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DEVELOPMENT OF PHOTONOVELA WITH CHARACTER EDUCATION: AS AN ALTERNATIVE OF PHYSICS LEARNING MEDIA

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***Abstract**: The internalization of character education in science learning through a variety of learning media has been researched recently, one of which is through the photonovela media which is the medium of insertion of character values in learning material. The focus of this research is; 1) developing photonovela learning media with character education on work material and energy, 2) knowing photonovela media feasibility as a supplement to physics learning with character education on work material and energy 3) knowing the response of students to photonovela media with character education in an energy material. This research is a Research and Development study adopted the development of Borg and Gall with the subject of junior high school students. The research instruments used were questionnaires by material experts, media experts, and junior high school physics teachers and questionnaires for students' responses in the three schools. The results of the assessment by material experts obtained a percentage of 85%, the assessment of media experts was 90%, and the assessment of junior high school teachers was 84.16%, while the response of students in three junior high schools was 87.6%, 94%, and 93.6%. In conclusion, this study produced a product in the form of appropriate photonovela media as a supplement to physics learning with character education on business material and energy.*

***Keywords:** character education, energy, media photonovela, work*

INTRODUCTION

The values of character education can be developed, integrated and internalized with students through the learning process, including in physics learning (Anwar, 2017; Diani, 2015; Khoiron & Sutadji, 2012; Maiyena, 2013; Nurhuda, Waluyo, & Suyitno, 2017). Physics is known as science that is very closely related to human behavior and life (Saregar, 2016; Venisari, Gunawan, & Sutrio, 2015). This shows that the competencies students must possess are not only limited to cognitive abilities but also the character of students (Sole & Anggraeni, 2016; Widyaningsih & Yusuf, 2015). While all this time learning physics still focuses on cognitive aspects only (Mujizatullah, 2018).

The problem of most students is that physics is difficult to understand (Chhetri, 2017; Hofer, Schumacher, Rubin, & Stern, 2018; Irmawati, Djalaluddin, & Wahyuni, 2017; Irwandani, Latifah, Asyhari, Muzannur, & Widayanti, 2017; Rosdianto, Murdani, & Hendra, 2017; Sugiana, Harjono, & Sahidu, 2016), one of the causes is the lack of proper use of learning media used by teachers (Agustin, Bektiarso, & Bachtiar, 2018), so students can hardly observe the mechanism that occurs during learning activities (Weng, Lin, & She, 2017), preferably the previous learning conditions should be improved (Saregar, Latifah, & Sari, 2016), so students play an active role in the learning process (Haruehansawasin & Kiattikomol, 2018).

Education is currently facing the challenges of the fourth industrial revolution or Industry 4.0 (Ciffolilli & Muscio, 2018). The teacher as a facilitator must be skilled in mastering various models and learning media that are in accordance with the characteristics of the material to be delivered (Barus & Sani, 2017; Suranti, Gunawan, & Sahidu, 2016; Suryani, Sakti, & Purwanto, 2018), using or making interesting learning media, so learning materials are easy to understand (Ardiyanti, Usman, & Bandu, 2018; Saregar, Diani, & Kholid, 2017; N. Sari, Suryanti, Manurung, & Sintia, 2017; Suyanto, 2018), and encourage students actively in the learning process (Abdurrahman, Saregar, & Umam, 2018).

The types of learning media that are relevant include; information technology-based learning media (I. A. D. Astuti, Nurullaeli, & Nugraha, 2018), and rack and pinion type media (Rubiyanto & Susanto, 2018), as well as other learning media that can be used to facilitate the learning process, in this case selected learning media to shape the character of students as learners, the selected media is photonovela learning media.

Photonovela is a media that resembles comics or picture stories, using photographs as a substitute for illustrated images (Anggia & Dra. An Fauzia Rozani Sy., 2014; Herdiani, Maskur, & Noordyana, 2017). The general characteristics of this media are some of them that; easy to make yourself in a simple manner, in accordance with the students 'emotions and the theme in this media is based on the students' real conditions with the intention that students are easier to understand (Widyaningrum & Prihastari, 2018), then aim to determine the direction of learning activities, in order to be able to practice character values to students (Oktaviani, Yulkifli, & Murtiani, 2017; R. T. Sari & Jusar, 2017), one of the advantages of this media is that space and time limitations can be overcome (Yusro & Sasono, 2016). So that the students will feel helping in the learning (E.P, Bektiarso, & Gani, 2017). So, the learning media occupies an important position as one of the supporting components in the learning system (Muslina, Abdul, & Ibnu, 2017; Ramadhanti, Edwita, & Sumantri, 2018; Setiawan, Arifin, & Ardianto, 2018; Widada & Rosyidi, 2017).

Photonovela media is not only used in the field of education but in the field of health media is often used as an alternative media, this is in accordance with previous research that produced local wisdom-based photonovela learning media on the subject of effective and practical Newton law (Rahayu, Sutikno, & Masturi, 2015), in the field of health explains photonovela is able to increase knowledge of depression and reduce stigma among Hispanic adults (Unger, Cabassa, Molina, Contreras, & Baron, 2013), then photonovela is able to increase knowledge, attitudes, and intentions of human papillomavirus vaccine in the community Hispanic income is low (Chan, Brown, Sepulveda, & Teran-Clayton, 2015). Furthermore, it can influence Dutch adults with varying levels of literacy to find out about diabetes by reading photonovela (Koops van ’t Jagt et al., 2018).

Different from this research and development from previous research, researchers will develop photonovela media with character education, in the form of inserting character values on each material, then choosing different materials namely business and energy, as well as the conditions of different schools and places.

METHOD

Research Design

This research is a research and development that uses Borg & Gall procedural models. Procedural models are descriptive models that describe procedural steps that must be followed to produce products (Wicaksono, Roekhan, & Hasanah, 2018).

In the stages of development research consist of 10 development steps (Nugraha, 2017). The tenth steps are not all to be done, the researcher just adopt seven steps because they have answered the research objectives that test the attractiveness and feasibility of learning media as a supplement to physics learning with character education. The seven-step procedure carried out by researchers is:

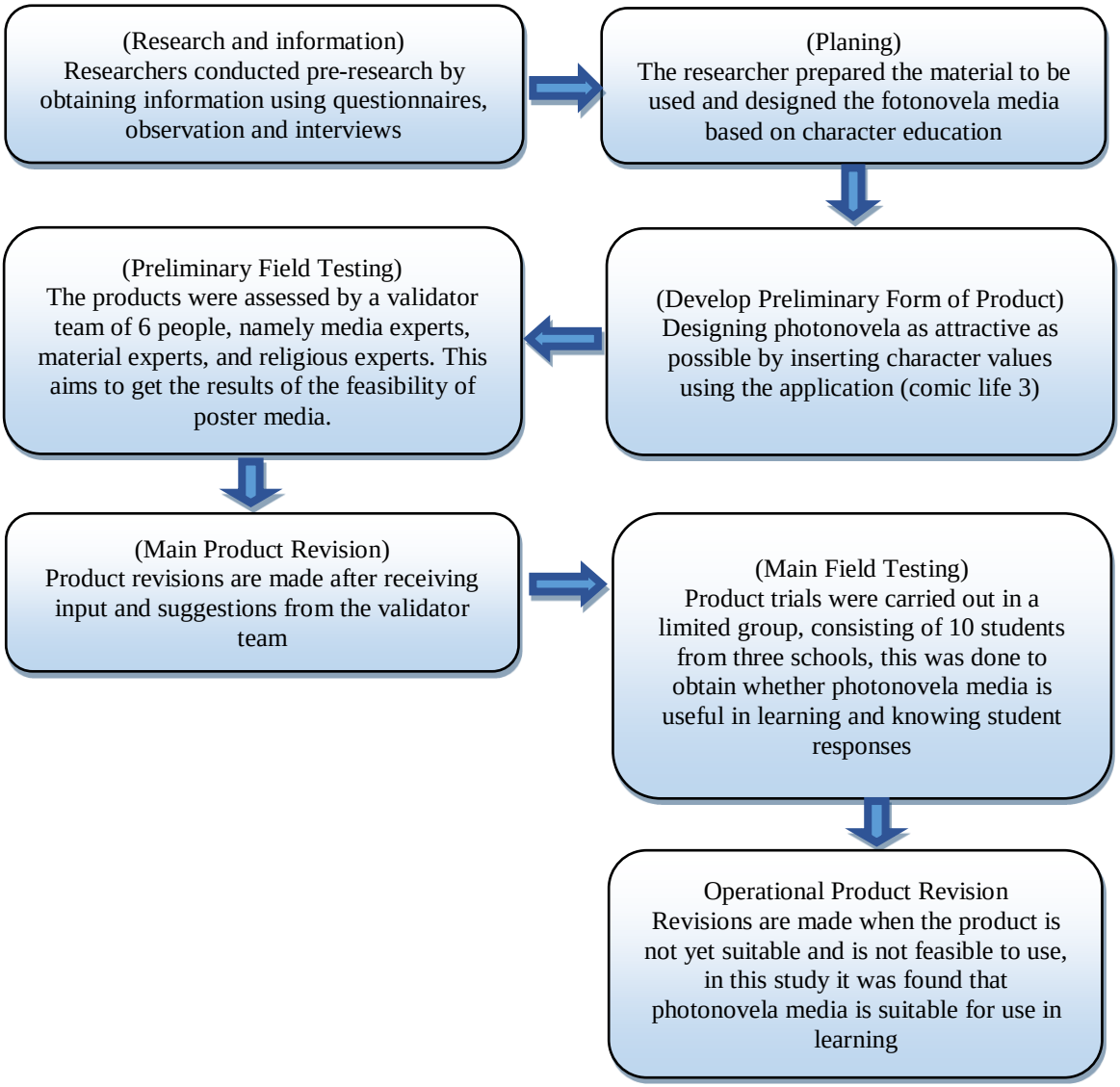

Figure 1. The research procedures of Borg and Gall

The results of the product are feasible or not, and student responses are measured using research instruments in the form of questionnaires by material experts, media experts, junior high school physics teachers and questionnaires for students' responses in the three schools.

Data Analysis

The data of research was collected using expert validation sheets, educator response sheets. The student response sheets and then the validation data were analyzed using a Likert scale (Adawiyah, Lesmono, & Prastowo, 2018).

Calculate the percentage of eligibility of each aspect with the Likert scale formula (Asyhari & Silvia, 2016):

$$N = \frac{\sum x}{\sum xi} x\ 100\ \%$$

Information:

P = Percentage

$\sum x$ = Number of respondents' answers in 1 item

$\sum xi$ = Number of the ideal score in item

Rating Score

Changes in the results of the assessment of media experts, material experts, educators and responses of students from letters to scores are the provisions in the following figure 2.

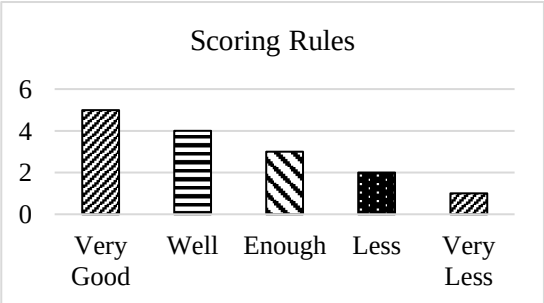

Figure 2. Scoring rules

To determine the feasibility of photonovela media as a supplement to physics learning, it contains character education in business and energy material, namely by giving respondents respite.

The result of percentage score obtained from the study is interpreted on the scale of interpretation of criteria in the following Table 1.

Table 1. Scale of Intrepretation Criteria (Damayanti, Komikesari, Syafei, & Rahayu, 2018).

Percentage	Criteria
80% < P ≤ 100%	Very decent
60% < P ≤ 80%	Decently
40% < P ≤ 60%	Enough decent
20% < P ≤ 40%	Less decent
0 % ≤ P ≤ 20%	Very less decent

In Table 1 the scale of interpretation criteria the researchers can see the percentage of the results of the feasibility assessment or not the product to serve as a learning medium.

RESULTS AND DISCUSSION

Result of Research

The researcher presents the results of the products developed, namely the photonovela media as a supplement to physics learning with character education. The cover of photonovela media developed can be seen in the following figure 3.

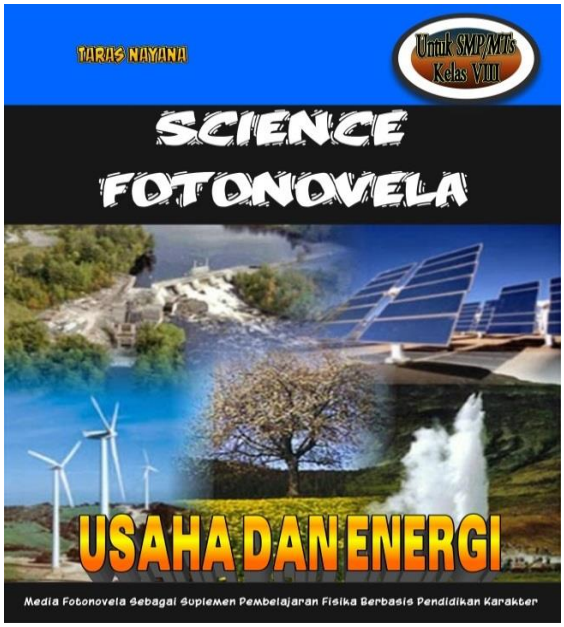

Figure 3. Cover media photonovela

Figure 3 is a photonovela cover developed. Photonovela media with the insertion of character values on energy material, using photographs obtained from the results of the shoot.

After the product was successfully developed and tested its feasibility by-product validation. The following are the results of the feasibility test;

Validation of Material Expert

The results of the validation of the material expert assessment on the product can be seen in the following figure 4.

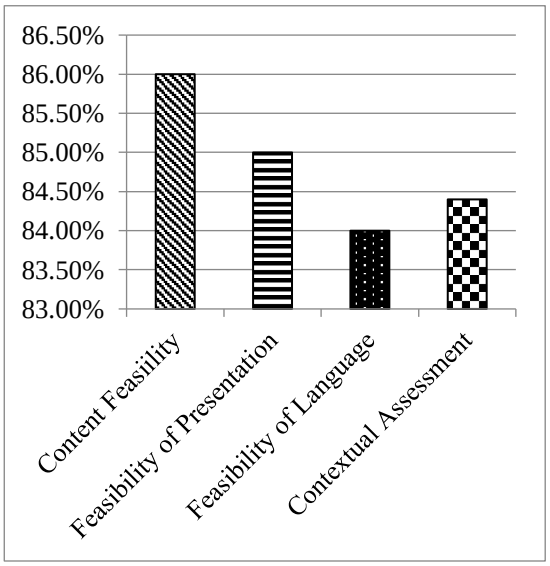

Figure 4. Percentage of material assessment

Based on Figure 4, the percentage of material expert validator evaluations on the aspect of content eligibility with business and energy material obtained a percentage of 86%, 85% percentage of the feasibility of presentation evaluation, 84.40% for language feasibility assessment, and 84 for the contextual assessment. 40%, all proceeds of the percentage are stated as very feasible.

Validation of Media Expert

The results of the validation of media expert judgment on the product can be seen in the following figure 5.

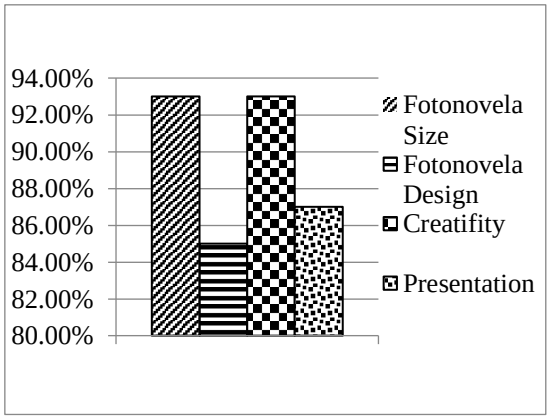

Figure 5. Results of evaluation by media experts

Based on Figure 5, the percentage of media expert validator evaluations on the photonovela size aspect obtained a percentage of 93%, the photonovela design assessment obtained a percentage of 85%, the creativity assessment got a percentage of 93%, and the percentage assessment was 87%, the very decent category expressed all percentage results.

Validation of SMP/MTs Educators in Three Schools

The results of validation by SMP Al-Huda Jati Agung, MTs Muhammadiyah Sukarame Bandar Lampung, and SMP N 1 Gisting, can be seen in the following figure 6.

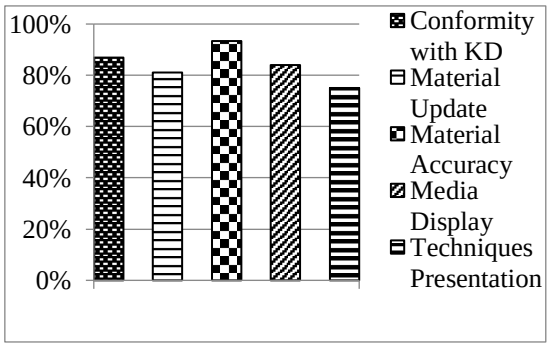

Figure 6. Results of validation by educators in Schools

Based on Figure 6, the percentage of the results of the three School educators' assessment of the material suitability aspects with basic competencies (KD) obtained a percentage of 87%,
the material assessment obtained a percentage of 81%, the assessment of the accuracy of the material obtained a

percentage of 93.30%, evaluation of media appearance obtained percentage by 84%, the percentage results are expressed as very feasible, then the evaluation of the presentation technique is 75% with a decent category.

The response of Students in Three Schools

The results of trials on students can be seen in Figure 7 below.

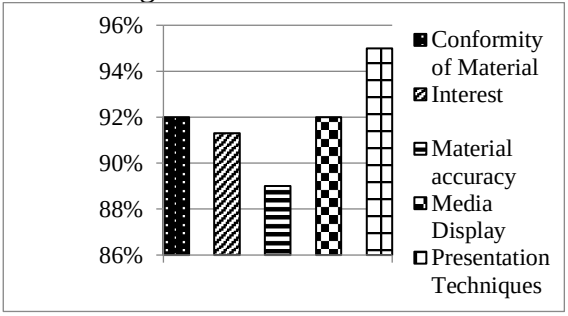

Figure 7. Results of the Response of Students in Schools

Based on Figure 7, the percentage of the results of field trials on students in the three schools in the material suitability aspects with basic competencies obtained a percentage of 92%, an interest assessment obtained a percentage of 91.30%, an assessment of the accuracy of the material obtained by 89%, an assessment of media appearance obtained percentage at 92%, then the assessment on the presentation technique obtained a percentage of 95% of the results of all percentages included in the very feasible category.

DISCUSSION

The results of a product that have been developed, namely photonovela learning media received a positive assessment by students as product users. Some product results can be seen in Figure 8 below,

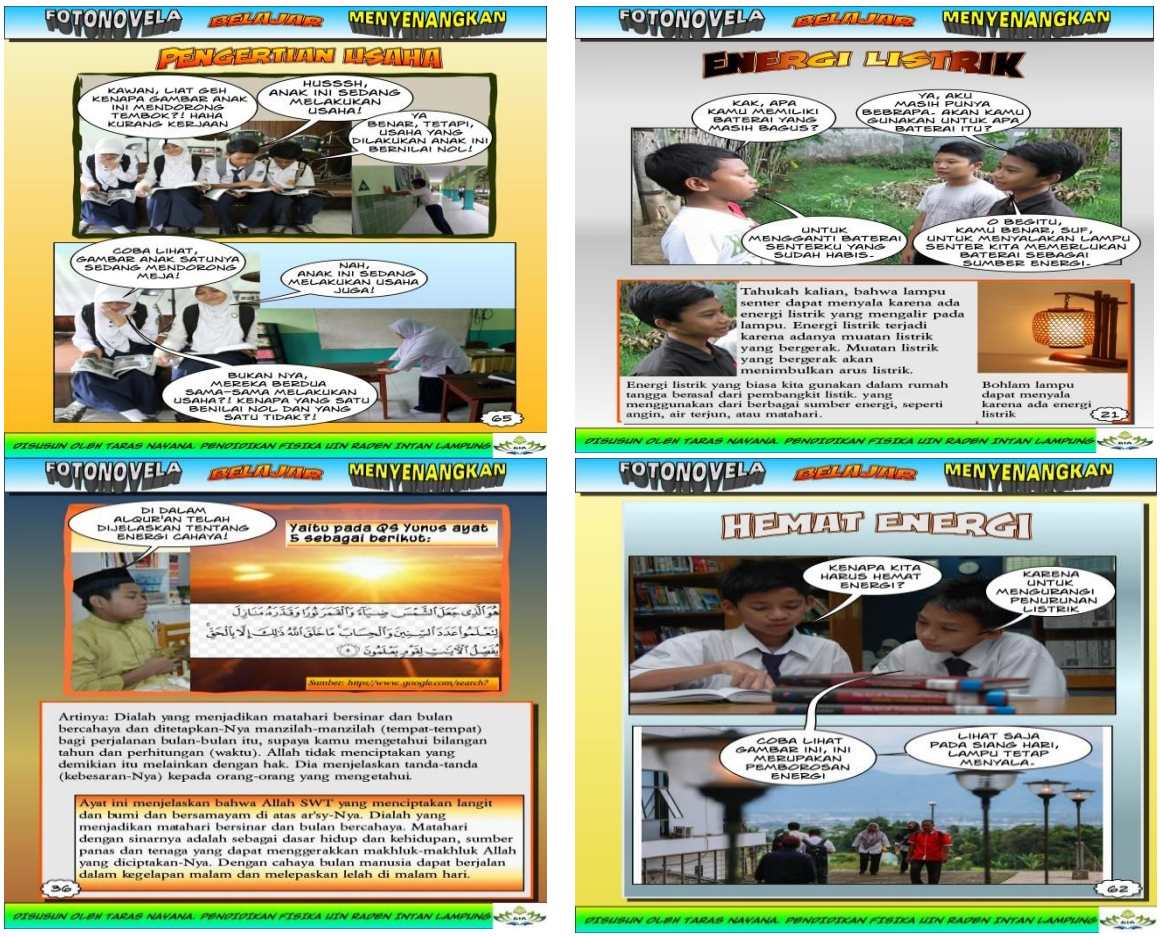

Figure 8. Footage of content on the results of photonovela media development

Figure 8, it shows that the product developed contains character values in business and energy material, using photographs obtained from the results of shooting and equipped with the material, examples of questions and evaluations that can be used in student learning to be more interesting. In accordance with its characteristics, the theme of the media is based on the real conditions of students with the aim that students more easily understand the material presented.

The products developed have been validated by six experts including three material experts and three media experts with the results of material validation, media expert validation, validation by junior high school / Madrasah educators in the three schools, and responses from students in all three schools. Then in each aspect of the assessment to obtain a percentage ranging from 75% to 95%, the products included in the category of decent to very feasible. Photonovela learning media helps students to be able to study physics material either independently, in groups or learning with teachers in class. Through this media students are not only required to obtain good cognitive values, but the insertion of character values in the media is able to influence student character education, where students not only understand the material presented but students naturally learn character values that able to educate students' behavior so that positive habits are embedded in each learning activity. In line with previous research was that succeeded in increasing students' motivation and creative thinking abilities using photonovela media (P. Astuti, 2017).

The advantages of photonovela learning media found after research include: 1) Photonovela can motivate students during the teaching and learning process; 2) Photonovela consists of images which are media that can improve the quality of learning; 3) Photonovela is permanent and able to integrate character values through learning; 4) Photonovela can generate interest in reading and direct students to read discipline especially those who do not like to read; 5) Photonovela is part of popular culture.

The disadvantages of photonovela learning media found after research include: 1) Photonovela limits even allowing the killing of imagination; 2) Submission of subject matter through photonovela media is too simple and may be developed again; 3) The use of photonovela media is only effective in visual-style students.

CONCLUSION AND SUGGESTION

Conclusion

This research concluded that photonovela learning media with character education can provide a more interesting learning atmosphere by inserting character education each learning using photonovela media. Then photonovela learning media as a supplement to physics learning with character education is worthy of being used in learning. The results of the trials carried out were small group trials from three schools that obtained an average percentage of eligibility of 88.3% with a very feasible category. In the field trials conducted in three schools, the average percentage of feasibility was 92% with a very feasible category to be implemented in learning in class and outside the classroom.

Suggestion

The use of photonovela learning media can affect student character education. From the results of this research can be carried out further research on learning with photonovela learning media for different concepts or topics. In making photonovela learning media with character education on work material and energy there are several obstacles or difficulties that might be an improvement for future researchers.

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