Original Article

Development Of "SEHATI" Application To Improve Adolescent's Understanding Of Reproductive Health

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ABSTRACT

Background: Adolescent Reproductive Health (KRR) is a government program in Indonesia that has been implemented since 2000. The aim is to ensure that the young generation is healthy and prosperous. Teenagers are still looking for answers to reproductive health problems themselves, consulting friends, social media and other online sources because they do not fully understand the material offered in this program. Adolescents may be more likely to participate in risky behavior, such as engaging in sexual intercourse at a younger age, due to the ease of obtaining information.
Methods: The "SEHATI" app, developed as a result of this research, will teach teenagers more about reproductive health. By using the ADDIE methodology (analysis, design, development, implementation and evaluation), this research adheres to a Research and Development approach.
Results: Media experts gave a product validation score of 75%, material experts gave a score of 100%, and educational practitioners gave a score of 99.5%, all of which indicate that the product is very suitable for use. Scores of 77.3% and 88% were achieved in small-group trials and large-group trials, respectively. This shows how well the product works. As many as 89% of students gave positive answers throughout the evaluation stage.
Conclusion: With an 80% increase in student understanding, this app has great potential for future improvements in terms of content, realism, language, presentation, graphics and student learning motivation with the hope of becoming a resource for the younger generation to learn more about reproductive health.

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Introduction

Since 2000, the Indonesian government has prioritized Adolescent Reproductive Health to protect the health of the future generation. Rahayu, (2018) says the KRR program supports education, counseling, and information. Unfortunately, not all youth can participate in the KRR program, so many resort to peers, social media, and other online resources for reproductive health information. Global information makes smoking, drinking, and drug use more common among teens, making them more likely to succumb to peer pressure and start sexually active (Lubis AM, 2019). Without simple access to

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sexuality and contraception knowledge, teens are more likely to experience sexual abuse, unexpected pregnancies, abortions, STDs, HIV/AIDS, and other STDs (Lestyoningsih, 2018). Adolescent reproductive health is a significant topic since teens are unprepared for life's emotional and social challenges. Many life events shape the present and future generations (Safira et al., 2022 ; Amalia et al., 2020). Youth make decisions based on the availability of official and informal health services and policies, as well as the quantity and quality of information (Prafitri & Suparni, 2019; Suwardianto, 2020a, 2020b) Teenagers are the most discreet clients. This becomes complex when you consider that Indonesia's healthcare system is still improving client-oriented services without prioritising privacy and confidentiality.

Preventing reproductive health issues starts with providing teenagers with clear and succinct educational resources and information on the repercussions of their sexual behaviour. Reproductive health education is too generalised and lacks specifics on sexual behaviour (Djama, Lante, & Bansu, 2022). A study of 500 unmarried teens in five major Indonesian towns found that 33% had penetrative intercourse, with 58% doing so between 18 and 20. Surprised that discussing sexuality with adolescents is still taboo or improper deserves further inquiry (Tampenawas AR & Mangantibe VY, 2020)

Most youth don't feel comfortable discussing sexuality and reproductive health with parents or teachers. They don't teach kids about sexuality and reproductive health because they don't know how or fear sex before marriage. Teens who learn about sex from their parents or school do better (Ayieko, Nguku, & Kidula, 2023; Calcaterra et al., 2023; Djama, 2017; Mills et al., 2021; Usonwu, Ahmad, & Curtis-Tyler, 2021).

However, interested youths seek out alternative ways to learn, such as via friends, films, videos, the internet, and other mass media.Youth who know about sexuality and reproductive health are more likely to act responsibly, but not all obtain adequate or accurate information. Young people who don't know much about sexual health make unsafe choices. To avoid obstacles to their progress, teens need to be educated, have someone to talk to, and have support from others. Knowing about sexual health helps youth develop friends who will impact their lives, according to Asnah Sitohang et al., (2018).

Since knowledge affects behaviour, smarter kids will behave better (Mona, 2019). Since not all teens are open to sharing, digitization allows information to be communicated outside counselling or guiding. Teen reproductive health and sexuality media should be more communicative, participative, fascinating, and pleasurable without intervening. Early teens prefer visual communication to avoid boredom. Android apps engage Indonesian youths, so they can use Android-based instructional media to learn. Android-based learning media treatment suits Indonesian teens nowadays. PGRI 2 Palembang students received reproductive health education solely in biology class X with inadequate material, according to a preliminary study. Even with the 2018 KKNI-based curriculum, social studies students won't take reproductive health biology. This study intends to construct SEHATI to engage youth in reproductive health.

Methods

Research and development (R&D) is a research method used to create a product. The study method employs the ADDIE model approach (analysis, Design, Development, Implementation, and

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Evaluation), a framework for designing and producing products (Rayanto YH, 2020). The Analysis Stage is based on literature research and information gathering to identify problems and appropriate solutions for teenagers. At this point, a needs assessment of the teaching materials to be generated, curriculum analysis, and student characteristics are performed. The design or drafting stage involves creating an application structure, a needs map, and an assessment sheet. The test was designed to consider appropriateness of material, language, presentation, graphics, and suitability to the approach used.

The development stage involves creating an Android-based application that adheres to the design specifications. At this point, the application will be evaluated by media experts, material specialists, and teachers to determine its content and construct validity. The implementation stage involves testing the programme by running tests. This stage is used to determine the practical usefulness and efficacy of the application under development. The evaluation step is the process of fixing errors that arise when learning. This stage ensures that the application created is actually appropriate and may be utilised by a broader range of schools. The study was carried out at SMA PGRI 2 Palembang in September 2020. The study included all 145 class XII Science students.

Research samples were separated into two categories: Android-based learning media development and application effectiveness in improving student knowledge. Application development samples included 1 material expert, 1 application media expert, 2 biology teachers, and 15 small-group students. For the application's effectiveness in improving students' understanding, the researcher used proportional random sampling with the inclusion criteria of class willing to be respondents to select 1/3 of class XII Science students from 3 groups, resulting in 45 samples. The research tool evaluates product validity and effectiveness using a 1-5 Likert scale. The data is analysed using quantitative descriptive analysis to find the average product value, then qualitatively interpreted into 5 scales from very unsuitable to very decent with a 25%-100% score range. The Poltekkes Kemenkes Palembang Ethics Committee approved this research with number 483/KEPK/Adm2/IX/2020.

Results

This study used the ADDIE approach paradigm (analysis, design, development, implementation, and evaluation). During the Analysis stage, researchers seek answers to students' concerns and wants. The needs analysis takes into account student preferences for learning environments and necessary competencies, as well as issues with student demographics, learning settings, student learning outcomes, and other factors. The design or media planning stage entails designing an overall media design (storyboard), gathering information, questions and answers, producing backgrounds, background sound, images, educational films, and buttons for the application. This app is called "SEHATI," which stands for Adolescent Reproductive Health Education Application. The SEHATI program was designed with a pink backdrop color to appeal to teenagers. The homepage includes an introduction, resources, and other features. The myths and facts section offers information regarding reproductive health. The film area provides educational videos on topics such as adolescent reproductive health, puberty, premarital sexual relations, and marriage maturation. The Quiz portion

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provides questions about teenage reproductive health, while the Profile section includes the researcher's information.
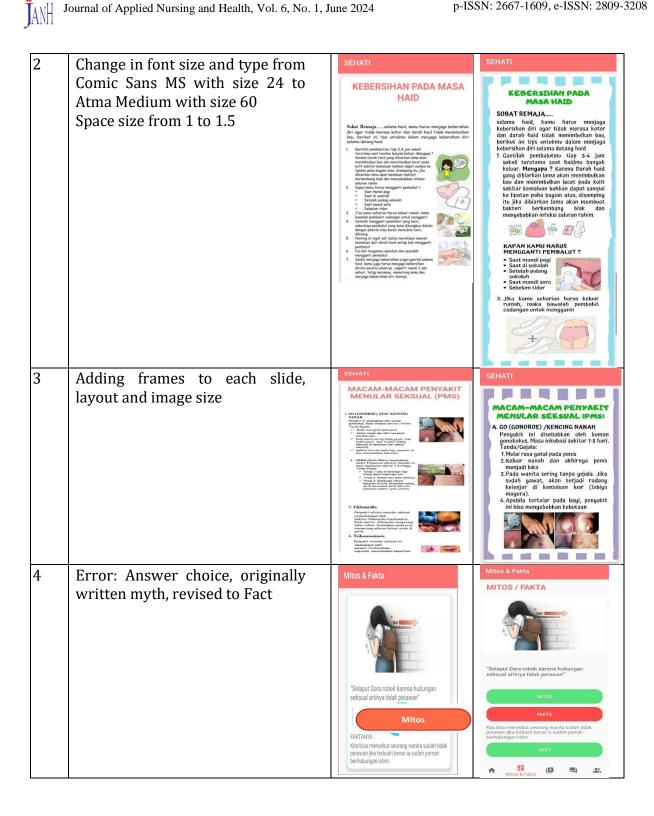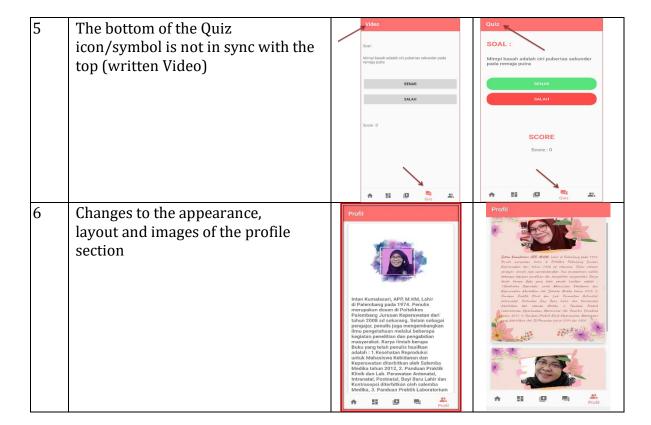
Figure 1. Front view of the Sehati Application

Based on Competency Standards and Basic Competencies, material is presented. The material will be modified from numerous relevant references and suitable for teens utilizing communicative language. An evaluation questionnaire for media products is based on assessments of media and material specialists. An assessment questionnaire was supplied to specialists before field testing the medium. After the trial, educators and students received media assessment surveys. Design is followed by evaluation. Media, material, and educational experts will validate the application after design. Media expert validation results comprise 6 language questions, 4 presentation questions, and 7 graphic questions. Validation scores of 75% indicate that the app is interesting/valuable. Media professionals offer comments in the suggestions section, notably on language and application presentation, to improve media language and presentation. Material experts validated 21 questions on competency (8 questions), content feasibility (7 questions), and realism (6 questions). The material specialists' validation score was 100%, indicating that the SEHATI application is competent, realistic, and viable. Teacher assessments of competency (8 questions), appropriateness (7 questions), realistic (6 questions), language (6 questions), application presentation (4 questions), and graphics (7 questions) total 38 items. Teacher validation scores of 99.5% indicate that the application is competent, realistic, and material-rich. Table 1 shows that material, media, and education experts' assessment validation suggestions inform product revision:

Table 1. Revisions based on suggestions from media experts, material experts and educational practitioners at the validation stage

No	Revision Suggestions	Before revision	After revision
1	Changes to the initial appearance of the application by changing the heart linked to a picture of a teenager with a heart background and a sex icon		

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2	Change in font size and type from Comic Sans MS with size 24 to Atma Medium with size 60 Space size from 1 to 1.5		
3	Adding frames to each slide, layout and image size		
4	Error: Answer choice, originally written myth, revised to Fact		

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5	The bottom of the Quiz icon/symbol is not in sync with the top (written Video)		
6	Changes to the appearance, layout and images of the profile section		

Implementation involved a small group trial on 15 XII IPA students with 33 questions about material substance, language, application presentation, graphics, and learning motivation. Small-group trial outcomes were 77.3%. The application is practicable in terms of content, realism, language, presentation, graphics, and student learning motivation. In the big group trial stage, 45 students with the same question characteristics scored 88% higher, proving that the SEHATI application is practicable. In the suggestions part, most students thought the SEHATI application was enjoyable to read, not patronizing, utilized communicative language, and exhibited colors teens enjoyed. This app decreases study distractions. Student reaction throughout implementation was positive. This app includes conversational films and assessments of reproductive health misconceptions and facts. The evaluation step measures students' acceptance of the application and teens' knowledge and understanding after obtaining SEHATI Media material to evaluate the product and learning process. Table 2 shows student SEHATI acceptance results:

Table.2 Student Acceptance Response to the SEHATI Application

Acceptance Response	Amount	percentage
suitable for use without revision	40	89
suitable for use with revisions	5	11
	45	100

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Table. 3 Evaluation of students' learning understanding

Assessment Aspects	Analysis	Validation
comprehension	Total score obtained (Σscore)	336
	Maximum Score	450
	π	80%
	Criteria	Good/decent

Discussion

The Android app SEHATI is the result of this research. This application met student needs after analyzing student needs, competencies, and instruction. Needs analysis considers student characteristics, experience, learning outcomes, increased knowledge, skills, attitudes, and behavior, preferred learning environment, and required competencies. Problems and student characteristics were analyzed using a questionnaire. The questionnaire suggested that learning activities had not been conducive. Many pupils are still chatting, spending time on smartphones, and not paying attention to the lecture. This can prevent students from understanding the topic. The teacher explained that students still get grades below the minimum completeness criteria, the teaching and learning process is not yet student-centered, and they still use the classical method, question and answer, followed by practice questions. Material and student attributes should determine the learning approach. Kaltsum (2017) states that teachers' performance in providing content should not only focus on student learning outcomes but also be fun and meet students' basic needs to engage them. Setyawan, (2019) also stated that the success of the learning process depends on numerous factors, including the learning strategies teachers employ to present material. A learning approach is practical if it helps pupils understand the subject and meet learning objectives.

Despite these issues, all students have Android smartphones. Smartphone use is everyday among students. This also hinders students' classes and independent studies. Smartphone-friendly educational materials can solve the student's learning difficulty. This will keep pupils engaged and decrease phone use, which can hinder learning. The researcher then assesses media development needs based on the problem analysis.

Competency analysis determines what students need to know about the reproductive system, promiscuity, sexual diseases and disorders, and the anatomy and function of organs that cause reproductive system abnormalities. This material is critical for teenage growth. Researchers analyze the core and essential competencies of predetermined content. K1, K2, K3, and K4 skills are knowledge competence achievements in the core competency analysis. Fundamental competence analysis explains knowledge and skills. Students should grasp core competencies such as scientific and critical thinking, responsible behavior, and cultural and religious values in interactions with both sexes. To ensure students fully internalize reproductive health material and avoid misunderstandings, the time available will not be enough if you only rely on the classroom, which is sometimes unsuitable and limited by space and time. Media must be provided for autonomous learning for students. Thus, learning media were designed to match the the competencies of Ismanto et al., (2017).

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Researchers produce media design concepts, materials, data, and evaluation tools during design. A rough media production proposal is storyboarded in Canva. In Ms. Word, it's organized. Content is based on current scientific sources. As sample questions, the content includes researcher-developed questions and conversation themes. The application displays 15 quiz questions and 15 myths and facts questions for a total of 30 items. The quiz questions are randomly shown so they can be repeated if pupils answer wrong.

Students can utilise quizzes to study frequently with different questions to increase their understanding. Lase & Purba, (2020) found that frequent question practice improves students' understanding and motivation to learn. At this step, media, material, and expert validation instruments are created to assess the media's suitability before use in the subsequent development stage. The two media professionals were provided tools to evaluate media quality. The SEHATI app is developed by coding, creating an APK, testing, and revising. Material specialists, media experts, and biology teachers validate the learning media to determine its applicability. Media experts give the media a 75% score, indicating suitability. The material expert gave the application a 100% score for completeness, suggesting that it should be developed.

Meanwhile, biology professors gave the media a 99.5% grade, suggesting that it should be created. The media assessment shows that the learning media is feasible for implementation. The validity test by these three experts matches the findings of Supardi et al., (2019), which shows that an application is valid if the average validator evaluation score is at least 62.6%-81.25%.

The implementation step has two stages: small group trial and extensive group trial. At the small group trial stage, 15 SMA PGRI 2 Palembang class XII Science students participated. Students' passion and interest in the SEHATI application as a learning media was evident during the trial period. The small group testing revealed positive student reactions; therefore, it could be used in bigger groups without adjustments. The researcher then urged students to install the SEHATI app on their iPhones after creating a Whatsapp group to briefly explain the media app's goals. Students can study this app alone. Learning using application media is going nicely. Students are eager to use existing media. Students participate more in learning activities. This appears in the column containing student replies and suggestions for the disseminated application evaluation questionnaire. This media can improve student focus and attention during class. Students performed well during implementation. Students learn better with complete information, relevant videos, reproductive health myths and facts, quizzes, and evaluations. Many students advocate adding to this material because it assists with learning assignments.

Evaluations analyze product quality and learning. Product quality is measured by students' approval reactions to application use, and the learning process is measured by teens' increased knowledge and understanding after obtaining SEHATI material. This application received 89% positive student acceptance responses. Yulianti, L., and Rahmawati, D. (2018) define a positive student response as ≥65%. The score findings indicate that SEHATI is a promising app. To improve student understanding, the SEHATI application received an 80% quality grade, indicating its suitability in material substance, realistic elements, language, presentation, graphic aspects, and student learning motivation. Good quality and meeting learning media standards are the correct meaning of this

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assessment. The media evaluation shows that the SEHATI application is suitable as a learning medium for public dissemination.

Conclusion

Based on the research results, it can be stated that the SEHATI application is very worthy of being produced and given to the public since the SEHATI application can boost students' knowledge and awareness of reproductive health. Apart from that, the student response to the approval of this educational application was excellent. Currently the SEHATI application is accessible on Google Playstore and may be downloaded for free. With the existence of this application, it is hoped that more youngsters will be helped to overcome challenges linked to their reproductive health. For this application to be ideal in the future, it is required to test again the usefulness of the application in enhancing teens' knowledge and attitudes regarding reproductive health. It is advised for further improvement to include BSE video tutorials, improve the number of quiz questions to make them more varied and add instructional games.

Authors Contributions

The author carries out tasks from data collection, data analysis,making discussions to making manuscript.

Conflicts of Interest

There is no conflict of interest

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