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Development of Elementary Students' Learning Independence Instrument

Pratiwi Dwi Warih Sitaresmi^{1*}, Yulina Fadilah², Nur Fadhilah³
^{1,2,3} Institut Ahmad Dahlan, Probolinggo, 67239
*Pratiwi Dwi Warih Sitaresmi: *pratiwidws23.math@gmail.com*

ABSTRACT

Primary school, as one of the main components of the education system, is the foundation for students' intellectual development, character, and independence. Learning independence is a critical element in achieving the goals of quality basic education. Through independent learning, students can hone their metacognitive, problem-solving, and self-responsibility skills, all of which support the achievement of national education goals. Although learning independence plays a key role, its implementation at the primary level does not always go smoothly. Many factors influence students' learning independence, such as teaching patterns, parental support, and the learning environment. Generally, teachers still focus more on assessing the cognitive aspect, i.e. knowledge, while assessment of the affective aspect (attitude) is often limited to direct observation of student behavior. The importance of developing instruments to measure the learning independence of elementary school students can be seen from the perspective of assessment and improving the quality of learning. To overcome these challenges, the development of student learning independence instruments emphasizes the need for contextual and locally adaptable measuring instruments. This study used the Research and Development (R&D) method, which was modified from the 4-D model to the 3-D model, which includes the Define, Design, and Develop stages. In this study, the questionnaire instrument used three indicators of learning independence, namely 1) taking steps independently (initiative), 2) setting goals and efficient learning strategies, and 3) reflecting on it (responsibility and discipline). The results showed that the instrument developed was valid and reliable, making it suitable for assessing students' independent learning abilities..

Keywords: learning independence, elementary student, 3-D model

INTRODUCTION

Learning independence is a critical element in achieving the goal of quality basic education. According to (Badjeber, 2020; Hastuti, 2020), learning independence includes students' ability to organize and manage their own learning, and develop intrinsic motivation to learn. This includes students' ability to organize learning tasks with full responsibility, complete tasks independently, and play an active role in the learning process (Santoso & Ainulhaq, 2023). This is in line with the opinion of (Hariyadi et al., 2023; Matsani & Rafsanjani, 2021), which states that learning independence is a key factor in achieving academic achievement and personal development. Research shows that student learning independence has a positive correlation with cognitive learning outcomes in various subjects, such as Mathematics (Rijal & Bioedukatika, 2015), Biology, Chemistry (Destri & Hutapea, 2022), and Religious Education (Bukit & Tarigan, 2022). Students with high learning independence tend to achieve success in the learning process, so it is important for them to develop strong learning independence (Nur Fadila et al., 2021). In addition, learning independence can also encourage increased student academic achievement.

Although learning independence plays a key role, its implementation at the primary level does not always go smoothly. Many factors affect students' learning independence, such as teaching patterns, parental support, and learning environment (Mulyawati & Christine, 2019; Widyastuti, 2019). According to studies by (Nurfadilah & Hakim, 2020; Saragih, 2020), the environmental conditions around students can affect their level of learning independence. Limited access to educational resources, such as libraries and technology, can be a major obstacle. Students

in rural areas or with low economic backgrounds may have limited access to textbooks and supporting materials, affecting their ability to learn independently. Furthermore, according to research (Mulyawati & Christine, 2019; Purwaningsih & Herwin, 2020; Rachmawati, 2018), parental support has a significant impact on the development of children's learning independence. Departing from the conditions experienced by fifth grade students at SD Muhammadiyah Probolinggo and MI Muhammadiyah Probolinggo, there is a lack of student learning independence. This is reinforced through interviews with teachers, that students do not have optimal learning independence.

Assessment in the learning process includes three aspects, namely cognitive, affective, and psychomotor aspects. Teachers need to use appropriate assessment tools or instruments to measure the extent of students' understanding of certain material. Generally, teachers still focus more on assessing cognitive aspects, namely knowledge, while assessment of affective aspects (attitudes) is often limited to direct observation of student behavior. The importance of developing instruments to measure the learning independence of elementary school students can be seen from the perspective of assessment and improving the quality of learning. According to (Nuritha & Tsurayya, 2021; Rohmah et al., 2023; Usman, 2018), measuring learning independence is not only an evaluation tool, but also a guide to designing more effective learning strategies. Valid and reliable instruments can provide in-depth information about the level of student learning independence, helping educators and policy makers to adjust learning methods.

Furthermore, instruments that measure learning independence can provide empirical data that can be used to understand the factors that influence primary school students' learning independence. With a better understanding of learning independence, educators can design appropriate interventions to improve students' learning independence. For example, if identification shows that students in urban environments have limited access to educational resources, then solutions can be focused on improving such access. Research by (Audhiha et al., 2022; Kurniasih et al., 2023; Wahyudi et al., 2022) emphasizes the importance of instruments that are contextual and locally adaptable. Instrument development must be specific and relevant to the intended population in order to provide accurate information (González-Hernando et al., 2013; Luo et al., 2019). In addition, the instrument should be designed in such a way that it is easy for students to understand and complete, so that it can provide accurate and relevant data (ElSayed et al., 2021).

The importance of learning independence has a significant impact on students' academic success and their ability to solve problems, and contributes to improved learning achievement. The gap between student independence and curriculum demands creates obstacles in curriculum implementation. This condition has an impact on the learning process and learning outcomes. In the field, there is no instrument that can measure student independence related to 21st century skills, which can actually help students learn more effectively. Considering how important learning independence is for student success, an appropriate measuring tool is needed to assess student learning independence. Therefore, a valid and reliable student learning independence instrument is needed. With this instrument, it is expected that the learning process can take place according to the demands of the curriculum and produce optimal learning achievement.

METHOD

The research method used is Research and Development (R&D) research using the 4-D model modified into a 3-D model consisting of 3 stages namely Define, Design, and Develop. The Define stage, which aims to define and explain instructional requirements, involves a more focused analysis. Researchers began to analyze the problems found in the field. After that, researchers look for references related to the instrument to be developed. Design stage, the main focus is the initial design of the instrument. This stage begins the selection and format of the instrument, as well as making a grid of instruments to be developed. The Develop stage, compiling instrument items and their completeness by paying attention to the writing instructions and the arrangement of statement items, modifying the instrument, which will be validated by the validator. Although much has been produced since the defining stage, the results are considered an initial version that needs to be adjusted before it becomes an effective final version. In the development stage, there are also

activities to test the product design of the learning independence instrument on the actual target subjects.

In this study, the questionnaire instrument used three indicators of learning independence, namely 1) taking steps independently (initiative), 2) setting goals and efficient learning strategies, and 3) reflecting on it (responsibility and discipline). The preparation and development of instruments requires validity from experts. The development of the learning independence questionnaire instrument will be evaluated to assess the level of validity and reliability. The goal is that the resulting instrument has good quality and can accurately measure what should be measured (Qomariah et al., 2022) This step is needed to ensure that the instrument is consistent in measuring student learning independence. The sample in this study consisted of 50 respondents from grade V elementary schools in Probolinggo City. Researchers used random sampling in this study to ensure that each member of the population had an equal chance of being selected as part of the sample. The scoring system of this study uses a scoring system that refers to the Likert scale with four alternative answers, Always, Often, Rarely and Never. The initial score obtained by students is the total assessment of the answers.

The data analysis technique used to measure the validity of the instrument from the validation results is the percentage formula.

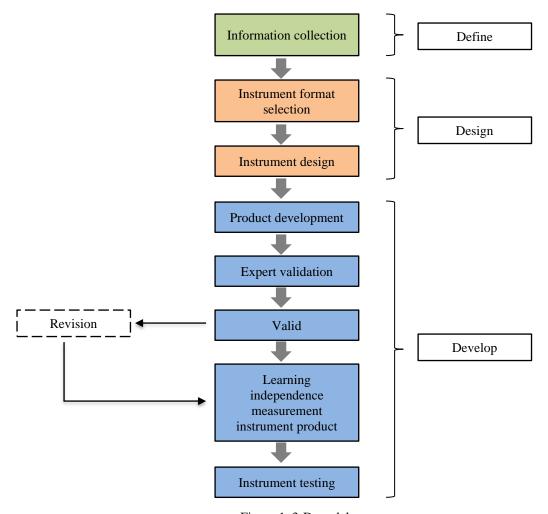


Figure 1. 3-D models

Table 1. Criteria for Instrument Validity

Criteria	Validity
0%-50%	Invalid
50,01%-70%	Less Valid
70,01%-85%	Fairly Valid
85,01%-100%	Valid

Data analysis was conducted using instrument validity obtained through corrected item-total correlation values with a minimum value of 0.3 for each related dimension or construct. In addition, reliability is measured using the Cronbach Alpha index, which is expected to have a value above 0.6 and below 1 (Maniq et al., 2022; Qomariah et al., 2022), to ensure the resulting instrument is of good quality.

RESULTS AND DISCUSSION

The development design used in this study is 3-D adapted (Thiagarajan, 1974), which are Define, Design, and Develop.

Define Stage

The Define stage analyzes the needs and context of using the instrument. At this initial stage, a preliminary analysis was carried out, this was done by making observations, giving questionnaires and conducting interviews with teachers in several elementary schools in Probolinggo City. This aims to determine the needs and formulate the problems that will be sought for solutions in this study (Farida, Pratiwi, et al., 2020; Farida, Suryadi, et al., 2020). The findings in the field, obtained information that teachers use textbooks that are difficult to understand and less interesting. In addition, students are required to study independently at home, so students are asked to have a good attitude of learning independence. However, the teacher does not yet have an instrument to measure students' learning independence. In this case, the researcher began to look for relevant material through journals about student learning independence, so that the instrument developed could really measure the level of student learning independence. In addition, a study by (nwar et al. (2017) highlighted the need for instruments that can be adapted locally, according to the specific characteristics of each educational environment.

Design Stage

The Design stage begins to create an instrument design that is responsive to the needs and characteristics that have been determined at the Define stage. Instrument design must consider the clarity of the questions, the format of the measurement scale, and readability for students (Supardi, 2015). The indicators of learning independence developed in this instrument are 3 points, namely 1) taking steps independently (initiative), 2) determining goals and efficient learning strategies, and 3) conducting self-reflection (responsibility and discipline). The following is a questionnaire grids for student learning independence:

Table 1. Students' Learning Independence Instrument Grids

Indicator	1 able 1. Students' Learning Independence Instrument Grids Statement	Item	
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Taking steps	I prepare my own books and stationery before attending	1	
independently	lessons at school		
(initiative)	I always wake up early to attend lessons at school	2	
	I study at home to get good grades	3	
	I have other textbooks besides those provided by the school	4	
	I like to do practice questions in my school books	5	
	I always read the book before the teacher enters the class	6	
	I always write down the lesson material in the book, to	7	
	make it easier when studying	/	
	Despite school holidays, I always study at home	8	
	I do my homework by cheating my friends	9	
	I am lazy to ask the teacher if I haven't understood the	10	
	subject matter	10	

	I am not actively involved in class if not appointed by the teacher	11
	I make a summary of the material to make learning easier	12
	I always try and do practice questions when I have free time	13
	I study with focus without doing other work	14
Setting goals and	I play without paying attention to the teacher during class	15
efficient learning strategies	I do the exercise questions in the book without being instructed by the teacher	16
	I look for practice questions other than books provided by the school	17
	I always repeat the lesson after the day's learning ends	18
	I keep quiet when I don't understand the material taught by the teacher	19
	I still do my homework even though I am sick so that I will not fall behind my friends	20
	I always repeat lessons at school when I get home	21
	I choose not to do difficult problems	22
	I often sleep in class	23
	I study the next material first at home	24
Self-reflection	I do not utilize my study time well	25
(responsibility and	I always tidy up my study tools after finishing the lesson	26
discipline)	I do my own assignments	27
<u>-</u>	I diligently do practice questions in the book to expand my knowledge	28
	I study only when there is a test coming up	29
	I make notes on the material to make it easy to remember	30
	I do the test according to my ability honestly without the help of friends	31
	I am lazy to solve problems that I do not understand	32
	I ask the teacher/friends/parents about the material that I have not understood	33
	I ask the teacher politely if I don't understand	34
	I ask my friends if I am absent from school	35
	I often leave the class during class time	36
	I often do not submit my homework	37
	I always obey school rules	38

Develop Stage

The Develop stage is when the implementation of the instrument design into a physical or digital form that can be used in the actual context. This development process must ensure that the instrument meets the eligibility criteria and can be applied properly. After the instrument grids are compiled, then develop the grids into questionnaires. At this stage, small-scale instrument trials need to be carried out to identify potential improvements and ensure the feasibility of the instrument (Adib, 2017).

Furthermore, the developed instrument must be feasible by the selected expert (expert judgment). Product feasibility is done to get input or suggestions for improving instrument development. The feasibility of the product was carried out by two lecturers who had studied S3. The initial validation results obtained a score of 94% with a very good validity category. For this reason, this student learning independence instrument can be used with revision. Some suggestions given by validators are: 1) improve the sentence so that it is easy for students to understand, 2) you should avoid the word 'no', use the word 'yet' to measure students' abilities, 3) the word 'always' should be replaced by the word 'like'. This is in line with the statement (Sukendra & Atmaja, 2020), the language of an

instrument must be understood by students and statements must be in accordance with the indicators.

CONCLUSION

Student learning independence is a learning activity where students act independently without depending on others and have the motivation and sense of responsibility to complete their own learning tasks. Given the importance of learning independence to the success of student learning, a measuring instrument is needed to measure it. Based on the results of the data test, the student learning independence questionnaire instrument received valid and reliable qualifications, that the student learning independence questionnaire instrument is suitable for measuring student learning independence.

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BIOGRAPHIES OF AUTHORS



Pratiwi Dwi Warih Sitaresmi, was born in Probolinggo, East Java on January 23, 1991. She graduated with a Bachelor of Science (S.Si) degree in Mathematics from the State University of Malang in 2014, then obtained a Master of Education (M.Pd) degree from the State University of Malang in 2016, and is now continuing her Doctoral Program at Muhammadiyah University of Malang. Besides serving as a Permanent Lecturer at Ahmad Dahlan Institute Probolinggo, East Java. The author is also active as a Facilitator of the Movers School Batch 3. The author can be contacted at the email address: pratiwidws23.math@gmail.com



Yulina Fadilah was born in Pasuruan, East Java on July 29, 1990. Graduated from S1 Mathematics Education and earned a Bachelor of Education (S.Pd) degree from Muhammadiyah University of Malang in 2012. Then continued his master's study at the State University of Malang in the Elementary Education study program with a concentration in Elementary Mathematics Education. Currently serving as a Permanent Lecturer at the Ahmad Dahlan Institute of Probolinggo. The author can be contacted at the email address: yulinafadilah@gmail.com



Nur Fadhilah, a student of Tadris Mathematics at Institut Ahmad Dahlan Probolinggo in the 6th semester. In addition, she is active in the HIMATIKA organization and as an elementary school teacher in Probolinggo City.