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# *Validity of LKS in the Form of Comics Integrated with Character Values to Improve the Science Process Skills of Class X High School Students*

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**Abstract –LKS is one of the independent teaching materials used in the learning process. This worksheet is designed in the form of a comic and integrates character values that will improve science process skills. This study aims to produce physics worksheets in the form of comics integrated with character values that are valid and practical to use in high school physics learning. This type of research is research and development (R&D) and the development model used is ADDIE which consists of five stages; (1) Analysis, (2) Design, (3) Development, (4) Implementation, (5) Evaluation. This research is limited to validity test and practicality test. The validity test was carried out by three experts and a limited trial to reveal the practicalities carried out at SMA N 1 Nan Sabaris, Padang Pariaman Regency. The instruments used are validity instruments and practicality instruments. The instrument was analyzed using a Likert scale. The analysis shows that the average validity is 86.68% with a valid category. The average practicality of teachers and students are 91.56% and 94.34%, respectively, with practical categories. This is also supported by the score of student performance skills in the LKS with an average of 84. Based on the results of the study, it can be concluded that the LKS in the form of comics integrates the character values of motion materials to improve students' science process skills which are valid and practical to use for learning physics in Schools upper middle.**

**Keywords – LKS in the form of Comics, Character Values, Science Process Skills, ADDIE Model.**

## I. INTRODUCTION

In 2016 the OECD PISA released the results of the assessment through various PISA participating countries in 2015. From the results released by the OECD, it can be seen that Indonesia's position is far from other PISA participating countries. Indonesia ranks 63rd out of 69 participants, this shows that the quality of education in Indonesia must be improved. PISA is an assessment conducted for 5 year old that focuses on reading, science, math and problem solving skills. This assessment not only focuses on the ability of students to gain knowledge, but also looks at how students apply the knowledge they have gained. [1] [2]. The curriculum in Indonesia has undergone several developments so that students are able to compete in the 21st century so that all parties directly involved in the learning process can improve the quality of human resources. The learning process is the relationship between students and educators, students and other students and the relationship between students and learning resources. Good learning is learning that can improve the character of human resources to face global competition.

21st century learning can build students' knowledge and skills. Learning skills and innovation in the 21st century is prepared to improve 21st century abilities which include creativity, innovation, critical thinking, problem solving, communication and collaboration [3] [4]. The development of the 21st century is marked by significant changes, especially in the world of education. UNESCO has established three indicators of the quality of human resources, namely the average age, education level, and per capita income. This indicator is used as the basis for achieving quality human resources. The government's efforts to answer the

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challenges of 21st century learning quality by referring to the rule of law regarding the National education system in Law no. 20 of 2003 in particular article 3 which states that National Education functions to develop capabilities and shape the character and civilization of a dignified nation in the context of educating the nation's life, aiming to develop the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen.

The Ministry of Education and Culture of the Republic of Indonesia has made a policy to integrate character education into the curriculum, starting from the preschool level, basic education, secondary education, both in formal and non-formal education to tertiary institutions. According to the Minister of Education and Culture, character education is a must because education does not only make students intelligent in their minds, but also has character and manners so that their existence as members of the community becomes meaningful, both for themselves and for others. The excitement of students cheating to get good grades, having no manners, fighting, skipping school, and speeding on the highway are the basis for the need for character education to be applied in learning at school, including learning science.

According to Amien (1994) in (Saputro, 2019) to enter the current era of globalization, improving science learning activities requires the following: 1) a problem-solving approach to curriculum and teaching organization, 2) individual teaching, 3) cooperative activities, and 4) activities of 3 laboratories (Agung Nugroho, et al, 2021:16). Of the four components needed to improve science learning activities in this era of globalization, it appears that laboratory activities and collaborative or collaborative activities are some of the important components in improving science learning.

The first preliminary study was the result of interviews with two physics teachers, that SMA N I Nan Sabaris used the 2013 curriculum. The components used in the interviews were the implementation of physics learning and teaching materials used by teachers and students. The instrument used is an open type interview sheet. The results of the first interview about the implementation of learning, the teacher said that learning physics is closely related to natural phenomena that can be observed, so that students are directed to understand natural phenomena from the point of view of physical theory. Observing motion phenomena in everyday life can improve students' science process skills and character formation through values that are integrated into physics material. Second, in the learning process the values of character education have been applied, such as religious values, namely the culture of reading prayers and reading the Qur'an before learning. Third, regarding the teaching materials used by teachers and students, there is information that the obstacles faced in the learning process are that teaching materials are not integrated in the material, the teaching materials used are in the form of modules and handouts designed by the teacher, as well as textbooks available in schools. Fourth, student learning outcomes in each competency test score above the KKM and some are below the KKM. There are teachers who carry out remedial and enrichment for students after the competency test but the remedial results of students have not reached the KKM.

The second preliminary study was to find out the use of physics teaching materials in five high schools in Padang Pariaman Regency. The instrument used is a questionnaire sheet on the use of learning resources. The results of the survey can be seen that textbook learning resources have the highest average value compared to student worksheets, handouts, and modules. Textbooks at school are used by students with high academic abilities and low academic abilities. This severely limits the ability of academic development to result students. The exam is above the KKM. Students who score above the KKM, really need to be given an enrichment program. Enrichment programs cannot be carried out in schools due to insufficient time. For this reason, students whose scores are above the KKM need independent teaching materials that can facilitate enrichment programs that can be done anywhere and anytime. LKS is an independent teaching material. LKS available in schools still have limitations in growing student interest in using teaching materials. Comics have aesthetic value for the reader and contain moral values that can be directly lived by the reader. For this reason, in this study, LKS in the form of comics will be developed that can assist students in analyzing physics cases regarding motion related to character values in motion material, so that physics material that initially increases knowledge can also increase knowledge in physics material that is integrated with values. character values can be explored in LKS in the form of comics.

The third preliminary study is the result of the analysis of science process skills through scientific activities. The scientific activities were analyzed based on the basic physics competencies of class X SMA. The instrument used was a questionnaire sheet. The result of science process skills obtained is 52.06. From this value, it can be seen that the students' science process skills are still low. This is because there are still many teachers who have not carried out scientific activities in the learning process and the

limitations of teachers in exploring physics material that cannot be reached by the senses into teaching materials. In other words, students' science process skills need to be improved in physics learning. Science process skills are closely related to training students' ability to solve problems in the form of cases that occur in everyday life that can foster student character values. In accordance with the 8 nature of character values where physics material can be integrated with character values that can be taught with real-world situations and encourage students to make connections between their knowledge and cultivate character values in life. For this reason, it can be concluded that the character values used in LKS in the form of comics can train students in solving problems so that they can improve students' science process skills. Starting from the ideal situation with the conditions in the field, it was found that there were gaps.

One solution that can be done to overcome the problem is the development of LKS in the form of comics integrated with character values to improve the science process skills of class X high school students. Given that what students need at this time are independent teaching materials that are practically carried anywhere and anytime and can grow the values of character education in everyday life. This comic worksheet contains several illustrations and learning activities to analyze cases that are integrated with character values to improve students' science process skills. So, these events and objects can be presented in real in the classroom. This can encourage the creation of meaningful learning for students. LKS in the form of comics developed is made in the form of LKS in the form of enrichment comics. LKS in the form of enrichment comics is LKS in the form of comics given to students who score above the KKM. LKS in the form of enrichment comics cannot be found in general textbooks that are used as learning resources in the classroom, where enrichment materials often cannot be delivered by teachers in classroom learning activities due to time constraints. To enrich knowledge, students are encouraged to do it independently outside of class hours. Thus, independent learning can be carried out with the help of teaching materials in the form of LKS in the form of comics

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## II. Research Methods

This type of research is educational design research with ADDIE development model. The ADDIE model has five stages, namely (1) analysis phase, (2) design phase, (3) development, (4) implementation, (5) evaluation. This study was conducted to determine the validity and practicality of using physics worksheets in the form of comics integrated with character values with an instrument assessment in the form of a questionnaire.

The subjects of this study were three lecturers of FMIPA UNP and two physics teachers at SMA N 1 Nan Sabaris, Padang Pariaman Regency and six students at SMA N 1 Nan Sabaris, Padang Pariaman Regency as practitioners. The object of this research is physics worksheets in the form of comics integrated with character values as teaching materials for movement materials for class X SMA. The research instrument used was a validity questionnaire and a practicality questionnaire using data analysis, namely validation sheets and practitioner sheets using a Likert scale to determine the validity and practicality of the LKS in the form of an integrated comic strip of character values.

## III. Resultr and Discussion

1. Analysis Stage

    a. Basic Competency Analysis

The basic competency analysis carried out is seen in the basic competencies in (KD.3) and basic skills competencies (KD. 4) physics class X. The basic skills analysis on knowledge consists of six basic competencies in knowledge in semester 1. In each

competency seen integration and application in everyday life. The average value of the results of the basic competency analysis on knowledge can be seen in Figure 1.

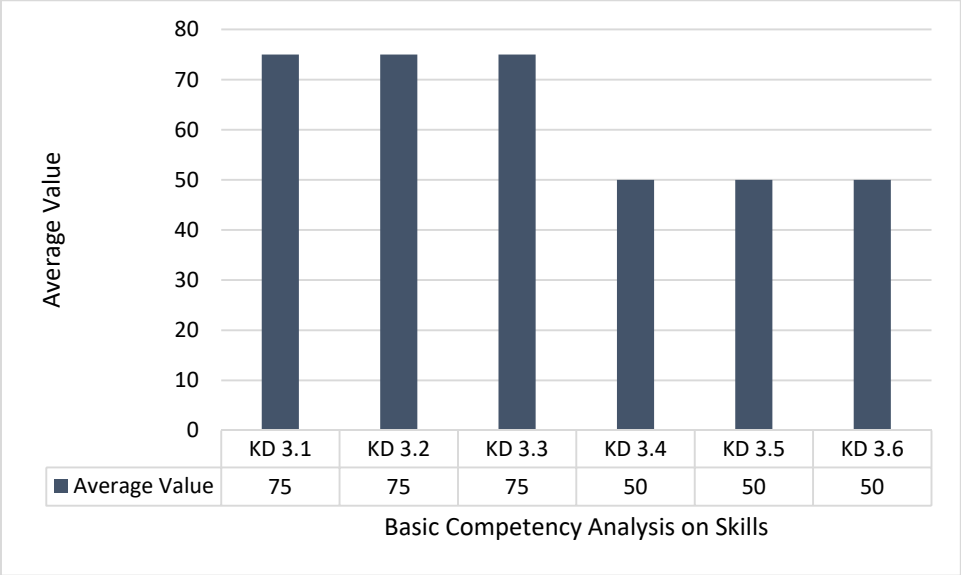


Figure 1. Analysis of Basic Competencies in Knowledge

Figure 1 shows the competency analysis on knowledge in physics learning for class X SMA. The value of basic competence analysis on knowledge consists of eleven value groups, namely 50 and 75. The average value of the eleven basic competencies on knowledge is 65.9. Which is in the sufficient category.

Knowledge competency analysis on skills consists of six basic competencies in semester 1. In each competency, the integration and application in everyday life is seen. The average value of the results of basic competency analysis on knowledge can be seen in Figure 2.

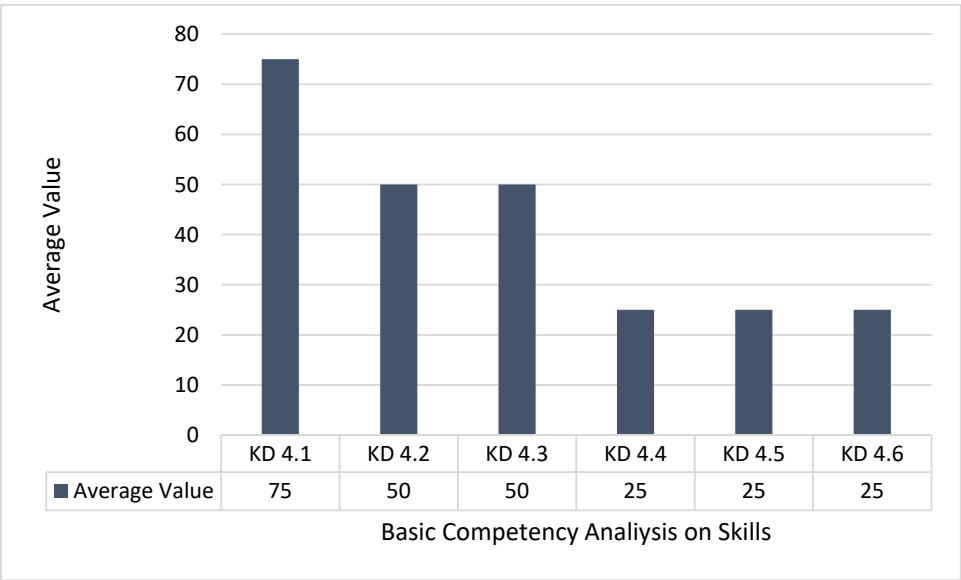


Figure 2. Analysis of Basic Competencies in Skills

Based on Figure 2, competency analysis on skills in physics learning for class X SMA. The value of basic analysis on skills consists of three groups of values, namely 25, 50 and 75. The average value of the eleven basic competencies in skills is 47.7 in the poor category.

b. Analysis of Student Characteristics

This analysis was conducted to determine the characteristics of students in learning. assessment components consist of background, interests, attitudes, learning motivation, learning styles. The graph of the analysis of student characteristics for each component is shown in Figure 3.

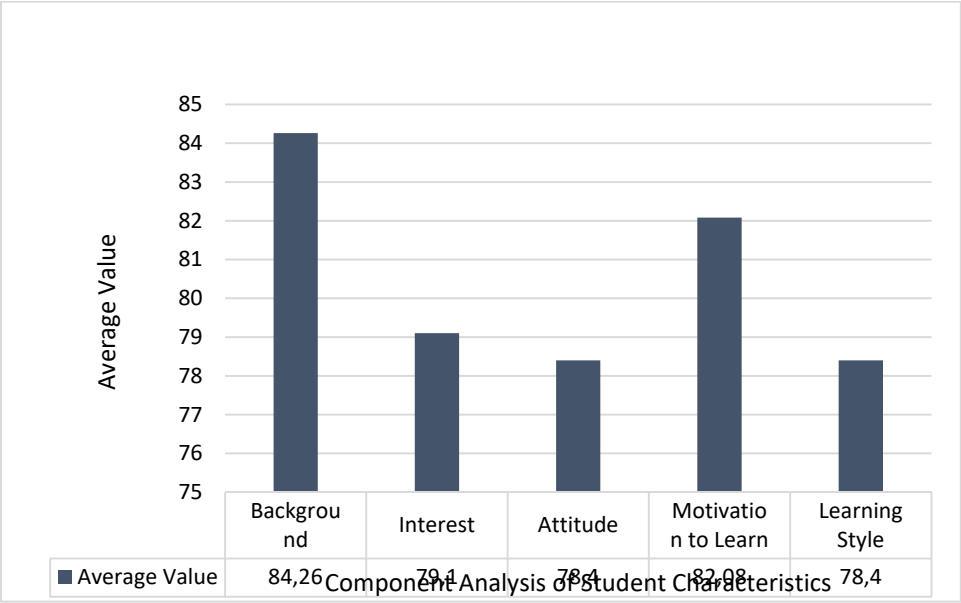


Figure 3. Student Characteristics

Based on Figure 3, the analysis of the characteristics of class X high school students. The value of the analysis of student characteristics consists of five groups of values, namely 84.26, 79.1, 82.08, and 78.4. the average value of the five components of student characteristics is 80.44. This means that students have capable backgrounds, good interests, good attitudes, good learning motivation and good learning styles.

c. Material Analysis

Analysis of learning materials was carried out to determine the integration of the subject matter in each Worksheet contained in the physics worksheets used in schools. The physics worksheets analyzed were physics worksheets for class X in semester 1. Physics worksheets for class X in semester 1 consisted of six worksheets. The results of the analysis of learning materials for semester 1 can be seen in Figure 4.

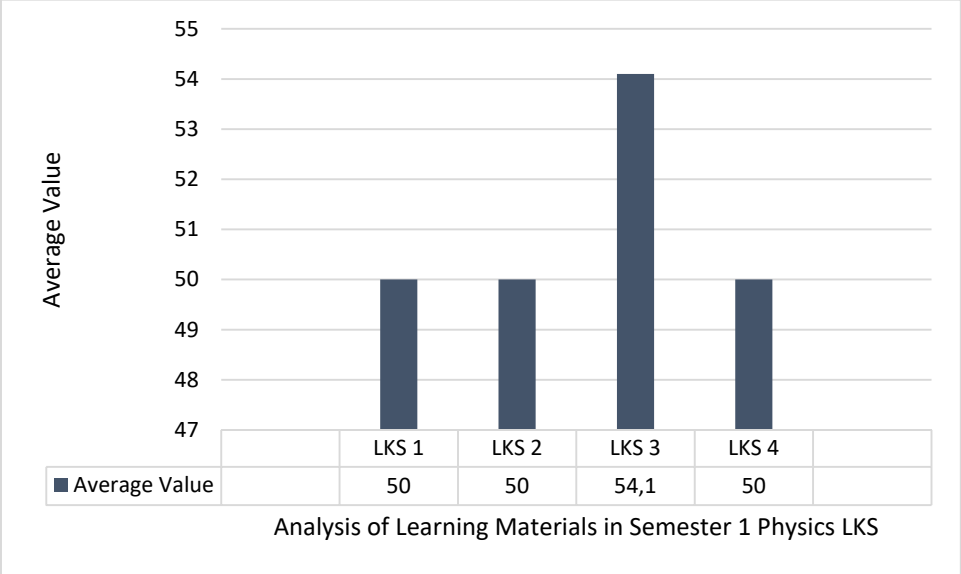


Figure 4. Results of Semester 1 Learning Material Analysis

Based on Figure 4, it can be seen that the picture of the integration of learning materials in the use of physics worksheets for class X semester 1. The integration of materials with the use of worksheets has an average value of 34.01 with a poor category. This illustrates the need to improve the integration of learning materials in physics worksheets for class X SMSeter 1 as a student handhold, so that students get learning materials.

2. Design Stage

The general picture of LKS in the form of comics integrated with character values and students' science process skills is as follows: (a) cover LKS, (2) Learning Instructions, (3) Competencies achieved, (4) Supporting Information, (5) Activity Sheets, (6) Evaluation.

3. Development Stage

Based on the analysis results per aspect, the validity level of the three validators can be seen in figure 5.

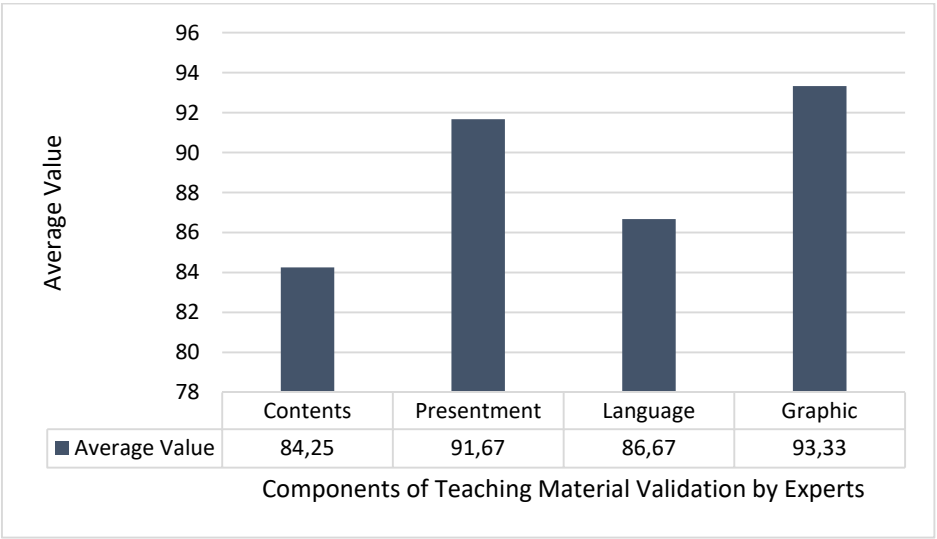


Figure 5. Average Value of LKS Validation Assessment in the form of ComicBased on graph 5, the average validation assessment of LKS in the form of comics is 88.98 with the vlaid category.

## IV. CONCLUSION

Based on the research that has been done, it can be concluded that the LKS in the form of comics integrates character values in motion material for class X SMA/MA which was developed using the ADDIE model, which is valid. For the next researcher is hopes to test the practicality and effectiveness of using LKS in the form of comics integrated with character values that have been developed.

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## REFERENCES

[1] OECD.(2016). Country Note – Result from PISA 2015 Indonesia (Paris: OECD Publishing)

[2] OECD. (2016). PISA 2015 Assessment and Analytical Framework (Paris: OECD Publishing)

[3] Gusnedi, G., Ratnawulan, R., & Triana, L. (2018, April). Application of Student Book Based on Integrated Learning Model of Networked Type with Heart Electrical Activity Theme For Junior High School. In *IOP Conference Series: Materials Science and Engineering* (Vol. 335, No. 1, p. 012132). IOP Publishing.

[4] Rahmiwati, S. (2018, April). The Implementation of Integrated Natural Science Textbook of Junior High School be Charged on Character-based Shared Models to Improve the Competence of Learners' Knowledge. In *IOP Conference Series: Materials Science and Engineering* (Vol. 335, No. 1, p. 012076). IOP Publishing.