CONTENT FEASIBITY ANALYSIS OF GRADE X SENIOR HIGH SCHOOL PHYSICS BOOK

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CONTENT FEASIBITY ANALYSIS OF GRADE X SENIOR HIGH SCHOOL PHYSICS BOOK

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Abstract

Textbooks play an essential role in students' learning process. In physics learning, the textbooks could facilitate the scientific learning process. This study aims to find out the feasibility of the contents of the book entitled Physics Student Book 1 for Grade X Senior High School written by Purwanto Budi and Azam Muchammad 2019 published by PT Wangsa Jatra Lestari. Analysis of the feasibility of the contents of the book in this study is reviewed from several aspects, namely aspects of content feasibility, aspects of language, aspects of presentation, and aspects of graphic that BSNP has adjusted. The type of research used is qualitative descriptive research with check-list instrument as data collection tool. The analysis results in this study showed that in the aspect of content feasibility obtained a percentage of 80%, the linguistic aspect obtained a percentage of 78%, the presentation aspect obtained a percentage of 77%, and the aspect of graph obtained a percentage of 79%. These four aspects fall into the category of fulfilling, so the Physics Student Book 1 For Grade X Senior High School is worth to be used in the learning process.

Keywords: *Physics Textbook, Senior High School, Content Feasibility*

1. INTRODUCTION

Education is an effort to realize the learning process so that students actively develop the self-potential needed for themselves and society. There are several standards that must be met to achieve quality education. One of them is the fulfillment of adequate facilities and infrastructure. Where the most important means of use are textbooks. This is also emphasized by Mumpuni (2018) that textbooks can be used in the learning process. Books are an important source of learning for teachers and students. Where in the book has teaching materials that are very influential in the learning process. According to Sitepu (2012) textbooks are one of the supporting tools in determining success in the teaching and learning process of students at school and at home. This also agrees with Muaddab (2011) which states that books are one of the factors in increasing student understanding.

The functions of learning books include making it easier for teachers to continue learning, easily repeating material and presenting uniform material (Danim, 2013). Textbooks must meet due diligence in order to be used and get maximum results. BSNP (National Education Standards Agency) has set indicators of eligibility for subjects and levels of education that guarantee outstanding textbooks. The feasibility test is the feasibility of content, presentation, language and graphics.

Learning resources consist of several types, namely books, e-books, internet literacy, and cassettes (CD / DVD). Of the several types of learning resources, books are still the main choice for teachers and students. Books have the advantage of being very easy to understand. Even though in this era many students use Android, books are still a top priority in the learning process because when we use books, our eyes don't get bored quickly and are fresher than staring at an Android screen.

Analyzing textbooks is one way to determine the quality of books, this is done because it is to ensure that books are fit for use and meet national standards. Galilei (2014) said that to conduct book assessment, there are two types that must be considered, namely the feasibility of the book content and the feasibility of presentation. The eligibility of the contents of the textbook consists of:

a. The suitability of the material description with the Competency Standards (SK) and Basic Competencies (KD)
b. Accuracy of material
c. Supporting material

Meanwhile, the feasibility of serving consists of:

a. Presentation technique
b. Presentation of learning
c. Completeness of the presentation

According to Hikmah & Astuti (2018), analyzing books must pay attention to four aspects, namely:

a. The content feasibility aspect is the material that has been presented in the textbook. The content feasibility aspect consists of 9 indicators, namely: (1) the completeness of the material according to the learning objectives; (2) the extent of the material in accordance with KI and KD; (3) the depth of the material is in accordance with KI and KD; (4) accuracy of fact samples per material; (5) accuracy of legal concepts / sounds; (6) accuracy of procedures; (7) accuracy of sample questions per material; (8) accuracy of practice questions per material; (9) conformity with the development of science.
b. The presentation aspect is an aspect that contains concepts that are presented in an attractive manner and are able to arouse students' enthusiasm for learning. The presentation aspect consists of thirteen indicators, namely: (1) presentation systematics; (2) logical presentation; (3) presentation clutter; (4) suitability and accuracy of the illustrations with the material; (5) learning generator at the beginning of the chapter; (6) a concept map at the beginning of the chapter and a summary at the end of each chapter; (7) examples of practice questions at the end of each chapter; (8) practice questions at the end of each chapter; (9) accuracy of numbering and naming of tables / figures and attachments; (10) active involvement of students; (11) interactive communication; (12) scientific approach; (13) variation in presentation
c. The linguistic aspect is a communication tool that has a systematic order composed of language components and rules used in conveying information, ideas and ideas that are presented in oral or written form. The linguistic aspect consists of six indicators, namely: (1) suitability with the level of development of students; (2) accuracy in sentence structure; (3) harmony between paragraphs / chapters; (4) students' understanding; (5) accuracy in using terms; (6) the correct use of symbols / symbols.
d. The graphic aspect is part of the textbook that deals with the physical book. For the graphic aspect, it consists of six indicators, namely: (1) conformity of the book with ISO (International Organization for Standardization) standards; (2) display of layout elements on the front, side or back cover; (3) the illustrations are able to describe the contents of the book material; (4) placement of illustrations as background decoration so that they do not interfere with the title, text and page numbers; (5) placement of titles, sub-titles, illustrations and captions so that they do not interfere with the content of the material; (6) illustrations depict the material clearly.

In this global era, there are many physics books in circulation with different authors and publishers. Even though there are many physics books in circulation, we still don't know the quality of those books. With the existence of quality books, it can support the learning process so that learning physics which was difficult becomes easy because it uses quality books. A quality book can be reviewed through several aspects according to BSNP, namely aspects of content feasibility, linguistic aspects, presentation aspects and graphic aspects. With these four aspects, we can find out that the Physics book is suitable for use.

The question that arises in this research is "How is the feasibility of a physics textbook in terms of the feasibility of the content, the linguistic aspect, the presentation aspect and the graphic aspect?"

2. RESEARCH METHOD

This type of research uses a qualitative descriptive method which aims to

find out the eligibility of the book. The subjects of this study were books from class X IPA in Samarinda, namely a textbook entitled "Physics Student Book 1 for Class X SMA / MA" based on the revised edition compiled by Purwanto Budi and Azam Muchammad 2019.

The data collection technique used by the researcher was in the form of an assessment questionnaire. This questionnaire is in the form of an assessment instrument about the feasibility of a book which is reviewed from the aspect of content feasibility, linguistic aspects, presentation aspects and graphic aspects based on BSNP.

In this study, researchers used data collection conducted by Nisja (2018), namely:

1. Identify data
   Based on the type of research used in this study, the researcher analyzed a textbook.
2. Classifying data
   As for analyzing the data, there are several aspects to determine the feasibility of the book. The aspects of analysis in this study are the feasibility of content, language, presentation and graphics.
3. Interpret the data
   This research was conducted by filling out a questionnaire based on the BSNP assessment instrument. In the feasibility aspect, the content consists of 9 indicators, the linguistic aspect consists of 6 indicators, the presentation aspect consists of 13 indicators and the graphic aspect consists of 6 indicators.
4. Draw conclusions
5. At this stage, namely presenting data in written form so that it can be concluded that the book is appropriate or not used in the learning process.

This study analyzes the appropriateness of the contents of textbooks contained in physics books in high school using the following formula:

$$P = \frac{q}{r} \times 100\%$$

Information:

P = The percentage score obtained in each observed aspect

q = score of acquisition in each observed aspect

r = the overall total score for each observed aspect

3. RESULT AND DISCUSSION

3.1 Result

The feasibility of a book is closely related to the Basic Competencies (KD) that should be in the book. The basic competencies of Physics for Class X can be observed in Table 1.

Table 1 KD Physics Class X

Subject matter	Basic competencies
The Nature of Physics and Work Safety in the Laboratory	3.1 Applying the essence of physics, scientific method, and work safety in the laboratory and the role of physics in life 4.1 Create scientific work procedures and work safety, for example in heat measurement
Physical Quantity Measurement	3.2 Applying the principles of measuring physical quantities, accuracy, accuracy, and important figures, as well as scientific notation
	4.2 Presenting the results of measurements of physical quantities along with their accuracy using the right equipment and techniques and following the important number rules for a scientific investigation

Subject matter	Basic competencies
Vector	3.3 Applying the principle of addition of a plot of vectors (e.g. displacement) 4.3 Design experiments to determine the resultant vector plot (eg displacement) along with the presentation of the results and their physical meaning
Straight Motion	3.4 Analyze physical quantities in straight motion with constant (constant) velocity and straight motion with constant (constant) acceleration and their physical meanings. 4.4 Presenting data and graphs of experimental results to investigate the nature of motion of objects moving straight at constant (constant) velocity and moving straight with constant (constant) acceleration and their physical meaning
Motion Analysis with Vectors	3.5 Analyzing the motion of the parabola using vectors, along with its physical meaning and its application in everyday life 4.5 Presenting data on the experimental results of parabolic motion and its physical meaning

The book which is the subject of this research has five main materials. The material and its description can be observed in table 2.

Table 2 Description of Class X Physics Subject Material

No	Physics Subjects	Description of Physics Subject Materials
1.	The Nature of Physics and Work Safety in the Laboratory	a. Understanding Physics b. The Nature of Physics c. Scientific method d. Laboratory and work safety e. Establish scientific work procedures and work safety
2.	Physical Quantity Measurement	a. Measurement b. Measurement of physical quantities c. Physics experiments / experiments
3.	Vector	a. Vector drawing and notation b. Operations on vectors c. Unit vector and position vector
4.	Straight Motion	a. Motion b. Types of straight motion c. Regular straight motion application
5.	Motion Analysis with Vectors	a. Analysis of straight motion with vectors b. Mix of motion c. Motion of the parabolic

After conducting research by filling out a questionnaire on the assessment instrument based on the BSNP, the results of the feasibility of the book for each of the following aspects were obtained:

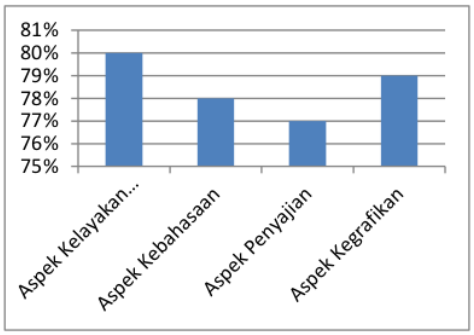

Figure 1. All Aspects of Book Feasibility

In the graph in Figure 1, the aspect that has the highest average is the aspect of content feasibility with a percentage of 80% and the lowest is the presentation aspect of 77%. Of the four aspects, all obtained categories that meet the eligibility of use.

3.2 Discussion

The purpose of this study was to determine the feasibility of a physics textbook in terms of the feasibility of the content, the linguistic aspect, the presentation aspect and the graphic aspect. The book studied was Physics Student Book 1 for Class X SMA / MA "based on the revised edition compiled by Purwanto Budi and Azam Muchammad 2019. This book is in the proper or good category (B) with a score of 79% in terms of content feasibility, language aspects, presentation aspects and graphic aspects.

Based on the feasibility aspect of the content which consists of 9 indicators, namely: (1) the completeness of the material according to the learning objectives; (2) the extent of the material in accordance with KI and KD; (3) the depth of the material is in accordance with KI and KD; (4) accuracy of fact samples per material; (5) accuracy of legal concepts / sounds; (6) accuracy of procedures; (7) accuracy of sample questions per material; (8) accuracy of practice questions per material; (9) conformity with the development of science. The assessment on the aspect of content feasibility has a different percentage for each chapter. The percentage obtained for chapter I is 86%, chapter II is 75%, chapter III is 75%, chapter IV is 83% and chapter V is 78%. The percentage obtained in each chapter is included in the fulfill category. The percentage is obtained from the average score on each indicator of the content feasibility aspect. In chapter III, the material depth indicator gets a score of 2, because this material is less related to everyday life so that students do not understand the concepts being taught. Overall, for the feasibility aspect of the content of the book, an average percentage of 80% is obtained, which fall into the category of fulfilling or feasible.

Based on the linguistic aspect which consists of six indicators, namely: (1) suitability with the level of development of students; (2) accuracy in sentence structure; (3) harmony between paragraphs / chapters; (4) students' understanding; (5) accuracy in using terms; (6) the correct use of symbols / symbols. Assessment on the linguistic aspect has a different percentage in each chapter. For chapter I, chapter II, chapter IV and chapter V the percentage is 79%, chapter III is 75%. The percentage obtained in each chapter is included in the fulfill category. In chapter III for the indicator of understanding, students get a score of 2 because the language presented is less understood. Overall, for the linguistic

aspect, an average percentage of 78% is included in the fulfilling or feasible category.

For the presentation aspect which consists of thirteen indicators, namely: (1) presentation systematics; (2) logical presentation; (3) curricularity of presentation; (4) suitability and accuracy of the illustrations with the material; (5) learning generator at the beginning of the chapter; (6) a concept map at the beginning of the ab and a summary at the end of each chapter; (7) examples of practice questions at the end of each chapter; (8) practice questions at the end of each chapter; (9) accuracy of numbering and naming of tables / figures and attachments; (10) active involvement of students; (11) interactive communication; (12) scientific approach; (13) variation in presentation. Assessment on the presentation aspect has a different percentage in each chapter. For chapter I the percentage is 83%, chapter II is 79%, chapter III is 73%, chapter IV is 75% and chapter V is 75%. The percentage obtained in each chapter is included in the fulfill category. This percentage is obtained from the average score on each indicator in the presentation aspect. In chapter III, the indicator for generating learning at the beginning of the chapter is due to the lack of examples in everyday life. Likewise with the indicators of examples of practice questions at the end of different chapters with practice questions. For indicators of practice questions at the end of this chapter there is a lack of examples in the material. Overall, for the presentation aspect, it is obtained an average percentage of 77% which is included in the fulfill or feasible category

For the graphic aspect, it consists of six indicators, namely: (1) conformity of the book with ISO (International Organization for Standardization) standards; (2) display of layout elements on the front, side or back cover; (3) the illustrations are able to describe the contents of the book material; (4) placement of illustrations as background decoration so that they do not interfere with the title, text and page numbers; (5) placement of titles, sub-titles, illustrations and captions so that they do not interfere with the content of the material; (6) illustrations depict the material clearly. For the indicator of book conformity with ISO standards, it gets a score of 50% because the size of the physics book analyzed in this study is still not in accordance with ISO (International Organization for Standardization) standards. According to the BSNP (National Education Standards Agency), the size of books that meet ISO (International Organization for Standardization) standards are A4 (210 mm x 297 mm) and B5 (176 cm x 250 mm). The display indicator for the layout elements on the front, side or back cover gets a percentage of 75%. The illustrative indicator is able to describe the contents of the book material, getting a percentage of 75%. For the illustration indicators in the book to be able to describe the content of the material, there are still deficiencies in the image illustrations in the form of image authenticity. The images contained in the book are still a little blurry and unclear. So that it causes the images contained in the material to be less attractive. However, the color of the illustrations on the cover of this book is good enough to get a percentage of 75% with the fulfilling category. Overall, for the graphic aspect, it is obtained an average percentage of 79% which is included in the fulfilling or feasible category.

While the feasibility of the book analyzed based on a questionnaire that has been filled in by several teachers in the city of Samarinda consists of four aspects, namely aspects of content feasibility, linguistic aspects, presentation aspects and graphic aspects. Based on the analysis of the questionnaire given to four teachers with three different schools as a whole for these four aspects, the percentage was 80%. This is in line with the research conducted by Kusuma (2018) which shows that the physics textbooks of class X SMK get a proper category.

Thus, in terms of all aspects and indicators that have been adjusted to the BSNP (National Education Standards Agency), it is obtained an average percentage score of 79% which falls into the fulfilling category. This shows that the Physics 1 Student Book for Class X SMA and MA meets the standards set by the

BSNP (National Education Standards Agency) so that this book is suitable to be used as a student guide in learning activities.

4. CONCLUSSION

Based on research and analysis of the feasibility of the book entitled Physics Student Book 1 for Class X SMA and MA, it can be concluded that the feasibility analysis of the book in terms of four aspects, namely the content feasibility aspect gets a percentage of 80%, the linguistic aspect gets a percentage of 78%, the presentation aspect gets a percentage of 77 % and the graphic aspect gets a percentage of 79%. These four aspects are included in the fulfillment category. This shows that the Physics 1 Student Book for Class X SMA and MA meets the standards set by the BSNP (National Education Standards Agency) so that this book is suitable to be used as a student guide in learning activities.

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