Society

Society, 10 (2), 579-590, 2022
P-ISSN: 2338-6932 | E-ISSN: 2597-4874
https://society.fisip.ubb.ac.id

Implementing Information and Communication Technology-Based Learning (ICT-Based Learning) Models to Increase Student Learning Motivation

Wahyuli Lius Zen, Ilpi Zukdi, Zulfahmi, and Zulvia Trinova *
Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Imam Bonjol Padang, 25153, West Sumatra Province, Indonesia
* Corresponding Author: zulviatrinova@uinib.ac.id

ARTICLE INFO

Publication Info:
Research Article

How to cite:
Zen, W. L., Zukdi, I., Zulfahmi, Z. & Trinova, Z. (2022). Implementing Information and Communication Technology-Based Learning (ICT-Based Learning) Models to Increase Student Learning Motivation. Society, 10(2), 579-590.

DOI: *10.33019/society.v10i2.450*

Received: September 30, 2022;
Accepted: November 14, 2022;
Published: December 30, 2022;

ABSTRACT

The research aims to determine the use of ICT-based learning models on students' learning motivation at Darul Falah High School. The object of the research was students of Class X of Darul Falah High School, namely to see whether students' abilities in ICT-based learning in geography subjects increased students learning motivation. The research method used is the classroom action research method. The term classroom action research emphasizes class as a research setting. The research developed was in the form of a cyclical review process consisting of four stages, namely (1) planning, (2) implementation, (3) observation and (4) reflection. The results of this study are students' learning motivation before participating in Information and Communication Technology (ICT)-based learning. There is no enthusiasm for learning. Students chatted more, did not focus on the lesson, and did not want to discuss and do assignments well. There is no competition to get good grades, and learning objectives have not been achieved. Understanding of the subject matter has not appeared. Implementing ICT-based learning provides benefits, including being more practical and making it easier for teachers to deliver subject matter. Students find it easier to access information related to the subject matter. This is supported by facilities and infrastructure in schools that support the ICT-based learning process, namely the existence of internet facilities.

Keywords: *Information and Communication Technology; Learning Model; Learning Motivation; Student*

1. Introduction

The rapid development of technology and information in the current era of globalization cannot be avoided. Its influence on the world of education is inevitable. Global demands require the world of education to always adapt technological developments to efforts to improve the quality of education, especially adjustments to the use of Information and Communication Technology in various fields, including in the world of education. The trend of change and innovation in the world of education will continue to occur and develop in entering the 21st century today. Entering the current century, the need and importance of using ICT (Information and Communications Technology) are felt in learning activities. Through ICT, we can improve the quality of education by opening wide access to knowledge and providing quality education, especially by applying high-tech and high-touch approaches.

According to Rusman et al. (2011, p. 74) that in the world of education, ICT generally aims for students to understand information and communication technology tools in general, especially computers (computer literate) and understand information (information literate). This means that students know the terms used in IC, especially on a commonly used computer. Students are also aware of the advantages and limitations of computers and can use computers optimally. Besides that, students also understand how and where information is obtained, package/process information, and how to communicate it.

The role of ICT in learning, besides helping students learn, also has a role that is quite influential for teachers, especially in the use of facilities to enrich their teaching abilities. Based on the statement above, it can be seen that the role of ICT is important in the world of education, both in terms of students' learning process and in helping teachers teach students.

Computers in schools have become a necessity, but what is more important is the use of information technology. Besides supporting school administration, the benefits of computers in schools also support the learning process. Computers can function as multi-media in learning. The computer device must be introduced to students and can even be used as one of the subjects. To improve the quality of education, insight into the rapid development of science and technology needs to be provided to teachers and students. Today almost in every aspect of life, there is computer technology. Thus every teacher should understand computers as part of technological developments that will become part of life. For this reason, introducing computer equipment in schools is part of updating students' insights and knowledge.

2. Literature Review

2.1. Definition of Information and Communication Technology

According to Rusman et al. (2011, p. 78), technology comes from the Greek word "*Technologia*" and, according to Webster's Dictionary, means systematic treatment or handling something systematically, while techne is the basis for the word technology means skill or science. The word technology comes from the Latin word "*Texere,*" which means to construct, so the term technology should not be limited to machines, even though in a narrow sense it is often used in everyday life.

From the explanation above, it can be concluded that technology is a process of realizing something rationally. Technology is the knowledge that is transformed into products, processes, services and organizational structures. So technology is how we use science to solve practical problems.

According to Rusman et al. (2011, p. 79), information is facts or anything that can be used as input in generating information. While data is raw material, data is input that changes its form into output called information after processing. Three important things must be considered

https://doi.org/10.33019/society.v10i2.450

from information, namely: (1) Information is the result of data processing, (2) it gives meaning, and (3) it is useful.

Communication comes from the Latin "*Communicare*," which means to inform or become a common property. Communication is a process of transferring and accepting thresholds that contain meaning. Communication implies disseminating information, messages, news, knowledge, and norms/values to arouse participation so that what is communicated becomes shared property (same meaning) between the communicator and the communicant (Rusman et al., 2011, p. 81).

Meanwhile, according to Eric Ashby (1972), as cited in Rusman et al. (2011, p. 80), learning communication has entered its fifth revolution. The first revolution occurred when people handed their children's education to a teacher. The second revolution occurred when writing was used for learning purposes. The third revolution occurred along with the invention of the printing press so that learning materials could be presented through print media. The fourth revolution occurred when electronic devices such as radio and television were used for equity and expansion of education. The fifth revolution, as it is today, is with the most advanced Information and Communication Technology (ICT), especially computers and the internet for educational activities.

2.2. Information and Communication Technology (ICT) Based Learning

Using computers in learning allows the learning process to take place individually (individual learning) by fostering independence in the learning process so that students will experience a process far more meaningful than conventional learning (Rusman et al., 2011, p. 47).

Based on the explanation above, it can be concluded that the media (computer), which functions as a learning resource allows students to obtain information and knowledge that is useful for themselves in learning. The goal of using media is for students to create something new that is useful in their lives.

2.3. Learning Motivation

According to Sardiman (2011, p. 75), motivation is a series of efforts to provide certain conditions so that person wants to do something. If they don't like it, they will try to negate and prefer that feeling of dislike. Motivation is a driving force within students that creates learning activities that guarantee the continuity of learning activities and provides direction to learning activities so that the goals desired by the learning subject can be achieved.

Meanwhile, Asrori (2009, p. 183) defines learning motivation as an impulse that arises in a person, consciously or not, to act with a specific goal or effort that can cause a person or certain group of people to be moved to do something because they want to achieve a goal. Motivation strongly influences the success of student learning in their learning process. One of the indicators of the quality of learning is the high motivation to learn from students.

Motivation has a close relationship with interest. Students interested in a particular field tend to get their attention and thus generate motivation to study it. For example, students who like mathematics will feel happy learning mathematics and are encouraged to study more actively. Therefore, teachers should be able to instill a positive attitude in students toward the subjects they are responsible for.

The aspect of motivation in the whole process of teaching and learning is very important because motivation can encourage students to carry out certain activities related to learning activities. Motivation can give enthusiasm to students in their learning activities and provide

https://doi.org/10.33019/society.v10i2.450

instructions for the actions they do. Based on this statement, an effort must be made so that students have high learning motivation. Thus the student concerned can achieve optimal learning outcomes.

3. Research Methodology

3.1. Types of Research Methods

Research is a scientific way to obtain data with specific purposes and uses (Sugiyono, 2010, p. 3). In conducting research, the use of a method with a level of accuracy can be trusted and accounted for. The research method used is hard action research. Class action research examines learning activities in the form of actions that are deliberately raised and occur in a case together (Arikunto, 2010). Class action research has the characteristics that the issues raised are teacher problems in class, and there are certain actions to improve the teaching and learning process in class. The research carried out must show improvement and change in a positive direction. The research aims to determine the use of ICT-based learning modes on students' learning motivation at Darul Falah High School. The object of research is the students of Darul Falah Class X, namely to see whether the ability of students in ICT-based learning in geography subjects increases students' learning motivation.

The research method used is the classroom action research method. Arikunto (2010, p. 17) explains that one class action research cycle consists of four steps: (1) planning, (2) implementing, (3) observing, and (4) reflecting.

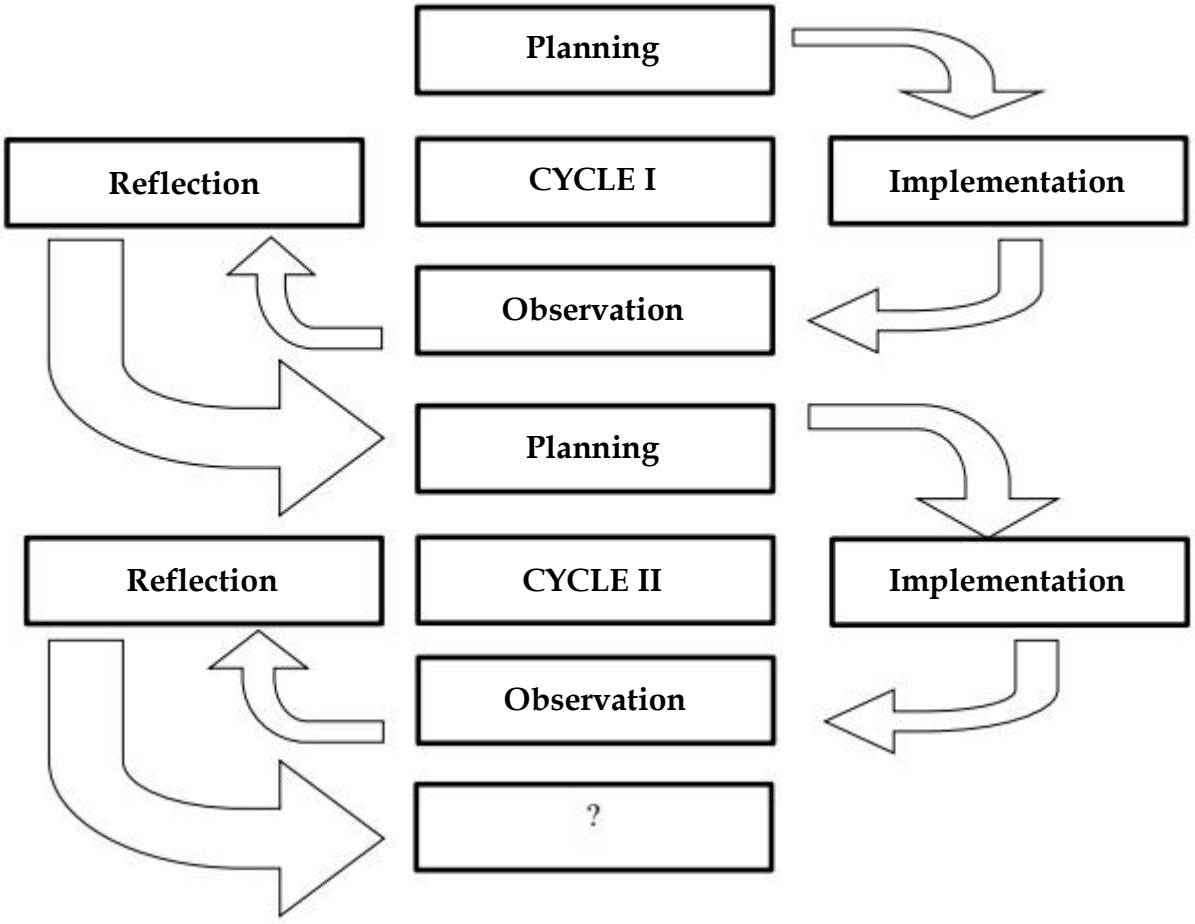

Figure 1. Classroom Action Research Flow
Source: Arikunto (2010, p. 17)

https://doi.org/10.33019/society.v10i2.450

The procedure for implementing criminal action research is carried out through the following stages:

1) Early Observation Stage.
   Identifying problems regarding implementing ICT-based learning to increase students' learning motivation in Class X.
2) Planning Stage
   Designing lesson plans, Learning Implementation Plans, preparing learning resources, selecting and compiling instruments to carry out learning and evaluating the material presented.
3) Implementation Stage
   At this stage, the teacher carries out learning following the Learning Implementation Plans that have been prepared beforehand.
4) Observation Stage
   Observations were made by looking at the activities of teachers and students when carrying out class lessons. This activity was conducted to see the suitability between the Learning Implementation Plans and the learning activities.
5) Reflection Stage
   In this stage, the researcher contemplates the strengths and weaknesses of the learning that has been implemented. If there are deficiencies in learning, corrections are made, and these improvement efforts are carried out in the next cycle.

3.2. Data and Data Sources

1) Primary Data

Primary data is data that directly provides data to data collectors. If viewed from the point of view of data collection methods or techniques, data collection techniques can be carried out by observation, interviews, questionnaires, documentation and a combination of the four (Sugiyono, 2010, p. 308).

In qualitative research, data collection is carried out in natural settings (natural conditions), primary data sources, and data collection techniques involve participant observation, in-depth interviews and documentation (Sugiyono, 2010, p. 309).

Based on the description above, the primary data sources in this research are:

a) Head of School as Key Informant
b) Teacher as Expert Judgment
c) Students as Informants

2) Secondary Data

Secondary data is a variety of information that has existed before and is deliberately collected by researchers who are used to complete research data needs.

3.3. Data Collection Technique

Data collection steps include efforts to limit research, collect information through observation and interviews, both structured and unstructured, documentation, visual materials, and efforts to design protocols for recording information.

https://doi.org/10.33019/society.v10i2.450

3.4. Data Processing Procedures

The data in this research will be processed using the following techniques:

1) Editing.
   Before the data is processed, the data is edited first. Data collected in research notes and the interview questions need to be read and corrected if there are still doubts.
2) Coding.
   The data collected can be in the form of numbers, short or long sentences or the form of the words "yes" and "no". To facilitate the analysis, it needs to be coded. Coding is crucial because computer coding will put a number on each answer.
3) Tabulating.
   Entering data into tables and arranging numbers to calculate the number of cases in a category (Nazir, 2008, p. 346).

3.5. Research Instruments

The aspects raised in this research are internal motivation and external motivation. These two types of motivation follow the principles of opinion-based motivation (Djamarah, 2002, p. 115), namely:

1) The principle of competition
   The principle of competition is fair competition between and between students to see the ability of students with other students so that an award can be given, which can motivate students to push themselves in learning and feel the need for that lesson.
2) The principle of driving
   The driving principle makes students pay attention to lessons, such as the teacher giving advice, information, warnings, mandates and examples.
3) The principle of punishment and reward
   The principle of punishment and reward needs to be given to students with low motivation and attention to certain subjects in the hope that students will be aware and have better motivation than before.
4) The principles of clarity and closeness of purpose
   With clear goals to be achieved in learning, it will make students more motivated and motivated in learning and give more attention to certain subjects.
5) The principle of understanding results
   Something that needs to be explained by the teacher. It aims for students to know their mastery of the material. From the results obtained, students will pay special attention, fostering their motivation in related subjects.
6) The principle of developing an interests and conducive environment
   This means that conditions and media are very important during the learning process. If the learning conditions are uncomfortable and monotonous, students' motivation will likely be low and will impact the achievement of learning outcomes.

3.6. Data Analysis

Data analysis is a continuous process that requires continuous reflection on data, asking analytical questions, and writing short notes throughout the research. According to Stake (1995), as cited in Creswell (2010), data analysis involves collecting open data based on general questions and information analysis from participants.

https://doi.org/10.33019/society.v10i2.450

Table 1. Value Category Classification

Criteria	Value	Category
Very Good	85-100	The study results are very good
Good	70-84	The study results are good
Sufficient	60-69	The study results are sufficient
Less	50-59	The study results are less
Very Less	≤ 50	The study results are very less

Source: Learning Implementation Plan of Darul Falah High School

3.7. Hypothesis Test

Through the ICT-based learning mode implemented in subjects, students have curiosity, practice the learning material obtained, and look for learning material seriously and earnestly. They enthusiastically participate in group discussions by frequently asking questions and have enthusiasm and encouragement to carry out learning activities creatively so that learning motivation increases.

4. Results

4.1. Cicyle I

1) Planning Stage

Designing a Learning Implementation Plan in Class X, preparing teaching resources, selecting and compiling instruments and evaluating the material provided.

2) Implementation Stage

The material presented is Geography subject matter following Geography source books and relevant supporting books. After the teacher conveys the subject matter, students are given practice questions.

3) Observation Stage

Observations about the use of ICT-based learning modes on students' learning motivation in cycle I: Observations in cycle I found several deficiencies: space management and learning facilities and less efficient time management. The mastery of the material is quite good, and the variety of teaching is quite good. The guidance given is not comprehensive for all students.. The teacher is good at motivating students. The teacher's ability to coordinate classes is quite good. The teacher gives conclusions about the subject matter are good. The preparation of students to receive lessons is still lacking. Less conducive learning atmosphere. The enthusiasm of students in listening to lessons has not been seen. The courage of students in expressing opinions has not been seen. Students do not dare to ask about the material presented by the teacher. Many students still look tense when answering questions posed by the teacher.

4) Reflection Stage

This reflection stage looks at the assessment of the results of learning activities. This stage looks at the assessment for summarizing a subject matter. The assessment is based on the following scoring rubric in **Table 1**.

At the reflection stage, it can be seen that in Cycle I, there are still deficiencies, or students' learning outcomes are included in the Less criteria. Then the next stage, the teacher reflects with

https://doi.org/10.33019/society.v10i2.450

the following steps: setting the time before starting the lesson and preparing the subject matter so that the learning goes on effectively and efficiently. Create a more comfortable learning atmosphere so students can freely express their opinions. The teacher provides individual guidance to students who do not understand their duties. Provide more learning variations and involve students, so students are more focused in listening to the presented material.

4.2. Cicyle II

1) Planning Stage

In preliminary activities, the teacher greets students and takes attendance. In elaboration activities, the teacher gives assignments to students by working on a mastery test of the material accompanied by discussions that are carried out in the form of a summary. In this activity, questions and answers were also held regarding the test of mastery of the material.

2) Implementation Stage

The material presented is Geography subject matter following Geography source books and relevant supporting books. After the teacher conveys the subject matter, students are given practice questions.

3) Observation Stage

Observations on students' learning motivation found things about student motivation, including enthusiasm, sincerity and creativity during the learning process.

4) Reflection Stage

Assessment results are analyzed through a reflection process based on the student's assignment. The results are used as a source for subsequent activities in the context of improving, perfecting and leaving bad habits. Because the criteria for student scores after being evaluated in Cycle II reached 60-69, these achievements in cycle II have entered sufficient criteria. Still, students' scores for class X geography subjects must reach 70 according to the Minimum Completeness Criteria.

The reflection results from cycle II are as follows: the teacher explains the material in detail so students can understand it well. Students can already carry out learning with ICT, although they still need more focused guidance. Students became enthusiastic and dared to ask questions about the material presented.

In the field in cycle II, almost 70% of students mastered the computer. According to the results of interviews with students, they have known computers since junior high school, so the implementation of ICT-based learning has been supported by the students, teachers, and school officials who are ready to carry out this ICT-based learning.

4.3. Cicyle III

1) Planning Stage

In the implementation stage of Cycle III, the teacher develops learning material into the computer by searching for material from the internet so that students are trained in ICT and will be given the task of making power points to present. In this learning mode activity, there will also be a question and answer session regarding the mastery test of the material carried out in cycles I and II.

https://doi.org/10.33019/society.v10i2.450

2) Implementation Stage

The material presented at the implementation stage in Cycle III, students explain material about a learning topic in ICT by opening the internet and explanations through power points supplemented with pictures. All students are in front of the computer and are seen listening to the lesson seriously.

3) Observation Stage

Observations on students' learning motivation found things about student motivation, including enthusiasm, sincerity and creativity during the learning process.

Table 2. Student Learning Motivation

Student Behavior	Motivation
Enthusiastic	a. Shows high curiosity b. Spirit c. Cheerful face
Seriousness	a. Focus on the lesson and be serious b. Concentration on the subject matter delivered
Creativity	a. Students often ask the teacher b. Students discuss with the teacher c. Students do the assignments and practice well

Based on the table in cycle III, there was a change in learning motivation in the participants after the teacher implemented an ICT-based learning mode; the students looked enthusiastic, had an earnestness in learning and had creativity. In cycle III, the achievement of student learning outcomes increased after using ICT. Students' grades reached the average score is 70-84, including good criteria. Some students even got scores of 85, 90, 95, and 100.

4) Reflection Stage

Based on the student's task assessment results it is then analyzed through a reflection process to conclude, and the results are used as a source for subsequent activities, namely to improve, perfect and leave bad habits. After students follow the ICT-based learning mode, students are more motivated to learn. Students are more enthusiastic and dare to ask about the material presented. The results of the tests done by students showed better results.

Table 3. Increasing Student Learning Motivation

Aspects Reviewed	Before ICT-Based Learning	After ICT-Based Learning
The urge to do something	There is no enthusiasm or curiosity yet	There is enthusiasm for learning
Enthusiasm, sincerity	Students chat more with each other, are not serious about learning and do not focus on the lesson	Students listen to the lesson and are serious, and concentrate on the lesson
Creativity	Students do not want to discuss and ask questions	Students have started discussing, asking questions

https://doi.org/10.33019/society.v10i2.450

Aspects Reviewed	Before ICT-Based Learning	After ICT-Based Learning
	and have not done the task properly	and doing assignments well
Competition	There is no competition to get good scores	Competence has been shown to get the best scores
Clarity of the purpose of understanding the results	Learning objectives have not been achieved	Learning objectives have been achieved
Development of an interests and conducive environment	Understanding of the subject matter has not appeared	Understanding of the subject matter has been achieved

Based on the findings during the research, nearly 90% of the students are computer literate, so the implementation of ICT-based learning is also supported by the students and teachers from schools who are already good at implementing this ICT-based learning.

5. Discussion

From the explanation above, it can be seen that students want ICT-based learning because the inclusion of ICT is expected to increase learning motivation which is relevant to increasing learning achievement so that the results are more satisfying. There are several reasons why practical teaching media, such as the internet, can enhance student learning. The first reason relates to the use of teaching media in the student learning process, among others:

a) Teaching will attract more students' attention so that it can foster students' learning motivation
b) Practical teaching materials will be clearer in meaning so that they can be better understood by students and allow students to master the objectives better.
c) Teaching methods will be more varied, not solely verbal communication, so students don't feel bored.
d) Students carry out more learning activities because they hear the teacher's description and other activities such as observing, demonstrating and messing around.

Based on this statement, it can be concluded that students feel many benefits, especially with ICT-based learning in the teaching and learning process in class. The obstacles encountered were not significant, only limited time and material immersion. The use of ICT-based learning shows that a more effective teaching and learning process is possible with ICT. This happens because the characteristics of ICT are quite distinctive, so it is hoped that it can be used as a support in teaching and learning in class.

Based on the observations of fellow researchers in the class, students generally have higher learning motivation when using ICT in teaching and learning activities. Students ask more questions and discuss with the teacher the material presented. With such an attitude from the teacher, it is hoped that students will be able to generate their learning motivation. Of course, the most important hope is that students get optimal learning outcomes according to their abilities. Of course, achieving this learning achievement will not be separated from the efforts made by the teacher in providing motivation or encouragement to students so that they can increase their learning motivation.

https://doi.org/10.33019/society.v10i2.450

6. Conclusion

Learning motivation of students before participating in Information and Communication Technology (ICT)-based learning. There is no enthusiasm or curiosity yet. Students chat more, don't take it seriously while studying, and don't focus on the lesson. Students do not want to discuss or ask questions and have not done the task properly. There is no competition to get good grades. The learning objectives have not been achieved. Understanding of the subject matter has not appeared.

ICT-based learning is an innovative learning mode that adapts to current developments that are experiencing rapid developments in information technology. This ICT-based learning provides the benefits of being more practical and making it easier for teachers to deliver learning material. Students find it easier to access information related to learning material, this is supported by facilities and infrastructure in schools that support ICT-based learning processes, namely the existence of internet facilities. ICT-based learning is a fact that enables the teaching and learning process to work more effectively in the immersion of learning material, so that it is hoped that it can be used as a support in the teaching and learning process.

After participating in the ICT-based learning mode, the student responded that they felt enthusiastic about following the lesson. They could listen to the lesson, be serious, concentrate on it, participate in discussions, ask questions, do assignments well, and get good scores.

7. Acknowledgment

The authors are grateful to express gratitude to all of those who have had the pleasure to work during this research conducted.

8. Declaration of Conflicting Interests

The authors have declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.

References

Arikunto, S. (2010). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta, Indonesia: Rineka Cipta.

Asrori, M. (2009). *Psikologi Pembelajaran*. Bandung, Indonesia: Wacana Prima.

Creswell, J. W. (2010). *Research Design. Pendekatan Kualitatif, Kuantitatif, dan Mixed*. Yogyakarta, Indonesia: Pustaka Pelajar.

Djamarah, S. B. (2002). *Psikologi Pendidikan*. Jakarta, Indonesia: Rineka Cipta.

Nazir. M. (2008). *Metode Penelitian*. Jakarta, Indonesia: PT. Ghalia Indonesia.

Rusman, R., Riyana, C., & Kurniawan, D. (2011). *Pembelajaran Berbasis Teknologi dan Komunikasi*. Jakarta, Indonesia: RajaGrafindo Perkasa.

Sardiman A. M. (2011). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta, Indonesia: RajaGrafindo Persada.

Sugiyono. (2010). *Metode Penelitian Pendidikan*. Bandung, Indonesia: Alfabeta.

About the Authors

1. **Wahyuli Lius Zen** obtained her Master's degree from Universitas Negeri Padang, Indonesia, in 2001. The author is an Associate Professor at the Department of Islamic Education Management, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Imam Bonjol Padang, Indonesia.
   E-Mail: wahyuliliuszen@uinib.ac.id

2. **Ilpi Zukdi** obtained his Doctoral degree from Universitas Negeri Padang, Indonesia, in 2020. The author is an Assistant Professor at the Department of Tadris of Social Sciences, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Imam Bonjol Padang, Indonesia.
   E-mail: ilpizukdi@uinib.ac.id

3. **Zulfahmi** obtained his Master's degree from Universitas Padjadjaran, Indonesia, in 1997. The author is an Associate Professor at the Department of Madrasah Ibtidaiyah Teacher Education, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Imam Bonjol Padang, Indonesia.
   E-mail: zulfahmihb@uinib.ac.id

4. **Zulvia Trinova** obtained her Doctoral degree from Universitas Negeri Padang, Indonesia, in 2021. The author is an Associate Professor at the Department of Teacher Professional Education, Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri Imam Bonjol Padang, Indonesia.
   E-mail: zulviatrinova@uinib.ac.id

https://doi.org/10.33019/society.v10i2.450