

Developing Character Building Learning Model Using Mobile Augmented Reality On Elementary School Student In Central Java

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Abstract

The study aims to develop Character Building Learning Model practical learning media using Mobile Augmented Reality for elementary school students. This research follows Research and Development research method set up by Borg and Gall which has 10 stages. This article describes continuing study after finishing 6 out of 10 phases.

The study begins at implementing 7th until 10th stages those are: (7) Revised design (8) The trial usage (9) Revision Products, (10) Mass production. Research questionnaires for student responses quantifying the practicality of components of model shows that data collected through questionnaire asking student and teacher of model practicality. Research results: learning model named *Character Building Learning Model Using Mobile Augmented Reality* has been developed and the level of practicality in is discussed.

Keywords: Learning Model, Character building, Mobile Augmented Reality

I. Introduction

Based on the results of the first year study of fundamental research grant scheme entitled *Developing Character Building Learning Model Using Mobile Augmented Reality On Elementary School Student* showed that sixth year students of SDN Central Pedurungan 01 Semarang and Semarang 02 SDN Central Pedurungan were very enthusiastic in participating the process of learning mathematics within this model using Mobile Augmented Reality. Based on a questionnaire assessing students responses on practicality showed that more than 90% of students at SDN Central Pedurungan 01 Semarang and Semarang 02 SDN Central Pedurungan strongly agree on using *Character Building Learning Model Using Mobile Augmented Reality* because it makes learning math more interesting and fun.

Based on the validation of Expert Judgement of the Revised *Character Building Learning Model Using Mobile Augmented Reality* that scored more than 80%, means and explicitly claims that the learning model and its components are proper to be being prototyped on more widely school area. Results of the limited test in two school to the teachers' and students' respons shows that teachers and students alike to provide an scoring on Revised *Character Building Learning Model Using Mobile Augmented Reality* deserves to be tested in an expanded area, not only in the Semarang city, but also in other elementary schools student around Semarang

In this case of expanding study, accuracy in choosing the sample is very crucial because not all of the elementary schools in the district around Semarang has internet facilities, hotspot areas and an adequate level of school accreditation. After reviewing many areas, It had been selected five districts around semarang (5) districts of Semarang, Salatiga districts, Kendal district, Demak district and Grobogan each of them, we pick two school schools based on these categories: National Examination performance, school infrastructure and level of school accreditation. Based on the considerations above, it is necessary to do more extensive research covering within Kedungsapur area in order to know the advantages and disadvantages Character Building Learning Model Using Mobile Augmented Reality.

This research is corroborated by research Abas (2009) indicating that the mobile learning assessment of students more easier, and Anderson (2001) explains that the assessment of student learning outcomes should be able to enhance creativity and critical thinking of students, with media mobile augmented reality can improve the creativity of students in accordance with Anglin (2001) which explains that the technology of renewable greatly assist the process of student learning in the classroom such as mobile media, websites and others, then Attewell (2008) explains that mobile learning can be applied at all levels of education from schools to university but Herrington (2009) explained new technologies mobile learning in higher education more effective if student prepare to use in classrrom.

II. Literature Review

2.1. Character Building Models

The moral education strengthened or character educational was very relevant in present context to overcome the moral crisis that sweeped our country (Kertajaya: 1999). The crisis was among others by increased promiscuity, rampant levels of violence children and adolescents, crimes against friends, theft teens, the habit of cheating, drug abuse, pornography, and destruction of property from the others has been become a social problem that until now has not been able to completely resolved, therefore the importance of character education. According Lickona (1991), related to the concept of moral character, moral attitudes, and moral behavior. Based on three components can be stated that the characters are well supported by knowledge of good, desire to do good, and do deeds of kindness. And the outlined of the third link this framework. And Joice (1992) proved that character building is very important to make student friendly and succes at school.

Gagne (2008) interpret term as a learning activity that focus on conditions and interest of learning (learning centered). The term learn was used to replace term teach more as activities focused on the teacher (teacher centered). The term learning a broader meaning than term of teaching. According Plomp (1978), teaching was only a transfer of knowledge from teacher to student, while learning has a broader meaning, activities starting from design to develop, implement, and evaluate activities that can create learning process. Thus, learning is a process that intentionally designed to create individual learning process. So Chacon (2008) showed the student attitudes to mathematics and technology comparative study between the United Kingdom and Spain, student on United Kingdom more interest to use technology based mobile but the student on Spain its slowly to use it.

2.2. Mobile Augmented Reality

The application of augmented reality technology before the actual Currently Enough area, including hearts Education Sector. Billinghamurst (2002) found Technology Utilization augmented reality hearts World Education Continues developed to Date singer, because like computing technology at generally Interface augmented reality Being able to integrate the user, the object of the virtual and Environment Real And hearts applicability on school environment is a need for collaboration between teachers Lecturer or with Researchers in the field to review the suitability mengatahui Media augmented reality application the curriculum at the school. So Craig (2013) showed augmented reality must be developed to help student to learning any lesson at school.and then Heinich (2005) proved media for learning is very interesting to use in classroom because wit media the student can make easy to learning material.

That stance is in line with conclusion Kaufman (2000) that along the Advancement of hearts Developments concept pedagogical, Applications, Technologies, And the decline include the costs of hardware, use your scale Small Technology augmented reality for review Institutions Become Very allows hearts decade Singer (with assuming Sustainable Development The level carefully). However Potential Technology cared the singer Requires care in order Really can be utilized to increase the success of Education review. So Buchori (2010) showed if student in senior high school at Semarang rarely to use mobilephone to learning mathematics in class.

Azuma (1997) Also revealed Reason Technology Utilization augmented reality hearts Education World Namely: (1) support the interaction between real and virtual environments, (2) use Interface That seemed real to review Manipulation object, (3) the ability to review transitioning Operates Fine between Real environment and virtual objects.

III. Methodology

3.1. Research Location

The research was conducted in 5 (five) regencies: Kendal district, Grobogan, Semarang district, Demak district and Salatiga, familiar by the name of Kedungsapur area.

3.2. Research Time

The study began at the beginning of the school year 2015-2016 for about 8 months.

3.3. Research Subject

According Tuckman (2012) to choose subject can use stratified random sampling, The subjects were sixth year students from ten (10) school: five public primary schools and 5 private primary school. Those are SD Negeri namely SDN 01 Sarirejo, SDN 05 Salatiga, Bandarjo SDN 02, SDN 01 Mranggen, SDN 01 Tegowanu Wetan, MI Muhammadiyah Sarirejo, SD Christian 04 Salatiga, SDIT Assalamah, SDIT Darunnajah, MI Al-Muayyad Tegowanu Grobogan.

3.4. Reasearch Design

The research design follows development study set by Borg and Gall (2001) with 10 stages. In this time, we are conducted the stage 7 to stage 10: (7) Revised design (8) The trial usage (9) Revision Products, (10) Mass production. So Kemp (1985) explain planning and producing instructional media especially produce product basic computer.

3.5. Data Collection Technique

According Setyosari (2013) Data was collected using questionnaire which is used to determine the practicality of *Character Building Learning Model Using Mobile Augmented Reality* during the learning process.

IV. Results and Discussions

We conclude our study based on data taken from qustionnaire asked to teacher and student covering 5 (five) aspects quantifying:

- **Media aspect**

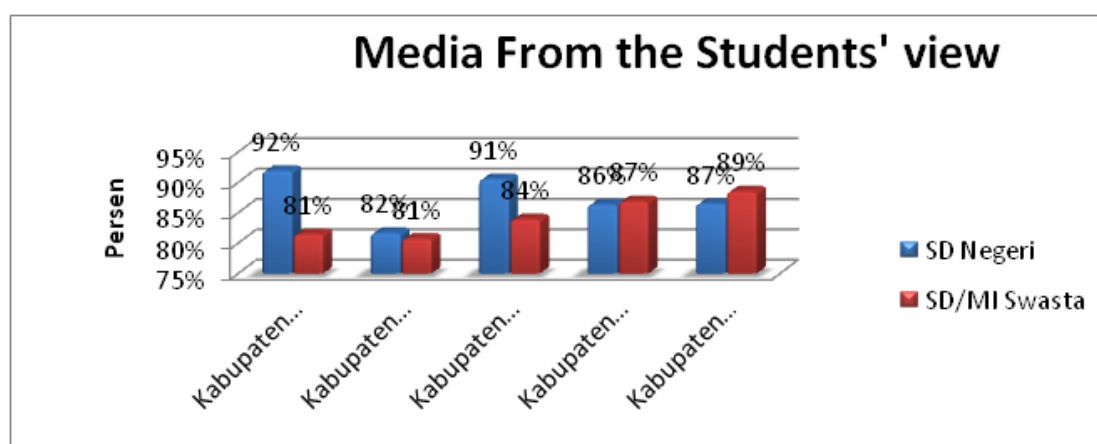


Figure. 4.1: Bar Chart of Media From the students' view

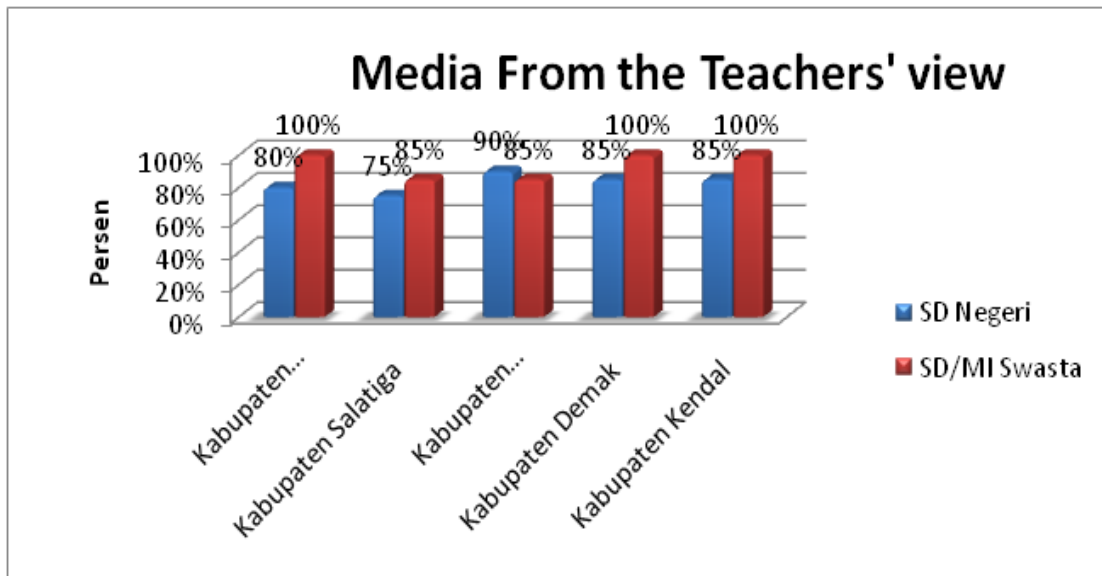


Figure 4.2: Bar Chart of Media From the students' view

The bar chart shows the media, the percentage of students in public schools is higher than in private schools. It is because students in public schools are more interested in media Mobile Augmented Reality. Conversely teachers in public schools gave lower quantity than private schools. It is because teachers of the private schools are more interested in media Mobile Augmented Reality as a media of learning mathematics.

- **Material aspect**

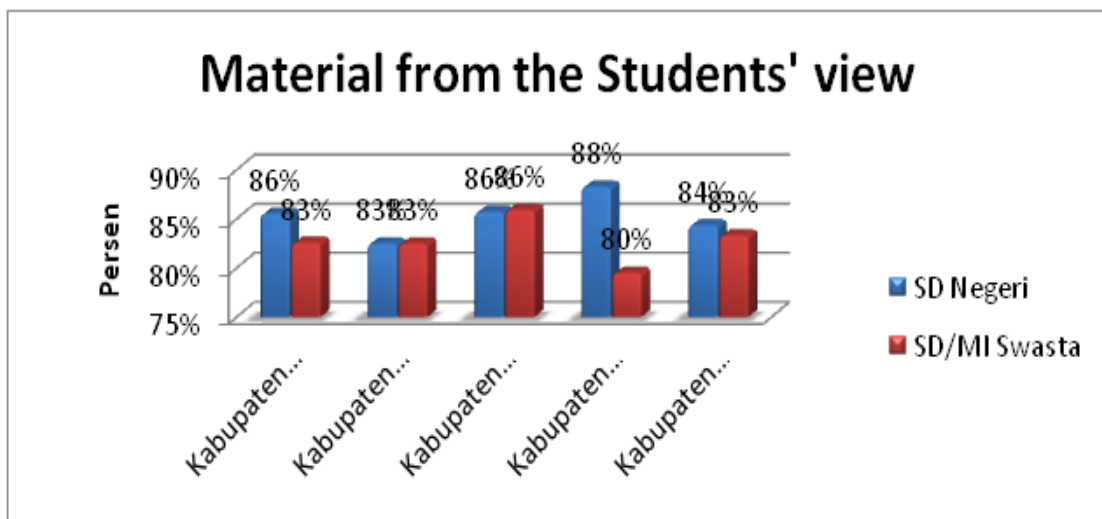


Figure 4.3: Bar Chart of Material From the students' view

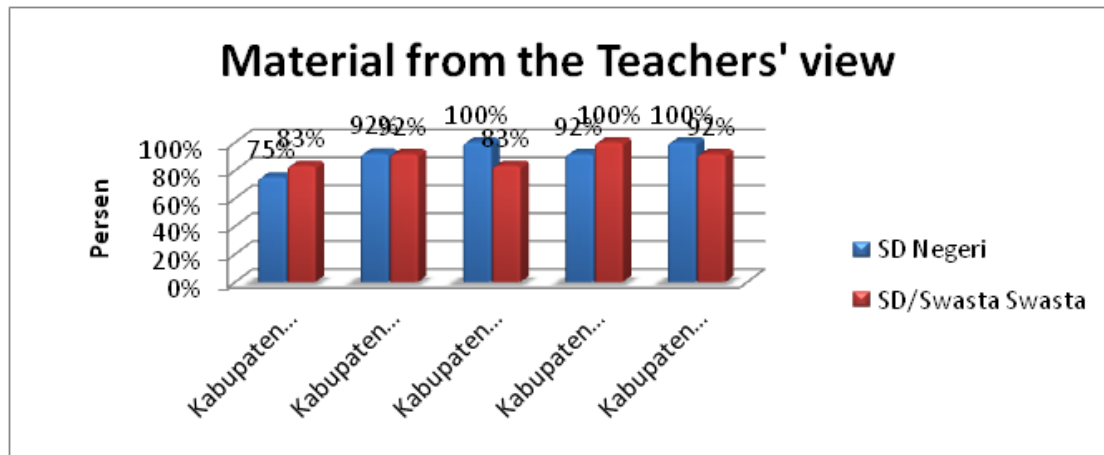


Figure 4.4: Bar Chart of Material From the students' view

Bar chart above showed that in aspect of materials, quantity students in public schools is higher than in private schools, because students in public schools have better understand the material of media Mobile Augmented Reality. Mean while quantity teachers in public schools is higher than the private school, because teachers in public schools better understand the material of media Mobile Augmented Reality.

Language Aspect

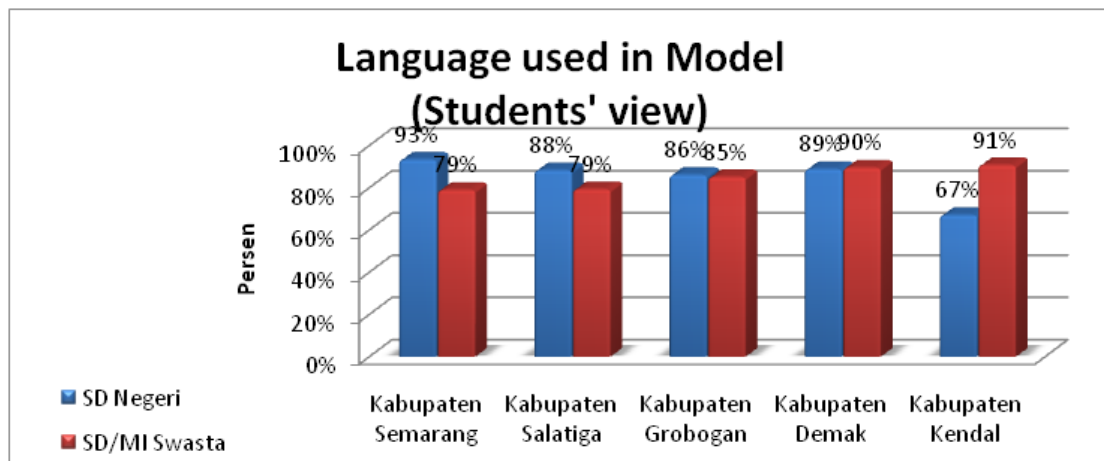


Figure 4.5: Bar Chart language used in Model from the student view

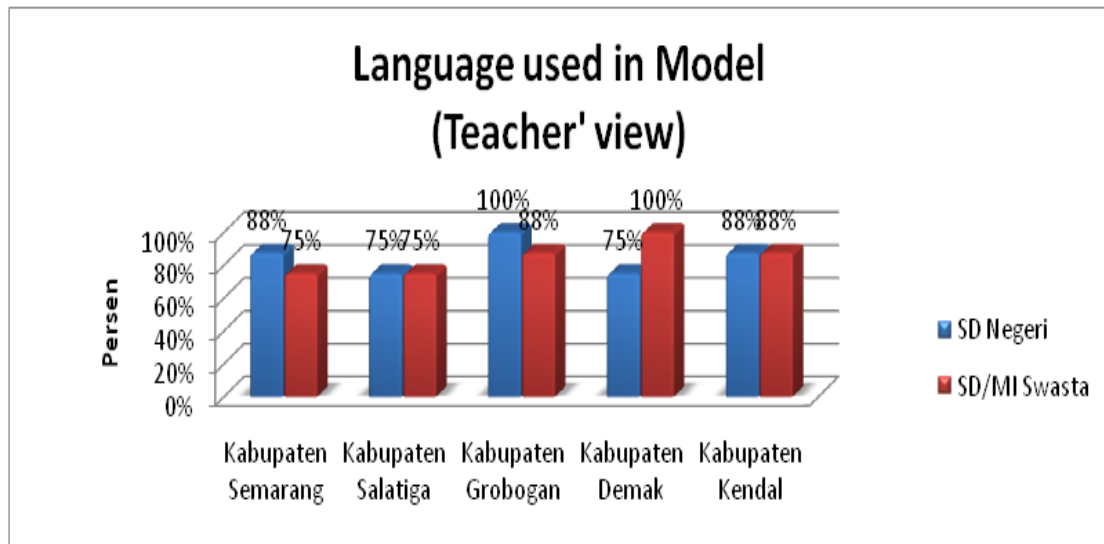


Figure 4.6: Bar Chart language used in Model from the teacher view

The bar chart shows that in terms of language, students in public schools almost on par with students in private schools, because students in public and private schools easily understand the language of the media Mobile Augmented Reality. It is also happen with teachers. teachers in public schools almost on par with teachers private school, because teachers in public and private schools easily understand the language used in the media Mobile Augmented Reality.

- Question item aspect

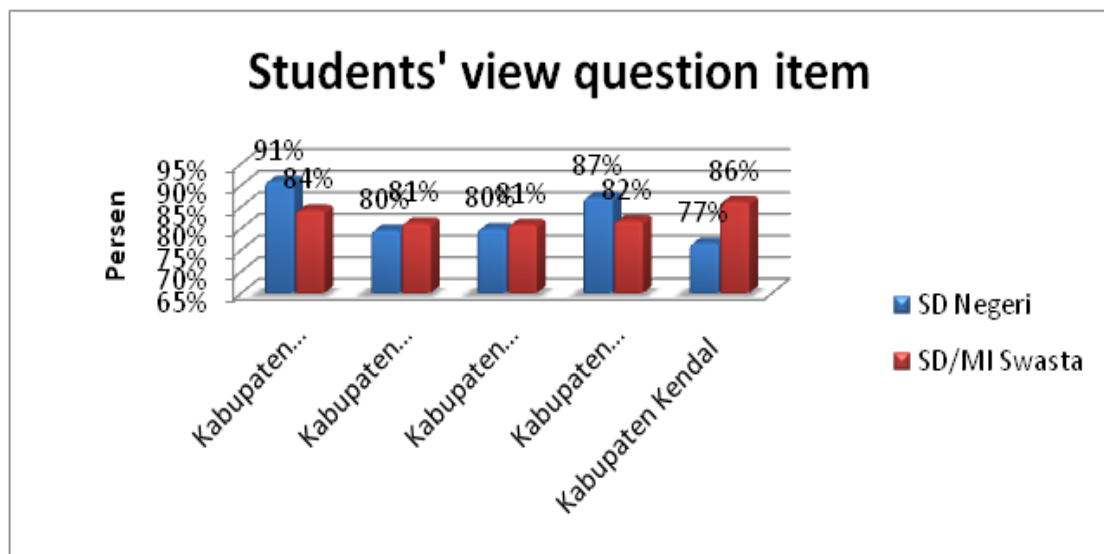


Figure 4.7: Bar chart question item from student view

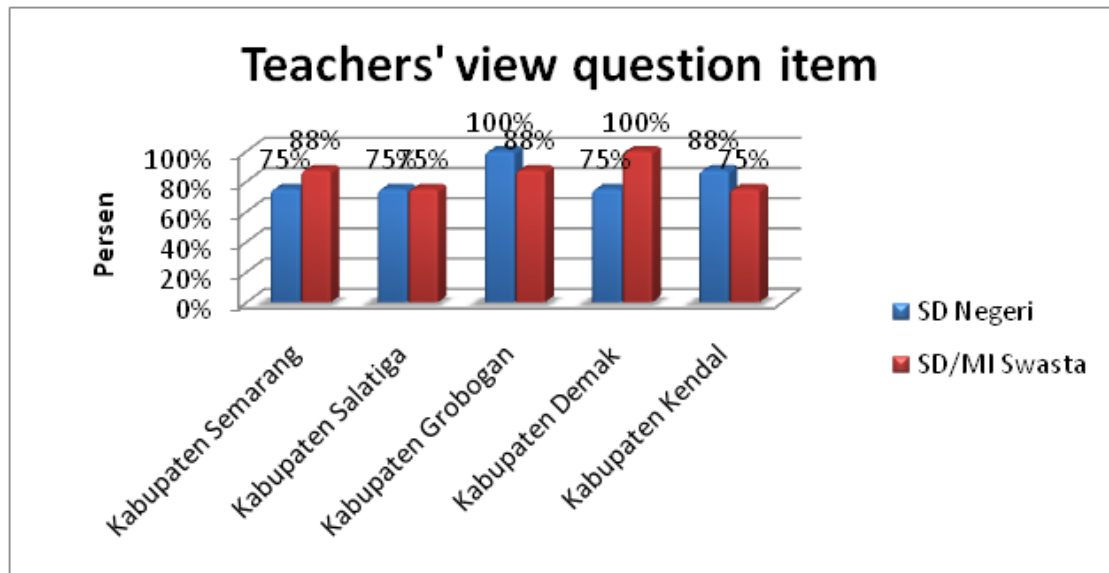


Figure 4.8: Bar chart question item from student view

The graph showed that in aspect of variety of problems, students in public schools almost on par with students in private schools, because students in public and private schools easily understand the problems of media Mobile Augmented Reality, while for teachers in public schools almost the equivalent private school teachers, because teachers in public and private schools easily understand the questions that are used in the media Mobile Augmented Reality.

- **Media Design Aspect**

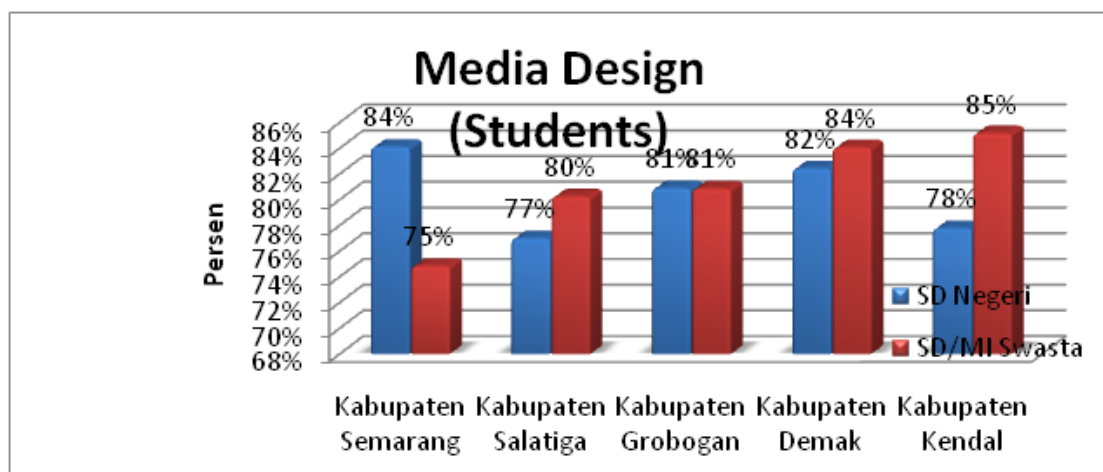


Figure 4.9: Bar Chart of Media design from student view

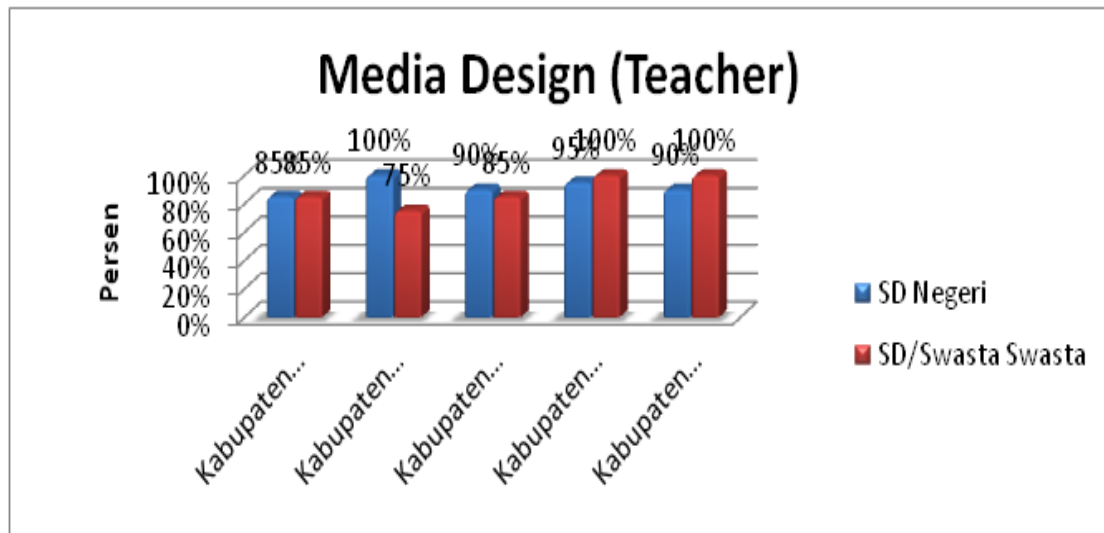


Figure 4.10: Bar Chart of Media design from teacher view

Chart above showed that in terms of Media Design, students in public schools almost on par with students in private schools, because students in public and private schools are very interested in the design of the Mobile Augmented Reality media, while for teachers in public schools is almost equivalent to private school teachers, because teachers in public and private schools are very interested in the design of the Mobile Augmented Reality media.

- **Model Design Aspect**

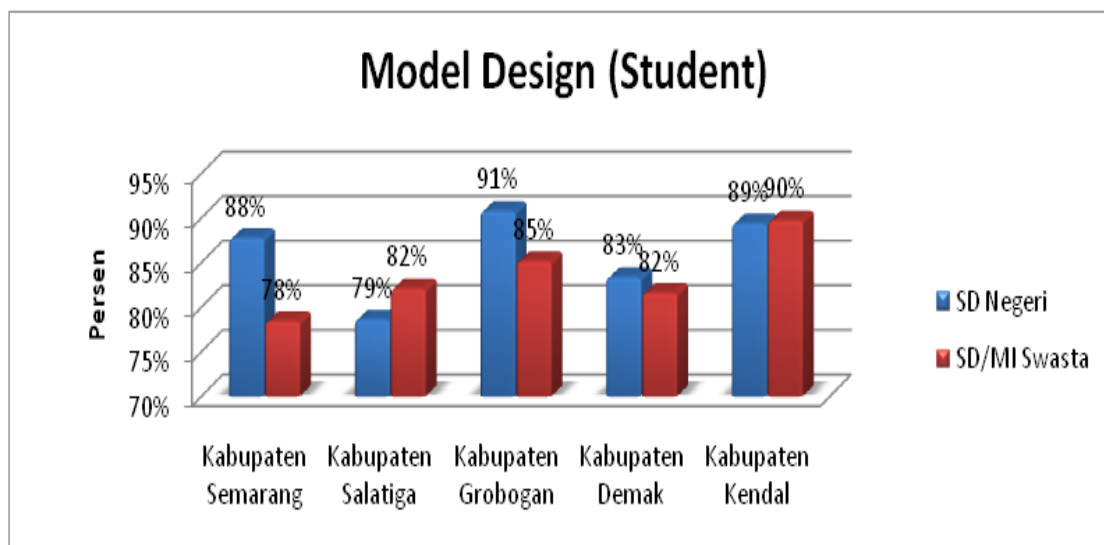


Figure 4.11: Bar Chart of model design from student

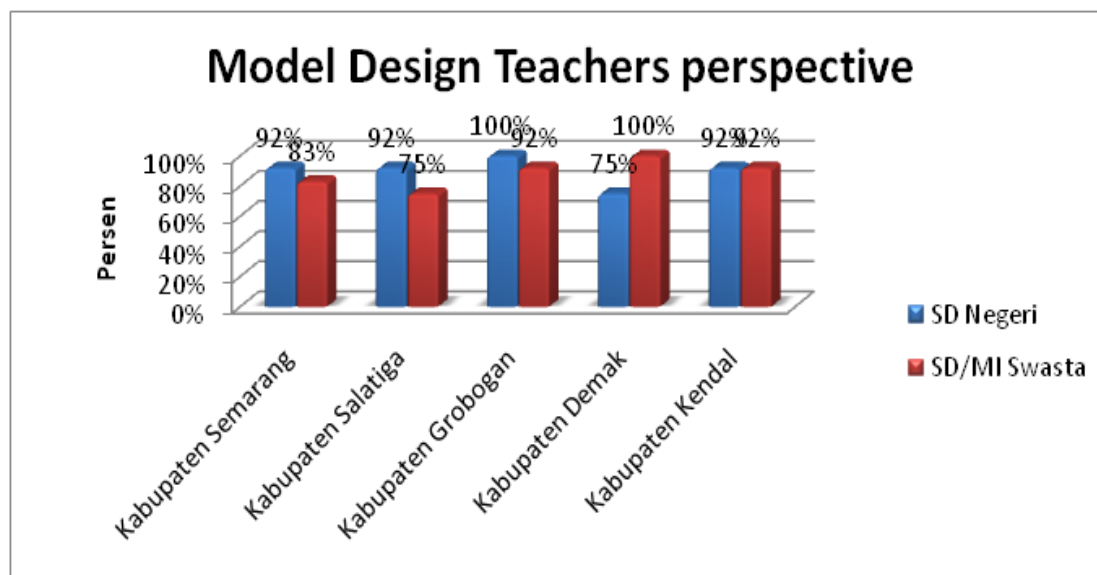


Figure 4.12: Bar chart teacher perspective on mode design

Figure above showed that in terms of design models, students in public schools almost on par with students in private schools, because students in public and private schools are very interested in the design of the Mobile Augmented Reality media model, while for teachers in public schools is almost equivalent with a teacher in a private school, because teachers in public and private schools are very interested in the design of the model Mobile Augmented Reality. The results of this study are supported by research Khwaileh (2010) which showed that the graduate student perceptions toward M-Learning at the University of Jordan is majority student like to use M-Learning at lesson process, so Kumar (2013), O'Donnell (2014), Sarrab (2012) indicates that the current paradigm of the use of M -Learning has been uneven across the country. For example the use of M-Learning in the assessment of student learning outcomes (Mchhonata:2008), then amplified Simonson(1994), Merrill (1996), Shanmugapriya (2013), which requires students to learn with computers in strengthening the learning process.

Conclusion

Based on the research question, data analysis and discussion, it can be summarized:

- It has been developed learning model named *Character Building Learning Model Using Mobile Augmented Reality* for mathematics primary school.
- The *Character Building Learning Model Using Mobile Augmented Reality* has 80% level of practicality in the use.

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