How to Design Physics Posters Learning Media with Islamic Values in Developing Learning Motivation and Student Character?

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Abstract: We reported the result of Research and Development (R&D) poster media in borg and gall model. The product produced in the poster media as a learning supplement that able to develop the students’ learning motivation and students’ character with Islamic value. The research instruments were a questionnaire for media experts, Islamic religious material experts, the material expert, and students of the tenth grade to test the validation and the attractiveness of media. The material used in the poster were 1) Momentum and Impulse, and 2) Newton’s Law. The result of poster media evaluation was that assessed by media experts, material, and religion and trial for each student have the worth categories and interesting to be the supplement in learning media with the average score of validator 85.08% in the worth category and the students' average 74.75% in the interesting category.

1. Introduction
One of the activities and education goals are done to develop a good character and personality for students. In addition, achievement in the education goals to develop students’ character were needed a learning media for students\cite{1}. Related to the achievement of educational goals to build the students’ character, where a learning media is needed for students \cite{1}. Recently, the world is facing the fourth industrial revolution (Industry 4.0) in various fields, the development of the world is entering the industrial revolution era 4.0, requires the educators to be creative in conveying the concept of material that is easy to be understood\cite{2,24}.

One of the efforts to make learning easier to be understood is using the learning media \cite{3}. It shows that there is educators’ innovation in developing a learning media that has the criteria as follows: (1) Short material and clear. (2) There is an example of daily life. (3) The easy language is that understood and it is clear. A media is that has the criteria, one of them is poster \cite{4}. The learning media of poster can be said as a learning supplement. Where the poster media can be paired anywhere or in terms of the place for poster installation that support. The language usage is short and clear. Poster Media has striking combinations of letters and colors that can attract the attention of the audience. Poster content also has a clear plot that does not confuse the reader.

The developing of poster media has been developed by the other researchers as follows: (1) The character education in the material of global warming \cite{6}. (2) The use of poster media to improve the students’ creativity \cite{6}. (3) The form of poster is photo scrap that made from recycled material with the goals to develop the students’ learning character and motivation \cite{7}.
The use of media aims to develop the students’ character to be creative thinking and develop the students’ character is needed a motivation [8]. One of the motivation goals is to push the students to learn [9]. Motivation divides into two, intrinsic motivation that comes from within the students themselves to learn and extrinsic comes from the surrounding environment that encourages students to learn [10].

One of the difficult subjects is that understood and needed a learning media is physics. Physics is one of the one branches of science that studies physical phenomena in everyday life [11-12]. Understanding the concept of physics is an absolute requirement in achieving learning success [12], [13]. Physical learning can also be said to be an active process that requires students to think critically and creatively in learning [14].

The students' physics learning activities are not just seeing, imitating, and imagining what is explained by educators, but students can give meaning and prove the truth of information obtained from educators [15]. Every student has different psychological conditions and characteristics [7], so that educators must be smart in understanding the character of students. In this case, educators are required to be more creative in teaching ability [16], [17].

Physics learning process based on field results is known that: (1) lack of creativity of educators in utilizing physics learning media. (2) The students want to learn that is fun in physics. (3) The presentation of physics learning is not interesting. Lack of student's interest in physics subjects due to teaching and learning activities (KBM) does not involve students directly[18], consequently students' learning achievement decreases [19].

The previous discussion said that one of the efforts to make learning more interesting was to use a medium. The media that will be developed in this study is media poster learning with the aim of building students’ character and motivation in learning.

The advantages of poster learning media that will be developed by researchers compared to other learning media are; (1) It can provide information such as examples in daily life on the material to be developed. (2) Memorize and understand the physics equations of the material contained in posters such as Newton's law, Momentum, and Impulse. (3) Not only memorizing and understanding, in physics posters there are Quranic verses related to physics material.

The purpose of inserting the Al Quran verse on the poster is; (1) In addition to students knowing and understanding physics material, students also get an understanding of Islamic values in their daily lives. (2) And encourage students to be more motivated in learning physics and building character in learning.

The benefits of inserting the verses of Al-Quran that is in addition to learning the physics of students can also understand Islamic values. In the hope of developing character and motivating students to learn physics as well as religion, so researchers need to develop poster media with Islamic values [20].

2. Research Method
The researcher used Research and Development Method in borg and gall. Research and development methods are research methods used to produce certain products and test the feasibility of these products. The researcher gives limitations until the product revision stage after being tested or in the seventh stage so that only the feasibility test or limited trial is carried out.

The reason researchers only use seven rare because of the seven steps can already answer the research objectives to test the attractiveness and feasibility of poster learning media as learning supplements.

The target of this research is the feasibility and attractiveness of the poster physics learning media with Islamic values assessed by the validator and the tenth grade of SMA Al-Huda Jatiagung, SMA Negeri 17 Bandar Lampung, dan SMA Tamansiswa Teluk Betung. The seventh research and development procedures that the researcher used with borg and gall [21]:
Research and information, the researcher did pre-research by using distributing the questionnaire, observation school, documentation, and interview for students.

Planning, the media is that used to be developed based on the result of Research and information is media poster and determine the material that used they are Newton’s, Momentum and Impulse.

Develop a Preliminary form of Product, designing posters as interesting as possible with a combination of letters, colors, and material that is concise and clear using the Corel-draw application.

Preliminary Field Testing, the products are assessed by the validator team were 6 people, namely media experts, material experts, and religious experts. It aims to get the results of the feasibility of the poster media.

Main Product Revision, Product revision is done by receiving input and suggestions from the validator team.

Main Field Testing, Large-scale product trials involve class X students in three schools by distributing questionnaires. It aims to get the results of the attraction on the poster media

Operational Product Revision, It is done by receiving input and suggestions from students by filling out questionnaires and input from educators, namely the results of the interview.

**Table 1 Scoring Norm for eligibility**

| Categories      | Score |
|-----------------|-------|
| Very decent     | 5     |
| Worthy          | 4     |
| Decent enough   | 3     |
| Inadequate      | 2     |
| Categories         | Score |
|-------------------|-------|
| Very interesting  | 5     |
| Interesting       | 4     |
| Quite interesting | 3     |
| Less attractive   | 2     |
| Very Less Attractive | 1    |

The total score can be calculated using the following equation:

**Likert Scale**

\[
P = \frac{\sum x}{\sum x_i} \times 100\%
\]

Note:
- P = Percentage
- \(\sum x\) = Number of respondents’ answers in 1
- \(\sum x_i\) = Number of ideal values in items

Criteria for the percentage of eligibility and attractiveness can be seen in the following table 3 and 4 [22]:

**Table 3 Scale of Interpretation of Interest**

| Interval   | Kriteria          |
|------------|-------------------|
| 0 ≤ X ≤ 20%| Very less attractive |
| 20% < X ≤ 40% | Less attractive     |
| 40% < X ≤ 60% | Quite interesting  |
| 60% < X ≤ 80% | Interesting        |
| 80% < X ≤ 100% | Very interesting   |

**Table 4 Scale of Interpretation of Interest**

| Interval   | Kriteria          |
|------------|-------------------|
| 0 ≤ X ≤ 20%| Very poor         |
| 20% < X ≤ 40% | Inadequate      |
| 40% < X ≤ 60% | Decent enough  |
| 60% < X ≤ 80% | Worthy          |
| 80% < X ≤ 100% | Very decent   |

3. Result And Discussion
Poster media research and development is carried out through seven steps. The first stage is conducting preliminary research. This stage researchers did data collection that was analyzed to find out the potential and problems. This stage is also used to determine the material to be used.

The second stage is the planning of media development and media design where researchers plan the poster design that will be created using the Corel draw application. Posters made by researchers have several advantages, including; can provide information such as material applications in everyday life; memorize physics equations and know the meaning of the material in the poster; there are Quranic verses related to physics material in posters.

The third stage of developing poster media by designing it is a more interesting combination of letters, colors, and material that is concise and clear. Then the fourth and fifth stages are the trials conducted by the validator team where they assess and give input to the poster. Each team of expert validators provides different inputs, one of which is a media expert who assesses the layout picture, combination color, and font size and other designs.
Furthermore, the assessment of the material expert team is assessing the language of delivery of the material that is the poster and the regular flow. Furthermore, the assessment of the team of religious experts revised the relevant paragraph in the material. Based on the results of the evaluation of the expert validator team it can be concluded that it is very feasible to get an average yield of 85.08%. The following diagram of the validator team’s assessment is in the figure 2 and table 5.

![Figure 2 Recapitulation of Expert Team Validation](image)

**Table 5** The validator’s assessment result

| No | Assessment/ Respondent       | Percent of result score | Criteria          |
|----|------------------------------|-------------------------|-------------------|
| 1  | Media Experts                | 81.25%                  | Very decent       |
| 2  | Material Experts             | 86.2%                   | Very decent       |
| 3  | Religion Experts             | 87.79%                  | Very decent       |
|    | Average                      | 85.08%                  | Very decent       |

The sixth stage of this study was a large-scale trial involving at the tenth grade of SMA Tamansiswa, SMA Al-Huda Jatiagung, and SMAN 17 Bandar Lampung by distributing questionnaires. Based on the results of the assessment of media students, poster learning can be said to be interesting by getting an average result of 74.75%. The following tables and diagrams of the results of the assessment of students in figure 3 and table 6.

![Figure 3 Recapitulation of Students’ Field Test Results](image)

**Table 6. Students’ assessment results**

| No | Assessment/ Respondent               | Percent of scoring result | Criteria   |
|----|--------------------------------------|---------------------------|------------|
| 1  | Students of SMA Tamansiswa Teluk Betung | 74.2%                     | Interesting|
| 2  | Students of SMA Al-Huda Jatiagung    | 77.5%                     | Interesting|
| 3  | Students of SMAN 17 Bandar Lampung   | 72.55%                    | Interesting|
|    | Average                              | 74.75                     |            |

Then, the final stage is product revision which is done by receiving input and suggestions from students and input from educators, namely the results of the interview. The input that must be revised at this stage is the interest in the poster such as the combination of letters and colors on the poster.
Research and development of poster learning media have previously been developed as a learning medium for; (1) Increase learning motivation where the results are very satisfying, namely from 55.69% to 85.21%. This research was conducted by Cindy Larasati at SMP Negeri 3 Gantiwarno [23]. (2) Research from Fenni Sabzul Yaszak et al used poster learning media to improve motivation creativity based on absorptive capacity where the increase was 16.43% in using poster learning media [6]. (3) Poster media is used for character education on global warming material where with the aim of building student awareness to protect the environment. The results of the poster media practicality assessment based on character education ranged from 74% to 84% thus the poster media was categorized as very practical according to students [5].

The results of the study can be used as a comparison with the results of the research obtained, with the results of the average trial on students in the three schools that researchers did get 74.75% with an interesting category and the assessment of the expert validator team got 85.08% can be said in very decent category.

The following are the results of the design of poster learning media products on two subjects of physics material in class X SMA in figures 4 and 5.

Figure 4 Physics Poster Learning Media on the Subjects of Newton's Law
In Figures 4 and 5, the poster physics learning media is Newton's law, the Impulse, and this momentum poster can explain the meaning of Newton's law, Impulse, and momentum, the equation of some of these materials can be explained and seen on the poster. In addition, this poster contains several examples of the application in everyday life of Newton's law, Impulse and momentum and can explain the verses of Al-Qur'an relating in the one of the material in the poster.

This poster learning media can also help and shorten learning time and be interesting because all the material in the short poster is short and clear. The poster can also convey information on the linkages between the examples of daily life that have been posted with the material, such as falling apples, flying rockets, boxing gloves and helmets on the poster. Events that use boxing gloves and helmets can be said to be impulse events because when a hard collision occurs the impulse force that works longer due to inside the boxing gloves and helmet there is a soft layer to slow down the impulse.

Figure 5 Physics Poster Learning Media on the Subjects of Momentum and Impulse
Besides that, posters can explain the verses of Al-Quran in posters such as the verses in the Newton law poster which means that Allah will not change the fate of a people unless they change themselves. This can explain the relationship to Newton's first law, namely \( \Sigma F = 0 \) which reads if the resultant force on an object is zero. Then the object that is initially silent will remain silent.

This event can be applied in everyday life where if someone wants something but he does not want to try then his life is just like that.

Furthermore, in the media, momentum and impulse posters explain the meaning of verses because of their arrogance (on the face of the earth) and because of their (evil) plans, evil plans will not happen except those who plan themselves.

This can be explained by the law of conservation of momentum which reads if the external force acting on a system is zero, the total linear momentum of the system will remain constant. In everyday life can be said people who do evil to good people his efforts will be in vain because deeds are likened to table tennis balls which if thrown will bounce back to yourself. With the explanation of physical material and the Al-Quran verse, students can learn and understand Islamic values to motivate students in learning and in daily life.

Media display of poster learning can be seen from various forms, namely from laptops, cell phones, and can also be in print media such as posters, printing VHS paper, printing banner. The feasibility of supplementing physics poster learning media is obtained from the data that has been obtained from the assessment of media, material, and religious experts using 1-5 assessment instruments in each aspect and the calculation uses a Likert scale.

The withdrawal of supplements in the form of physics poster learning media was also obtained from students’ assessment data in three schools by using an assessment instrument with a score of 1-5 in each aspect.

Evaluation of poster learning media conducted in three schools by distributing questionnaires to students gets 60% <X <80% and can be said to be interesting.

The next stage is the final product made, which is a physics poster that functions as a learning supplement in the form of a print media poster. A poster is a media that consists of interesting writing and drawing and serves to provide information such as physics learning posters that discuss physics material of the tenth grade, namely Newton's law, Momentum, and Impulse.

4. Conclusion And Suggestion

Based on the results of research that has been done, it can be concluded that:

1. Development of learning media in the form of posters on three subjects of physics material in class X SMA through several stages, namely preliminary research by looking for potential and subsequent problems of product planning and manufacturing and finally validation and evaluation and final products.

2. Poster learning media can be said as learning supplements in the form of print media.

3. The advantage of the poster learning media that is made is the existence of Al-Qur'an verse relating to physics material that is Newton's law, Momentum, and Impulse.

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