The Effectiveness of Android-Based Pre-Marriage Class Applications Against the Knowledge of the Prospective Bride

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ARTICLE INFO

ABSTRACT

In 2021 a training model has been successfully developed in a classical form for prospective brides, namely the Pre-Marriage Class. And in 2022 an Android-based Pre-Marriage Class application will be developed as a learning medium. This is to answer the problem of the limited time that the bride and groom have to participate in class activities and also considering the current pandemic situation which still limits the gathering of people in one room. The research objective was to determine the effectiveness of the pre-marital class application in increasing the understanding of prospective brides and grooms about maternal and child health in the context of preventing stunting toddlers. This research is research and development in nature which is intended to produce products in the form of mobile apps (applications) for Pre-Marriage Classes. As the study population were prospective brides in Kemiling District, and the sample was determined by accident, namely prospective brides who had registered at the KUA Kemiling District until March 2022. Data collection was carried out by means of interviews, questionnaires, and pretest posttest. The analysis was carried out descriptively and analytically using the N-gain test. The results showed that the pre-marital class application was appropriate for use as a learning medium (media expert score = 87.5%, material expert score = 78.6%, health worker score = 80.4%, and the bride and groom's score = 85.3 %). The application of pre-marital classes is also effective in increasing the understanding of the bride and groom in maternal and child health (N-gain value 0.59).

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ABSTRAK

In 2021 a training model has been successfully developed in a classical form for prospective brides, namely the Pre-Marriage Class. And in 2022 an Android-based Pre-Marriage Class application will be developed as a learning medium. This is to answer the problem of the limited time that the bride and groom have to participate in class activities and also considering the current pandemic situation which still limits the gathering of people in one room. The research objective was to determine the effectiveness of the pre-marital class application in increasing the understanding of prospective brides and grooms about maternal and child health in preventing stunting toddlers. This research is research and development in nature which is intended to produce products in the form of mobile apps (applications) for Pre-Marriage Classes. As the study population were prospective brides in Kemiling District, and the sample was determined by accident, namely prospective brides who had registered at the KUA Kemiling District until March 2022. Data collection was carried out by means of interviews, questionnaires, and pretest-posttest. The analysis was carried out descriptively and analytically using the N-gain test.

The results showed that the pre-marital class application was appropriate for use as a learning medium (media expert score = 87.5%, material expert score = 78.6%, health worker score = 80.4%, and the bride and groom's score = 85.3 %). The application of pre-marital classes also increases the understanding of the bride and groom in maternal and child health (N-gain value 0.59).

INTRODUCTION

Information and Communication Technology is currently growing rapidly and its utilization is also increasingly widespread. This can be proven by the number of smartphone users in Indonesia from year to year which continues to increase. As reported by the website kominfo.go.id which states that in 2018 the e-marketer digital marketing research institute estimates that more than 100 million Indonesians are actively using smartphones.

The increase in smartphone users opens up opportunities for making applications as learning media. The use of applications as learning media has good prospects in the future because they are flexible, simple, and can be opened repeatedly, anytime and anywhere. However, the facts show that smartphones have not been widely used for the learning process. The results of a survey conducted by MoboMarket showed that smartphone users were more interested in games, namely 43.71%.

Actually the use of technological media such as mobile apps as learning media is better when compared to the use of conventional media. This is evidenced by the results of several studies that have been conducted. (Aji & Frediawan Dwi, 2019) states that learning using technological media has a significant influence on learning outcomes. Then the results of the study (Susilo Hendri, 2019) also state that learning media developed with Android-based applications have proven to be effective for use as learning media for vocational graphic design materials. Maya Maryati's research (2019) at three high schools in Bandar Lampung found results that the development of an Android-based biology e-module application is very feasible to use as a learning medium.

Today's facts show that smartphones have not been used optimally by prospective brides to increase their knowledge, especially regarding the prevention of stunting toddlers. Related to this, in 2021 a training model has been developed for prospective brides in the form of Pre-Marriage Classes (Sumardilah et al., 2022). The development of this training model is indeed personalized for the bride and groom and the material provided has also been adapted to their needs. In the Pre-Marriage Class, the Guidelines for Organizing the Pre-Marriage Class have been successfully prepared and the material that will be provided has also been arranged in the form of modules totaling 4 modules.

Pre-Marriage Class is a form of training that is carried out classically. However, with the condition that the bride and groom are not always able to participate in class activities due to time constraints, it is very relevant if the Pre-Marriage Class material is developed in the form of an application, so that the prospective bride and groom can study Pre-Marriage Class material without being bound by time and place.

Seeing the problems and opportunities above, a question arises that needs to be answered: whether the Pre-Marriage Class can be developed as an Android-based application? Is the Android-based Pre-Marriage Class application suitable for use as a learning medium for prospective brides? Is the Pre-Marriage Class application effective in increasing the understanding of the bride and groom?

Based on the problems and questions mentioned above, research was carried out with the aim of knowing the effectiveness of the Pre-Marriage Class application to increase the knowledge of prospective brides and grooms about maternal and child health in the context of preventing stunting toddlers.

METHODS

The research design is research and development (Research and Development) aimed at producing a particular product. Because this research is a continuation of the first stage of research, the research location is still being carried out in Kemiling District, Bandar Lampung City.

The population in this study were prospective brides registered at the Office of Religious Affairs (KUA) in Kemiling District. The sample used was taken by accidental sampling, namely prospective brides registered at KUA in Kemiling District in May 2022.

Data was collected using interview and questionnaire techniques. Interviews were conducted to find out the needs of the bride and groom for applications as learning media, while questionnaires were conducted to conduct a feasibility test of the applications made. Apart from that, the effectiveness of the application was also tested through the pretest and posttest on the prospective bride and groom. The collected data were analyzed descriptively and analytically using the N-gain test.

In this study, the development of the Android-based Pre-Marriage Class application used the Water Fall method which consisted of several stages, namely the Android user needs analysis stage, the application design stage, the coding stage, and the application testing stage. Applications that pass the due diligence test are then tested on the bride and groom to see their effectiveness.

RESULTS

The development of the Pre-Marriage Class application in this study uses the waterfall model which consists of 4 stages of activity, namely:

Analyze the needs of Pre-Marriage Class application users.

From the results of interviews with 5 pairs of prospective brides, it was found that none of the prospective brides had learning applications on their smartphones. However, 90% of

bride and groom are interested and want to use it if the Pre-Marriage Class material is made in the form of a learning application. The preferred application features are explanations with pictures and explanations with videos. While the desired internet connection is off line.

Designing the Application.

To build an Android-based Pre-Marriage Class application modeling, a web site-based platform, namely codular, is used. With the codular platform, there is no need to manually type program code to create Android applications. Kodular also provides additional features, namely the Kodular Store and the Kodular Extension IDE which can make it easier for developers to upload Android applications to the Kodular Store.

The Pre-Marriage Class application developed has the ability to display images, videos, text and quizzes. Images, videos, and text are used to explain the subject matter. While quizzes are used to evaluate learning outcomes. The Pre-Marriage Class application runs using the Android operating system and is designed for smartphones. This application can be used starting from Android 5.0-5.0.2 (API 21) up to Android 10.0 (API 29).
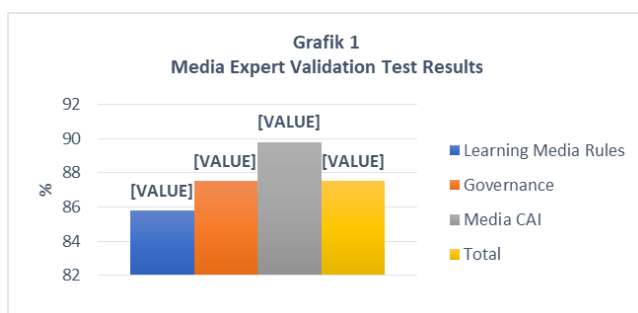
Writing Application Code

At this stage, the components that will be used in making the application are prepared, namely: icon images, backgrounds, logos, videos, and also learning material content. Next, the application pages are built, namely the home page, home page, etc.
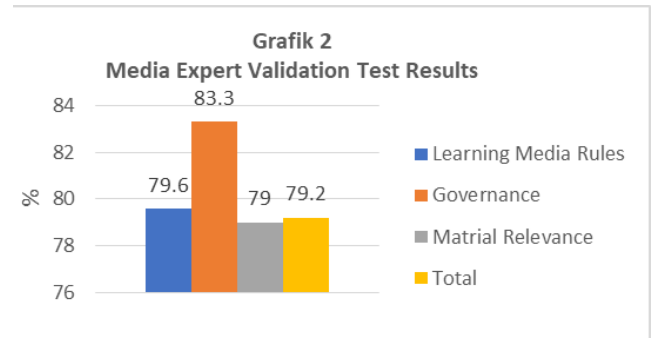
Application Testing

Before an application is defined as a final product and can be used widely, it must undergo some form of testing and the results must be suitable for use. The first stage of testing is a validation test from media experts and material experts. If the results are feasible, then proceed with the alpha test, which is the test conducted by the first user. In this study, the first users were health center staff in charge of maternal and child health programs. Puskesmas officers are people who can be a place for consultation for prospective brides. If the results of the alpha test are declared feasible, then proceed with the beta test, which is testing by the prospective bride and groom as people who are expected to become users of the Pre-Marriage Class application.

The validation test by media experts includes aspects of learning media rules, management, and Android-based learning media. The test was carried out by 2 media experts, and the results are as follows:

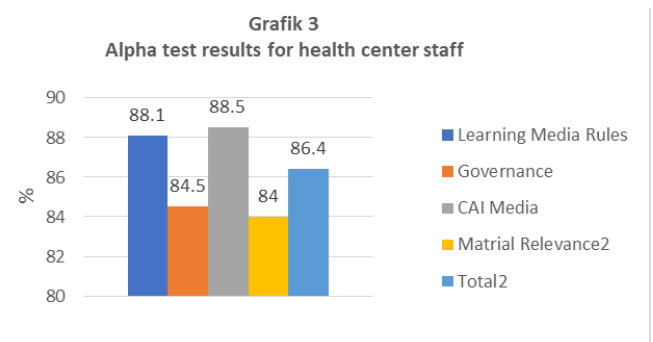**Grafik 1**
Media Expert Validation Test Results

From the graph above it can be seen that all aspects assessed are categorized as feasible because their values are in the range of 81 – 104%. So overall the application for the Pre-Marriage Class is considered appropriate by media experts because the score reaches 87.5%.

The validation test by material experts includes aspects of learning media rules, management, and relevance of the material. The test was carried out by 2 material experts, and the results are as follows:

Grafik 2
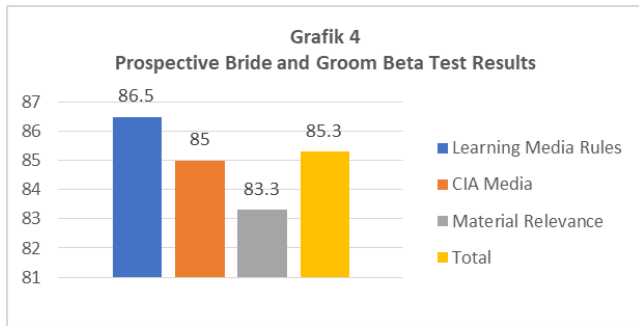**Media Expert Validation Test Results**

The results of the validation test by material experts showed that all aspects of the assessment were declared feasible because their scores were in the range of 79 – 96. So that overall the Pre-Marriage Class application was considered feasible to be used as a learning medium.

The results of the validation test by media and material experts were then followed by an alpha test, namely an assessment by a puskesmas officer. The aspects assessed include the rules of learning media, management, CAI media, and the relevance of the material. Alpha test results can be seen in the graph below.

Grafik 3
Alpha test results for health center staff

The results of the assessment by the puskesmas officers showed that the Pre-Marriage Class application was feasible to be used as a learning medium because the alpha test results showed a value of 86.4 because it was in the range of values 84 – 106.

The results of the alpha test which show proper results are then followed by a beta test, which is a test carried out by the prospective bride and groom as the target user. Assessment by the bride and groom includes aspects of the rules of learning media, CAI media, and the relevance of the material. The results of the beta test can be seen in the graph below.

Grafik 4
Prospective Bride and Groom Beta Test Results

The prospective bride and groom consider that the Pre-Marriage Class application is appropriate for use as a learning medium because the results of the beta test show a result of 85.3 (score range 75 – 92). All aspects of the assessment also show results in the proper category.

In addition to looking at the feasibility level of the application, this research also assessed the effectiveness of the Pre-Marriage Class application on the bride and groom's knowledge of maternal and child health to prevent stunting under-fives. Based on the results of the pretest and posttest measurements on 10 pairs of bride and groom, it was found that the average pretest score was 51.89 and the average posttest score was 80.67. Based on the N-gain test formula, an N-gain value of 0.59 is obtained, which means that the effectiveness is in the medium category.

DISCUSSION

As a learning medium, the Pre-Marriage Class application already contains elements of competence, materials and evaluation models. As well as media elements which include software and usability elements. Competence contains learning objectives. The material consists of 4 modules which contain 6 basic competency topics. The questions are part of the evaluation which consists of 25 questions. The competency presentation model was developed based on modules and Learning Program Units (SAP) for Pre-Marriage Classes.

The main material in the Pre-Marriage Class competencies is grouped into 4 modules, namely Exclusive Breastfeeding and Complementary Food for Breastfeeding (MP-ASI); Balanced Nutrition for Pregnant Women and Toddler Growth Monitoring; Infectious Diseases in Children; and Maternal Health and Reproductive Health. The modules are developed according to the Pre-Marriage Class curriculum. Presentation of material using text, power point, and images. According to the Guild for Bibliograhics Description of Interactive Multimedia (in Ana and Lusia, 2013) that interactive learning media is a combination of two or more media (audio, text, graphics, images, and video) which are manipulated by users to control commands and or natural behavior. from a presentation. Meanwhile, according to (Yuniati et al., 2019) learning media is an effective, interesting, and more fun learning process solution and facilitates the learning process.

The evaluation model resembles the results of research conducted by Pamuji (2013) and (Susilo Hendri, 2019) who made an evaluation model in the form of a quiz. The evaluation uses choice questions consisting of 25 questions. Choice of questions using the radio button to select an answer. There are 416 questions stored in the database which will be displayed randomly each time the quiz is started. Every time you start a quiz, 25 different questions will appear. The results of the evaluation are displayed in the form of a maximum score of 100. If the score obtained is less than 60, then the relevant knowledge is categorized as LACK and it is advisable to repeat it. If the score obtained is between 60 – 80 then the relevant knowledge is categorized as MODERATE, and if the score obtained is more than 80 then it can be categorized as GOOD.

The Pre-Marriage Class application has a size of 2 MB. The small size is intended so that the application can run on android devices that have low specifications. This is in accordance with the principle of usability goal (Preece Roger sharp, n.d.) (about application effectiveness. At the testing stage, this application was tried on several devices with different specifications and operating systems. As a result, the application can run properly starting from Android 5.0-5.0.2 (API 21) up to android 10.0 (API 29).

Application performance is carried out using a variety of different smartphone devices. Performance is intended to determine application performance on various Android devices. Therefore the performance is carried out by several bride and groom who have various smartphone devices. It aims to determine the performance of applications on smartphone devices owned by the bride and groom as well as to determine the feasibility of the application. The devices used to test the application are the Samsung Galaxy A73, Redmi 9C, Oppo F5 and Vivo Y21 2021.

The eligibility of the Pre-Marriage Class application has been given by media experts with a score of 87.5, by material experts with a score of 78.6, by health center staff with a score of 86.4, and by the bride and groom with a score of 85.3. Thus it can be said that the application of the Pre-Marriage Class is appropriate for use as a medium for learning brides and grooms about maternal and child health in the context of preventing stunting under-fives. The results of this study are in line with the results of Hendri Susilo's research (2019) which states that applications based on Adobe Flash are appropriate for use as learning media for graphic design. Likewise with the results of Rahmadal's research (2018) which stated that Android-based applications proved feasible for use in school student learning. The results of Nora Suci Yanti and Yasdinul Huda's research (2020) at SMK Negeri 2 Solok state that the android-based "AppyPie" application is suitable for use as a learning medium Microprocessor and Microcontroller Programming Techniques.

In this study, it has been known that the effectiveness of the Pre-Marriage Class application in increasing the knowledge or understanding of the bride and groom about the health of mothers and children is included in the moderate category because the results of the N-gain test show a value of 0.59. These results are not much different from the results of research by Siti Ayu Kumala et al (2022) who tested the effectiveness of the Android-based Sififi application on 50 students where the N-gain test results showed a value of 0.47 (in the moderate category). Likewise with the results of research by Nur Ayu Annisa et al (2022) which stated that android-based game applications were quite effective in increasing high school student learning outcomes (N-gain value = 0.73). Android-based application development is very effective as a learning medium because Android has several advantages, namely: User friendly, what is meant here is the system, Android is also very easy to run (Setiyoaji et al., 2020))(Ilmadi et al., 2020). Another advantage is in terms of the appearance of the Android system which is attractive and cheap because Android has an

open source concept, so users can freely develop their own version of the Android system.

CONCLUSION

That the Pre-Marriage Class application is suitable for use as a learning medium for prospective brides and is effective in increasing the understanding of prospective brides about mother and child health.

REFERENCES

Adistie, F., Lumbantobing, V. B. M., & Maryam, N. N. A. (2018) 'Pemberdayaan Kader Kesehatan Dalam Deteksi Dini Stunting dan Stimulasi Tumbuh Kembang pada Balita', *Media Karya Kesehatan*, 1(1), pp. 173–184. doi: https://doi.org/10.24198/mkk.v1i2.18863.

Afifa, I. (2019) 'Kinerja Kader dalam Pencegahan Stunting: Peran Lama Kerja sebagai Kader, Pengetahuan dan Motivasi', *Jurnal Kedokteran Brawijaya*, 30(4), pp. 336–341.

Amaliyah, E., & Mulyati, M. (2020) 'Effectiveness of Health Education and Nutrition Rehabilitation Toward Community Empowerment for Children Aged Less Than 5 Years with Stunting: A Quasi-Experimental Design', *Jurnal Ners*, 15(3), pp. 173–177. doi: doi.org/10.20473/jn.v15i2.19494.

Andriani, W. O. S., Rezal, F., & Nurzalmariah, W. O. S. (2017) 'Perbedaan pengetahuan, sikap, dan motivasi ibu sesudah diberikan program mother smart grounding (msg) dalam pencegahan stunting di wilayah kerja puskesmas puuwatu kota kendari.', *Jurnal Ilmiah Mahasiswa Kesehatan Masyaraka*, 2(6).

Aprilia Daracantika, Ainin, & B. (2021) 'Pengaruh negatif stunting terhadap perkembangan kognitif anak', *Jurnal Biostatistik, Kependudukan, dan Informatika Kesehatan*, 1(2), pp. 124–134. doi: http://dx.doi.org/10.51181/bikfokes.v1i2.4647.

Dinas Kesehatan Provinsi Kepulauan Banka Belitung (2017) *Profil kesehatan Provinsi Kepulauan Bangka Belitung*. Bangka Belitung.

Fahmi Hafid, Taqwin Taqwin, Linda Linda, Nasrul Nasrul, Kadar Ramadhan, B. B. (2021) 'Specific interventions to prevent stunting in children under 2 years after the natural disaster', *Open Access Macedonian Journal of Medical Sciences*, 9(E), pp. 64–69. doi: https://doi.org/10.3889/oamjms.2021.5677.

Firdawsyi Nuzula, Maulida Nurfazriah Oktaviana, & R. D. Y. Y. (2020) 'Pendidikan kesehatan terhadap kader tentang intervensi gizi spesifik dalam pencegahan stunting', *The Indonesian Journal of Health Science*, 12(2), pp. 209–215. doi: https://doi.org/10.32528/ijhs.v12i2.4877.

Ghina Mutiara Tasyrifah (2021) 'Literature Review: Causes of Stunting in Toddlers', *Muhammadiyah International Public Health and Medicine Proceeding*, 1(1), pp. 339–346. doi: https://doi.org/10.53947/miphmp.v1i1.71.

Hendrawati, S. (2018) 'Pemberdayaan Kader Kesehatan dalam Pencegahan dan Penatalaksanaan Stunting pada Anak di Wilayah Kerja Puskesmas Jatinangor', *Dharmakarya,* 7(4), pp. 274–279. doi: https://doi.org/10.24198/dharmakarya.v7i4.19527.

Kementerian Desa, Pembangunan Daerah Tertinggal, dan T. R. I. (2017) *Buku saku desa dalam penanganan stunting.* Jakarta: Direktur Jendral Pembangunan dan Pemberdayaan Masyarakat Desa.

Kementerian Kesehatan (2018) *Riset Kesehatan Dasar (RISKESDAS) tahun 2018.* Jakarta.

Kementerian Kesehatan (2021) *Buku saku: Hasil studi status gizi Indonesia (SSGI) Tingka Nasional, Provinsi, dan Kabupaten/Kota Tahun 2021*. Jakarta.

Kozier, B., Erb, G., Berman, A., & Synder, S. J. (2011) *Buku ajar fundamental keperawatan: Konsep, proses, dan praktik*. 7th edn. Jakarta: EGC.

Megawati, G., & Wiramihardja, S. (2019) 'Peningkatan Kapasitas Kader Posyandu Dalam Mendeteksi Dan Mencegah Stunting', *Dharmakarya*, 8(3), pp. 154–159.

Mishra, S.K., & Yadav, B. (2014) 'Audio-visual aids & the secondary school teaching.', *Global Journal of Human Social Science*, 14(1), pp. 14–24.

Notoatmojo, S. (2010) *Promosi kesehatan: Teori dan aplikasi*. revisi. Jakarta: Rineka Cipta.

La Ode Alifariki, La rangki, Haryati Haryati, Rahmawati Rahmawati, S. and Sukurni, W. O. S. (2020) 'Risk factors of stunting in children age 24-59 months Old', *Media Keperawatan Indonesia*, 3(1), pp. 10–16. doi: DOI: https://doi.org/10.26714/mki.3.1.2020.10-16.

Purnamasari, H., Shaluhiyah, Z., & Kusumawati, A. (2020) 'Pelatihan kader posyandu sebagai upaya pencegahan stunting pada balita di wilayah kerja puskesmas margadana dan puskesmas tegal selatan kota tegal', *Jurnal Kesehatan Masyarakat*, 8(3), pp. 343–350.

WHO (2022) *The Global health observatory: Joint child malnutrion estimates*. Geneva.