ATLANTIS PRESS
Advances in Social Science, Education and Humanities Research, volume 440
International Conference on Online and Blended Learning 2019 (ICOBL 2019)

Android-Based Multimedia Development as a Media for Adolescent Reproductive Health Education

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Abstract—This study aims to see the ongoing practice of reproductive health education at this time, which then produces an android-based reproductive health education media that has adapted to the material. The development model is use Borg & Gall and Dick & Carey. This development research produces android-based multimedia products as a medium for adolescent reproductive health education suitable for its users. The assessment that has been carried out includes a display aspect score of 3.61 for the appropriate category and a programming aspect score of 3.69 for the appropriate category. Professional assessment includes 3.76 aspects of learning for the appropriate category and 3.69 score aspects of the content for the appropriate category. Multimedia trials have conducted on several users covering the field of trials with six subjects getting 0.92 appropriate categories and operational trials with 12 subjects getting 0.99 appropriate categories.

Keywords: freedom in learning, freedom of space, freedom from violence

I. INTRODUCTION

Adolescence is a period of transition from childhood to adulthood. Adolescent development often changes with rapid physical changes; for example, height increases, weight increases rapidly, changes in the chest to the plane, voice changes, hips grow wider, and others. Human development from childhood to adolescence is fun and needs to improve the future tasks of adolescents. Hurlock said that the compilation of adult learning, thinking, and understanding about the role of sexuality [1]. The task of adolescent development also discusses one's thoughts on the organs of sexuality that continue to develop producing sexuality hormones.

The development of sexuality hormone production in adolescent boys is one of the signs is the difficulty of wet dreams. "Wet dreams are sperm liquids that are not needed naturally" [2]. The first wet dream occurs in teenage boys at the age of 9-14 years. Wet dreams, in general, carried out between 2-3 weeks. While in women, a sign of the arrival of adolescence is menstruation. "Menstruation is bleeding done by the uterus as a sign that contains organs" [2].

The current problem is that teenagers lack of knowledge about the way their reproductive organs are. Errors in understanding reproductive organs will have an impact on the disruption of the health of the human body. Reproductive organs that are a vital part of human life also need to be maintained and cared for in their health. Lately, there has been a lot of virus transfer that has taken place in reproductive organ disease. One example of reproductive organ disease in adolescents, has been loaded by one of the online news Jawapos.com entitled "Most High School Students with Sexual Disease", in that online news, it is questionable to still go to the junior and senior high school level. Attention to the cleanliness of the reproductive organs that are less one of the causes.

Knowledge of how to maintain the health of reproductive organs is essential for adolescents. This is intended to minimize the negative impact on reproductive health. The practice of reproductive health education is currently carried out in the form of lessons in schools. However, both KTSP and K13 for material related to how to restore health were not wholly approved. Besides, in schools, health education is also held consisting of socialization organized by various parties.

The media is one way to provide educational material for adolescent. The existing media are leaflets, books, magazines, etc. and most of it is produced by the Indonesian National Population and Family Planning Agency, but not all adolescent get information to access the media. Another alternative is to deliver adolescent health education materials through multimedia. Turban said that multimedia as a combination of the least input or output media of data; this, media can be audio (music sound), animation, video, text, graphics, and images [3]. Based on this resolution, the conclusion is that one of the advantages of multimedia is that it can be available in one forum, so that the delivery of health material is more effective and efficient. Also, multimedia can also be operated using a variety of tool options.

From a variety of choices, one of the tools that can be used to operate multimedia, and its existence is close to the lives of adolescent for smartphones. Nowadays, android-based smartphones are widely used by adolescent. The use of android-based smartphones has become very complex. It is starting its function as entertainment, communication, storing relevant documents, and not a few who use learning media.

II. RESEARCH METHOD

The approach used in this research is research and development (research & development) using the Borg & Gall development model and the Dick & Carey learning development model. There are nine stages of research on the development of android-based multimedia as a medium for adolescent reproductive health education, viz; (1) initial data

collection; (2) planning objectives and materials; (3) initial product development; (4) expert validation test; (5) initial product revision; (6) field trials; (7) major product revisions; (8) operational trials; (9) revisions. The Research time is from May to July. Research site in the National Population and Family Planning Agency of Indonesia DIY. The subjects in this study are: 1) validation test subjects are media experts and material experts; 2) the subjects of the field trial are six teenagers aged 13-18 years; 3) the operational trial subjects were 12 adolescents aged 13-18 years. The type of data in this study is quantitative data, which has converted into qualitative data. This quantitative data was obtained from the validation of material experts, validation of media experts, field trials, and operational trials. Data collection carried out in this Multimedia development research were interviews, documentation, and questionnaires. Data analysis techniques in this study are: 1) Analysis of product development data; 2) Analysis of product quality data; 3) Analysis of adolescent response data on android-based adolescent reproductive health multimedia.

III. RESULTS AND DISCUSSION

A. *Initial Data Development*

Preliminary data collection by interviews obtained information about reproductive health practices carried out by National Population and Family Planning Agency of Indonesia DIY is to establish PIK KRR (Center for Adolescent Reproductive Health Counseling and Information), conduct peer counselor training, provide socialization on adolescent reproductive health and the provision of adolescent reproductive health materials through various media. From the interviews with the interviewees, several problems have found as follows:

- The establishment of PIK KRR is challenging to apply evenly in schools, universities and youth organizations.
- Lack of supervision of peer counselors so that the regeneration process to replace the role of peer counselors who have graduated from school cannot be optimally carried out.
- Not all regions have facilitated with adolescent reproductive health socialization programs.
- Lack of attractive reproductive health education media available by the characteristics of adolescents and which can be reached easily (close) to teenagers as users.

From the problems have mentioned above, it has concluded that it is necessary to develop an attractive reproductive health education media with the characteristics of adolescents and can be easily has reached by users. Data collection was also carried out with a literature study on the development of android-based multimedia. Based on these data, the content of the material is then determined with the competence to understand healthy living behaviors by maintaining reproductive health in everyday life.

B. *Planning*

The planning phase includes the activities of formulating objectives and setting material. Learning objectives in the form of competence "After learning this multimedia users are expected to be able to understand healthy living behavior by maintaining reproductive health in everyday life" which is then reduced to eight indicators. The eight indicators are the subject of material in the developed multimedia. The indicators are:

- Explain the basic concepts of adolescence.
- Mention developmental tasks of adolescence.
- Explain puberty in humans.
- Explain the notion of reproductive health.
- Explain the reproductive organs in humans.
- Mention various sexual diseases.
- Mention behaviors that reflect maintaining reproductive health.
- Have a responsible attitude towards the health of the reproductive organs.

C. *Initial Product Development*

a) Product Design: At this stage, the researchers made a multimedia production design, including several activities, namely: making GBIM (Outline of Media Content), making flowcharts, making storyboards, and making validation instruments.

b) Initial Product: After the design of a multimedia product is declared ready to be produced, the product design then develops into multimedia that can operate with an android-based smartphone. This multimedia development has based on pre-arranged guidelines such as material, flowcharts, and storyboards.

Fig. 1. Initial appearance and main menu

Fig. 2. Display material menu & slide one of materials

D. Expert Validation Test

Based on data from the assessment results by media experts on the aspects of appearance, overall, an average score of 3.61 with a decent category and programming aspects, overall an average score of 3.69 with a decent category. While the assessment results by the learning media experts, overall obtained an average score of 3.76 with a decent category and aspects of the content aspect, overall, an average score of 3.69 with a decent category.

E. User Test

a) Field trials: The subjects of this field trial were six teenagers aged 12-18 years, male and female. The selection of adolescents has taken from 3 age categories, namely 12-13 years, 14-16 years, and 17-18 years, each category containing one male teenager and one female teenager. Data on the results of user evaluations in this field trial, overall received an average score of 0.92 and are suitable for use in operational trials.

b) Operational trials: The operational trial subjects were 12 adolescents aged 12-18 years, male and female. The selection of adolescents is taken from 3 age categories, namely 12-13 years, 14-16 years, and 17-18 years, each category there are two boys and two girls. Data on the results of user evaluations in operational trials, overall obtain an average score of 0.99 and are suitable for use as a medium for adolescent reproductive health education.

F. Discussion

Health education is essential for everyone, including teenagers. [4] sex education is by agreements on issues relating to human sexuality such as human anatomy, sexy reproductive systems, sexy relationships, health, relationships, rights, and reproductive responsibilities. "Inappropriate" or "too explicit" so that it has not accepted by children [5] education section that should not give in school. National Population and Family Planning Agency of Indonesia, National Population and Family Planning Agency of Indonesia in the Deputy for Family Planning and Reproductive Health as stipulated in the Republic of Indonesia Presidential Regulation Number 62 of 2010 article 17. One of the tasks of the deputy in this field is to provide counseling and coaching in the field of health recovery. Activities carried out by National Population and Family Planning Agency of Indonesia DIY in the field of adolescent reproductive health are forming the PIK KRR (Center for Adolescent Reproductive Health Counseling and Information), conducting peer counselor training, providing information on adolescent reproductive health, and providing adolescent reproductive health material through various media such as books, leaflets, pamphlets, posters, and media that are packaged electronically both offline and online.

The implementation of the National Population and Family Planning Agency of Indonesia DIY work program for Reproductive Health, especially in adolescent reproductive health, does not always run smoothly. Based on interviews with guest speakers Dr. Iin Nadzifah Hamid who serves as the Head of PS-KS of the Indonesian National Population and Family Planning Agency, one of the obstacles in the delivery of reproductive health materials is the lack of available material on attractive reproductive health with characteristics of adolescents and which can be easily reached by adolescents as users.

One solution that can be given to overcome the above problems is multimedia. [7] Agnew (Neo, 2001: 20) defines multimedia as a combination of various types of digital media such as text, images, sound, and video into an integrated multi-sensory interactive application or presentation to convey messages or information to the audience. This multimedia can help deliver reproductive health education material to adolescents because it has supported by a variety of digital media that can be seen directly by adolescents. Also, [8] one of the benefits of multimedia, namely multimedia, allows individual learning so that multimedia can be used without the help of a teacher. Furthermore, for the operation of multimedia, researchers chose to use android that has felt close to adolescents. Besides being close to teenagers, android is fun for teenagers; it was also stated by [9] with the advancement of mobile learning technology supported by android technology it can make learning more fun, interactive, and intuitive.

In producing this android-based multimedia, researchers adapted the Borg & Gall development model and the Dick & Carey learning development model by combining the two models according to research needs.

The first stage is the initial data collection; the researcher interviewed with Dr. Iin Nadzifah Hamid, who served as Head of PS-KS National Population and Family Planning Agency of Indonesia DIY. The results of this data collection stage are a description of the practice of adolescent reproductive health education carried out by the National Population and Family Planning Agency of Indonesia DIY that has described in the explanation above. Then do the data collection related to the contents of the material in it. Then the planning stage is carried out by formulating learning objectives and determining the material presented in multimedia. [10] provides scope for adolescent reproductive health, namely: 1) adolescent growth and development; 2) reproductive organs/organs; 3) biological processes that occur in adolescents; 4) maintaining reproductive health; 5) the dangers of HIV-AIDS.

After planning, the next stage is the product design stage (GBIM, flowchart, storyboard, and validation instrument), which then produces an initial product from android-based multimedia entitled "Smart Teenage Health Program," which is ready for the validation test.

The initial product of multimedia "Kespro Remaja Pintar" was validated by a media expert, namely a lecturer in the Education Technology study program and a material expert.

IV. CONCLUSIONS

Based on the results of research and discussion, conclusions can be drawn:

- The lack of attractive reproductive health education media with the characteristics of adolescents and can be affordable is one of the problems in the delivery of reproductive health materials.
- Android-based multimedia as a medium for adolescent reproductive health education that is feasible is that it meets the feasibility category in terms of media and material aspects. This eligibility has based on an assessment by media experts, which

includes display aspects to get a score of 3.61 feasible categories and programming aspects to get a score of 3.69 appropriate categories. In addition to the assessment by media experts also conducted an assessment by material experts covering aspects of learning to get a score of 3.76 worth categories and content aspects get a score of 3.69 worth categories. This multimedia trial of users includes field trials with six subjects getting a score of 0.92 worthy categories with a revision of the background music and icon design and operational trials with 12 subjects getting a score of 0.99 good categories.

REFERENCES

[1] Ali, Muhammad, *Psikologi Remaja*. Jakarta: PT Bumi Aksara. 2008.

[2] Kusmiran, Enny, *Kesehatan Reproduksi Remaja dan Wanita*. Jakarta: Salemba Medika. 2014.

[3] Suyanto, M. (2007). *Multimedia Alat untuk Meningkatkan Keunggulan Bersaing*. Yogyakarta: Penerbit Andi

[4] Donkor, A. K., & Lariba, A. L,"The impact of sex education on teenage pregnancy in basic schools of bawku municipal district in ghana," J.*Online Submission*, vol. 3, no. 3, pp.214-221, 2017.

[5] Drazenovich, G,"Queer pedagogy in sex education," J.*Canadian Journal of Education*., vol.*38*, no 2, 2015

[6] Tortolero, S. R., Johnson, K., Peskin, M., Cuccaro, P. M., Markham, C., Hernandez, B. F., ... & Li, D. H, "Dispelling the myth: What parents really think about sex education in schools,"J. *Journal of Applied Research on Children: Informing Policy for Children at Risk*, vol. 2, no. 2, 2011.

[7] Neo, M a Ken T. K. Neo,"Innovativeteaching: using multimedia in aproblem-based learning environment," J. Educational Technologi & Society, vol. 4, no. 4, 2001.

[8] *Penyakit Kelamin*. Diakses dari http://www.jawapos.com/read/2016/10/04/55183/pelajar-smp-dan-sma-terbanyak-idap-penyakit-kelamin. Pada tanggal 27 April 2017. Pukul 10.30 WIB

[9] Newby, T. J., Stepich, D. A,. Lehman. J.D,. Russel. J.D, "*Instructionaltechnology for teaching and learning,". 2nded*. Upper Saddle River: Prectice Hall. 2000

[10] Kemenkes. *Aku Bangga Aku Tahu: Petunjuk Teknis Pembinaan Dan Penyuluhan Kampanye Pencegahan Hiv-Aids*. Jakarta: KementerianKesehatan RI. 2013.