Developing an Interactive Game to Educate SHS Students on Teenage pregnancy: Case Study in Yaa Asantewaa Senior High School

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Abstract		Original Research Article

Teenage pregnancy has become one of society's major problems, where teenage girls of ages (15-19 years) indulge in sexual misconducts and ends up pregnant which lead to school dropout among others. Studies have shown that these girls are mostly students in the Senior High Schools. In an attempt to prove the research made, the study sought to design and construct interactive and educational game application for Senior High School students using Yaa Ashantewaa Senior High School as a case study. Quantitative and Studio-based method of qualitative research approach were employed in the study. The study revealed that interactive game is essential in the transmitting or transferring of information of importance to students. It will help the students in achieving a particular goal, where they become more immersed and focused in achieving knowledge whiles having fun hence to reduce teenage pregnancy in the country. The study recommends that advantage should be taken over the advancement of technology to develop more game applications which will help educate students and the general public on teenage pregnancy and other related social issues. Furthermore, the game application should be licensed and to make it an open to educational resourceful project for students to use. The study calls for further research to upgrade the interactive game for future use.

Keywords: Interactive Game; Teenage Pregnancy; Students; Senior High School.

INTRODUCTION

Interactive games or game in general is an ancient phenomenon that has been an integral part of our socio-cultural lives and human interactions [1]. There are several types of games including educational games which are created with the primary aim of educating, for example, teaching a particular topic such as mathematics, science or history. With the rapid advancement of technology, most games have transitioned from being board based to electronic (mobile phones and computers) based and with a greater percentage of the world's population getting inclined with technology, a broad platform has been created to attract and accommodate users. This has created an avenue for the gaming of various fields and industries, education inclusive in the quest for a more interactive and involved way of learning. Hence the increasing demands for the inclusion of game-based learning in the educational curricula [2, 3].

An interactive game application introduces a particular system of learning known as Electronic learning which brings to instructional design and aids. With this, instructions have improved through the learning needs analysis and have provided a better way of learning experience. Instructional Design has become a unique way of improving learning experience [4]. Therefore, for a game to effectively serve its primary purpose, good design is very much a priority. Game-based learning has shown potential of being an effective alternate or complementary form of learning to the traditional form of learning. Its advantages include; instant feedback, productivity, self-motivation and team collaboration [5, 6].

Teenage pregnancy has become one of the society's major problems with teenage girls between the ages of thirteen to twenty years engaging in sexual misconducts or activities and at the end gets pregnant. It has become a great challenge mostly in senior high

school and as a direct implication of school dropout among girls especially. Teenage pregnancy, which is associated with teenage girls, causes a lot of damage to their health as well as future. The effects of teenage pregnancy affect the victim right to the society which includes the family as a whole.

The number of girls getting pregnant and dropping out of school keeps increase year after year. A recent publication by Mr. Simeon Kwabena Acheampong recorded 57,000 teenage pregnancies in Ghana in the first half of the year. (Graphics 2017) [7]. This has resulted in bringing together members of the adolescent health ambassadors clubs in senior high schools (SHS) across the country. The Kumasi metropolis has for this year increased in adolescent pregnancy in the Ashanti Region. It was indicated from the records of the health facilities in the Kumasi metropolis that 70% of these teenagers pregnant were students between the ages of 15 to 19 which indicates the average ages of students in the senior high schools in the metropolis.

The learning process and method used in teaching topics related to teenage pregnancy and its subject areas are less effective and interesting. Since few students show interest in seminars and other traditional and theological books on such topic. Most students find it not attractive to read these books. Education in the early twentieth century made use of traditional learning methods which focused largely on knowledge acquisition other than skills acquisition and problem solving abilities. We have therefore decided to create a more fun, interesting and interactive way of learning about this topic by developing an interactive educational game for girls especially in senior high schools using Yaa Asantewaa Senior High School as a case study.

This study can be beneficial to student academia, individuals and communities. Students will be able to learn about teenage pregnancy and its consequences, as well as how it can be prevented. They will find it a very attractive and interactive way of leaning. With this project serving as a pilot study, many student or teenagers from various schools and other backgrounds will come to appreciate the fact that teenage pregnancy is an important topic to look at, once the basic concepts have been grasped and hence go a long way to assist and encourage them to know and read more about it and also prevent them falling a victim of it.

METHODOLOGY
Research Design
The primary focus of this research is to develop an instructional and educational android mobile game application that will help educate Senior high school students on the topic of teenage pregnancy in a more interactive form. Since the target group of the project was narrow down to high school females especially, students of Yaa Asantewaa Girls Senior High was chosen as the case study for this research in order help gain a maximum knowledge on how best they can be helped effectively in terms of learning about teenage pregnancy.

Production Method Approach
In the execution of this game application, there are three stages to be considered. This stages includes the pre-production stage, production stage and post production stage.

Pre-Production Stage
Storyboard

Fig-1: storyboard

Production Stage
The production stage is the stage that focuses on building and executing the actual work using various tool, materials and software.

Tools and Materials
- **Laptop:** The laptop with the needed software such as Adobe Photoshop, Adobe Animate etc. installed on it to help execute the project. Due to the size of ram that these software uses, an i7 laptop of at least 6G RAM is needed for a smooth flow of work.
- **Graphics tablet (Wacom):** This was used in drawing digitally and also in the place of the mouse for other things.
- **Internet:** The internet was used for researching and getting information on the topic.

Layout and Preliminary Sketches
Having the concept of the game in mind, other various sketches of the character and interface assets to suit the theme of the game where made.

Fig-2: Pencil sketches of character on paper.

Fig-3: Digital outline sketches of character in Adobe Photoshop.

Interface Design

Fig- 4: Rendering of interface design.

Fig-5: Rendering of main menu interface design.

Character and Environment

Fig-6: Rendering interface design level 1 activity.

Fig-7: Rendering interface design level 2 activity

Game Development in Adobe Flash

Adobe flash, as popularly known for its ability for creating animation and designing websites also has the ability of development and creating interactive and responsive designs and games by the help of codes and actions known as action script. This is the software used in developing this game or interaction design. The codes and action applied in this software makes buttons, videos and images in the game respond to the player's actions through clicking, dragging and typing. Example of the code view interface is as illustrated in *figure 8*.
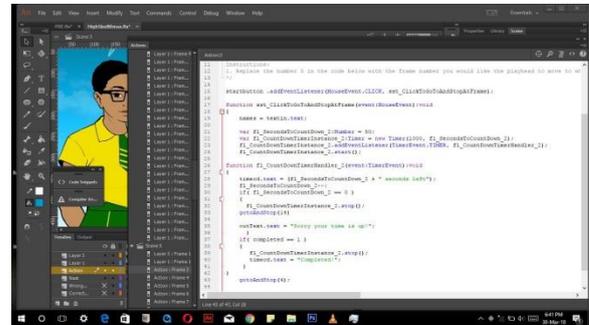

Fig- 8: sample of the code view interface.

Post Production

This is stage is the last stage of production where all the stages and elements were brought together and rendered out as an Android Package(APK) file, so it can be installed on all android smart phone. This was done by using a target called AIR for Android, where the game icon, name and certificate were generated for the game. In all of these, Apple product users such as iPhone and iPad users were not left out from been able to install the game on their phones. An IOS version of the game was also rendered in AIR for iOS for all iPhone and iPad users. After rendering, the Android Package (APK) file was then copied unto the smart phone and installed as illustrated in *figure 9*
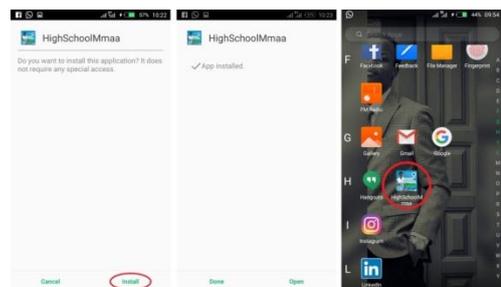

Fig-9: screenshot installation of the Game / APK file.

DATA ANALYSIS AND FINDINGS

Table- 4.3.3: What do I often do with my smart phone?

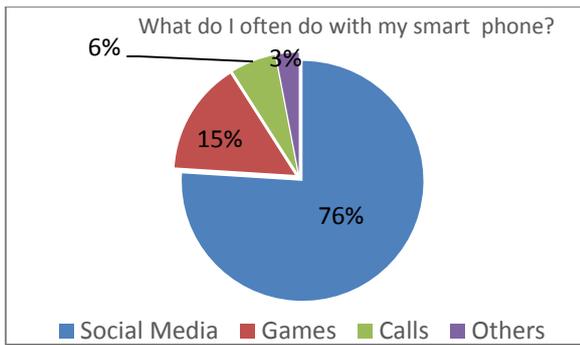|	Frequency	Percentages	Valid Percentage
Calls	6	6.0	6.0
Social Media	76	76.0	76.0
Games	15	15.0	15.0
Others	3	3.0	3.0
Total	100	100	100

Fig- 4.3.3: showing what the respondents do with their smart phone

When the respondents were asked what they often do with their smart phone, 6(6%) said calls, 76(76%) said social media, 15(15%) indicated that they play games, whiles 3(3%) said other things apart from what had been listed. This is shown in Table 4.3.3 above.

Table -4.3.8: Which platform do I often play games on?

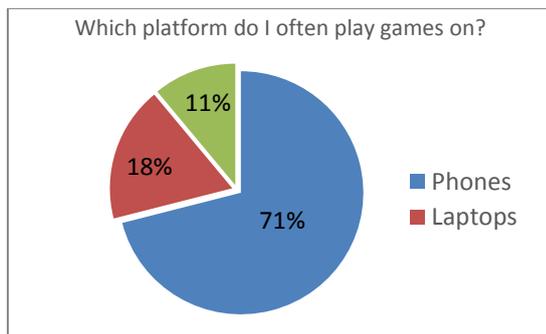|	**Frequency**	**Percentage**	**Valid Percentage**
Laptops	18	18.0	18.0
Phones	71	71.0	71.0
Tablet	11	11.0	11.0
Total	100	100	100

Fig-4.3.8: showing the platform on which the respondents play games.

18(18%) said laptops, 71(71%) said phones, 11(11%) said tablets when they were asked on which platform they often play their games on. This is shown in Table 4.3.8 above.

Table -4.3.9: What type of games do you play?

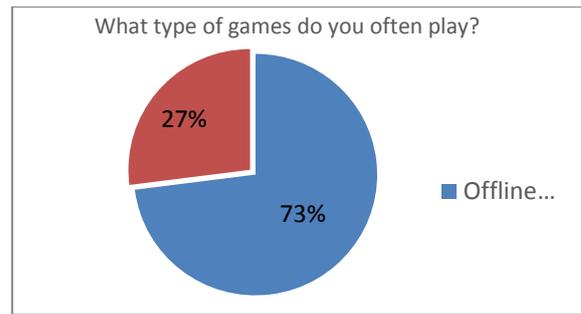|	**Frequency**	**Percentage**	**Valid Percentage**
Online Games	27	27.0	27.0
Offline Games	73	73.0	73.0
Total	100	100	100

Fig- 4.3.9: showing if the respondents prefer playing offline or online games.

From the above Table 4.3.9, demonstrates that 27(27%) said they play online games, 73(73%) said they play offline games, when asked which type of games do they play.

RESULTS ANALYSIS

After collating of the data, the game was designed to suit the feedback from these students in order to solve the problem. For example, in the data collated in *Fig. 4.3.9* reveals that 73% of the respondents prefer to play offline games to online game. Due to this we had to find a way of making the game an offline game, and also prefer playing on smart phone than other devices as indicated in *Fig. 4.3.8*. To talk of some other few points, we also realized in *Fig. 4.3.3* that 76% of the respondents spend their time on social media than any other activity. In view of this, we decided to utilize their time on the social media to still educate them by linking the game to their social media where they can share their answers to some questions in the game on our social media platform and also learn from other people's views. These are some of the facts and things that were considered as bases to bring out an effective game.

TESTING

After rendering the work out, our supervisor and some other lecturers previewed the work made some suggestions and corrections, finally concluded that the work was a good one and very impressive. The work was then later taken to some of the senior high school girls to play and test its effectiveness and if they enjoy learning from that medium. Their responses were that, it was a better and interesting way of learning about teenage pregnancy and they will rather prefer to learn from this medium than seminars and friends. Some also commented that it was very educational, and also suggested that more levels be added to make it more interesting.With this, the aim and purpose of which the project was undertaken has been achieved, which is to create and develop an interactive educational game for senior high school girls to make learning about teenage pregnancy and its prevention more interesting and interactive. This project will also encourage students and experts in the gaming industries to make use of games as a great medium of educating

people than fully focusing on the entertainment aspect of it.

CONCLUSION AND RECOMMENDATION

Interactive game application serves as a platform for which learning is made effective, transparent and exciting. The focused of the study is to educate teenage girls (Senior High School level) on teenage pregnancy which has increased from a research made. The app has been able to serve its purpose by making the education on teenage pregnancy more fun, with students enjoying its use. Students who had the chance to play the game enjoyed it so much that they preferred playing the game and learning about teenage pregnancy than in books, since it's more fun, interesting and less boring.

In view of this, the study recommends that further study should be made on the topic and also authorities should inculcate the use of the App in both the Tertiary and the Secondary institutions to help in the effective teaching on the topic Teenage Pregnancy hence reducing school dropouts among teenage girls and empowering them for a brighter future.

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