

## Viewing Technology Integration in Current Classroom Through Triple-E Framework

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### ABSTRACT

Employing Triple-E Framework, this research aimed at describing the effectiveness of technology tools used in the classroom to foster learning objectives. The research was conducted qualitatively through descriptive design. 14 junior high school teachers from a private school in Denpasar, Bali, Indonesia, were participated to further be observed. The observations were conducted through the assistance of Triple-E Framework as the main instrument, along with note taking and close reading technique to obtain references from sources. The obtained data were analyzed inductively through the utilization of interactive data analysis, consisted of data collection, data reduction, and conclusion drawing. The results portray attractive findings around classification of technology tools' effectiveness and dispersion of teachers' digital literacy competence. The analysis showed there were more observed teachers classified into exceptional connection teachers rather than those who perform some and even low connection teachers. In addition, it seemed that the integration of technology tools in current classroom can assist both teachers and students in achieving the learning objectives, although it is underlined by several terms and conditions. Further rigorous researches are suggested to conduct, prior to the finding of this research as one of main references.

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### 1. INTRODUCTION

The paradigm change in the educational field has had an impact on a number of different dimensions. Prior to the modifications being implemented, technology integration plays a critical role in the process. Educators have been racing against the clock in recent years to incorporate technological tools into their instructional activities. However, whether or not technology installation is focused at achieving learning objectives is a matter of considerable debate at this point. In fact, when technology is used properly, it may provide tremendous guidance in the direction of teaching and learning enhancement [1]–[4]. On the contrary, it appears to be creating barriers when technology is just taken for granted [4]–[7].

In the purpose of viewing the effectiveness of technological tools in current classroom, Triple-E Frameworks can be employed. Prior to its official website, <https://www.tripleeframework.com/>; The Triple-E is a practical approach that assesses the extent to which technology in a class is assisting students in meeting their learning objectives. Instead of focusing on specific technological tools, as is the case with other technology frameworks, the Triple-E Framework places emphasis on learning objectives. In order to achieve learning

objectives, the framework is divided into three components: engagement in learning goals, enhancement in educational objectives, and extension in educational objectives.

Triple-E Framework viewed engagement as the interest shown by the students during the integration of technology in the learning process. The engagement aspect can be viewed from 3 main dimension, namely: 1) focus on the task, 2) motivate, and 3) behavior shifter. The after effect of engagement is the sense of enhancement. Through some dimensions, such as: 1) developing sophisticated understanding toward the content, 2) creating support to ease students to understand, and 3) presenting novelties; Triple-E viewed that the technology integration provides the enhancement of learning especially on the cognitive level. The technology integration also brings up the extension, in which learning can be done even after the class. Triple-E manages this aspect through putting out several dimensions, namely: 1) building the learning out of school, 2) creating bridge between school and real-life situation, and 3) allowing students to build authentic skills.

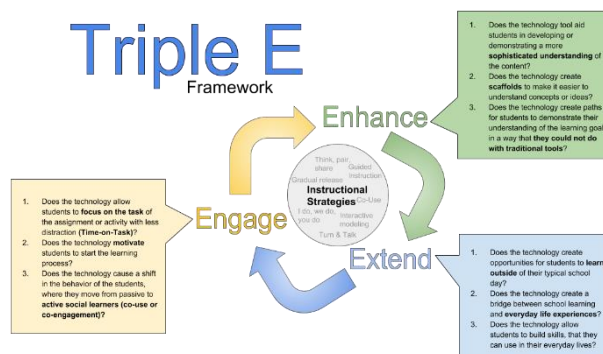


Figure 1. Triple-E Framework's Dimensions

Source: <https://www.tripleeframework.com/framework-models.html>

Triple-E Framework has been scrutinized, as it shows high validity and reliability to employ in variative settings. This research attempted to employ its advantages for describing the effectiveness of technology tools used by teachers in achieving learning objectives. The emerge of technology tools gains enormous attention during post pandemic education [1], [2], [7]–[13]. Teachers and students start realizing the emerge of technology in learning is extremely essential in current educations [8], [14], [15]. However, the use of technology in the learning process might somehow questionable since numerous aspects such as the availability, support system, and digital literacy distinguish the quality of technological integration [11], [16], [17]. This research denoted results portraying the urgency of technology tools in learning and its possibility to foster learning goals.

## 2. RESEARCH AND METHOD

Employing qualitative approach, this research was formed underlying descriptive research design. The main objective was to describe the effectiveness of technology tools used to foster learning objectives. Triple-E framework was utilized as the vital instrument of the research. It was used during the data segmentation, to reveal types of effectiveness showed by the research subjects. Along with it, 14 junior high school teachers at a private school in Denpasar, Bali, Indonesia, have been observed. The subjects being taught by the teachers were dispersed into Bahasa Indonesia, English, Math, Science, Art, Social Science, and Religion. The observations were conducted by the time of October until November 2021, particularly during the beginning of limited direct-learning (*Pertemuan Tatap Muka Terbatas*) was opened.

The primary data were obtained from the main subjects, the 14 teachers. Meanwhile, other data acted as the secondary data, were gained from literature such as articles, books, and digital websites. The data collection technique involved observations, note taking, and close reading to several references. The gathered data were further analyzed inductively through interactive data analysis, sequencing data collection, data reduction, and conclusion drawing [18]. The final results were presented prior to the objective being determined, showed on the narration below.

## 3. RESULT AND DUSCUSSION

Triple-E framework was shown providing big advantages during the process of analyzing the data. The gathered data could be directly categorized into several groups that already provided by the framework, including: 1) exceptional connection between learning goals and tool, 2) some connection between learning goals and tool, and 3) low connection between learning goals and tool. Each category was underlined by the total score obtained,

employing the engagement, enhancement, and extension aspects. The exceptional connection reflects the technology tools were utilized maximally, making learning objective even other positive possibility did occur. Meanwhile, some connection denoted the technology tools used were good utilized, yet it could not reach its full potential due to several barriers or issues. Moreover, when technology tools could not be utilized maximally and even not used at all, although it was available, it would be categorized into low connection. The Triple-E framework used would be more demonstrated through the figure of table below:

**Triple E Evaluation Rubric- When to Use Technology** by Liz Kolb

<b>Engagement in the learning</b>	<b>0=No</b>	<b>1=Somewhat</b>	<b>2=Yes</b>
The technology allows students to focus on the assignment/activity/goals with less distraction (Time on Task).			
The technology motivates students to start the learning process.			
The technology causes a shift in the behavior of the students, where they move from passive to active social learners (through co-use or co-engagement).			
<b>Enhancement of the learning goals</b>	<b>0=No</b>	<b>1=Somewhat</b>	<b>2=Yes</b>
The technology tool allows students to develop or demonstrate a more sophisticated understanding of the learning goals or content (using higher-order thinking skills).			
The technology creates supports (scaffolds) to make it easier to understand concepts or ideas (e.g. differentiate, personalize or scaffold learning)			
The technology creates paths for students to demonstrate their understanding of the learning goals in a way that they could not do with traditional tools.			
<b>Extending the learning goals</b>	<b>0=No</b>	<b>1=Somewhat</b>	<b>2=Yes</b>
The technology creates opportunities for students to learn outside of their typical school day. (24/7 connection)			
The technology creates a bridge between students school learning and their everyday life experiences (connects learning goals with real life experiences).			
The technology allows students to build authentic life soft skills, which they can use in their everyday lives.			
<b>READING THE RESULTS</b> <ul style="list-style-type: none"> <li>● 13-18 Points: Exceptional connection between learning goals and tool</li> <li>● 7-12 Points: Some connection between learning goals and tool</li> <li>● 6 Points or below: Low connection between learning goals and tool</li> </ul>			<b>TOTALS</b> <u>      </u> /18

Figure 2. Triple-E Framework

Source: <https://www.tripleeframework.com/triple-e-rubrics--tools.html>

From the subject being observed, 14 junior high school teachers of a private school in Denpasar, the teachers were observed employing laptop, smartphone, smart TV, Learning Management System (Google Classroom), WhatsApp, and some supportive applications (Kahoot and Quizzes). In addition, most students also carried smartphone and laptop during the observations were done. There, there were high-similarity in the teachers and

students' viewpoints regarding the availability of technology tools used in the learning process. In addition, the school has provided free Wi-Fi with high transmitted data to maximize the technological integration.

However, from the observed teachers, there were several findings showed that not all teachers could maximize the potential carried by the tools used. Even though the tools were the same, especially smart Tv and internet access existed in every class, the utilization of these tools were different from one to another. These further created some classifications, prior to the Triple-E Framework categorization, as follows:

Table 1. Results on The Effectiveness of Technology Tools Use to Foster Learning Objectives

No.	Classification	Frequency
1	Exceptional connection between learning goals and tool	8
2	Some connection between learning goals and tool	4
3	Low connection between learning goals and tool	2

The table describes that there were more observed teachers that could make exceptional connection between learning goals and tool than other classifications. It was figured that around 8 observed teachers, more than the half subject, obtained score around 13-18 points. There were 4 of all subjects categorized into teachers with some connection between learning goals and tool since they obtained 7-12 points. In addition, only 2 of the observed teachers were categorized with low connection between learning goals and tool where they obtained 6 points or even below. Besides its results, it portrayed an interpretation where there seemed to be more teachers able to maximize the potential of technology tools in classroom.

To begin with, the exceptional connection teachers were observed able to create engagement, enhancement, and extension of learning through the integration of technology. Most of them employed all available tools in the schools, such as laptop, smartphone, smart TV, and Wi-Fi connection. The engagement was highly experienced by the students since they followed the learning activity set on their gadget as well, making there was a line between teacher's method and student' condition. These teachers could attract students' engagement through the use of simple games which in line with the learning material. Students also could integrate transdisciplinary aspect of learning since teachers employed the tools for the assistance of gathering information. In addition, the learning was not ended up only in the classroom since they instructed projects to be followed on the LMS used (either WhatsApp or Google Classroom).

The teachers with some connections indeed did the similar activities as the exceptional connection teachers in the classroom, but it was not after the classroom. Hence, the difference between these classifications were mostly on the extension aspects. Teacher with some connection classification literary did great during the learning in classroom. They could raise students' engagement and enhancement. However, there were no activities to observe after the class, which allowed students to extend the learning at home. There, students seemed to focus on utilizing technology tools only in the classroom, although it was just for several hours. Taking into account to these differences, it seemed that when these teachers could maximize the activity after the class ended, they probably reached better points and categorized into exceptional connection teachers.

The last but not least, two teachers with low connection were observed using technology tools, but it was limited only into the laptop and smartphone. It was observed that these teachers instructed the students to see pictures on the WhatsApp, then students were asked to make a note of it. Moreover, even though smart Tv was existed to use as projector, the teachers still make some notes on the white boards, making the classroom activities consisted of lecturing and taking note only. There were observed low engagement, enhancement, and even no extension provided by these teachers, making them categorized into the low connection teachers.

The obtained results portrayed technology tools used by the observed teachers can effectively foster learning objectives being set, with several terms and conditions underlying it. The observations done employing the Triple-E framework has showed that the technology tools' effectiveness is highly influenced by the teachers' competence [19]–[21]. The teachers' competence being highlighted in this context reflects digital literacy and modern classroom management [1], [12]. The digital literacy in this scope indeed is wide, reflecting IOT comprehensions, technology integration in classroom, online assessment, and project-based [12]. When these aspects are well occupied, the tendency of obtaining effectiveness in the integration of technology is getting high, vice versa [2], [7], [9], [12].

The aforementioned narration is well portrayed on the conducted observation. Teachers that able to employ technology to its maximum potential incline to obtain maximum points compared to those who do not do the similar actions [9], [12]. There, technology integration in this context indeed is assisted by the emerge of the tools used. Yet, it backs to how teachers design the learning activity and how they employ those parts to reach the objectives [4], [9], [12].

#### 4. CONCLUSION

Final results portrayed the technology tools indeed could assist in reaching learning objectives, even beyond. Yet, it seemed to rely on the teachers' competence to design and employ the tools. Although there were more observed teachers portrayed exceptional connection between learning objectives and tools used; there were also other observed teachers who performed some and low connection between the objectives and the integrated tools. It is highly suggested for further research to conduct researches around this context in more rigorous sense, either on the number of participants or more valid and reliable data. There, number of references around Triple-E framework employment and effectiveness of technological integration could be extended.

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