

## Profiles of students' learning independence and creativity viewed from learning motivation

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### Abstract

Independence and creativity are considered important aspects of learning in the COVID-19 pandemic era. This study aimed to analyze the independence and creativity profile of elementary school teacher education students in online lectures viewed from learning motivation in the COVID-19 pandemic era. The study used mixed methods with a sequential explanatory design. Snowball sampling technique was used to select the study subjects. Questionnaires and in-depth interviews were used as the data collection tools, using Google Forms software. Miles and Huberman's (1994) interactive model was used as the data analysis model. The findings of the study showed that: (1) students were less able to work independently and confidently but had high learning discipline and were responsible; and (2) students lack indicators of flexibility and originality but have high curiosity, resilience, and persistence in learning creativity. The findings of the research revealed that independence and creativity in learning were included in the medium category. This study can be used as a reference for further research.

**Keywords:** learning independence, learning creativity, online lecture, application media, learning motivation;

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## 1. Introduction

In this coronavirus disease of 2019 (COVID-19) pandemic era, the governments of each country issued a policy to reduce contact and avoid crowds (social and physical distancing) by imposing online lectures (Basilaia & Kvavadze, 2020). Online learning is considered one of the most ideal methods to apply in this COVID-19 pandemic situation as this method allows students learn and discuss the material with their lecturers without face-to-face meeting and reduces the potential exposure of the COVID-19 (Demuyakor, 2020). According to Baig (2011), online lectures utilize information technology, especially the Internet, as a method of delivery, interaction, and facilitation of learning process. Online learning positively affects connectedness, learning, and social (socio-emotional) aspects (Thamarama, 2016). Online lectures can increase the absorption of lecture material and student interest and positively affect students' reading or literacy skills (Nguyen, 2015).

In addition to facilitating learning process in the COVID-19 era, application-based learning media is considered a typical application of the 21st-century learning style (Nealbert et al., 2014). Application-based learning media has the possibility to improve student learning outcomes in the cognitive domain (Jabbour, 2014). This is in line with the study of Chuang (2014) claiming that application-based learning positively affects the cognitive, metacognitive, affective, and socio-cultural aspects of students. Learning with apps also allows students to learn without boundaries and is not bound by space and time with interesting applications that make them focus and increase their interest (Meister et al., 2011). Many applications can be used to support the online learning process. Some of these applications include, but not limited to: email, Line, Skype, WhatsApp, Zoom Cloud Meetings, Google Form, Google Classroom, Facebook, Google Hangout, paid and free eLearning, Zenius, Quimper, Smart Classes (Basilaia & Kvavadze, 2020). The most common of these applications are Zoom Cloud Meetings, Skype, and WhatsApp.

The purpose of learning is to change someone to be independent. The ability to follow learning process in lectures without depending on or involving several people is called learning independence. Learning independence is considered one of the trending research topics on existing educational psychology theme (Xiao et al., 2019). Learning independence is defined as behavior, action, thought, and awareness that are systematically oriented toward achieving self-defined goals (Pintrich, 2000). Independent students tend to develop and maximize their potentials without others' guidance, such as finding the right learning strategies, increasing their learning activities, and managing their activities that can improve their academic performance (Fauzi & Widjajanti, 2018). As C. K. E. Cheng (2011) argued, the motives and behaviour of a student with learning independence, from a metacognitive perspective, provide initiation and direction for their efforts to gain knowledge and skills.

According to Corno (2001) and Zimmerman (2002), the characteristics of students with learning independence include (1) being familiar with and understanding several cognitive strategies (repetition, elaboration, and organization) that will assist them in changing, organizing, and decoding information; (2) understanding how to plan, control, and direct mental processes for the attainment of personal goals; (3) showing motivational beliefs and adaptive emotions such as having a sense of effectiveness, having a definite life goal, and developing positive emotions toward tasks; (4) planning and controlling the effort and time on the responsibilities, and knowing how the manner to create and form the desired learning environment, e.g., choosing the right place to study and seeking help from teachers or peers when experiencing difficulties; (5) showing a greater effort to participate in controlling and regulating academic tasks and classroom climate; and (6) being able to play a strategic role well to prevent internal and external problems to maintain concentration, effort, and motivation while doing academic tasks. The characteristics of students with learning independence are (1) being

able to choose, adapt, and find the right strategy to achieve goals, (2) being able to implement the strategy, monitor it, analyze, and compare the progress, (3) being able to assess their performance and provide feedback in the form of a diagnosis of challenges or successes alone for the next goal (Butler, 2002). The indicators of learning independence used in this research include self-confidence, learning discipline, responsibility in learning, and working independently.

Individuals who want to be independent in learning process must be creative to develop their own ideas without depending on their lectures or friends. Creativity is one aspect of measuring the potential quality of human resources. Creativity is as important as the other potentials of human resources, such as intelligence, personality, and resilience (A. J. Cropley & Cropley, 2009). In terms of its potential, the development of creativity cannot be separated from psychological and social aspects. The psychological aspects of creativity are also related to thought patterns, attitudes, and mentality (Camic et al., 2018). Creativity is needed to create new ideas in learning (Daud et al., 2012). Creativity in learning is the ability to come up with new ideas, develop ideas, find solutions to problems, and find new opportunities (A. Cropley, 2005). According to Okpara (2007), creativity is the capacity to create something new with preexisting elements. Furthermore, creativity is considered a unique point of intersection among the three psychological attributes (cognitive style, intelligence and personality/motivation) that help understand how an individual can be a creative one (Hedblom, 2013). In this case, the concept of creativity refers to the thinking process of finding answers to a problem using new ways and relationships between the existing elements (Anderson et al., 2014).

There are five characteristics that indicate creativity. They are as follows: fluency in generating many ideas, flexibility in suggesting various solutions or approaches to issues, the ability to generate original thoughts, the competence to describe ideas in detail, and the ability to reformulate to review a problem from different perspectives (Ardeniyansah & Rosnawati, 2018). Creative thinking indicators consist of fluency, flexibility, originality, and elaboration (Hedblom, 2013; Klavir & Gorodetsky, 2011). Fluency is the ability to create many notions. Flexibility is the capability to overpass mental blocks, changing the approach to a problem to not get caught up in assuming rules or conditions that do not apply to a problem. Originality is the uniqueness of any response given that it's unusual, uncommon, and rare. Elaboration is the capability to explain more detail a particular object. In line with this, V. M. Y. Cheng (2010) stated that curiosity, imagination, attitudes to face demanding situations and risks, motivation, and self-confidence are the creative thinking indicators from an effective approach. The indicators used in this research include originality, curiosity, flexibility, elaboration skills, resilience, and persistence.

Studies showed that learning motivation is an internal factor in students that significantly affects lectures' success (Fajari et al., 2020). Lin et al. (2017) added that learning motivation has significant and positive effect on the learning process using digital media or online distance learning, affecting student learning outcomes. Motivation cannot be observed directly, but can be interpreted from the behavior. Cook and Artino (2016) claimed that motivation is a power or need to obtain one's primary goal that is constant, never-ending, changing, and complex. This is in line with the study of Donker et al. (2014) claiming that learning motivation is a belief that helps students engage in learning using various strategies, e.g., motivation toward tasks; motivated students will be able to complete the task in various ways and consider academic tasks interesting. According to Schunk and Pintrich (2009), indicators of learning motivation are as follows: (1) task choice, (2) effort, (3) persistence, and (4) achievement. Keller (2010) described the following aspects of motivation: attention, relevance, confidence, and satisfaction. According to Lamb (2007), someone with learning motivation has the following characteristics: having the desire and willingness to succeed, the power and need for

learning, aspirations and hopes of the future, appreciation in learning, and interesting learning activities. The learning motivation indicators used in this research include having the desire to succeed in online learning based on application media, the need and drive in online learning based on application media, persistence and resilience in facing tasks, being able to defend opinions and not easily let go of what is believed, liking to solve problems, having hopes and aspirations, appreciation and confidence in learning.

## **2. Methods and Materials**

### *2.1. Research Design*

In this research, a mixed method, which is a combination of quantitative and qualitative research methods, was used. The study adopted a sequential explanatory design. In the first stage of the study, collection and analysis of the quantitative data were characterized, then, in the second stage, it was followed by the collection and analysis of qualitative data. The reason why these stages were followed by the study is that the study aimed to use quantitative research and a qualitative study was conducted to strengthen the study findings. Sequential explanatory emphasized the qualitative findings to strengthen the quantitative findings (Creswell & Poth, 2018). The quantitative phase is performed through a questionnaire to describe the situation and characteristics of the study sample. After the quantitative analysis, a case study was conducted to confirm the findings. A case study is defined as in-depth and thorough research on an object in the form of events, or events, situations, processes, programs, and activities (Creswell & Poth, 2018).

### *2.2. Study Participants*

The study subjects consist of 106 undergraduate students (11 males and 95 females) of elementary school teacher education in the second and fourth semesters. The study subjects used as the informants were selected through the snowball sampling approach, which means that the informants were asked to appoint new informants considered providing information about the research focus (Naderifar et al., 2017). The research was completed when sufficient data were collected and the sample reached the ability to represent the population.

### *2.3. Data Collection and Technique*

To obtain data that meet research standards, a researcher must identify appropriate data collection techniques. Data collection techniques adopted by this research are questionnaires and in-depth interviews. In the questionnaires and interviews, the participants were asked questions about the research topic through Google Form. The questionnaire consisted of 24–26 statements for each variable, while in-depth interview sheet consisted of 10–12 questions and was developed in the next stage to adjust the respondents' answers. The data collection process was started with the snowball method begins by giving questionnaire to the study subjects. Interviews with the initial informant, then continued to the next informant, and so on. The interview stopped with certain respondents so that saturated data are obtained, so that the next respondent will not provide new information anymore.

### *2.4. Data Analysis Technique*

Miles and Huberman's interactive data analysis (1994) was used in this research. Data analysis stages consist of data validation, data collection, data reduction, data presentation, and conclusion drawing. The data validation was performed using data triangulation, objects other than the data for

checking purposes, or comparing the data obtained through interviews, seeking or obtaining data confidence standards obtained by checking the data, double-checking, and cross-checking with two or more information. After conducting interviews and observations, the researcher conducted another study, matching the data provided by one informant with others. The researcher asked for confirmation or new information from the same informant with the same questions at different times and situations. In-depth online interviews were then conducted. At the data reduction stage, the researcher carried out the activities of selecting, focusing, and simplifying the data at hand. The data reduction was conducted continuously during the research. After selecting, the data were presented transparently as stated by the results of the research. At this stage, the data can be displayed in the form of descriptions, graphs, charts, matrices, etc. Finally, the data collected from the selection and classification process were concluded in sentences. At the conclusion-drawing stage, the researcher drew conclusions from the collected data and it will be discussed further.

### 3. Results

#### 3.1. Learning Independence

Based on the questionnaire data analysis, the overall student learning independence is depicted in Figure 1.

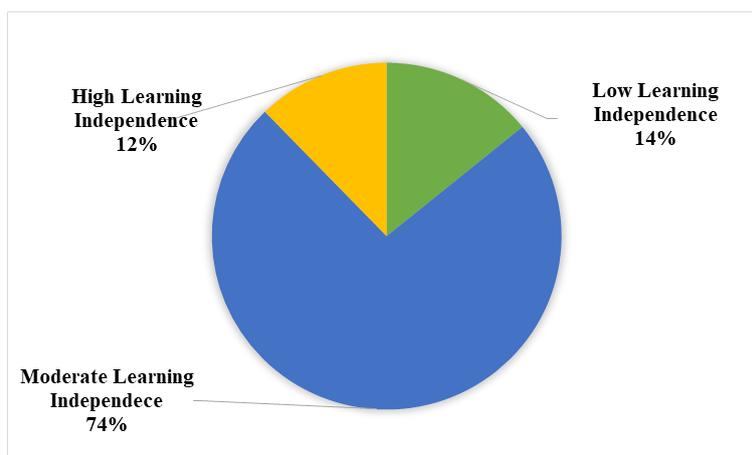


Figure 1. Profile of Students' Learning Independence

Figure 1 shows that 15 students (14%) have low learning independence, 78 students (74%) have moderate learning independence, and 13 students (12%) have high learning independence. The figure indicates that the average learning independence of students is moderate. The students' learning independence viewed from their learning motivation are shown in Table 1.

Table 1. Learning Independence Viewed from Learning Motivation

Learning Motivation	Learning Independence					
	High		Moderate		Low	
	Number	%	Number	%	Number	%
High	1	0.9	16	15.1	7	6.6
Moderate	7	6.6	43	40.6	7	6.6
Low	5	4.7	19	17.9	1	0.9

The findings in the category of low learning independence show that 6.6% of the students have low learning motivation, 6.6% have moderate learning motivation, and 0.9% have high learning motivation. In the category of moderate learning independence, it has been observed that 15.1% of the students have low learning motivation, 40.6% have moderate learning motivation, and 17.9% have high learning motivation. In the category of high learning independence, 0.9% of the students have low learning motivation, 6.6% have moderate learning motivation, and 4.7% have high learning motivation.

The learning independence questionnaire data show that the following two indicators have the lowest score: the ability to work independently and confidently. The low indicator of working independently is shown by the results of the interviews with a student with low learning motivation who stated, "I don't feel optimistic about solving the problems I face. For the task or lecture problems that are not too private, I usually ask my parents and lecturers for their opinion. I cannot say I'm optimistic because, to be honest, I still often get confused in solving the problems I face." Then, a student with high learning motivation said, "I am optimistic in solving my problems because I believe that 'there is no problem without a solution,' and we are the ones who understand our problems (both online lecture-related problems and personal problems), so, of course, it is better solutions come from ourselves." Then, according to the interview results with most of the students on supporting the results of the questionnaire analysis of the low score of the negative statement for the indicator of confidence, they stated, "When I don't understand what the lecturer says online or need to complete online tasks, I ask other people who can help me finish it as a reference and then use the Internet, journals, and books which are highly available and varied to help me in completing my online tasks."

Furthermore, the findings of the questionnaire data revealed that learning discipline and responsibility indicators obtain the highest score. According to the interview results of the indicators of learning discipline, most students stated, "I prepare the learning equipment by myself. However, learning materials are usually prepared by the presenting group or the lecturer." Then, based on the interview results of the learning responsibility indicator, most students stated, "If I don't understand the application media-based lecture material, I do not clarify to my lecturer or friends first, but I read e-journals, e-books or watch tutorials on YouTube." Students with high learning motivation also stated,

"I try to find out myself first through Internet sources by browsing on Google or Yahoo, reading blogs, and looking for journal articles and proceedings. If it is not optimal, I will ask a friend or the lecturer or a senior because if confusing material is not clarified, it will cause problems in the future, so it is necessary to have clarity in every material presented."

### 3.2. Learning Creativity

Based on the questionnaire data analysis, the overall student learning creativity can be seen in the following figure.

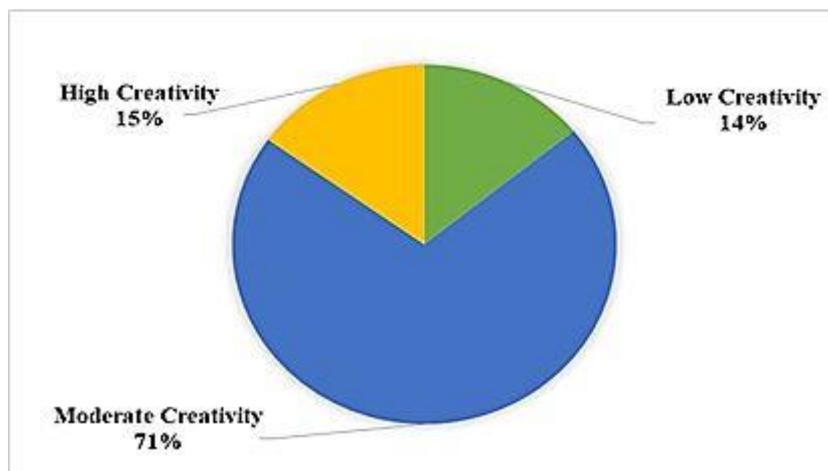


Figure 2. Profile of students' learning creativity

Figure 2 shows that 15 students (14%) have low learning creativity, 75 students (71%) have moderate learning creativity, and 16 students (15%) have high learning creativity. The average learning creativity of students is categorized as moderate. The student learning creativity viewed from their learning motivation can be seen in more detail in the following table.

**Table 2.** Learning Creativity Viewed from Learning Motivation

Learning Motivation	Learning Creativity					
	High		Moderate		Low	
	Number	%	Number	%	Number	%
High	12	11.3	13	12.3	0	0
Moderate	4	3.8	49	46.2	4	3.8
Low	0	0	13	12.3	11	10.4

Table 2 shows that, in the category of low learning creativity, 10.4% of the students have low learning motivation and 3.8% have moderate learning motivation. In the category of moderate learning creativity, 12.3% of the students have low learning motivation, 46.2% have moderate learning motivation, and 12.3% have high learning motivation. Then, in the category of high learning independence, 3.8% of the students have moderate learning motivation and 11.3% have high learning motivation.

The learning creativity questionnaire data show two indicators (high flexibility and high originality) with the lowest score. The high flexibility indicator is demonstrated by one's flexibility in solving various problems with various solutions that are applied by certain situations. The score of the negative statement questionnaire for the flexibility indicator is low because students can think of various plans to solve problems. Based on the results of the interviews regarding the indicator of high flexibility, a student stated, "I think a lot about planning, for example, in doing the task; I will do the first question by discussing or asking my friend A. For the second question, I have found the answer on the Internet. For the third question, I ask my lecturer or look for journals, etc."

Then, the high originality indicator is demonstrated by the spontaneity of students in expressing their opinions during the lecture. In the interview, one student stated, "If I understand the problem, I can spontaneously create my ideas, but, if I don't, it will be difficult." However, some students admitted being unsure that they could give ideas spontaneously by stating, "Not completely spontaneous. For example, when asked a question or faced with a problem, I will look for some references and think about my answer carefully in advance so that I can reinforce the ideas I will convey. Then, some students also admitted, "To be honest, when I have a spontaneous question, I will immediately ask my friend next to me for help because I am not good at thinking spontaneously."

Furthermore, the learning creativity questionnaire data show that the indicators of high curiosity, persistence, and resilience obtain the highest scores. Based on the results of the interview on the indicator of high curiosity to the students with high learning motivation, they stated, "I studied online lecture material by listening to the material well and asking my lecturer or friends if I do not understand any. Then, I search in the e-books, journals, YouTube, and Google Scholar on the Internet about the scope of knowledge that is relevant." However, the student with low learning motivation stated, "If I have free time to study further the material and I am interested in it, I will study it by looking for various sources, both digital sources and asking my friends from the same study program or other relevant programs." From the results of the interviews for the indicators of persistence and resilience, some students stated, "I try to follow and understand online lectures by always paying attention and studying the previously-taught material, doing the tasks on time, analyzing the tasks given by the lecturers, and doing them as well as possible."

One student also stated,

"I work hard in following application-based online lectures, for example, by looking for an Internet connection even though the signal is actually very difficult, and I often leave the house late at night to do the tasks. In my area, there is no Wi-Fi or Internet cafe, so I have to go to another district of around 10 km in distance. I have the ambition to study diligently even though, in online lectures, there are many connection problems. I do the tasks as soon as possible, express my opinions or ideas, and dare to take responsibility even though it is risky due to Internet connection problems."

#### **4. Discussion**

##### **4.1. Learning Independence**

The study findings indicate that overall student learning independence can be categorized as moderate. Based on the analysis of the data obtained through learning independence questionnaire, the following two indicators have the lowest score: the ability to work independently and confidently. The low indicator of working independently is caused by several students still depending on their friends and lecturer in online learning based on application media. This contradicts the concept of learning independence, where students are involved in identifying learning needs and controlling finding and organizing solutions to problems in lectures (Brandmo & Jean-Louis, 2013; C. K. E. Cheng, 2011).

The interview results with low learning motivation students show that they are not optimistic and tend to solve problems by involving others. This is a less independent behavior that is usually characterized by a lack of ability to organize, develop, and solve various problems or difficulties faced due to being too dependent or involving other people (Zumbrunn, 2011). Low learning motivation also affects this behavior because students with low learning motivation tend to be less courageous to try new things, think about the risks they will take, and fear sanctions or punishment (Méndez López & Bautista Tun, 2017).

Also, the student interview results with moderate learning motivation show that when solving problems, they do not depend on others, but need much time to think. Then, students with high learning motivation are very optimistic about solving problems with the principle of "no problem

without a solution.” The interview results show that students with high and moderate learning motivation are already independent in learning. This finding is supported by the study of Baumeister et al. (2005). They reported that learning independence is characterized by efforts to increase self-awareness of their responsibilities in making decisions about a problem or finding a solution to a problem.

Moreover, the low score of negative statements is an indicator of confidence because students can complete all online tasks optimally and independently. Learning independence can be applied if an individual has self-confidence (Toharudin et al., 2019). This is in line with Fadlilmula's (2010) study, in which one's learning independence is indicated by the presence of confidence in solving various existing problems without help from others during learning activities and control in making decisions to solve the problems. On the other hand, the indicators having the highest scores are learning discipline and learning responsibility. The analysis of the learning discipline indicator shows that all students are well prepared for online lectures. The interview results show that they try to prepare all their learning needs that can be used as an indicator of high learning independence in students, as stated by Jossberger et al. (2010). They reported that readiness of individuals who are inclined and capable to learn on their initiative with or without the help of others in determining learning target, learning techniques, and evaluating learning outcomes is a learning independence. The learning responsibility indicator shows that all students are successful in finding various resources to understand or do online tasks. Students with high learning independence will always have a positive effect that they can complete all tasks well and have the opportunity to succeed (Housman, 2017).

This is supported by the results of the interviews of most moderately motivated students, with moderate motivation which indicates that they will look for various references or additional explanations from their lecturers or friends when they do not understand the course material. Students with high motivation also acknowledge admit that they are trying to find out identify the lecture material they have not mastered through Internet sources by browsing on Google or Yahoo, reading blogs, and looking for searching journal articles and proceedings, or by asking their friends, seniors, and lecturers.

#### *4.2. Learning Creativity*

According to the research findings, overall student creativity in learning can be categorized as moderate. The learning creativity questionnaire data show that there are two indicators (high flexibility and originality) that have the lowest scores. The analysis of the interview results to explain the low indicator of high flexibility in the negative questionnaire statements shows that most students were able to create a lot of planning in solving a problem by considering many aspects. People with high flexibility are not afraid to change their opinions because they accept or have the right reasons and consider new information they receive before changing their previous opinions (Kenett et al., 2018). Flexibility indicates a creative person (Karakelle, 2009). Then, the interview results analysis shows that the indicator of high originality with negative statements has a reasonably low score because most students are not yet able to spontaneously provide suggestions, ideas, or opinions. Expressing spontaneous ideas is a high form of originality because someone who can express his/her idea spontaneously can create an idea or a thought from the point of view they faced with a problem suddenly (Runco, 1988). Someone who can express his/her thoughts or ideas spontaneously has been at the illumination stage. At this stage, creative ideas will automatically appear and what was initially unclear becomes clear (Fryer, 2012).

Furthermore, the learning creativity questionnaire data show that the indicators of high curiosity, persistence, and resilience obtain the highest scores. The analysis of the interview results for the indicator of high curiosity shows that most students express a desire to explore online lecture materials. All students with high learning motivation admit that they will look for engaging materials (i.e., e-books and journals) on the Internet channels such as YouTube, or Google Scholar, while students with low learning motivation admit that they will further study the course material only if

they have spare time. This finding is supported by the study of Jirout et al. (2018) about curiosity as a natural emotion in humans in seeing everything new, interesting, and emotionally engaging that encourages them to see and deepen it with their actions. This is also reported by Sagone and Caroli (2013). According to their study, the effective factors for students' creative thinking skills are as follows: (1) curiosity, (2) the inclination to look for new solutions and alternatives, (3) ability to visualize, and (4) willingness to take risks.

The interview results for persistence and resilience indicators show that some students try their best to take online application-based lectures. Most students admit that they always pay attention to and study the material taught, do the tasks on time, analyze the tasks given by the lecturers and do them as well as possible, actively express opinions and ideas, and work hard on the tasks. Creative students tend to try something new to explore something they have just met. On the other hand, people who are not creative will try to fulfill their needs only and will not be brave enough to try something outside of their comfort zone (Sinay, 2018).

Learning motivation also affects the level of student persistence and resilience in online lectures. Students with high motivation can diligently study for a long time, be resilient in solving various problems they encounter, and cannot easily stop trying until their goals are achieved (Fajari et al., 2020; Headden & Mckay, 2015). The higher the student activity is, the higher their learning motivation, and it will affect their future learning achievement. Students' persistence and resilience in taking online lectures can be seen in their high learning activities, as described in the interview results (Bakar, 2014).

## 5. Conclusion

The results indicate that overall student learning independence can be categorized as moderate. The following two indicators have the lowest score: the ability to work independently and confidently. Also, the indicators with the highest scores are learning discipline and learning responsibility. Furthermore, the study results show that overall student creativity in learning can be categorized as moderate. The two indicators with the lowest score are the high flexibility and high originality, while the indicators with the highest scores are high curiosity, persistence, and resilience.

## 6. Recommendations

According to the findings, the following recommendations can be developed:

- A review of the other internal aspects of students in online lectures in the COVID-19 process, such as learning styles, critical thinking skills, communication skills, and student digital literacy.
- Parents' views about online lectures
- Effective design of online lectures
- A limitation of this study would be that there are still a few subjects that do not generalize data for all students. Thus, the limitation stemming from this matter might arise as a generalizability limitation problem, and it may be difficult to generalize the results to the comparable populations. Hence, future researchers should expand this research's subject to the national level, based on areas such as a city, a province, or an organization such as a faculty or a university.

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