

Developing an Assessment Instrument for Assessing Elementary School Instructional Comic

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Abstract—This study aimed to develop an assessment instrument of instructional comic media for elementary school students. The 4D research development method was used in the development of the instrument, namely Define, Design, Develop, and Disseminate. The evaluation of the study were assessment experts, media expert, and users. The data collection method applied in this study was by using random sampling, and the data analysis technique used was descriptive statistics analysis. The development of this study will result in assessment instruments of instructional comic media for Elementary School.

Keywords— *instrument; instructional comic; elementary school*

I. INTRODUCTION

The use of instructional media at the elementary school level is very important to improve the quality of learning in order to concretize the message of learning. The fact that elementary school students' thinking level is at the stage of concrete operational that needs a fun learning pattern for the students. Learning media that can be used at the elementary school level include images, multimedia, appropriate media and comics. Based on the results of research by Sungkono proves that comic media for social studies learning is preferred by students compared to other learning media. The research also stated that more than 76% students said that comic media are the media that are fun and easy to use [1].

McFadden wrote that the comic is an aesthetic value quality of a marked kind: like the sublime, the tragic, the awesome, and the ironic. It is the keynote of many successful works of art [2]. In the theater, we call such works comedies, but comic works are to be found in a variety of different art forms.

Based on Indonesian etymology, the word comic comes from the word *comic* which means funny, a joke. While Nurgiyantoro states that the comics come from the Dutch "komiek" which means comedian. McCloud in *Gumelarmentions*, comics are images that line up in a deliberate sequence, intended to convey or produce an aesthetic response from the reader. According to Gumelar, comics are sequences arranged according to the purpose and philosophy of the author so that the message of the story is conveyed, comics

tend to be given the necessary lettering as needed. Meanwhile, according to Eisner in *Maharsi comics* are arrangement of images and words to tell something or dramatize an idea [3]. Based on some of the expert opinions, it can be concluded that comics are an arrangement of images arranged in such a way per scene and become a series of stories to convey certain messages to the reader.

Comics that are developed nowadays have several types. According to Maharsi, comics can be classified into two categories that are based on the form and the types [3].

1) *Comics based on their form*: a) Comic Strips are comics consist of only a few panels and usually appear in newspapers or magazines. b) Comic Book, a comic that is presented in the form of a book, resembles a magazine and is published regularly. c) Graphic Novels (Graphic Novels), put forward first by Will Eisner. The difference between ordinary comics and graphic novels lies in the themes that are usually more serious and the length of the story is indeed almost the same as the novel. d) Compilation Comics, a collection of several comic titles with different comic artists. e) Online Comics (Web Comics), are comics published via the internet, so the costs are relatively low and the reach is very broad.

2) *Comics based on their types*: Educational Comics are comics that contain educational values, usually used as alternative media to convey knowledge to readers. a) Promotional Comics (Advertising Comics), are comics that are used to promote a product and generally only feature one-page stories. b) Wayang Comics, a comic which contains puppet stories such as the Mahabharata and Ramayana. c) Silat Comics, a comic that is dominated by action or battle scenes and the story setting is adjusted to the culture of each country.

According to Maharsi the elements from comics are: 1) Panel, is a box that contains illustrations and text that will form a story line, often referred to as story frames. 2) Viewing Angle and Image Size Viewpoint. 3) Word balloons, often referred to as speech balloons, dialogue balloons. 4) Letter sound, has another name for sound lettering used to dramatize a scene. 5) Illustration, is the art of drawing used to provide an explanation of a particular purpose visually. Illustration only consists of a

few pictures that visualize the contents of a story, 6) Story. There are two important elements in comics, namely pictures and narration, stories or literature. 7) Symbolia, is a picture of icons used in comics, visualizing symbols in objects or letters. These comic elements make instructional comic media more interesting and easier to understand in conveying learning content so as to facilitate the achievement of learning objectives [3].

Comic media have many positive influences, consequently, there are more comics used for learning in elementary schools. In the development stage, before being used widely, learning media needs to be evaluated first, both in terms of material content, educational aspects, and in terms of technical aspects of the media, so that when the media is used it already meets the requirements as a good educational media. However, there are many learning media that have been developed, including instructional comic media, as soon as they are produced, both by the teacher and the media developer, they are directly used in learning activities, without conducting an evaluation first. Media evaluation is intended to protect users from things that cannot be accounted for. This is important to note and do so that what is conveyed to students is correct and appropriate, while there are still many people who think that the media that has been created can be used immediately.

Before being used, learning media that have been created should be evaluated in advance by using good instruments. The purpose of evaluating the media that has been made as disclosed by the Directorate General of Primary and Secondary Education, are: 1) Accommodate guidance to government agencies in providing qualified educational media. 2) Provide guidelines for teachers in making qualified educational media. 3) Provide guidelines for producers in producing quality educational media. 4) Protecting schools from the use of educational media that cannot be accounted for in terms of educational technical aspects [4].

Media evaluation is one form of media evaluation activities. Evaluation of educational media according to Sadiman can be classified into two types, which are formative evaluation and summative evaluation [5]. Formative evaluation is a process that is intended to collect data concerning to the effectiveness and efficiency of the media to achieve the target objectives. The data is intended to improve and enhance the media concerned in order to be more effective and efficient. Summative evaluation is the process of collecting data to determine whether the media made is suitable for use in certain situations or whether the media is truly effective or not, after the media has been repaired and improved. Assessment in this discussion is another term for formative evaluation. Formative evaluation consists of three stages, which are: one-to-one evaluation, small group evaluation, and field evaluation.

In the guidebook for evaluation of educational media from the Directorate General Primary and Secondary Education stated that a media, before being used extensively, needs to be evaluated first, both in terms of material content, educational aspects, and technical aspects of the media, so that when the media is used, it already meets the requirements as a good educational media [4]. Media evaluation is intended to protect users from things that cannot be accounted for. This is

important to note and do so that what is conveyed to students is correct and appropriate, since there are still many people who think that the media that has been created can be used immediately. Such conditions are often encountered in daily practice. In order to able to find out which media are produced well or needed prior evaluation requires an existence of a good instrument.

Sungkono said that in evaluating the media, it can be conducted by consulting/testing them with content experts and media experts [1]. School subject specialists are expected to provide a lot of input to media makers in terms of material, especially regarding content/program material. Consultation with media experts is expected to provide a lot of input on physical form and packaging as well as overall media performance. The most important thing is in evaluating instructional media, the instrument needs to be developed / made first. Learning media evaluation instruments can be in the form of tests, interview guides, questionnaires, guidelines/observation sheets, and scales. In this research, the researchers developed a closed and scale questionnaire. The criteria for evaluating the hardware of educational media are divided into two parts, which are general criteria and special evaluation criteria. General criteria apply to all types of educational media hardware, such as: 1) Practical, robust, and easy to operate, 2) Spare parts are easy to obtain, 3) Provides safety protection for users, and 4) within the standards to be used in Indonesia. Specific criteria for educational media devices are specifically applied only to the type of related hardware. These criteria are guidance for educational media assessors in evaluating the technical specifications of each hardware to be assessed. In order to conduct an effective evaluation, an appropriate evaluation instrument is needed. The existing comic media evaluation instruments are still very varied and have been not carefully studied. Considering such conditions, this research is important in order to develop a proper instrument.

Instrument is a measuring tool used to collect data. The instrument is a measuring tool used to obtain quantitative information about the characteristics of variables objectively. While Subrata states, an instrument is a tool used to record quantitative data which is generally associated with psychological attributes and activities. From the three definitions presented by the experts above, it can be concluded that, the instrument is a tool used to collect or record data (quantitative information) about the characteristics of an object or psychological attributes objectively.

In order to find out whether an instructional comic is categorized as appropriate or not, we need a measuring instrument that is equipped with clear and correct criteria according to certain theories. The tool used to determine the quality of instructional comics is commonly known as instructional comic assessment instruments. Thus what is meant by the instructional comic assessment instrument is a tool used by evaluators to collect data related to the quality of an instructional comic media.

To find out the appropriateness of instructional comic media required a valid and reliable assessment instrument. With a valid and reliable instrument, it is expected that it will

also be able to reveal the ability of an instructional comic in motivating and making it easier for its readers to understand more about the contents of the comic. In theory, to produce a valid and reliable instrument, the instrument development process must go through the instrument development procedure, including the following; 1) conducting an in-depth literature review related to the variables to be assessed to get a solid theoretical foundation as the basis for the preparation of instruments, 2) formulating an appropriate conceptual definition, 3) formulating an adequate operational definition containing ideal characteristics related to the object to be assessed, 4) describes operational definitions into dimensions or ideal aspects related to the object to be assessed, 5) describes each ideal dimension of the object being assessed into measurable indicators and sub-indicators, 6) arranges the instrument lines, 7) compile assessment instruments, 8) ask for expert verification and revise instruments, 8) evaluate instrument products, 9) test instrument implementation, 10) revise instruments, and 11) determine instrument end devices.

Djali and Mudjiono in Sudaryono, et al. outline the steps of developing a data collection instrument, as follows: 1). Synthesize theories that are relevant to the concept of the variable to be measured and create the construct variables. 2). Develop variable dimensions and indicators relevant to the formula of construct variable 3). Arrange the instrument grid in the form of a specification table consisting of dimension columns, indicators, item numbers and number of items for each dimension and indicator. 4). Determine the amount or parameter that moves in a continuum from one end to the opposite end. 5). Write instrument items in the form of questions and statements. 6). Validate items theoretically through expert examination or panelist assessment. 7). Duplicate instruments that are considered to be theoretically valid to a limited extent for trial purposes. 8). Conduct an empirical instruments test in the field, 9). Perform instrument revisions based on internal and external validity criteria. 10). Retry the instrument until it produces all valid instrument items. 11). Assemble all the instruments that have been compiled into the final instrument.

II. METHODS

This type of research is product-oriented development research. This research is intended to develop a product that will be used in education. The products created in this study were assessment instrument products that will be used to evaluate elementary school instructional comic media.

The development procedure designed in this study refers to the development stages developed by Thiagarajan [6]. These stages include; Define, Design, Development, and Dissemination. This research was designed to only use the three steps which were define, design and development. The dissemination step was not carried out in this study given the short time of the study.

The define step in this research was a stage of needs analysis as a basis for development. This stage was carried out with a focus group discussion (FGD) activity to explore related instructional comics which were appropriate to the Elementary School level so that they could provide guidance in the

development of evaluation instruments for assessing instructional comic media in Elementary Schools. In addition to the FGD activities, at this stage a literature review was conducted to explore theories related to instructional comics for elementary schools. The design step was done by compiling the prototype of the instrument including the formulation of the instrument construct, the development of the instrument framework, the development of instrument items and the determination of the scale of assessment. Development steps in this study include validation of assessment experts and elementary school instructional comic media experts, improvement based on validation results, analysis of assessment scale data, revision and finalization of instrument products.

This research was conducted in the Faculty of Education, Yogyakarta State University (UNY). The expert that evaluate this product in this study included five experts consisting of one validation subject matter expert of learning evaluation, to assess the quality of learning instruments related to evaluation and assessment aspects. One validation Subject matter expert of elementary school instructional comic media, to assess the quality of the instrument from the aspect of elementary school instructional comic media, and three try out instrument subject, to determine the reliability/constancy of the instrument that has been developed.

Data collection techniques in this study began with FGD activities, questionnaire techniques and document analysis. The questionnaire technique was used during expert validation, and limited field testing. The document analysis technique was only used during preliminary studies. The questionnaire technique at the time of the preliminary study was used to reveal the need for an appropriate instructional comic media assessment instrument for elementary school level. An analysis of the instrument of instructional comic media assessment instruments has been used by students at Yogyakarta State University in the preparation of undergraduate theses and theses in order to strengthen the results of need analysis of the instrument products to be developed. The questionnaire technique during expert validation was used to determine the content validity and appearance of the developed instrument products. The instruments used were the assessment expert validation questionnaire, and the validation questionnaire for elementary school instructional comic media by lecturers. Expert validation questionnaires were used to collect quantitative data from elementary school instructional comic assessment experts and evaluation experts. The instruments validated by the instrument experts include: format, language, instrument contents, and functions. From the four components were then elaborated into ten questions, namely clarity of preface, clarity of instructions, communicative language, easy to understand, clear / does not lead to multiple interpretations, conformity with Indonesian Enhanced Spelling System, the language that was used was good and precise, statements in accordance with the purpose of making the instrument, statements were formulated clearly, the instrument was able to measure the quality of elementary school instructional comic media in detail for each particular aspect. While the instrument which was validated by the instructional comic media experts, include aspects/criteria of comic media, contained graphic

design elements, and the suitability of comic media with learning objectives.

The type of data in this study consisted of quantitative data types gained from the scale of instrument product assessment and qualitative data types in the form of notes and suggestions/input gained from the results of the questionnaire. The data analysis technique used in this study was qualitative and quantitative descriptive techniques. Qualitative descriptive analysis techniques were used to analyze qualitative data, while quantitative descriptive analysis techniques were used to analyze quantitative data, and subsequently were converted into categories: very feasible, feasible, less feasible and not feasible. The categorical benchmarks are:

3.26 - 4.00 = very feasible

2.56 - 3.25 = feasible

1.76 - 2.50 = less feasible

1.00 - 1.75 = not feasible

III. RESULT AND DISCUSSION

This research is intended to produce an evaluation instrument for elementary school instructional comic media that is suitable for evaluating comic media that will be used in the learning process in elementary schools from the aspect of media. The development of instruments in this study implemented steps to modify the steps developed by Thiagaradjan which are define, design, and development. Define Steps. There are two activities conducted by researchers in this step, namely FGD and literature review. FGD activities were carried out for a number of Muhammadiyah Sokonandi Elementary School teachers who in the learning process often used comic media. From this discussion activity, it is known that the teachers when using comic media in the learning process do not do an assessment before using certain instruments. The teachers only see the topic of the comics with the material discussed, therefore, the teacher actually does not know for certain the quality and feasibility of the comic media that the teacher uses. On the basis of this fact it is really necessary for instruments to assess the quality of an instructional comic media. Besides conducting FGDs in this study, a literature review was also conducted. Literature study is conducted on literature that deals with comics, especially instructional comics and instructional comic media instruments. The results of the literature study are used as a basis for the theory of research and product development of the instrument, formulating the framework of thinking, research questions, and compiling research instruments and used to discuss the instruments that have been produced.

Design Steps, important activities carried out in this step are formulating construct instrument, developing instrument framework, and developing instrument items. Based on the literature review as previously revealed, it can be arranged a grid of instructional comic media instruments as follows:

TABLE I. FRAMEWORKS OF COMIC MEDIA EVALUATION INSTRUMENTS (MEDIA EXPERTS)

No	Evaluated aspect	Number of item
1	Physical Appearance	4
2	Characters	3
3	Graphic Design	11
4	Colors	6
5	Instructions	9
After the framework has been arranged, items from each aspect of the instructional comic media are then developed		

Development Step. In this step, the activities carried out are a validation of the elementary school instructional comic media assessment instrument that has been composed of two evaluation experts/the assessment expert and the instructional comic media expert. The assessment expert in this study was Dr. Ali Muhtadi, M.Pd. and elementary school instructional comic media experts was Unik Ambarwati, M.Pd.

Based on the data obtained from the assessment validator/assessment expert, it is known that the total score is 38 so that the average score is 3.8. Therefore it can be concluded that the comic media assessment instrument developed by the category is very feasible. When viewed from each aspect, it can be presented as follows: viewed from the format aspect, it is obtained an average score of 4 (very feasible), an aspect of language obtained an average score of 4 (very feasible), an aspect of instrument content obtained an average score of 3.5 (very feasible), and The aspect of the function obtained an average score of 3.5 (very feasible). However, assessment experts gave input, which are 1) the need for additional indicators, namely: indicators of clarity of illustration, harmony in the use of color, ability of comic media to reach basic competencies. 2) Some concepts need to be refined, some editors need to be revised, and there are item questions that need to be revised in example the type of paper is changed to the quality of the paper used.

The elementary school comic media assessment instrument in addition to being validated by an assessment expert has also been validated by the elementary school comic learning media expert. Based on data from media experts, it can be seen that overall the instructional comic media assessment instrument developed obtained a mean score of 4 (very feasible category). This is also evident from the scores of each indicator namely 1) indicator coverage aspects / criteria score 4 (very feasible), 2) graphic design elements indicator score 4 (very feasible), and media suitability indicators with learning objectives score 4 (very feasible). However, there are suggestions to add indicators of material suitability to the theme and density of messages in the word balloon.

The trial of this product is done on a limited basis intended to determine the appropriateness of the appearance and functioning of the product developed to assess the quality or feasibility of existing instructional comic media before it is used in the learning process. The trial of this instrument was carried out by the instrument users in this case 3 alumni of the Educational Technology Study Program. Based on the trial use

of the instrument by the instrument user it can be seen that the average score obtained is 3.42 (very feasible category).

Based on the inputs from assessment experts and instructional comic media experts, a revision was made, that is the addition of 5 indicators, so that the instrument which originally amounted to 28 was revised to 33 indicators. The elementary school instructional comic media assessment instruments as a result of the revision are as follows:

**ASSESSMENT INSTRUMENT OF
INSTRUCTIONAL COMIC MEDIA FOR
ELEMENTARY SCHOOL (MEDIA EXPERT OF
ELEMENTARY SCHOOL INSTRUCTIONAL COMIC)**

INSTRUCTIONS

Give an assessment to the Instructional Comics available by putting a check mark (√) in the score column provided. The description of the assessment is described as follows:

- 1 = Not suitable/not quite right / not complete /less durable
- 2 = Sufficiently appropriate / precise enough / sufficiently durable
- 3 = Appropriate / precise/complete / durable
- 4 = Very appropriate/very precise/very complete/very durable

No ASPECT EVALUATED 1 2 3 4

PHYSICAL ASPECTS

- 1. Comic Book appearance
- 2. Comic Book Size
- 3. Quality of the paper used
- 4. Durability of the paper used

CHARACTERS

- 5. The suitability of character selected with the characteristics of students
- 6. Attractiveness of character design
- 7. The accuracy of the characters with the contents of the story

GRAPHIC DESIGN

- 8. The suitability of font type with the characteristics of students
- 9. Suitability of font size with student characteristics
- 10. The text layout field
- 11. The use of spaces between lines
- 12. The use of punctuation
- 13. Accuracy in placement of illustrations

- 14. Clarity of illustrations
- 15. Accuracy in placement of word balloons
- 16. Message density on word balloons
- 17. Suitability of Illustration with material
- 18. Complete cover identity
- 19. Contrast color letters with background cover
- 20. Color contrast of font with the background in word balloons
- 21. The attractiveness of color of the comic book cover
- 22. The attractiveness of text font color with text background
- 23. The suitability of the color with student characteristics
- 24. The Harmony in the use of color
- 25. The Clarity of titles in comic media
- 26. Compatibility of material with basic competencies
- 27. Compatibility of material with indicators
- 28. Suitability of the material with the theme
- 29. Compatibility of comic media with characteristics
- 30. The accuracy of language selection according to student characteristics
- 31. The coherence of the material
- 32. The clarity of example
- 33. The ability of comic media to reach Basic competencies

SUGGESTION:

Media expert

Based on the results of this study, it is known that the product of the media assessment instruments of elementary school instructional comic developed are in the very feasible category. However, if explored further, not all items are in a very feasible category. There are 2 items that are assessed by assessment expert 3 (feasible categories), namely a clearly formulated statement and instrument items capable of measuring the quality of instructional comic media in detail for each particular aspect. A good instrument is indeed a statement that must be formulated clearly so that it will not cause double interpretation by the instrument filler. At this basis, the assessment instrument has been revised. In addition, the points of instruments are able to measure the quality of comics in detail in every aspect, it was realized that the instruments developed by the indicators were not various. This is considering that the questionnaire filler is sometimes less than

optimal in filling it because of the large number of question items. However, the main aspects of comic media have been revealed.

IV. CONCLUSION

Based on the results of development research, it can be concluded that the elementary school instructional comic media assessment instruments are very feasible to use. This is evident from the results of the validation of assessment experts and elementary school instructional comic media experts and the results of user trials.

Based on the above conclusions, can be suggested to several parties: 1) For Product Users, this instrument can be used as an alternative to determining the quality of printed instructional comic media that will be utilized. 2) The next Instrument Developer; Considering that this instrument is only intended to assess the quality of printed instructional comic

book media, further research can be developed for instructional comic printed in strips/comic strip and e-comic instruments

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