outside the classroom. This study surveyed 418 undergraduate foreign language learners (190 from Hong Kong and 228 from the U.S. of an evaluation of quality. Furthermore, in another study (Quick, 2018) which states that part of a process is the involvement of stakeholders in determining idealism and expectations of the process. Strengthened by other studies (Sperry & Jetter, 2019) also stated that stakeholder management provides positive benefits with information that is always updated. It can be concluded that several studies prove that stakeholders are strategic positions in evaluating and analyzing quality in a process, especially in the learning process, so this is very necessary.

The findings in the field have proven that stakeholders also participate in evaluating the preparation stage, the process and the learning assessment stage conducted by teachers and other school components. Even in some schools have done it even though there are some who have not done this collaboration process (Jonker, März, & Voogt, 2019). So it can be concluded that several theories that have been submitted (Crow et al., 2019; Quick, 2018; Sperry & Jetter, 2019) have been relevant to the field conditions in this research process.

The pattern of decision making is reported in research (Larionova, Brown, & Bystrova, 2018) which states that empirical studies map educational organizations and teachers in determining appropriate learning strategies through modernization considerations. This re-

lates to the effectiveness of learning strategies in a class. Other research (LAXER et al., 2019) also suggests that intervention-based effectiveness is the easiest and most potential way to manage a school management through decisions taken jointly based on stakeholder evaluations and recommendations. Even in his research (Larionova et al., 2018) states that a system that can construct management through the implementation of development by utilizing educational technology is the most desirable project.

The condition in Central Java has been through a maximum stakeholder evaluation process, so that it can be decided structured application patterns such as analyzing and identifying problems, compiling the formulation of problems, conducting data collection, carrying out relevant data analysis, carrying out development of alternative solutions, compiling evaluations, choosing the best alternative, implementing decisions, and evaluating the results of decisions. This is an applied ethical practice of educational technology as a facilitation of management in an educational institution such as formal and non-formal schools. This study was stated to be relevant to the findings of other studies (Larionova et al., 2018; LAXER et al., 2019) which also discussed the decision to use educational technology in the learning process in schools.

Research (Czerniewicz & Rother, 2018a) states that as current trends develop, an institution must develop technological patterns to facilitate an ineffective learning process. In another report (Wiklund & Andersson, 2018) it was also identified that the use of educational technology (Thomas Reeves, 2006) formed new ways of learning that were more meaningful and could increase focus and learning outcomes. Even other research (Fan & Salleh, 2018) argues that aspects of learning must go through an educational technology process that includes designs that have been tested in published research.

Conditions in the field have proven that the teacher has prepared (Carlson, 2015) a pattern of applying educational technology with various activities such as designing learning by utilizing information technology, applying domain design and instructional strategies, implementing a systematic structured learning management domain, influencing changes and developing school curricula (Blau & Presser, 2013), minimizing traditional learning, and utilize effective and efficient learning resources. From these findings it can be concluded that this study is relevant to the findings of the experts that have been submitted (Czerniewicz & Rother, 2018b; Fan &

Salleh, 2018; Wiklund & Andersson, 2018) in his research.

This research will produce basic information for decision making on the level of technology applied in learning and important studies on the applied forms of educational technology in schools, to the evaluation of applied educational technology by involving stakeholders in the process. Educational needs are the management of schools that are effective, efficient, and have a positive impact on the relevance of the industrial world, so that this research is useful in the long term for the next 20 to 30 years during the ongoing industrial revolution. Educational technology will not be exhausted in the near future, only the theme of this study will adjust according to the needs of the times.

CONCLUSION

The stakeholder collaborative process to evaluate educational technology in learning has been carried out by involving stakeholders in the process to evaluation. While the pattern of determining the decision to apply Educational Technology in schools through several considerations that are arranged systematically but still pay attention to the results and evaluation recommendations of the stakeholders involved in the beginning. Furthermore, the applied forms of educational technology in schools are described in a variety of media uses and management facilitation which includes ethical management patterns in school administration.

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