Analysis of Student Learning Independence on Blended Learning Model

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Abstract

This research aims to describe students' learning independence in math learning in trigonometric materials. The method used in this study is a qualitative approach with descriptive methods. Participants in this study were students of SMK Avicena Tangerang Regency which amounted to 25 participants. The technique used in collecting data in this study is to provide a learning independence questionnaire consisting of 25 statements with 6 indicators. The data analysis technique used is with the student's answer percentage formula and is described using the criteria of interpreting the percentage of answers. The results of the analysis of each indicator of learning independence are: 1) Not dependent on others 78%, 2) Confidence 74%, 3) Disciplined behavior 70%, 4) Sense of responsibility 80%, 5) Learning initiative 72%, 6) Self-control 76%. The results showed that the overall average independence of students in learning by 75% with high categories. The results of this study provide recommendations to the school to support and optimize the improvement of student learning independence.

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan kemandirian belajar siswa pada pembelajaran matematika pada materi trigonometri. Metode yang digunakan dalam penelitian ini ialah pendekatan kualitatif dengan metode deskriptif. Partisipan dalam penelitian ini adalah siswa SMK Avicena Kabupaten Tangerang yang berjumlah 25 partisipan. Teknik yang digunakan dalam mengumpulkan data pada penelitian ini ialah dengan memberikan angket kemandirian belajar yang terdiri dari 25 pernyataan dengan 6 indikator. Teknik analisis data yang digunakan yaitu dengan rumus persentase jawaban siswa dan dideskripsikan menggunakan kriteria penafsiran presentase jawaban. Hasil analisis tiap indikator kemandirian belajar yaitu: 1) Tidak tergantung kepada orang lain 78%, 2) Kepercayaan diri 74%, 3) Perilaku disiplin 70%, 4) Rasa tanggung jawab 80%, 5) Inisiatif belajar 72%, 6) Pengendalian diri 76%. Hasil penelitian menunjukan bahwa rata-rata secara keseluruhan kemandirian siswa dalam belajar sebesar 75% dengan kategori tinggi. Hasil penelitian ini memberikan rekomendasi kepada pihak sekolah untuk mendukung dan mengoptimalkan peningkatan kemandirian belajar siswa.

***Keywords**: Blended Learning; Learning Independence*

INTRODUCTION

The development and spread of covid-19 has not been completed, coupled with variants that continue to mutate, and the latest is the omicron variant. Karim & Karim (2021) Omicron variant has a high transmission speed up to 5 times that of the previous variant including delta variant. Susilawati et al., (2022) The Omicron variant has a high transmission speed even up to five times that of previous variants including the Delta variant. Although the spread is very high, vaccination measures and strict implementation of health protocols are key in preventing the transmission of this new variant of Covid-19.

To prevent the increasingly massive spread of omicron variants, the Indonesian government again takes preventive steps and policies, namely by instructing all educational institutions to conduct limited face-to-face learning by meeting health protocol standards or with blended learning. Kurniawati et al., (2019) Blended learning is learning that combines how to deliver learning through face-to-face activities, offline computer-based learning, and online. Capone et al., (2017) Blended learning is a new method of learning that includes face-to-face and online learning that combinations traditional learning with activities using computer media through the use of tablets, smartphones, and other technologies where this will attract students more than face-to-face learning alone or online learning only. Fadillah et al., (2020) Blended learning can affect not only cognitive aspects, but also affective aspects, one of which is mathematical disposition. Mathematical disposition is one of the factors that determine student learning success. Students need dispositions that will make them more persistent in facing more challenging problems, to be responsible for their own learning, and to develop good habits in mathematics. Mathematical learning basically adheres to the principle of lifelong learning, the principle of active student learning, and the principle of "learning how to learn". The principle of active learning students refers to the notion of learning as something done by students, and not something done to students. Lin et al., (2017); Mbokazi et al., (2022); Singh et al., (2021) blended learning offers an opportunity to give teachers and students interaction through face-to-face and online learning sessions. Al Aslamiyah et al., (2019) said that blended learning is a learning model that combines in such a way between synchronous and asynchronous strategies to create the most optimal learning experience possible to achieve the expected learning outcomes. Where blended learning has the goal to optimize learning activities for better, and facility characteristics and Independence of student learning. Blended learning does not completely replace face-to-face learning by applying to learn fully online. Based on the above opinion, it can thus be concluded that blended learning is a form of combination learning between face-to-face learning with online learning that utilizes the role of technology.

Students learning success, especially in mathematics learning, can be influenced by two factors: internal factors and external factors. One of the internal factors that affect the success of learning mathematics students is the independence of learning, therefore it is necessary to develop the independence of learning students in mathematics learning (Harisuddin, 2021; Kidjab et al., 2019; Rahayu & Aini, 2021). The ability of each student is not just a science that is the basis of technological development, but the ability of each student is in the character of each individual (Chotimah et al., 2018). One character that can be formed with

the right learning method is the student's independent character. Learning independence is defined as a learning process in a person in achieving certain goals that are required to be active individually or not dependent on others including teachers (Fajriyah et al., 2019, Rustyanti, 2019). The independence that students have is to foster self-confidence which is very important for students (Akbar et al., 2018).

Bungsu et al., (2019) said that self-learning gives students the freedom to discover how academic life fits into everyday life. Students organize and adjust their actions to achieve their desired goals and take their own decisions and take responsibility for their decisions. Each individual takes the initiative, without the help of others in terms of finding his learning activities such as formulating learning goals, learning resources, learning needs and controlling their learning process. Jumaisyaroh et al., (2015) Thus, learners organize their own learning by activating cognitive, affective, and behavioral that exist in them so that the desired learning goals are achieved. There are several indicators that can be used to measure learning independence: 1) learning initiatives, 2) diagnosing learning needs, 3) setting learning targets and goals, 4) monitoring, organizing, and controlling learning progress, 5) viewing adversity as a challenge, 6) utilizing and finding relevant resources, 7) selecting and implementing learning strategies, 8) evaluating learning processes and outcomes and 9) having self-concepts. This is in line with the opinion (Amalia et al., 2021)) which states that the independence of learning students can be seen from 1) students have initiative and motivation to learn within themselves; 2) Students have a habit of studying the needs of learning; 3) Students are able to monitor, organize and control learning activities; 4) Students can set their own goals or learning targets; 5) Students can

see that difficulties in learning are a challenge; 6) students can utilize and search for relevant sources; 7) Students can choose and implement learning strategies; 8) evaluate learning processes and outcomes; 9) have self-efficacy or self-concept or self-ability.

Some previous studies relevant to this study include: that blended learning can affect students' learning outcomes (Wong et al., 2014), Blended learning provides positive results in problem-solving and understanding of student's concepts of a material (Sudiarta & Sadra, 2016), Blended learning improves students' learning outcomes (Ceylan & Elitok Kesici, 2017), Blended learning can increase students' independence in learning and students' critical thinking skills (Sari, 2013), independence of student learning in online learning in the time of the Covid-19 pandemic is quite good (Bilda & Fadillah, 2020). The novelty of this study lies in the use of blended learning models to analyze and describe students' learning independence in trigonometric materials.

METHOD

This research was conducted to analyze and describe students' learning independence in math learning. The type of research used in this study is descriptive qualitative research. The approach used in this study places more emphasis on descriptive studies for data analysis. In this study, 25 students of SMK Avicena in Tangerang Regency participated. The researcher's role is as a key instrument in this research. The instrument in this study uses a non-test instrument that is a math learning independence questionnaire consisting of 25 statements that have 4 answer options, namely Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The scale used in this study was the Likert scale. The Likert

scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social phenomena.

Data collection in this study is by providing independent questionnaires to learn mathematics in students of SMK Avicena which is distributed using the help of Google form. The student's math learning independence questionnaire used in the study consists of 6 indicators. The technique used to collect learning independence data is through a questionnaire using a scale of 1-5. The score obtained is then adjusted to the criteria in Table 1.

Table 1. Classification of questionnaire Score Results

Score (%)	Categories
$75 - 100$	High
$50 - 74,99$	Medium
$25 - 49,99$	Less
$0 - 24,99$	Low

The data analysis technique used in this study is qualitative data that is given by questionnaires with a Likert scale containing negative and positive statements total of 25 statements. The research data that has been obtained is then analyzed and reduced. The presentation of the data is done in narrative form.

RESULTS AND DISCUSSION

Results

In this study, we used blended learning to conduct educational and learning activities. Students will receive learning materials and videos that correspond to the materials discussed. Students could discuss, express their opinions, discuss the materials they have discussed, and ask questions about materials and issues they did not understand. Students also could find materials from a variety of sources, both books, and online sources. If any student finds an error in understanding the concept, other students or faculty members

can immediately correct it. The next step is to provide students with a learning independence questionnaire. The given questionnaire is adapted from (Rahayu & Aini, 2021). This consists of 6 indicators, namely: 1) Not dependent on others, 2) Having confidence, 3) Disciplined behavior, 4) Having a sense of responsibility, 5) Having learning initiatives, and 6) Having self-control. The score data from the results of the research analysis can be seen in Table 2.

Table 2. Analysis of Student Learning Independence

Indicator	Score (%)	Category
Not dependent on others	78	High
Having confidence	74	Medium
Disciplined behavior	70	Medium
Having a sense of responsibility	80	High
Having learning initiatives	72	Medium
Having self-control	76	High
Total	75	High

From the results of the Learning Independence analysis students who apply blended learning tend to have a tendency for learning independence in categories with an overall score of 75% in high categories. Overall, the impact of blended learning on students' learning independence can be categorized as very positive. The results showed that most students who participated in learning activities using blended learning recognized that the learning process was easier. Blended learning ensures that students are actively engaged and manage their individual learning experiences. Blended learning models also help meet the needs of learners, as most learners have their own learning styles, and blended learning is more likely to meet these needs than conventional classroom learning. Rauf et al., (2020) said that there is a positive and significant influence on the independence of learning to learn the results of mathemat-

ics. Rohmawati et al., (2021) said that using blended learning models affect mathematics learning. If the model is blended learning used at the elementary level, there are implications for mathematics learning. Umam & Syafi'i (2021) Application blended learning at SMA Sejahtera Prigen is quite effective to minimize the struggle of online learning during the COVID-19 pandemic, as well as increase the independence of students in their learning responsibilities; Rizqi et al., (2016) Blended learning is a learning approach which incorporates face-to-face learning in the classroom with learning activities online-based to increase effectiveness and the efficiency of the learning experience.

Discussion

The results of analyzing data on student learning independence data on indicators not dependent on others by 78% with high categories. Not relying on others does not mean there are no collaboration activities with fellow students in learning activities. The results showed that most students who follow blended learning are very active and do not rely on others. Most students are already able to explore and search for their learning resources and materials. It is not entirely up to the teacher (teacher-centered). This is in line with opinion (Hockings et al., 2018) Students who are not dependent on others will succeed in learning. Independent students will be able to plan, establish, and evaluate learning at the time of theoretical and practical learning so that students can improve learning performance and ability to achieve good learning achievement.

Self-confidence is an attitude that every student really needs to have. Because with self-confidence the student will easily express the idea in his mind in

solving mathematical problems. Self-confidence means a belief in one's abilities that have been each person has himself, as well as how they see themselves by referencing self-concept. Muhamad (2016) students whose confidence is lacking will hinder in achieving their achievements. With High self-confidence, the student will have a high spirit in completing what is targeted in his task. With no confidence in finishing a question, the student will get a result that is not optimal. Analysis results of student learning independence data on confidence indicators by 74% with moderate categories. The results showed that most students who followed blended learning had positive self-confidence. People with positive self-confidence indicate that a person has the ability or strength to achieve his or her goals. In participating in offline and online learning activities students look enthusiastic and confident when expressing their opinions and arguments both when discussing and when there is the material that they do not fully understand. This is following the opinion of Hakim (Pratiwi & Laksmiwati, 2016) Self-confidence is a person's belief in everything that is an aspect of the advantages that are owned and that belief makes him feel able to achieve various life goals and be able to adjust to his environment. Individuals who are at a high level of confidence can apply positive thoughts themselves to be able to manage all the needs of their life, including their learning needs. Students who have high self-confidence will be able to manage their learning well, without relying on others.

Discipline is a responsibility and habit that must be carried out by everyone. Discipline can help people in overcoming a problem of self-behavior that supports a work or activity process. Discipline is something related to motivation. Learning motivation can be said to be a

boost to the self. Discipline and motivation to learn are important for students to have. Teachers have an active role in insinuating various undisciplined behaviors and instilling student habits with disciplined behaviors. Increase recommendations or orders to comply with various regulations and give strict sanctions to students who violate discipline. The problem is that students who come from different family backgrounds so that understanding and decisions about the norms and ethics of discipline are not all well ingrained in their souls, let alone students who lack attention and disciplinary education from their parents. Makurius et al., (2020) Learning discipline is a learning condition that is created and formed through the process of a series of personal and group attitudes and behaviors that show the values of obedience, obedience, loyalty, order, and order. Learning discipline is also one of the conditions that can determine a person's success in achieving his goals. Anggraini (2014) said that discipline plays a very important role for students in improving their learning outcomes.

The results of the data analysis carried out in this study are related to student learning independence on disciplinary behavior indicators of 70% with a moderate category. The results show that most students involved in blended learning have positive disciplinary behaviors. This can be seen in the students who take part in learning activities and accumulate tasks given by the teacher on time. Although some students are late in collecting assignments due to the constraints of an unstable internet network. This is following the opinion of Yuliawan & Nusantoro (2020) that student discipline exerts a significant influence on learning independence; Lestari & Miftakhul'Ulum (2020) 1) The relationship of discipline in student learning activities with student learning motivation when in class has a relationship or is related to showing a significant increase between student discipline from low to high as well as student learning motivation from low to high, and 2) The relationship of student discipline to the intrinsic motivation of students has a relationship or linkage by showing a significant increase between the discipline of students from low to high as well as to the intrinsic motivation of students from low to high. Cahyono (2015) Learning discipline can make students able to control themselves from distractions or obstacles in the learning process and follow learning activities well. Student learning discipline aims as a tool to gain themselves, prevent and overcome problems regarding discipline and strive to create a comfortable, safe and pleasant state in the learning process, so students can comply with the rules set. Tu'u (2004) the function of learning discipline: 1) The existence of discipline that is manifested due to self-awareness that motivates students in successful learning; 2) Without good discipline, learning activities in the classroom will be less conducive. Discipline contributes to the peace of learning activities; 3). Realizing the expectations of parents of students towards students who are accustomed to the cultivation of discipline, norms, and life values so that students become orderly and disciplined individuals. And 4). Discipline is a catalyst for student success both in learning and in the future.

Responsibility is a behavior that an individual must have to carry out his duties and obligations. Responsibility can also be interpreted as being obliged to bear everything that has been done with all the risks that must be accepted. responsibility is an awareness that must be possessed in carrying out what is an obligation and duty following predetermined regulations. This opinion is reinforced by the opinion of Rachmawati et al., (2021)

that responsibility is a character in a person who always tries to carry out obligations as well as possible and resolved them promptly. The responsible person will do something that is his duty without compulsion. this is in line with the opinions expressed by Musa et al., (2017) responsibility is a situation where one must do something wholeheartedly without feeling compelled or burdened, admits if one makes a mistake, and complete the task until it is completed completely. This attitude applies both to oneself, others, nature, as well as to God Almighty. This is in line with the opinion of Kartini & Maulana (2020) that responsibility is the attitude and behavior of a person to carry out his duties and obligations, which he should do, both towards himself, society, and the environment (natural, social, and cultural) as well as the country and God Almighty. While the definition of responsibility according to Apriani & Wangid (2015) responsibility means being brave, ready and determined in accepting verdicts and actions committed intentionally or unintentionally. Analysis results of student learning independence data on the indicator of sense of responsibility are 80% with high criteria. The results showed that most students who followed blended learning had a very positive sense of responsibility. A person is considered responsible if he has a high commitment to his duties and work. Although some students are late to collect assignments but still enthusiastic about collecting assignments. The results of analyzing data independence learning indicators of learning initiatives by 72% with moderate criteria. In conclusion, it can be said that the independence of learning of student teachers can be categorized positively as an indicator of personal initiative. The results showed that most students who followed blended learning acted voluntarily and positively following the learning enthusiastically. Those who have the initiative can bring up something new in the form of relatively different ideas and works to solve problems. It agrees with (Lepiyanto, 2011) that Character education urgently needs to be instilled as early as possible to anticipate problems in the future that are increasingly complex such as the lower attention and concern of children for the surrounding environment, lack of responsibility, low self-confidence, and others. Busiri's (2021) independence is supported by personal qualities which are characterized by mastery of certain competencies, consistency towards his stance, creativity in thinking and acting, ability to control himself, and a strong commitment to things. Yamin's (2014) self-study process applied to students bring positive changes to the development of intellectuality, they will be able to succeed over themselves as well as become themselves alone. The most important thing in the independent process is the increase in willpower and student skills in the process of learning without the help of others.

Student self-control is very influential to shape the personality of a student to train an individual to be positive, think positively, act on internal values, be aware of the responsibility, etc. Self-control is an important attitude that a person must have so that they do not always behave negatively, this attitude can be ingrained in the individual student from an early age. This attitude is needed by every student so that they can discipline themselves and have responsibility. Many simple things are factors for the success of the learning process but are not paid attention to by students, one of which is student self-control. Freeman & Muraven (2010) explains self-control as follows: The strength model explains the mechanism of self-control with the metaphor of a skeletal muscle: the effort of exercising

self-control consumes 2 limited resources, which ultimately results in a temporary state of mental fatigue called ego-depletion. In addition to state-based manipulations of self-control, researchers have examined the capacity for self-control from a trait-based perspective. Recently evidence suggests that the one-fits of state- and trait-based self-control is additive. Chaplin (2006) self-control is the ability to guide one's behavior in the sense of a person's ability to suppress or hinder impulse impulses or behavior. Self-control concerns how strongly a person holds values and beliefs to be used as a reference when acting or deciding. For self-control to become a positive habit for students, a learning system is needed that can coordinate this, one of which is to direct students to control themselves based on their initiative. Therefore, an educator has a very important role in shaping students' self-control so that each self-control ends at the desired result. Kasih & Sudarji (2012) self-control is one of the learners' skills as their sensitivity to read the situation of themselves and the environment in which they are located. Blegur (2020) states that: 1) self-control will help learners control and manage behavioral factors according to situations and conditions for expressing themselves while socializing, and 2) self-control also the ability of the learner to suppress or function to prevent behavior that is according to the heart or at will. Marsela & Mamat (2019) self-control is also the ability of the individual to modify behavior, the ability of the individual in managing the desired and unwanted information, and the ability of the individual to choose one of the actions based on something believed. Fallis, (2013) Behavioral control is the ability to handle self-emotions so that it has a positive impact on the implementation of tasks, are sensitive to the heart, can delay enjoyment before achieving an object,

and can quickly recover from emotional stress.

The results of the analysis of student learning independence data in this study were related to self-control indicators of 76% with a high category. The results showed that most students who took part in blended learning were able to exercise very positive self-control or control. Learning independence can be realized if the learner can control himself over everything he does, evaluate and plan something in his learning process. this is in line with the opinion of Dhuha et al., (2020) that the higher the self-control then the higher the motivation to learn a person; Fachrurrozi et al., (2018) A student who has high self-control pays great attention to the right way to behave situationally, responsibly by existing rules. On the other hand, students who have low self-control tend to have their behavior deviate from the existing rules. So, it can be said that students who have low self-control will behave and act toward things that are more pleasing to themselves even though they do not obey the rules that apply in schools.

CONCLUSIONS

The results of the analysis of each indicator of learning independence are: 1) Independent of others 78%, 2) Self-confidence 74%, 3) Disciplined behavior 70%, 4) Sense of responsibility 80%, 5) Learning initiative 72%, 6) Self-control 76%. The results showed that the overall average independence of students in learning was 75% with a high category. This is supported by research conducted by Rijal & Bachtiar (2015) & Ulfa (2021) there is a positive relationship between learning independence and learning outcomes. The advice related to this research is that there is a need for ongoing research on education, especially mathematics education and

learning during the Covid-19 pandemic; Mulyadi & Syahid (2020) Self-study has many benefits for students' cognition (knowledge), affection (attitude), and psychomotor (skills), namely: 1) Honing multiple intelligences, 2) Sharpening analysis, 3) Cultivating responsibility, 4) Developing mental endurance, 5) Improving skills, 6) Solving problems, 7) Making decisions, 8) Creative thinking, 9) Critical thinking, 10) Strong self-confidence, and 11) Being a learner for himself. The results of this study provide recommendations to the school to support and optimize the improvement of student learning independence. School program models related to self-regulation strategies in learning are important to be designed and implemented to support the improvement of student learning independence.

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