

The Effectiveness of the Multimedia Kit-Based Contextual Teaching and Learning Model to Improve Student Learning Outcomes

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Education is one of a way to generate high quality Human Resources (HR). Based on the regulations listed in the revised 2013 Curriculum, Online Business subjects must be studied by students in class XI Online Business and Marketing (BDP) of Vocational High Schools (SMK). These subjects must be implemented optimally in order to obtain high learning outcomes. However, in fact 56.7% of students still get scores below the Minimum Completeness Criteria (KKM) standard that has been set. The purpose of this study is to determine the effectiveness of the application of the model *Contextual Teaching and Learning* (CTL) based Multimedia Kit to improve student learning outcomes. The research method is quasi-experimental with research samples in SMK Negeri 1 Surakarta class XI BDP 1 and XI BDP 2. The data collection technique used is test questions. The results of the study using the T-test showed a significance value of 0.031 and N-Gain 0.63 for the experimental class. The T-test data shows a value of less than 0.05 which means that the model is effectively used during learning, while the resulting N-Gain value is included in the medium category.

Keywords: *Contextual Teaching and Learning*(CTL), Multimedia Kit, Learning Outcomes



Introduction

The aim of education is to generate high quality graduates (Dewi & Primayana, 2019; Aliyyah, et al., 2020). One of the efforts to improve the quality is by improving the ability of teachers from various aspects, such as mastery of learning materials, curriculum and the use of appropriate methods (Bhure, et al., 2021). Along with changes in the world of education in the 21st century, teachers have a fundamental role in guiding students, such as the opinion of Haryanto and Arty (2019) which states that teachers are no longer the main learning source for students, but as facilitators. This will change paradigm from teacher-centered to student-centered learning.

Vocational High School (SMK) is an educational institution that can develop the skills and expertise of students according to their field. The implementation of education in SMK aims to produce competent graduates so that they can form quality Human Resources (HR) and make it easier to get jobs in the future (Lotulung, Ibrahim & Tumurang, 2018; Rusilawati, Rosyid & Zaki., 2021). In contrast to the opinions of the two experts above, Juniwati, Yusrizal and Khaldun (2019); Haryanto and Arty (2019) stated that the world of education does not only focus on the quality of graduates, but also on improving skilled and professional educators in order to face the challenges of the global economy in the future. The current rapid economic development, must also be balanced by development in the field of education. Therefore, in this 4.0 era, professional teachers must be able to master technology as a means of supporting learning in schools (Azhar, et al., 2020).

Utilization of technology can provide practical experience to students (Abdulrahaman, et al., 2020), such as adding insight, understanding, interest and motivation to learn students (Atiku, 2021). Technological advances in the field of education have a major impact on the implementation of new subjects in vocational schools. The regulations listed in the Revised 2013 Curriculum require students to take Online Business subjects for the Online Business & Marketing (BDP) major in class XI. It is intended that students gain new knowledge as a provision to apply online business by utilizing e-commerce such as Facebook, Shopee, Tokopedia, Instagram, and so on (Rosidi, et al., 2021; Piranda, Sinaga & Putri, 2022) . This online business strategy can increase sales turnover and expand market share. Thus, human resources will be formed that meet market criteria and are able to compete globally.

Online Business subjects must be implemented in accordance with the provisions of the regulations that have been set so that student learning outcomes can be achieved optimally. Learning outcomes are knowledge obtained by students during learning, covering all aspects, namely cognitive, affective and psychomotor (Fauhah & Rosy, 2021). Learning can be said to be successful if the learning outcomes of students meet the Minimum Completeness Criteria (KKM) of each school (Borusilaban

& Setyawan, 2022). However, the facts on the ground show that 56.7% of class XI students majoring in Online Business and Marketing at SMK N 1 Surakarta get learning outcomes less than 75 or below the Minimum Completeness Criteria (KKM). The main factor of the low learning outcomes of students, namely the teacher does not apply the model, appropriate methods and media so that the involvement of students in learning is very limited causing a lack of understanding of the material presented by the teacher (Nabillah & Abadi, 2019). Therefore, teachers must be able to broaden their horizons and knowledge about appropriate innovative learning to obtain optimal learning outcomes (Neftyan, Suyanto & Suyatna, 2018; Ruto, et al., 2021; Syaifuddin, Nurlaela & Perdana, 2021).

Contextual Teaching and Learning(CTL) is a learning model that connects learning materials with real-life contexts (Welerubun, al., 2022). The implementation of the CTL model in learning will help students not only understand the theory presented by the teacher, but can apply the theory in everyday life. Novita, Hodijah and Taufik (2022) explain that the CTL model encourages students to make associations between the knowledge they receive and their practice in life. This learning concept will train students to get independent learning experiences and can improve their learning outcomes. Based on the opinions of several experts above, the CTL model can be used in Online Business subjects to improve student learning outcomes. This learning model will help students to practice real business with the help of online media. The principle of the CTL model prioritizes the learning process to find their own knowledge so that students can gain experience from various kinds of learning activities carried out (Raab & Bogner, 2021).

The application of the CTL model can be carried out optimally, if it is equipped with the use of appropriate learning media to support learning outcomes in Online Business subjects. Multimedia is a combination of several texts, graphics, animations, audio and video images (Iskandar, et al., 2018). According to Mashami and Gunawan (2018); Hadisaputra, Gunawan and Yustiqvar (2019), multimedia Kit have many functions and uses, one of which is being able to translate several material concepts into interesting animations that are easy for students to understand. The use of multimedia Kit in the teaching and learning process makes a major contribution to improving student learning outcomes (Mukherjee, 2018). In Online Business subjects, multimedia Kit have an important role so that learning becomes more interactive between teachers and students, the quality of learning becomes better, makes it easier for students to understand the subject matter, and gives the impression of an interesting learning. This is the focus of research to determine the effectiveness of the Multimedia Kit-based Contextual Teaching and Learning (CTL) Model to improve the learning outcomes of class XI students majoring in Online Business and Marketing at SMK N 1 Surakarta.

Literature Review

Learning outcomes

Learning outcomes are benchmarks that must be achieved by students when participating in learning (Syahra, Sarkadi & Ibrahim, 2020). Basically the school has determined the standard of assessment for each subject taken by students. Most of these standards are in the form of values or referred to as KKM (Borusilaban & Setyawan, 2022). Learning outcomes are often used as teacher evaluation materials to measure students' understanding of the material presented. Aliyyah, Puteri and Kurniawati (2017); Anitah (2017) also said that the realization of learning outcomes is related to evaluation or follow-up to assess the success of a lesson. If most students score below the KKM, then the teacher needs to re-evaluate related to appropriate teaching techniques.

The factors that influence learning outcomes are the flow of learning, satisfaction and enjoyment of students during learning (Kim & Park, 2021). Monotonous learning is one of the main factors causing the low learning outcomes of students (Azhar, et al., 2020). Strategies to overcome these problems, as presented by Dewi and Primayana (2019); Olinan and Sujatmika (2017); Nabillah and Abadi (2019), which requires the application of innovative learning using appropriate models, methods and media. However, it should be noted that these learning innovations must be adapted to the needs of students and the subjects studied. Teachers must be good at sorting and implementing appropriate learning strategies in order to obtain optimal learning outcomes.

In accordance with the statement above, teachers and educator staffs provide the best services according to the needs of students because quality services will have a positive impact on learning outcomes (Caska, 2016). Learning outcomes are not only limited to students who must be smart and skilled, but must be able to achieve 3 aspects, namely cognitive, affective and psychomotor (Naziah, et al., 2020; Aliyyah, 2020; Fauhah & Rosy, 2020). Therefore, high learning outcomes can be achieved when students are able to understand and acquire the knowledge provided through learning (Serdyukov, 2017). The success rate of students in learning can change their behavior which is indicated by their readiness and understanding of education, knowledge, and skills (Dewi & Alam, 2021).

Contextual Teaching and Learning(CTL)

CTL is a learning model related to environmental conditions. Learning using the CTL model makes it easier for students to understand the content of subjects with real-world situations (Aliyyah, et al., 2020; Azhar, et al., 2020; Dewi & Primayana, 2019). This model can increase the motivation of students to make connections between the knowledge received and its application in everyday life. In addition, teachers can use this CTL model to apply some learning principles that are abstract and



difficult to understand (Hyun, et al., 2020, Bhure, et al., 2021). The use of the CTL model is expected to be an alternative to change an abstract theory into something that can be implemented in real life.

The application of the CTL model provides many benefits, especially for students, namely providing opportunities to collect data, perform data analysis and find a concept from the topic and material being studied (Afni & Hartono, 2020). Meanwhile, Haryanto and Arty (2019) stated that CTL helps students fully engage in learning and trains students' activeness to explore material with the realities of social life. Lotulung (2018) also added that students can find more concrete learning experiences so that the absorption of subject matter is much higher than students who only receive theory. Some of these benefits can affect the quality of learning and student learning outcomes (Dewi & Alam, 2021; Fitriyanti, Isnaeni & Linuwih, 2021; Juniwati, Yusrizal & Khaldun 2019). If the CTL model can be implemented optimally in learning, it will obtain high learning outcomes to obtain competent graduates.

Multimedia Kit

Multimedia kit is a combination of several media such as text, symbols, images, audio, video, and animation (Guan, Song & Li, 2018; Iskandar, et al., 2018). Various kinds of multimedia advantages can be felt by all fields to facilitate work, both in the fields of education, health, entertainment, industry and so on. Multimedia in education is designed to facilitate learning in various activities, such as presentations, simulations, e-learning, and virtual activities so as to enable students to process information both verbally and in images (Alemdag & Cagiltay, 2018). The ease of access provided is also one of the teacher's strategies to provide innovation so that learning becomes more varied. The benefits of multimedia Kit for learning are changing abstract concepts into concrete that are easy to learn and increasing students' enthusiasm for learning (Abdulrahaman, et al., 2020; Churiyah, et al., 2021; Mashami & Gunawan, 2018). Some experts also mentioned that digital technology-based learning media can help students become more motivated to learn (Ihsan, et al., 2019; Li et al., 2020).

Google Sites part of the Multimedia Kit, a popular website in the form of a website that can be accessed easily. Most teachers use the site for e-learning (Bueno, et al., 2022). Google Sites can be created with games so that learning becomes more interesting. Teachers can make their own games by adding certain content or using templates that are already available (Cil, 2021). Transformation of learning devices into digital formats today, adapting to technological developments and the needs of teaching materials both in terms of content and learning systems (Bernacki, Greene, & Crompton, 2020). This statement agrees with Lubis, et al. (2020), namely multimedia in the form of a website providing learning services by integrating technological advances and learning needs.

Method

The research method is quasi-experimental by comparing the learning outcomes between the experimental class and the control class. This study was also used to determine the difference in results between two or more variables (Sugiyono, 2020). This study aims to determine the effectiveness of using the Multimedia Kit-based Contextual Teaching and Learning (CTL) model to improve student learning outcomes. The research test design used was the Nonequivalent Control Group Design by comparing the pre-test and post-test scores between the experimental class and the control class.

The research was conducted at SMK Negeri 1 Surakarta with the research sample being class XI BDP 1 as the experimental class and class XI BDP 2 as the control class. The instrument used is a test question to measure the increase in student learning outcomes. Prior to the effectiveness test, a prerequisite test was carried out in the form of a normality test using Shapiro-Wilk and a homogeneity test. The data can be said to be normal and homogeneous, if the significance value obtained is > 0.05 . If the prerequisite tests have been met, then further tests can be carried out to measure the effectiveness of the application of the Multimedia Kit-based CTL model.

The effectiveness test was carried out by t-test using SPSS 22. If the data obtained showed a significance value > 0.05 , then there was a difference in learning outcomes between the experimental class and the control class at the time of the post-test. This indicates that the application of the Multimedia Kit-based CTL model is effective for improving the learning outcomes of class XI students in the BDP Department. In addition, the N-Gain test was conducted to determine the percentage increase in student learning outcomes during the pre-test and post-test (Hake in Sundayana, 2016). The N-Gain assessment index is as follows.

Table 1. N-Gain . Assessment Index

N-Gain Score	Interpretation
$0.0 < g < 0.30$	Low
$0.30 < g < 0.70$	Currently
$0.70 < g < 1.00$	Tall

Source: Hake in Sundayana (2016)

Results and Discussion

The effectiveness of the Multimedia Kit-based CTL model was measured using the Independent t test or t test, aiming to determine whether there was a difference between the experimental class and the control class after the action was taken. Before the t-test is carried out, it must be ensured that the research data used are normal and homogeneous by using the normality and homogeneity test in the SPSS 22 program. This study uses two classes, namely class XI BDP 1 as an experimental class with

36 students and class XI BDP 2 as a control class of 34 students. The normality test used Shapiro-Wilk with the test results for the experimental class 0.070 and the control class 0.071, while the homogeneity test results were 0.908. Both data show a significance value of more than 0, 05 which means that the resulting data is normal and homogeneous so that further tests can be carried out, namely the t test. The following are the results of the t-test from the research data.

Table 2. t test results

Group	T	df	Sig. (2 tails)	Mean Difference	Std. Error Difference
Experiment	2.204	68	.031	5.408	2.454
Control	2.204	67,872	.031	5.408	2.453

Source: Processed Data (2022)

Table 2 shows that the significance value obtained is less than 0.05, which is 0.031, meaning that there are differences in learning outcomes between the two classes after the action is taken. The conclusion obtained from the data is that the application of the Multimedia Kit-based CTL model is effective in improving student learning outcomes in Online Business subjects. Next, the N-Gain test was conducted to ensure the increase in student learning outcomes from pre-test to post-test. The following are the results of the N-Gain test obtained.

Table 3. N-Gain . Test Results

Group	N-Gain Score	N-Gain Interpretation
Experiment	0.63	Currently
Control	0.45	Currently

Source: Processed Data (2022)

The N-Gain data from table 3 can be seen that there is an increase in the value in the medium category, namely 0.63 for the experimental class and 0.45. Both classes have an increase in the same category, but the experimental class has a higher score than the control class. This proves that the experimental class by being given an action using the Multimedia Kit-based CTL model produces a much higher increase in learning outcomes. Corresponding to Dewi and Primayana (2019); Olinan and Sujatmika's (2017) statement that learning outcomes increase are influenced by the application of models and media that are in accordance with the needs of teachers and students. Learning outcomes have an important role to measure the success of students in participating in learning. Most teachers use student learning outcomes as evaluation material (Aliyyah, 2017; Anitah, 2017).

The evaluation above is related to the KKM assessment that has been determined by each school (Borusilaban & Setyawan, 2022). Usually the assessment is in the form of numbers that must be achieved by students. The purpose of the evaluation is as a form of follow-up that will be carried out by the teacher for the next lesson. If in evaluating the value of many students who do not meet the KKM standard, then the teacher needs to improve the learning system, both from the aspect of using the right model, method and media. The best services provided by teachers and schools make a positive contribution to improving learning outcomes and the quality of the school itself (Caska, 2016). Therefore, these services must be adjusted to the needs of students so that the competency objectives can be achieved.

Several studies have proven that the application of the CTL model can improve student learning outcomes, such as research conducted by Rahmawati (2018); Goddess & Nature (2021); Fitriyanti, Isnaeni & Linuwih (2021); Juniwati, Yusrizal & Khaldun (2019) that there is a positive effect of the application of the CTL model on improving learning outcomes. This CTL model provides convenience for students because the theory conveyed by the teacher is related to the environment around students. Its application is adapted to real conditions so that it is easy to understand (Aliyyah, et al., 2020 & Azhar, et al., 2020). The benefits received by students are that they can be actively involved in learning and can explore the material with real life. In this learning, the teacher serves as a facilitator to provide services if students experience difficulties when participating in learning activities.

Meanwhile, the use of the Multimedia Kit also has a positive influence on increasing student learning outcomes. In Online Business subjects, students must be able to master technology in order to be able to develop a business with the help of online media. This Multimedia Kit can be used as a liaison so that students better understand the use of modern technology correctly. In addition, students become more motivated to learn (Ihsan, Liza, Setiawan, & Asmaidi, 2019; Li et al., 2020). The benefits that students get when using the Multimedia Kit are that they can change abstract material into material that is easy to learn (Abdulrahman, et al., 2020 & Churiyah, et al., 2021). Multimedia Kit has various examples. Its use is adjusted to the needs of the subject matter,

Conclusion

Multimedia Kit-based CTL model is effective for improving student learning outcomes in Online Business subjects. Based on the results of the t-test data processing, there are differences in learning outcomes between the experimental class and the control class, after the application of the Multimedia Kit-based CTL model. The effectiveness test shows a significance value of <0.05 , which is 0.031. The increase in student learning outcomes is also measured using the N-Gain test. There is a higher increase in learning outcomes for the experimental class of 0.63 than the control class of



45.6. Judging from the t-test and N-Gain data, it can be seen that the implementation of the Multimedia Kit-based CTL model is effective in improving student learning outcomes.

Contribution/ Originality

The application of the Multimedia Kit-based CTL model can improve student learning outcomes. The latest provisions of the revised 2013 curriculum explain that Online Business subjects must be studied by class XI students of the BPD Department. If the application of these subjects is carried out optimally, it can produce graduates who have high quality. Students can develop business skills online. This will make a major contribution to education and the economy. In the field of education it helps improve the quality of these educational institutions, while in the economic field it can increase the number of entrepreneurs in order to reduce unemployment in Indonesia.

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