

Development of Teaching Materials Based Digital Storytelling on Strategy Learning Mathematics Course

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Abstract: Application of Digital storytelling in learning can inform a message that has been designed by educators to the students through the learning process of the Movie so as to enable a more realistic learning and enjoyment. In accordance with the purpose of research, this study classified in research development. Data collection using documentation studies to obtain data from the initial needs analysis, documentation for obtaining the Movie as well as a questionnaire to obtain an expert assessment of the Movies produced based on digital storytelling. All data descriptively. Needs analysis conducted in the course of learning strategies mathematics mathematics courses University PGRI Semarang. The Movieing process took place in SD Negeri Karangayu, Jl. Central Kenconowungu VI, Semarang and house one of the researchers at the Housing. Researchers enrolled 30 students in taking pictures with various responsibilities. All the characters in the Movie, played by students who have earned the subjects Mathematics Learning Strategy. Validation of experts conducted by education experts and media pundits learning. The entire media validator declared fit for use, and provide students the opportunity to develop pedagogical competencies possessed. While the input of experts is to multiply the information material on the Movie.

Keywords: Development, Instructional Materials, Digital Storytelling

1. INTRODUCTION

Instructional media is an important part of learning, because the media has become a critical success the process of delivering messages from the message source (educators) to the message recipient (learners). Good Instructional media will motivate and improve the basic skills of learners ^[1]. In lectures, teaching materials is a media messaging to students must be adapted to the character messages (material) that you want to convey and the objectives to be achieved.

Based on the characteristics of the subjects main teacher candidates (learning strategies, lesson planning and learning innovation) are so many theories about learning theories and models of learning as well as the demand that students are also able to apply the learning, it is necessary teaching materials that can visualize any existing theory in a learning process that has been planned. Utilization of Digital storytelling in learning can deliver a messages that have been designed by educators learners through video learning process so as to allow a more realistic learning and fun ^[2].

As a producer of teacher candidates college, has been much research done to produce teaching materials in the form of learning, but few of them develop teaching materials for

teacher candidates. The studies that have been conducted at the Universitas PGRI Semarang with respect to ICT and character development among others Dwijayanti ^[3] and Sukarno ^[4], all of which discusses the development of teaching materials with the subject of learners. For that we need an effort to develop teaching material capable of being media lectures students to learn in realistic learning process in accordance with the existing theory. Based on these descriptions, we propose that the focus of research problems, is: “how the proses development of teaching materiala math learning strategies based on digital storytelling valid?”

Baniszewski ^[5], which defines digital storytelling as *“the practice of combining personal narrative with multimedia (images, audio and text) to produce a short autobiographical movie”*. The same thing was stated by and Mellon ^[6], Royer ^[7] and Januszewski ^[8]. Robin ^[9] define digital storytelling as an application of the technology placed in such a way to take advantage of direct contributions from users of content, as well as helping to address the obstacles that arise with the use of technology as an instrumentality of teaching media. Boa ^[10] explain that: *“When taken at face value, digital storytelling simply means using computer-based tools to tell stories. Those tools allow for the digital manipulation of content, which can be audio, text, still or moving images.”* Digital Storytelling resulting from the use of computers to create a story by manipulating and modifying the content, which can be voice, text or moving images. Digital storytelling is a story that is packaged in a computer-based devices to take students on a journey of discovery that introduces them to a new view of life experiences.

Elements that must exist in digital storytelling among others: 1) Point of view: the main point or a specific realization that communicates with the audience with stories submitted .; 2) Dramatic question: key questions that will be answered at the end of the story and make the audience curious; 3) Emotional content: writing that holds the audience's attention and engage emotionally; 4) The gift of your voice: narrative text, including emotions and inflections that give greater meaning of the story and help in the understanding of the audience; 5) Soundtrack:: sound and music were selected to add an emotional response continually and memorable; 6) Economy: many stories can be effectively illustrated with drawings limited or video and short stories and 7) Pacing: the rhythm of the story and how slow or fast the story conveyed ^[11].

According to Microsoft there are six benefits kekuatan belajar digital storytelling by the National Educational Technology Standards (NETS), 2007, as follows: 1). Creativity and innovation; 2). Communication and collaboration; 3). Research and information fluency; 4). Critical thinking, problem solving, and decision making; 5). Digital communities and 6). Operation of technologies and concepts ^[12]

Digital storytelling has strengths and weaknesses ^[13], as follows: 1. Advantages: Digital storytelling has several advantages, namely for teachers and students. Advantages for teachers is attractive for use in a variety of learning styles of students, arouse interest, attention and motivation of students in the classroom, manufacture DST capitalize on the creative talents of the students themselves, digital storytelling as a tool to create a creative generation, and can be used to increase confidence students. While the advantages for students is that students can learn to use the Internet, develop communication skills, improve skills in running a couple of computers and can enhance students' skills; 2). Weakness In addition to excess, digital storytelling also has a weakness that needs to mastery of computers and digital cameras, storyboard and scenario-making skills, and need to find the right players.

2. Research Methods

2.1. Types of Research

This study classified in research development. The device developed in this study include: (1) RPP (Lesson Plan), (2) Scenario digital storytelling on movie, and (3) Digital storytelling on Movie. Research instruments include: (1) sheet validation RPP, (2) Sheet Validation Scenario digital storytelling on movie (material), (3) sheet Validation Scenario digital storytelling on movie (linguists), (4) sheet validation test student achievement, (5) the observation sheet student pedagogical competence, (6) the legibility questionnaire for students; (9) questionnaire responses of students to the learning and teaching process.

2.2. Research Variable

- a. The response to the synopsis matter experts, RPP, digital storytelling scenario on Movie
- b. Student response to the legibility scenario
- c. Response learning experts on teaching materials on digital storytelling Movie
- d. The response of the media expert teaching materials on digital storytelling Movie

2.3. Procedures for Development of teaching materials based on digital storytelling

The procedure used in this study refers to the development of the theory using Borg and Gall ^[14], namely (a) the analysis of the products to be developed; (b) develop the initial product; (c) expert validation and revision; (d) test of legibility; (e) small-scale field trials and revisions. In this research, modifications stage is thus obtained stages:

(a) an analysis of the products to be developed; (b) develop the initial product (Scenario Movie); (c) validation expert and revision; (d) test of legibility; (e) the stage of Movie production;

(f) expert validation and final revision.

2.4. Method of Data Collection and Analysis

a. Documentation method

This method is used to obtain Movies as teaching materials based on digital storytelling. Data were analyzed descriptively.

b. Questionnaire methods

This method is used to obtain data on the expert opinion of the teaching materials developed and legibility of learners to the device. This data is analyzed deskriptif

3. Results and Discussion

3.1 Analysis of The Product to be Developed

a. Analysis of Instructional Materials Before Developed

Teaching materials used in the course of learning strategies for this form of handouts compiled by lecturers. The contents of this handout summarizes about learning theories from various sources. There are some things that the students complained of lack of examples of application of the theory and detailed explanations of the theory. Video playback by lecturers have not been conceptualized, just by chance contain elements of learning theory or approach that is being studied. The method used is the classical discussion with group presentations as an introduction

b. Identification of Learning Theory to be Used

1) Theory Behavioristik: using the theory of characters: Thorndike, Gagne, Skoner, Clark Hull, Robert Guthrie, Watson, Bandura and Pavlov.

2) Cognitive Learning Theory: Piaget, Bruner, Dienes, Vygotsky and Ausebel

3) Humanistic Learning Theory: Roger, Gage and Berlin

This study also refers to the results of research development using humanistic-based learning tools to improve the character of students ^[15].

3.2 *Initial Product Development*

a. Determining Packaging Digital Storytelling in Movie

Based on the type of learning theory which will be Movieed on the Digital Storytelling Movie will be divided into 3 parts.

b. Develop Digital Storytelling in Movie Synopsis

Before drawing on Movie Synopsis Digital Storytelling, researchers must first determine the title of the Movie to be made. And finally the researchers agreed to lift the movie title "Call me teacher" as the title used. Then the researchers make the plot of the Movie perdasarkan learning theories used.

c. Develop Storyboard Digital Storytelling in Movie

Storyboard is made to get an early look in Movie Digital Storytelling. through the storyboard we can know that the researchers insert a focus of attention in every scene of the Movie.

d. Develop Scenarios Digital Storytelling in Movie

After synopsis is completed, researchers began compiling scenario Movie Digital Storytelling in the developing every scene that has been designed in a synopsis.

e. Develop RPP (lesson plans)

f. Develop Capabilities Pedagogic Observation Sheet

After the entire device research is completed, the next activity is the preparation done research instruments. And the first ever made is the observation sheet Pedagogic ability prospective teachers. Indicators used in the preparation of this observation is that the indicator sheet pedagogic.

g. Develop Test Instruments

h. Develop Validation Sheet

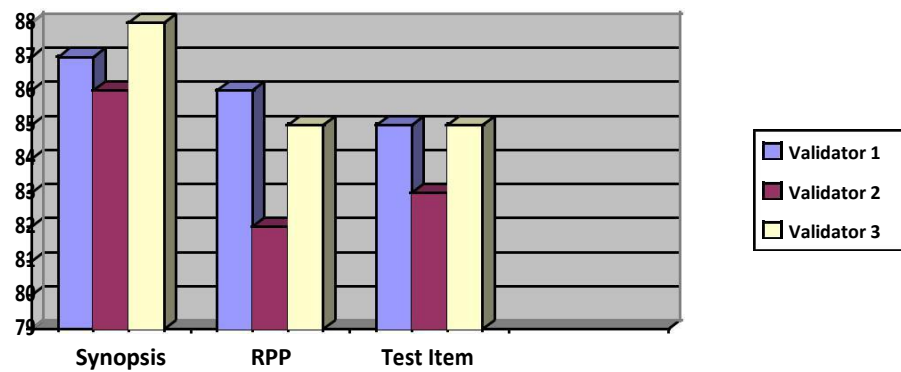
i. Questionnaire Readability

j. Compiling

Questionnaire

Response

In general, the three validators agreed that the device developed decent tested while the resulting scenario deserves to be Moved with a corresponding revision input. The results of the validation experts to draft 1 can be seen there is a chart 1 below.



- 9) On July 21, 2016, the location Perum Gasem Wulung Kav 2, Rt 04 Rw 04, Telogosari Wetan, Pedurungan, Semarang. Scenes taken: Pak rio prepare the material that will be taught on the next day, which is part of the Cognitive movie.
- 10) On July 25, 2016, the location SDN Karangayu, Jl. Central Kenconowungu VI, Semarang. Scenes taken: Pak rio teaching in the classroom, which is part of the Cognitive movie.
- 11) On July 28, 2016, the location SDN Karangayu, Jl. Central Kenconowungu VI, Semarang. Scenes taken: Pak rio teaching in the classroom, which is part of the Cognitive movie.
- 12) On July 30, 2016, the location Perum Gasem Wulung Kav 2, Rt 04 Rw 04, Telogosari Wetan, Pedurungan, Semarang. Scenes taken: Pak rio prepare the material that will be taught on the next day, which is part of the Humanistic movie.
- 13) On August 2, 2016, the location SDN Karangayu, Jl. Central Kenconowungu VI, Semarang. Scenes taken: Pak rio teaching in the classroom, which is part of the Humanistic movie.
- 14) On September 14, the location SDN Karangayu, Jl. Central Kenconowungu VI, Semarang. Scenes taken: rio Pak can not be taught in the classroom and birthday surprises to pack Rio, which is the final part of the Movie Humanistic.

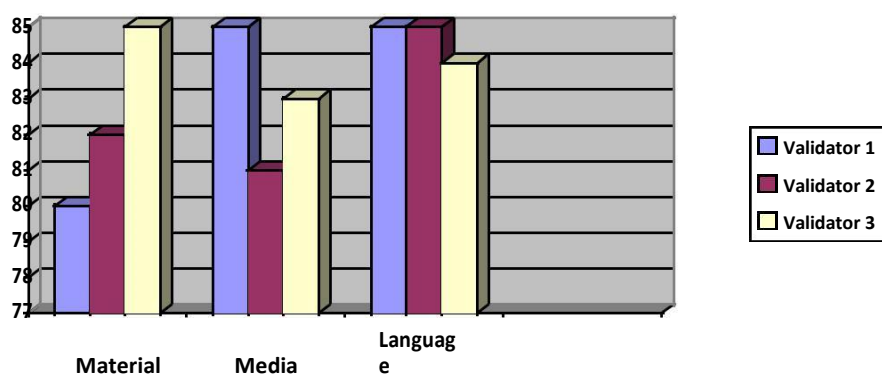
c. Phase Movie Editing

The process of editing the Movie performed to select scenes use and dispose of unused scenes. Besides these processes also provide labeling on each scene with the opinion leaders of each learning theory and methods used in each pembelajarannya. This labeling that will be used by prospective teachers, independently for mengkostruk and find the material being studied.

3.3 Validation and Revision of Digital Storytelling in Movie

Validation is done to look at the digital teaching materials storytelling of the material elements of the feasibility, feasibility of the design of the media as a source of learning and the language used. Validator are included in this study there are 3 people that Ahmad Buchori, S.Pd., M.Pd as a candidate for a doctorate in instructional media from Universitas Malang, Aryo Andri Nugroho as candidate for a doctorate in Learning Mathematics from Universitas Negeri Surabaya and Novi Ratna Dewi , S.Si., M.Pd as learning practitioners and experts. From keempay validator, they agreed to provide an

assessment that digital teaching materials storytelling developed deserves to be tested use in learning to repair records, among others: multiply content learning theory applied, affirmed the scene with the provision "caption" linking scenes with learning theory, as well as to scenes not an example, the provision of "caption" should be more highlighted the phrase "not an example of" it. Overview assessment of the validator in each element can be seen in Chart 2.



Charts 2 Validation Results-Based Instructional Materials Digital Storytelling

4. Conclusion

Based on the procedure development using theories Borg and Gall that has been done, it can be concluded that the process of earning Development Instructional Materials Strategy Mathematics Learning based Digital Storytelling has produced a synopsis, storyboard, scenario, RPP, test instruments and instruments of non-test, Movie Digital Storytelling which has proven its feasibility based on the results of the expert validator.

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