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Original Research Article

Validity of Learning Tools with Peer Tutor Model in Improving Student Learning Outcomes and Self Efficacy

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Abstract

This study aims to determine the validity of learning tools with peer tutoring models in improving student learning outcomes and Self Efficacy on Newton's Law material. The development model used is the ASSURE model, but only to stage 5 (Requires Learner Participation). Test the product in step 5 using Tessmer. The validation data subjects were 3 expert validators, while the practical data subjects were 2 partner teachers, and the effectiveness data subjects were grade VIII students of SMPN 10 Banjarbaru. The type of data collected is validity data. Validity data collection techniques are carried out through the validation of learning tools developed using the validation sheet instrument. Data analysis was performed using descriptive techniques. The results showed that, the developed learning tool has a very valid category. This result is supported by the opinions of 3 students in individual trial activities (one to one). Based on the results of development and research shows that the learning tools developed are valid, practical and effective.

Keywords: Peer tutors, learning outcomes, self efficacy, assure, learning tools.

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INTRODUCTION

The success of a learning activity can be seen from the results of learning and self-efficacy that are formed in students, learning activities are said to be successful if students can achieve the criteria of SKL (standard competency of graduates). In the explanation of Article 35 of Law Number 20 Year 2003 it is stated that the graduate competency standard (SKL) is a qualification of the ability of graduates which includes the attitudes, knowledge, and skills of students that must be fulfilled or achieved from an educational unit at the level of primary and secondary education. Based on the graduation data of junior high school students in the Banjarbaru municipal schools in the 2015 National Exam (UN) through 2017, the average UN score for natural science subjects over the past three years has not been satisfactory. In 2015 to 2016 there was a decline in the average UN score in 7 schools out of 14 existing schools, but in 2016 to 2017 the situation was precisely all state junior high schools experienced a decline in the UN average, in fact only 2 schools could achieve grades above 55, namely SMPN 1 Banjarbaru and SMPN 2 Banjarbaru.

There are indications of low self efficacy in students. This indication is shown by their attitude when answering questions on the National Examination (UN). Even though the previous answer is correct, but because of the lack of confidence (efficacy) of students, then they delete it and replace it with other answer choices, and it turns out to be wrong. Self efficacy influences learning outcomes[1]. Confidence (efficacy) is the main basis of an action. The results of the 2015 PISA study, showed an average score of self-efficacy literacy of students in Indonesia was 403. These results put Indonesia ranked ninth from the bottom, which ranks 62 out of 70 participating countries[2, 3]. The self efficacy literacy score and average score do not differ greatly from the results of the previous PISA test and survey in 2012 which showed a score of 375, placing Indonesia at number 64 out of 65 countries[2]. From these results, it shows that the self efficacy of students in Indonesia is still relatively low.

The low quality of learning outcomes and self-efficacy of students is influenced by various aspects both directly and indirectly related to the learning process of students at school[4]. These aspects include; learning tools that are used are not sufficient to improve learning outcomes and students' self-efficacy, the approach used also does not involve students. The approach that most educators use is lectures, learning like this causes the learning process that occurs is only the transfer of knowledge without involving students in

the process of understanding a science. Transfer of knowledge alone without involving students is what causes the results/output of students in Indonesia far behind compared to other countries [5]. In addition, the methods/strategies used only make students as objects, not learning subjects. This is thought to be the cause of the low quality of student learning outcomes and the difficulty of building self-efficacy in students.

Based on the description above, the researcher concludes that it is necessary to develop learning tools oriented towards a learning model that can solve students' learning problems, as well as provide opportunities for students to actively build their own aspects of knowledge, attitudes and skills. Such learning is very important to be realized in the classroom, because learning is active mental work, not passively accepting teaching from educators. In this process educators play an important role by providing support, thinking challenges, serving as a trainer, but students remain the key to learning [6].

Although there are many learning tools available from various sources (such as experts/developers from the central government, local government, and private parties) as a reference for educators. However, with the progress of education demands so rapidly today educators are still required to be able to develop and implement an ideal learning tool by considering things such as the characteristics of the subject matter to be taught, personal characteristics of students who study it, geographical conditions, and social- the culture of the local area while still paying attention to the guidelines mandated in the curriculum.

Based on aspects of the causes of low learning outcomes and self-efficacy that occur in students, the learning of science will be more optimal if learning moves from being teacher-centered to student-centered or the role of educators who are only as conveyers of learning material (transformer) switches to the role of facilitator. There are many models that can be used in the learning process in the classroom by involving the active role of students, one of which is the Peer Tutor model. The use of Peer Tutor learning models is more effective compared to learning that uses conventional learning models in terms of improving aspects of attitudes and student learning outcomes [7]. Through Peer Tutors, students are not only involved in learning, but peer tutors can also provide solutions / assistance to their peers in learning difficulties. The above opinion is corroborated by the results of students' character analysis by the researcher. Where 100% correspondents answered more often to classmates who he thought were smart to help his difficulties in learning.

In the same questionnaire, 100% of the correspondents answered questions about science materials that were difficult to learn during class VII were those related to the laws and formulas and the application of formulas in the matter of calculation. One of the natural science materials related to laws and formulas is Newton's Law material. There are three laws that must be understood by students in studying Newton's Law, namely Newton's First Law, Newton's Second Law and Newton's Third Law, and linking these laws with the reality encountered in everyday life. An understanding of formulas and their application in matter of counts is contained in Newton's Law II sub material. To make it easier for students to understand this material, the teacher can use the Peer Tutor learning model.

RESEARCH METHODS

This type of research is classified into development research. Called development research because in this study the development of learning tools was carried out including syllabus, lesson plans, teaching materials, LKPD and assessment sheets (LP). Development of learning tools refers to the ASSURE model. The research procedure begins with the Student Character Analysis (Analyze Learners), then continues with the Determination of Learning Objectives (State Objectives). The next step is Choosing Methods, Media and Teaching Materials (Select Methods, Media, and Materials) and Using material (Ultilize Material). Finally, it involves the participation of students (Requires Learner Participation). The study ends until the results of only formative evaluation (stage 5) are obtained. The Sumative Evaluation at stage 6 of ASSURE was not carried out due to the limitations of researchers in terms of time, energy and cost. The steps to formative evaluation results from this study are in line with the layers of formative evaluation in Tessmer. So to obtain the results of formative evaluation, researchers use the stages of formative evaluation according to Tessmer. Data collection techniques through one type, namely validity. The total number of students who became the study sample were 63 students.

RESEARCH RESULTS AND DISCUSSION

Learning Tools Validation Results

Validated learning tools include syllabus, lesson plans, LKPD, teaching materials, and assessment sheets obtained from the opinions of three experts/experts (Expert review).

Table-1: A summary of the results of the syllabus validation by three experts is presented in the following

Indicator	Score		
	V1	V2	V3
Syllabus			
Systematization Sequence of Syllabus	4	4	4
KD compatibility with KI	4	4	4
Coverage of subject matter supporting KD achievement	3	4	4
Learning is designed and developed based on KI, KD and potential learners	3	4	4
Inclusion of 5M activities	3	4	4
The determination of the assessment is adjusted to KI, KD, subject matter and learning	3	4	4
Determination of media, tools and materials tailored to KI, KD, the main material, learning and assessment	4	4	3
Use of language in accordance with EYD	4	3	4
Simplicity of sentence structure	4	3	4
The suitability of the time allocation used with learning	3	4	3
Average score	**3,5**	**3,8**	**3,8**
Average of the three Validators		**3,7**	
Lesson plan			
Complete RPP components	4	4	3
Inclusion of student preparation activities for learning, motivating, apperception, information on learning objectives, and material information	4	4	4
Clarity and logical formulation of learning objectives, and information	3	3	4
Completeness of the formulation of learning objectives	4	4	4
There is integration of character education in the RPP	3	3	4
Inclusion of preliminary, core and closing activities	4	4	4
The suitability of the step (learning experience) with the learning objectives and time allocation	4	4	4
Inclusion of 5M activities	4	4	4
Learning steps allow the growth of various life skills	3	3	3
Learning activities and their steps place more emphasis on student learning experiences rather than on the teacher's experience	4	3	4
Utilization of learning resources that are in the immediate environment of students	4	3	3
Use of learning media	4	3	3
Utilization of learning models	3	3	4
Lists the tools and materials used during the learning	3	3	4
Include assessment instruments for the purpose of evaluating and evaluating learning outcomes	3	4	3
Include reference sources in the lesson plan	4	4	3
Average score	**3,6**	**3,5**	**3,6**
Average of the three Validators		**3,6**	
Teaching materials			
The material is relevant to the competencies that students must master	4	4	3
Depth of description in accordance with the level of development of students	4	4	4
The material presented is in accordance with scientific truth	4	3	4
The material presented is in accordance with the latest developments	3	3	4
The material presented in accordance with everyday life	4	4	4
Encourage students' curiosity	3	3	4
Encourage the interaction of students with learning resources	4	4	3
Encourage students to build their own knowledge	3	3	3
Systematic order of matter	3	4	4
Sentence structure according to the level of understanding of students	4	4	4
Making paragraphs in accordance with the level of understanding of students	3	3	3
Use of pictures that support the explanation / description of the material	3	3	3
Presentation of the picture is equipped with a description of the picture	4	4	3
Spelling accuracy	4	4	4
Appropriate use of the term	3	3	3
Accuracy in structuring sentences	3	3	3
Average score	**3,5**	**3,5**	**3,5**
Average of the three Validators		**3,5**	

LKPD			
Give emphasis to aspects of the process of finding concepts	3	3	3
The accuracy of the cases presented	4	3	4
Systematic sequence	3	4	3
The use of images that are interesting and support the material presented	3	4	4
Use of language in accordance with EYD	4	4	4
Simplicity of sentence structure	4	4	4
The appearance of LKPD is interesting	3	3	3
LKPD efficiency in relation to time	4	3	4
LKPD efficiency in relation to costs	4	3	4
LKPD efficiency in relation to personnel	3	3	3
Average score	**3,5**	**3,4**	**3,6**
Average of the three Validators		**3,5**	
Spiritual Assessment Instrument			
The instructions for filling in the spiritual score are given in a clear and straightforward way	3	3	3
Task Details Performance is continuous and clear	4	4	4
Use of language in accordance with EYD	4	4	4
Simplicity of sentence structure in the details of the Performance Task	3	3	3
Average score	**3,5**	**3,5**	**3,5**
Average of the three Validators		**3,5**	
Character Rating Instrument			
Instructions for filling in the character score scores are given in a clear and concise manner	3	3	3
Task Details Performance is continuous and clear	4	4	4
Use of language in accordance with EYD	4	4	4
Simplicity of sentence structure in the details of the Performance Task	3	4	3
Average score	**3,5**	**3,7**	**3,5**
Average of the three Validators		**3,6**	
Cognitive Assessment Instrument			
Instructions in answering questions are given in a concise and clear manner	3	3	3
Each item corresponds to the learning objectives	4	4	4
Use of language in accordance with EYD	3	3	3
Simplicity of sentence structure	4	4	4
Average score	**3,5**	**3,5**	**3,5**
Average of the three Validators		**3,5**	
Psychomotor Assessment Instrument			
Instructions for filling in the Psychomotor assessment score are given in clear terms	3	3	3
Task Details Performance is continuous and clear	3	3	3
Use of language in accordance with EYD	4	4	4
Simplicity of sentence structure in the details of the Performance Task	4	4	4
Average score	**3,5**	**3,5**	**3,5**
Average of the three Validators		**3,5**	

Discussion of the Validity of Learning Devices

The RPP tools are valid based on 1) syllabus assessment, 2) RPP, 3) teaching materials, 4) LKPD, 5) assessment sheets. This research has resulted in a prototype of a valid, practical and effective RPP tool. Nieveen [8] in Mafumiko [9] explains the prototype means all products that are designed before getting the final product or duplicated and fully implemented in real conditions.

The lesson plan is valid based on syllabus indicators, lesson plans, LKPD, teaching materials and assessment sheets. The device is said to be valid if the assessment of all aspects validated has a good category [10]. A valid Learning Implementation Plan Tool if the components are in accordance with the validity indicators of the lesson plan [11]. Validation is one of the criteria that determine the quality of a product [12].

Students as users think that LKPD, teaching materials and evaluation tools are good and students' opinions are at least good categories [13]. Individual test (one-to-one) aims to identify grammatical errors, spelling, punctuation, unclear instructions, incorrect capitals, and missing graphics [14]. Individual tests complete evaluation information from the learner's point of view.

CONCLUSION

The results of research conducted in general are able to answer the research objectives. The purpose of this study is to improve student learning outcomes

and self-efficacy through the development of learning tools with Peer Tutor models in Newton's Law material that are valid, practical, and effective. The results of the development and research showed that the learning tools developed were considered appropriate for use.

Validity is done using the level of validation of experts (experts and practitioners) represented by two lecturers and one teacher. Based on the results of the validation data, the instruments including syllabus, lesson plans, teaching materials, LKPD, and LP LKPD meet the validity requirements (valid and very valid) based on the results of expert validation.

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