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Students' Response to the Basic Physics Textbook Integrated with Faith, Piety, and Local Wisdom

Lutfiyanti Fitriah
Department of Physics Education, Faculty of Education and Teacher Training,
UIN Antasari Banjarmasin
lutfiyanti@uin-antasari.ac.id

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Abstract: This research was conducted due to the unavailability of textbook in lecture of Basic Physics 1. The aim of this research was to describe the response of students to basic physics textbook that contained the value of faith and piety and integrated with South Borneo local wisdom in the direct instruction model setting that has been developed. The method of this research was descriptive analytic. The subjects of the try out were 17 first-semester students of the Physics Education Department Faculty of Education and Teacher Training UIN Antasari Banjarmasin who participated in the Basic Physics 1 lecture in the 2018/2019 academic year. Data was obtained through student response questionnaires. Data were analyzed quantitatively and qualitatively. The results showed that students' response to the content, appearance, and language of textbook were in the good criteria with an average score of 4.31 and 100% of students stated that they were interested in using the textbook. It could be concluded that the basic physics textbook integrated with faith, piety, and local wisdom in direct instruction model setting is feasible to use in the Basic Physics 1 lecture.
Keywords: response, basic physics textbook, faith and paity, local wisdom

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INTRODUCTION

Basic physics is one of the compulsory course that students learned in the first semester at the university. In this course, students learn the basic concepts and principles of mechanics and thermodynamics. Good mastery in this course will help them to understand higher physics material because basic physics is the basis for understanding lecture material at the next level (Mastuang, 2015).

Unfortunately, students have various difficulties in this course. They have difficulty in manipulating formulas and combining a number of physics concepts in solving physics problems (Walsh, Howard, & Bowe, 2007). Then, students have various misconceptions in impulse and momentum (Salmiza, 2011), heat and temperature (Georgiou & Sharma, 2012), and kinetic theory of gases (Jasien & Oberem, 2002). The ability of students in understanding and solving dynamics problems is also low (Derya & Eryilmaz, 2010). The difficulty of Basic Physics course causes the students' average score of Physics Education Study Program FTK UIN Antasari Banjarmasin in 2017/2018 academic year was only 63.77.

One of the factors that cause students in having learning difficulty is the textbook. Based on the research it is

known that the difficulty of learning physics is caused by the lack of available textbooks that help students in mastering physics material and solving physics problems (Ogunleye, 2009). This indicates that textbooks have a significant role in learning. Textbooks can improve thinking skill, material mastery, and problem-solving ability (Tanujaya, Prahmana, & Mumu, 2017). Textbooks also provide feedback to students through practicing the questions in the book and maintain student focus throughout the lecture process (Ewing, 2011).

Based on observation in Basic Physics I course in Physics Education Study Program FTK UIN Antasari Banjarmasin, lecture have not been supported by textbook. Therefore, student learning outcomes are still low. Because of that one of solution to improve students' outcomes is developing textbook that integrated with the values of faith and piety. The integration of physics and values of faith and piety can improve the learning outcomes of physics and increase the religious character of students (Mastuang, Misbah, Yahya, & Mahtari, 2019).

The textbook that developed should also integrated with local wisdom. Local wisdom is local ideas and values that are wise, full of wisdom, good value, embedded and followed by members of the community (Toharudin & Kurniawan, 2017). The source of local wisdom that can be included in textbook are empirical aspects, symbol of culture, and characteristic of knowledge (Meliono, 2011). This integration makes the physics material more meaningful because there is relevance between the material taught with the surrounding environment so that they can obtain direct and real learning experiences (Hartini, Isnanda, Wati, Misbah, An'nur, Mahtari, 2018). Thus, students can develop their skills and competencies in exploring and understanding the universe scientifically based on local potency (Susilawati, Fikriyah, & Saefudin, 2016). This integration also makes students lover their local wisdom, be proud of their cultural heritage, and participate in preserving the local wisdom (Pornpimon, Wallapha, & Prayuth, 2014).

Basic physics textbook is also arranged to support lecture activities. Therefore, the textbook used is arranged based on the direct instruction learning model syntax because the lecture activities are based on this. This model is able to improve student's learning outcomes (Wenno, 2014).

There are few studies about physics, faith, piety, and local wisdom integration. A large amount of research is integration of physics and religious value only or integration of physics and local wisdom only. In this current study, those three aspects are combined together in one textbook. Furthermore, the products of other research are modules but in this study the product is textbook which arranged based on direct instruction learning model. Therefore a research is needed to know the responses of students to basic physics textbook integrated with the values of faith and piety and local wisdom in the direct instruction model setting. The purpose of this study was to describe the response of students to the developed textbook.

METHOD

This research was descriptive analytic research because it aims to describe the response of students to developed textbook. The study was conducted in June 2018 until January 2019. The subject was 17 first semester students of Physics Education Study Program FTK UIN Antasari Banjarmasin who participated in Basic Physics 1 course in the odd semester of

2018/2019 academic year. They are choosen by using purposive sampling.

The type of data collected in this study was qualitative data. The data collection technique was distributing questionnaires. The research instrument was response questionnaires (Hartini, Isnanda, et al., 2018) which adapted from a textbook assessment instrument made by (BSNP, 2014). Based on data in this questionnaire, the textbook will be revised (Purnama & Surya, 2017).

Students' response questionnaire consisted of 3 aspects. These were content, presentation, and language (BSNP, 2014). In addition, there were also open questions about interests in textbook (Khalil & Elkhider, 2016). The questionnaire was validated by 2 experts and was declared valid. This questionnaire was arranged by 5 points of choice, namely strongly agree, agree, less agree, disagree, and strongly disagree. Therefore questionnaire scoring criteria refered to (Riduwan, 2015). Technique of data analysis was simple descriptive statistics, namely mean and percentage. Then the data were categorized based on the student response criteria that was based on (Jamal, 2009). Data were also analyzed qualitatively by three steps, namely data reduction, data presentation, and conclusion drawing (Sugiyono, 2013).

RESULT AND DISCUSSION

The product developed was the basic physics textbooks integrated with faith and piety and local wisdom in the direct instruction learning model setting. This textbook is arranged according to the criteria (Akbar, 2016). In general this textbook consisted of cover, table of contents, chapter titles and content of material, references, attachments, and indexes.

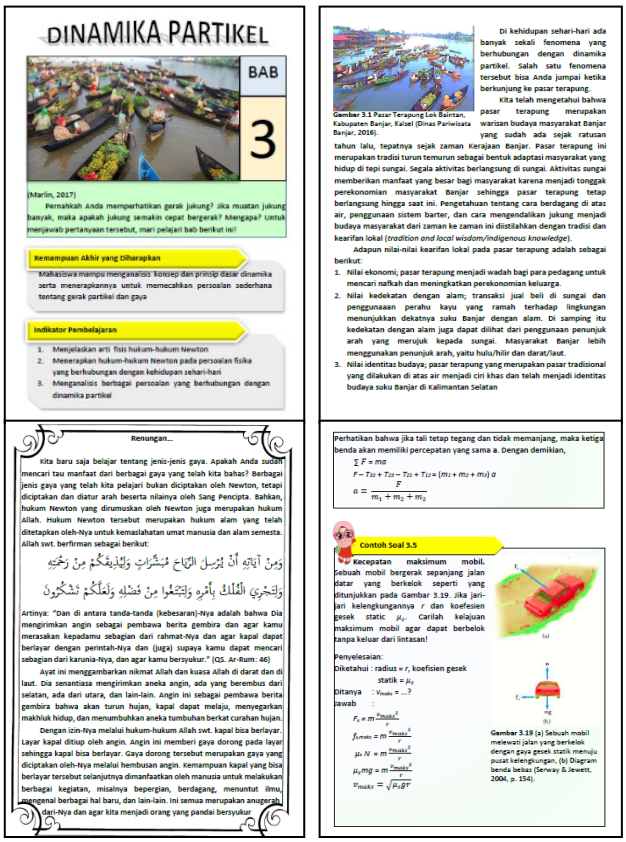

Figure 1 The Example Of Textbook Part

The special things in this textbook are apperception related to South Borneo's local wisdom in the beginning of each chapter, examples of problems and exercises that are related to South Borneo's local wisdom and potency, summary of the cultural and national character education values, namely religious, curiosity, environmental care, and love for the motherland values (Hasan, Wahab, Hamka, Kurniawan, Anas, & Nurlaili, 2010).

There is also "Info Banua" column that provides information about local wisdom and potential source in South Borneo. These are floating markets, *jukung*, *kelotok*, *garubak sapi dugul*, *bagasing*, *basihi*, *katupat Kandangan*, Banjar typical carvings, *sinoman hadrah* dance, *kalayangan* competition, *hadangan* racing, *bekantan*, *kasturi*, and various tourism in South Kalimantan. There is also "Renungan" column that gives Islamic insight. This Islamic insight is connection of physics with Islamic values derived from Al-Qu'ran. The examples of Al-Qur'an verses include are Q.S. Al-Qamar: 49, Q.S. An-Naml: 88, Q.S. Al-Fatihah: 6, and Q.S. Al-An'am: 59. These are the example of textbook part.

Based on questionnaire was obtained the average student response to textbook can be seen in Figure 2, Figure 3, and Figure 4.

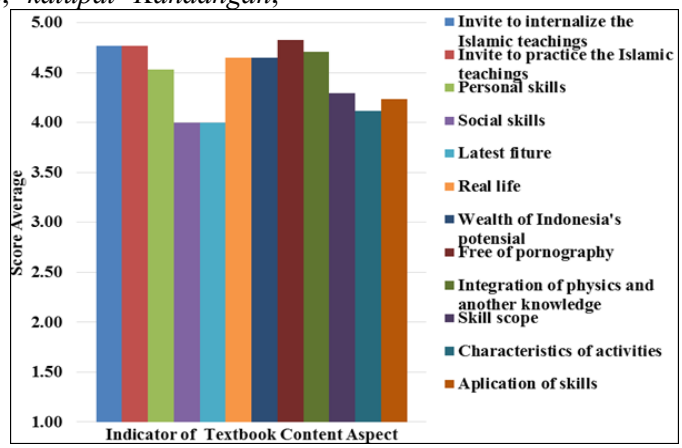

Figure 2 Students's Response to Textbook Content

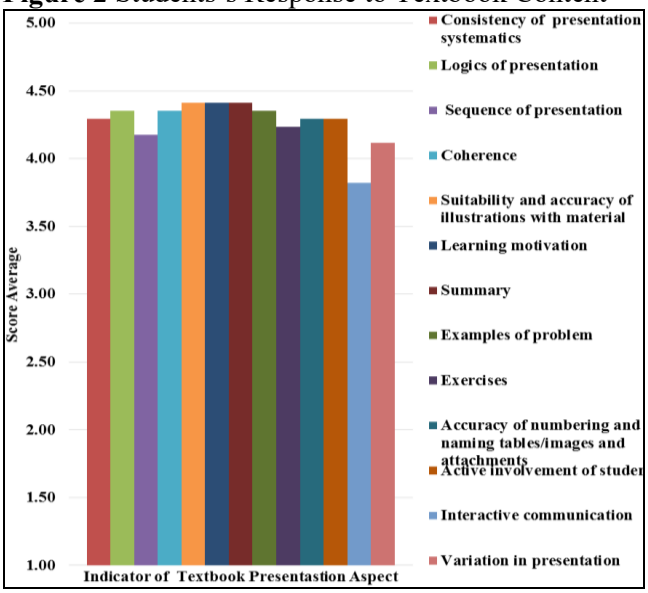

Figure 3 Students's Response to Textbook Presentation

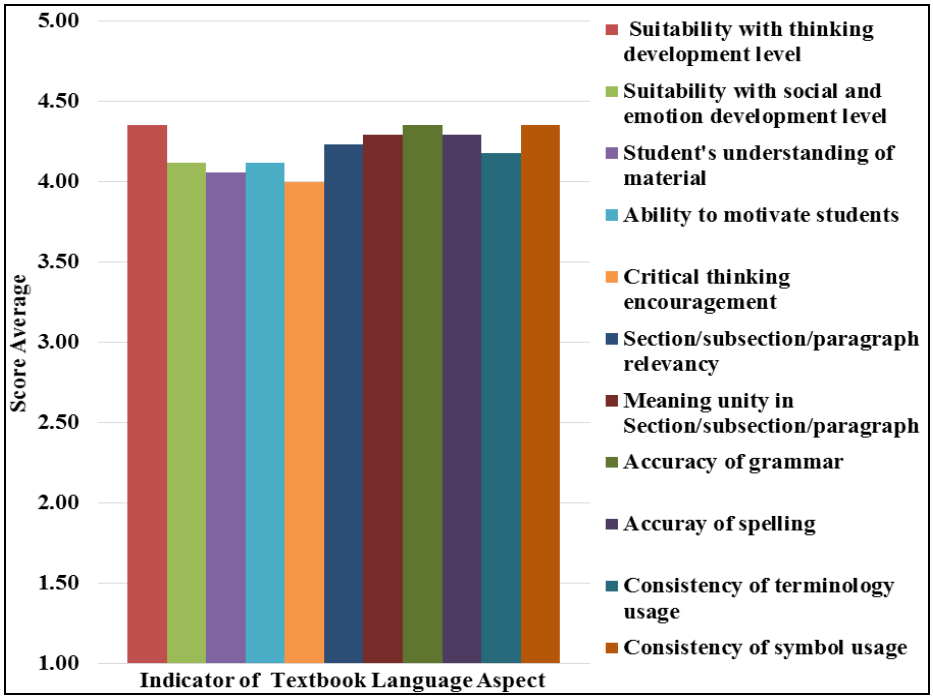

Figure 4 Students's Response to Textbook Language

In general, it can be seen the average score of student's responses to textbook as in Table 1.

Table 1 Student's Responses to Textbook

Aspect	Score Average	Criteria
Content	4.46	Good
Presentation	4.27	Good
Language	4.21	Good
Average	4.31	Good

Furthermore, these were the example of students' response statements to textbook content:

- Physics material that is associated with the majesty of God's creation in the universe increases awareness of the greatness of Allah, supports the improvement of faith and piety, and increases knowledge about the power of Allah.
- This textbook encourages me to know about the integration of physics with religion, love regional culture, and care for the environment.
- Material, exercises, and sample questions are presented by linking with everyday experience and regional culture so that learning is more interesting than usual.
- This textbook connects physics with local wisdom and culture that is easily visited, seen, experienced, heard, and felt so that it is interesting and easy to imagine and easy to understand.

These following were the example of students' response statements to textbook presentation:

- Presentation of textbook is interesting and relevant so that I can build my curiosity and motivate me to take part in the lecture.
- The illustration especially about South Kalimantan's local wisdom is interesting so it's not boring to study.
- This textbook is presented creatively because it contains 3 things, namely physics, religion, and local wisdom so that it doesn't make me easy to get bored in learning.

Examples of question, exercises, and chapter evaluations help strengthen

understanding of the material and remember the lessons learned.

These following were the example of students' response statements to textbook language:

- Language of textbook does not lead to multiple interpretations that encourages me to study and encourages critical thinking.
- This textbook can grow interest in reading because there is a discussion about Banjar culture.
- The language adapts to students' ability.
- The sentences in this textbook are easy to understand, interesting, and not complicated.

At the end of the questionnaire there was question about students' interest in using textbook. Based on the data obtained it was known that 100% of students stated that they were interested in using the textbook. These following were the example of their interest reasons:

- The explanation of materials is detail and it has me understood the material easily.
- I not only study physics but also religion and culture so I can find the relationship of these three things so that learning becomes interesting.
- It has me curious in learning and increasing our knowledge.
- It motivates me to find out more about the application of physics in real life.

Based on data obtained it is known that students gave good response to textbook. This good response shows that the textbook could function well in helping the implementation of Basic Physics I lecture activities, helped students understand the material, gave feedback to students, functioned well in attracting interest, and improved learning motivation (Harsono, 2007). Good response of students to textbook was caused by several things.

First, the textbook was structured systematically so it creates an learning atmosphere (Hartini, Firdausi, Misbah, & Sulaeman, 2018). Second, the contents of the textbook were interesting, effective, and meaningful so that able to foster learning motivation and facilitate student understanding (Palmer, 2009). Third, students could learn independently with the textbook (Ewing, 2011; Hartini, Isnanda, et al., 2018). Fifth, the availability of images, motivation, new information, and varied exercises and evaluation questions so as to facilitated their learning process easily (Latifah & Ratnasari, 2016). The images could support students' understanding, help to understand abstract concepts or which cannot be directly observed (Cahyono, Tsani, & Rahma, 2018). Sixth, the language and sentence used were easy to understand, simple, and communicative (Hartini, Isnanda, et al., 2018).

Good response to textbook was also caused by the content of physical material in which it integrates with Islamic values derived from Al-Qur'an. This is reinforced by the other research results that indicate a positive response by students to the integration of the values of faith and piety with physical material (Latifah & Ratnasari, 2016). This good response was caused by several things.

First, the integration of physics material with Islamic values made the material discussed became related to real life. Then, it aroused their curiosity and interest in understanding the material (Mastuang et al., 2019). Therefore they were active in learning and following every step of learning well and correctly so that they could understanding the material easily (Mastuang et al., 2019). Second, students felt learning became meaningful because they not only gained knowledge of physics but also understood the contents of Al-Qur'an verses which were very beneficial to

their spirituality (Anwar & Elfiah, 2019). Third, this integration could attract the attention of students to study the material discussed because they got new things that had not been previously obtained specifically about physics and Al-Qur'an relevancy (Latifah & Ratnasari, 2016).

Good response to textbook was also caused by the content of the textbook in which it integrated with local wisdom. This is reinforced by the other research results that indicate a positive response by students to this integration (Hartini, Isnanda, et al., 2018). This good response was caused by several things.

First, the material of physics that integrated with local wisdom had contextual learning. Hence students could develop experiences to understand the real world and they were able to integrate new knowledge with relevant concepts that already exist in their cognitive structure (Hartini, Firdausi, et al., 2018). This learning also shaped the relevance of teaching material to the surrounding and life experience of students so that they could obtain direct and real learning experiences (Kurniawati, Wahyuni, & Putra, 2017; Zainuddin, Afnizar, Mastuang, & Misbah, 2018). Second, the material of physics that integrates local wisdom had learning meaningful to the lives of students. It was caused by the content of character values from local wisdom, so that students were able to develop cognitive, affective, and psychomotor potency optimally (Kurniawati et al., 2017). Then, local wisdom of our nation will be maintained and sustainable (Pornpimon et al., 2014). Third, the textbook could motivate and foster student interest while studying because it had learning more interesting (Kurniawati et al., 2017). Fourth, the relevance of the content of the material learned with the surrounding had learning motivation increased so that they studied hard and their learning outcomes increased (Hartini, Isnanda, et al., 2018; Kurniawati et al., 2017; Colakoglu & Akdemir, 2010; Blašková, 2014).

Good response to textbook was also caused by textbook arranged according to the direct instruction model setting. This is reinforced by the other research results that indicate a positive response by students to teaching materials compiled based on this model and implemented using the model (Mastuang, 2015). This positive response was caused by several things.

First, this positive response was caused by students' motivation and interest which consists of aspects of attention, relevance, self-confidence, and satisfaction with the lectures were in good category (Mastuang, 2015). The motivation also appeared as a concern for lectures, desire to succeed in learning, courage to accept challenges, and low fear of failure (Syring, Kleinknecht, Bohl, Kuntze, Rehm, & Schneider, 2015). This motivation and interest further had students interested in teaching material, became active in class, and worked hard in understanding the material and completing the task (Blašková, 2014; Kang, Scharmann, Kang, & Noh, 2010). Furthermore, it had an impact on conceptual change (Kang, Scharmann, Kang, & Noh, 2010; Termtachatipongsa, 2014). Second, direct instruction model is specifically designed to develop declarative knowledge and procedural skills that are structured well and can be studied step by step. These stages made students' abilities and understanding better (Akin & Arslantekin, 2017). Third, the model has a strict and effective learning step structure (Ewing, 2011). As a result, students are paying attention carefully to lecturer so that they produced high concentration in lectures (Ewing, 2011; Syring et al., 2015; Stockard, Wood, Coughlin, & Khoury, 2018).

CONSLUSION

The conclusion of this research is the response of students to the textbook used in Basic Physics 1 course was in good criteria with an average score of 4.31 because it integrated faith, piety, and local wisdom and is compiled based on the direct instruction learning model. This was indicated by the average score of student' responses to the content, presentation, and language of textbook, respectively 4.46, 4.27, and 4.21 which were in good criteria and 100% of students stated that they were interested in using the textbook. It could be concluded that the textbook is feasible to use in the Basic Physics 1 lecture.

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