

The Development of Educational Games Ludo Word Game (LWG) Based on Literacy in German Learning

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Abstract—This research and development aims to: (1) Produce learning games for educational games Ludo Word Game based on literacy that worthy to use (2) know the effectiveness educational game learning media Ludo Word Game based on literacy that developed on German learning in improving student learning result. This study belongs to a research and development which uses the R&D model by Borg and Gall. The result of this study shows tha the assessment of German instructional material experts, the assessment of media experts, the assessment of individual trial, the assessment of small group trial, and the assessment of field trial is in the criteria of very good. The result of hypothesis testing proves that there is a significant difference between the students learning outcome who were taught with educational game learning media Ludo Word Game based on literacy in German learning and the students learning outcome who were taught with book. It is pointed by the result of data processing in which $t_{count} = 3.03$ while $t_{table} = 1.99$. The result is $t_{count} > t_{table}$. Then, it can be concluded that the students learning outcome who were taught with the interactive instructional media based on behavioral perspective to improve the German skills of the Senior High School Students grade X with the effectiveness of 88.73% is higher than the students learning outcome who were taught with book with the effectiveness of 81.63%.

Keywords—educational games ludo word game based on literacy; german learning

I. INTRODUCTION

The issue of education that concerns is that most students are not able to relate what they learn to how they are used in daily life. This is due to the learning they received emphasizes the level of memorization of the material rather than the practice. This is in line with the opinion [8], that learning in Indonesia in general only emphasizes memorization and is not accompanied by a deep understanding that can be applied when dealing with real situations.

In learning German there are four skills that students must master, namely listening (hören), writing (schreiben), reading (lesen) and speaking (sprechen). Speaking skills are one of the four language skills that children or students must master in

learning language skills. Speaking is a form of human behavior that utilizes physical, psychological, neurological, semantic and linguistic factors that are very intensive. The main purpose of talking is to communicate. In order to be able to convey thoughts effectively, then the speaker should understand the meaning of everything that is to be communicated. The purpose of speaking is to inform, report, entertain, persuade, and convince someone. So, to be able to hone the child's speaking skills during learning, a teacher must train students through tasks related to telling a story, telling or reporting an incident, asking and answering and other things so that students can convey what is on their minds and the extent to which he can understand the material.

To support learning activities, teachers need learning media. Gerlach and Ely as quoted by Arsyad [1] say that the media when understood in broad outline are humans, material, or events that establish conditions that make students able to obtain knowledge, skills, or attitudes. Asyhar [2] also argues that learning media can be understood as anything that can convey or channel messages from planned sources, so that a conducive learning environment occurs where the recipient can carry out the learning process efficiently and effectively.

There are several high schools in Tanjungbalai or even in North Sumatra using German language learning as foreign language learning in schools as local content subjects. Of the several schools that have German learning, researchers conducted a needs analysis at SMA Negeri 1 Tanjungbalai.

Students have difficulty conveying information verbally in speaking German. While the ability to speak according to Djiwandono [3] means expressing thoughts verbally. By expressing what someone is thinking can make other people who are spoken to understand what is in their minds. In addition, students rarely apply their speaking skills. Because there is no media that can help them hone their speaking skills. In addition, they are also less interested and have difficulty understanding the material.

Based on the inherent shortcomings of the learning media at school, it is time for the learning media to be improved in quality or even developed to be more innovative, including learning media designed using games. Today is the era where children prefer to play games. With the game, learning will be fun. A learning will attract students' attention if there is a

compatibility of learning media with the material to be presented, as well as the involvement of students using the media. So that the development of instructional media will create the attractiveness of student learning and learning outcomes will increase.

According to Sudjana [10] that learning outcomes are abilities possessed by students after he receives his learning experience. According to Hamalik [6] states that learning outcomes can be interpreted if someone has learned there will be changes in behavior in that person, for example from not knowing to knowing, and from not understanding to understanding.

Nowadays literacy is inseparable from the world of education. To build compound intelligence students need to do activities related to literacy. English [4] is to develop and improve visual / spatial understanding through the process of playing and then designing a type of board game.

One board game that can be used is Ludo Word Game. Ludo boards can be used as an interesting and fun learning medium. Because in this game there is a direct interaction between students and the emotional level of students will emerge which results if two pawns in the same box, then the initial pawn in the box must come out and return to the main box or starting box. Ludo to be used is modified with different images and words and game rules. Each box that the pawn will pass contains words that will be arranged into a sentence.

Players will do a question and answer to other players. It is hoped that with this media there will be interaction, collaboration and increased student understanding of the material that has been learned. Ludo Word Game is a racing game where the players sit around the board and play a pawn from the starting position to the finishing position. The player has the opportunity to roll the dice and run the pawn according to the amount that has been thrown.

In order to maximize the learning outcomes of Ludo Word Game that is used based on literacy. Literacy in question includes identifying, understanding, translating, making, communicating and processing the contents of printed and written materials. So, the Ludo Board game used as a learning medium has been modified in such a way that each box will be written with interesting words and pictures. And students will guess German from the picture, and make questions through the picture and word. Then the answers that will be given relate to the reading text that has been given before the teacher. So that when answering students there will be literacy activities, ie students will identify, understand, translate, create, communicate and process the contents of the reading text that they have read.

Learners feel happy when they can answer correctly and continue their turn. This can motivate them to try until their answers are correct. Gradually students begin to confidently speak German because they are not aware if in fact they are learning not just playing. This media can also make students think creatively, so they can develop what they want to say using German. In addition, this media is a solution to overcome students who are doubtful in their opinions, afraid of being wrong, embarrassed, lacking confidence in speaking

German because they are more relaxed and each student will definitely get a turn to speak. Thus students are expected to be able to develop the potential of individual speaking skills.

This game will be adapted to students' German learning materials based on the syllabus of class XI high school. Learning activities with games designed in literacy-based learning involve students more active in the process of experience and at the same time experience challenges, get inspired, be motivated to be creative, and interact in activities with fellow students in doing this game. In addition, this game also fosters an attitude of increasing knowledge and understanding, but also improves students' speaking abilities. Therefore, researchers will develop a literacy based Ludo Word Game (LWG) educational game.

II. METHOD

This development research was carried out at SMA Negeri 1 Tanjungbalai located at Jl. MT. Haryono No.10 Tanjungbalai in class XI students in 2018/2019 school year. The study began with a review of the study site to find out carefully about the number of classes and conditions of class XI students, background, teacher abilities, learning facilities and classroom conditions. This research will be conducted for 2 (six) months, from February to April 2019 and will be adjusted to the educational calendar.

This research uses the Research and Development (R&D) method. It was said that because the research product offered was in the form of literacy-based educational game development Ludo Word Game in learning German. Gall, MD, Gall, JP, and Borg, W. R [5] say that development research is characterized by the presence of products and research procedures that can be systematically tested, validated / evaluated, and improved until the resulting product meets several criteria among them are effectiveness, quality, and standard quality. For this reason, in this research and development, literacy-based educational game Ludo Word Game media products in learning German will be tested for their feasibility and effectiveness.

This development research uses the product development model from Borg and Gall combined with the learning development model from Dick and Carey. This learning product development model is a model that is programmed in a systematic order and meets the characteristics of students in learning. The steps taken in developing the Borg and Gall model are: (1) the needs analysis phase, (2) the design phase, (3) the expert validation stage and (4) the pilot phase.

The product developed in this research and development is a product in the form of effective and attractive interactive learning media so that for the development of instructional materials the Dick and Carey model is used in stages: (1) identification (analysis) of learning needs to determine general learning goals, (2) learning analysis, (3) identification of learning participant characteristics, (4) formulating specific learning objectives, (5) developing benchmark reference tests, (6) developing learning strategies, and (7) developing learning materials.

The development procedure that will be taken to produce the Ludo Word Game Education Game product based on literacy in learning German is divided into 5 main stages, as follows: (1) The preliminary stage begins by identifying learning needs and determining subject competency standards, conducting learning analyzes, identifying students' characteristics and initial behavior, determining basic competencies and indicators, writing benchmark reference tests, developing learning strategies, and developing learning materials. (2) The design stage (designing) of learning media begins with making a design through photoshop CS 3 and storyboards. Then collect learning material, collect images. (3) The stage of making/developing the Ludo Word Game Educational Game which is equipped with media cues such as: learning instructions, basic competencies, apperception, material description, practice questions (evaluation), feedback, and concluding section. (4) Expert validation stage which includes validation from material experts on German subjects, instructional design expert validation and media expert validation. Based on the assessment in the form of input, criticism or suggestions from the three experts, it can be revised stage I. (5) The trial phase, which includes individual trials, small group trials and limited field trials. The results of each trial will be analyzed as a guideline for subsequent revisions. The final result of this stage is the final product of interactive learning media that suits the needs and goals set. Then test the effectiveness of the product.

The data analysis in testing the validity of education game in germany learning used quantitative analysis. The quantitative data such as very good, good, poor, and very poor was changed in scale of 1 to 4.

III. RESULT AND DISCUSSION

A. Discussion of Product Development Result

The results of the assessment presented by the material experts on the Ludo Word Game educational game based on literacy in learning German provided an average percentage of 94.22%, thus the learning media was included in the "very good" category so that it could be accepted and fit for use in the process learning. The results of the assessment of learning design experts on educational game design gives an average percentage of response scores of 91.18% that the Ludo Word Game educational game based on literacy in German learning is appropriate because it has been designed in such a way and meets the learning design standards. Meanwhile, the learning media experts on the educational game media gave an average percentage of 93.54%, thus the Ludo Word Game educational game based on literacy in German learning was included in the "very good" category so that it could be accepted and fit for use because has included material and delivery criteria that meet the delivery requirements.

According to students' responses at SMA Negeri 1 Tanjungbalai in individual trials it was stated that the learning media developed were included in the "very good" category, which gave an average percentage of 91.37%. Furthermore, the responses of students in small group trials stated that the

developed learning media included in the category of "very good" where the average percentage of 96.01%. Followed by students' responses on field trials stated that the learning media that were developed are included in the category of "very good" where the average percentage of 93.28%.

From the explanation above, it can be concluded that the development of the literacy-based Ludo Word Game educational game in learning German using the Dick and Carey model is appropriate for learning. This literacy-based educational game Ludo Word Game in German learning can be used as a learning medium for German class XI subjects in SMA Negeri 1 Tanjungbalai.

B. The Result of Validity Test toward the Product

Based on the results of the validation conducted the Ludo Word Game educational game based on literacy in learning German was declared very feasible to be continued in field trials. Educational games developed have met the standards based on the design of learning media development standards and standards of content learning. The assessment of content experts was in score 94.22% and it means that the content of media is proper to be used in germany learning. The instructional design was in score 91.18% and it means that the design of media is proper to be used because it has fulfilled the principal and criteria of developing in instructional media. The assessment of media experts was in score 93.54%. It means that the media proper to be used in germany learning. After the experts stated that if the German educational game product was very suitable to be tested in the field, then the field trials were carried out according to the procedure, namely individual trials, small group trials and field trials. The result of individual trial was in score 85.83% and it means that the content of media is proper to be used in germany learning. The result of small group trial was in score 88.9% and it means that the content of media is proper to be used in germany learning. The result of field trial was in score 92.51% and it means that the content of media is proper to be used in germany learning.

The results of the questionnaire were validated by all experts both material experts, media experts and design experts and then continued with product trials, then based on the data Ludo Word Game educational game based on literacy in German learning is very suitable to be used as a learning medium.

C. The Result of Efectiveness Test of The Product

Test the effectiveness of the product Test the effectiveness of the product The literacy-based Ludo Word Game (LWG) educational game on German subjects that have been developed is carried out as the stages contained in the procedure. The purpose of this product effectiveness test is to determine whether the product needs to be used continuously because it is effective or is stopped because it is not effective.

Product effectiveness test The literacy-based Ludo Word Game (LWG) educational game on the developed German subjects has been carried out by comparing the average scores

of students' English learning outcomes learned with these media with the average scores of students' German learning outcomes which is learned by printed media.

From the results of data processing research conducted there are average German learning outcomes taught using the educational game Ludo Word Game based on literacy in learning German that is equal to 81.13%. While the learning outcomes of students taught using textbooks is 77.14%. the assessment of learning outcomes proves that the use of the literacy-based Ludo Word Game educational game in learning German is more effective in improving student learning outcomes.

The effectiveness of educational game media in the form of developed game boards is able to prove research statements from Krajewski and Schneider [7] which state that in learning by playing with board games create many opportunities for co-constructive learning, such as the findings of data analysis showing: children spend a lot of time in learning activities while playing games, and they reflect and comment on their own and others' play activities. Further based on statistical data, this is an effective way to improve mathematical knowledge and skills that are in line with the big ideas of early mathematics education and which are predictive for further mathematics learning.

The effectiveness of the literacy based Ludo Word Game educational game media is also caused by one of the factors in the creation of an interesting and enjoyable learning system. As revealed by Rahmawati, Abdi, and Bardi [9] in their research, with the help of ludo media high school student learning outcomes increase, because when the game takes place, the classroom atmosphere becomes fun, the material is easy to understand, and can foster motivation to learn.

In addition, the developed literacy-based learning media is able to prove the statement of Thalho [11] in his research on literacy learning, stating that literacy can help students in learning languages. From the explanation above it can be concluded that the Ludo Word Game Education Game based on literacy can be used later in the process of learning German for class XI high school.

IV. CONCLUSION

Based on the formulation, objectives, results and discussion of the research development of the Ludo Word Game educational game based on literacy in learning German previously stated, it can be concluded as follows: (1) The Ludo Word Game educational game product based on literacy in German learning developed for class XI students of SMA

Negeri 1 Tanjungbalai is eligible and is very suitable for use as a learning medium. This was concluded based on the results of the assessment of learning material experts (94.22%), learning media experts (91.18%), learning design experts (93.54%), student responses in individual trials (83.83%), small group trials (88.90%) and limited field trials (92.51%) which overall stated that the literacy-based Ludo Word Game educational learning media are in the "very good" criteria. (2) Effectiveness of the Ludo Word Game educational game based on literacy in German learning developed more effectively than textbooks. Hypothesis testing results prove that there are significant differences between student learning outcomes that are taught by the use of Ludo Word Game educational games based on literacy with student learning outcomes that are learned using textbooks. This is indicated by the results of data processing obtained $t_{hitung} = 3.03$ while $t_{table} = 1.999$ where $3.03 > 1.999$ for a significance level of 0.05. So the learning outcomes of students who were taught with educational games Ludo Word Game based on literacy in learning German with an effectiveness of 88.73% higher than the learning outcomes of students who were taught with textbooks with an effectiveness of 81.63%.

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