Validation worksheet students of science assisted by education card based on science edutainment

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Abstract

Learning process is a fun activity where learners have the freedom to actualize themselves, develop the potential in accordance with the talent and develop it. It demands educators to be creative in creating teaching materials and media. Teaching materials that can be collaborated with the media is a worksheet student of science asissted by education card based on science edutainment. The purpose of this paper is to produce a worksheet student of science asissted by education card based on science edutainment that is valid, practical and effective. The development model used is a Plomp development model consisting of three stages of initial investigation, development and assessment phase. The validity test is at the development stage. Validity test is done through validation sheet. The result of validity test shows the a worksheet student of science asissted by education card based on science edutainment developed in valid category. Then product can be applied in learning and able to overcome all problems.

Keywords: validation, worksheet, education card, science edutainment

Introduction

According to the Regulation of the Ministry of Education and Culture concerning the standardized learning process, learning process in education unit should be held in interactive, inspiring, fun, and challenging manners to motivate the learners to participate actively and give a broad changes for their initiation, creativity and independence based on their own talent, interest, and psychological and physical development (Ministerial Regulation No. 22). Prior to holding learning process, as required by the Ministerial Regulation, educators should prepare learning plans using Syllabi, Learning Plan, media, learning sources and assessment.

As mentioned in the Law on Teacher and Lecturer Year 2005, core competencies should be owned by educators include pedagogical, personal, social, and professional competencies. An educator should have a competency of "developing curriculum relating to its development field" (Prastowo: 2011). The Law requires educators to have a competency to develop both teaching materials and media. Unfortunately, educators have poor self-development which leads to the failure in creating inspiring and fun learning

process as expected by the Regulation. Therefore, learners as the real subjects in the learning process become 'victims' as feeling bored and trapped in monotone, which in turn to be, not fun, ineffective and inefficient learning process.

An educator, besides being required to master teaching materials, should have a capability to use media and sources in learning process (Muhibbin, 2004). One kind of print learning media which can be developed by educators is learner's worksheet (Prastowo, 2013). The use of learning media in the learning process can trig a new desire and spirit among the learners, enhance and stimulate their learning motivation, and even give psychological influences (Hamalik, 1986).

Based on that, it is necessary to make an effort to create new and better teaching materials and learning media. Such materials and media should attractive and in accordance with learners' characteristics, so that they can motivate them to study.

Teaching materials are all forms of materials used to assist the educators or instructors in holding learning process (*National Centre for Competency Based Training*, 2007) and are the core to help the learners in mastering the lesson (Arikunto, 2002). One kind of printed media or materials used in teaching material is learner's worksheet (Mulyasa, 2008). Learner's worksheet is a means to convey concepts to the learners, both individually and in groups (Prayitno, 2003), which can train them to develop their knowledge in the form of an integration of work steps and demonstration (Trianto, 2009).

Learner's worksheet can be developed to be an attractive teaching material by applying the concept of science edutainment. Edutainment, in the language side, means an entertaining education (Sutrisno, 2005). It also functions to bridge the gap separating between learning and teaching processes, so it can encourage in achieving the predetermined goals (Hamruni, 2009). On the other hand, epistemologically, edutainment is a learning process giving changes to the learners to be involved and enjoying the relaxing, fun, free of both physical and pressures learning process (Roqib, 2009).

One method that can be used in science edutainment learning is game. One of the characteristics of science edutainment is game/playing (Nemec, 2009) that can motivate learners themselves and improve their curiosity (Trna, 2006) so that a learning that seems difficult becomes easy and fun. The game chosen in this research is *play with toy* and *campatitive game* (Nemec, 2009) where the tools to be used in the game are visual media, that is, education cards. The education cards as visual media are small cards containing images, texts, and objects that fit the learning objectives (Arsyad, 2006) and are suitable for presenting messages or materials effectively and attractively visually (Arif & Napitulu, 1997). Flashcards are small cards containing images, texts and objects (Arsyad, 2006) popularized by Glend Doman, a brain surgeon in USA, to train the children in their early childhood to recall images and words (Wardani, 2003).

Natural science learner's worksheet with the help of developed edutainment science-based education cards are expected to attract, motivate and encourage learners to actively participate and can create enjoyable learning. Anggani Sudono (2003: 3) stated that playing game, in addition to being fun, it also helps learners to be able to understand the concepts and understandings naturally (Yasin Yusuf and Umi Auliyah, 2011: 12). A fun learning, psychologically, can stimulate learners' motivation to learn so that the learning becomes fun and the learners can naturally understand the concept of learning without any coercion.

Method

The development model used in this study is the development model of EDR proposed by Plomp. Plomp's development stages consist of three stages: 1) preliminary research, 2) prototype phase (designing stage), and 3) assessment phase (Plomp, 2013). Validation test is done at design stage. Validation test is done by validators consisting of three expert lecturers and 2 science teachers as

practitioners. Validation test begins with arranging the validation instrument blueprint and validation instrument of the developed products. It is necessary as a guide in developing assessment indicators according to development needs. Here is the instrument validation blueprint shown in Table 1.

Table 1. Learners' worksheet blueprint with the help of science edutainment-based education cards

Components of development of natural science learners' worksheet blueprint with the help of science edutainment-based education cards	Development Blueprint
Component	Cover of identity of subject including title, education unit, grade, semester, and subject.
	Activity name, sub-theme, grade, semester, and topic based on basic competencies.
	Core Competencies and Basic Competencies
	Indicators of Competence Achievement
	Learning objectives
	Time Allocation
	Supporting Information
	Learning methods
	The learning steps correspond to the steps of the scientific approach
	Learning Resources
	Penilaian
Eligibility of Constructs	Topics presented in LKPD are in accordance with the demands of KI, KD, and indicators formulated.
	LKPD presents brief information in accordance with the description of learning materials.
	Activities and observations are associated with real-life learners and technology.
	Discussion steps in LKPD encourage learners to think.
	Activities in LKPD encourage learners to learn scientifically.
	LKPD is structured according to a scientific approach.
	The prepared LKPD is equipped with edutainment-based education cards
	LKPD is designed to contain steps of playing science edutainment-based education cards
	Science edutainment-based education cards fulfill the principles of visual media design.
	a. Color gives the impression for the integration.
	b. The integration of images and writing helps to convey messages and information.
	c. Simple in drawing and writing.
	d. Emphasizing on the displayed object.
	e. Shapes and patterns provide a balance perception.
	f. Image forms can motivate learners.
	Science edutainment-based education cards fulfill the following

	requirements:
	a. The images on the education cards depict the situation as it is and fits the original object
	b. The size of the images on the education card is as needed.
	c. Images/photos on the education cards contain activities, movements, and deeds.
	Science edutainment-based education cards fulfill the following formats:
	a. The format of the images on science edutainment-based education cards is consistent.
	b. The images on the science edutainment-based education cards focus on the main objects
	c. The science edutainment-based education cards have simple backgrounds.
Constructs	The presentation of LKPD starts from: Cover of LKPD, Identity of LKPD, KI, KD, purpose of discussion, arrangement of LKPD according to scientific approach.
	Consistent in using symbols.
	LKPD uses attractive colors
	LKPD presents interesting images
	LKPD uses clear and legible fonts
	LKPD has regular layout
	LKPD has a simple and attractive display design
	LKPD has a clear bibliography.
Language	The language used is communicative
	The language used motivates learners to do the work
	The language used has not ambiguous
	The language used is good and correct according to Indonesian grammar rules
	The information conveyed is clear
	The spelling used refers to the EYD
	Consistent in using terms that describe concepts

Discussion

Teaching materials and media are of the important factors in learning process. Given the function of teaching materials and media can provide motivation and help educators in delivering learning messages. The development of innovative and varied teaching materials and media is needed to answer the challenge that learning of science in the eyes of learners is still scary. Involving media can create a fun atmosphere for learners so that the learning process becomes relaxing and comfortable.

The process of developing natural science learner's worksheet with the help of science edutainment-based education cards is inseparable from systematic and measurable steps. In the development stage after natural science learner's worksheet with the help of science edutainment-based education cards has been designed, the next activity is validation. An instrument is said to be valid if it can be used to measure what should be measured. Validations performed include content validity, construct validity, and language validity (Sugiyono, 2007).

In the development of natural science learner's worksheet with the help of science edutainment-based education cards, the validation undertaken emphasizes validation of component, content, constructs, and language. The results of validation conducted on natural science learner's worksheet with the help of science edutainment-based education cards showed that natural science learner's worksheet with the help of science edutainment-based education cards developed is valid and worthy to be continued in the testing phase. However, based on the validation results, the assessment is not perfect because there are still shortages in various aspects. Some advantages of the developed products are, among others, that natural science learner's worksheet with the help of science edutainment-based education cards is easy to be made by educators, economically effective easy to use by learners, can be played anywhere and anytime, easy-to-grasp size, having attractive designs and help learners to remember concepts, examples and applications in learning.

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