PAINTLAB

Shadrock Dalmacio Villegas
MIT Student
Northern Negros State College of Science and Technology, Sagay City, Philippines

ABSTRACT: This research focused on developing an android game for the purpose of entertainment and enjoyment of the user. The researchers used the descriptive research design by using the respondents and survey questionnaires to fully describe the entire study. The game was develop to have an interactive and useful communication from the game to the users by playing it. This study aims to provide an entertainment by using a color game application that is specifically design for android devices. This application has its own database of colors where the users can choose different types of colors. In this case, the researchers' perceive that by playing the game by its features, design, functionalities, accuracy, efficiency reliability and consistency the players will be entertained and will play much more. The game was develop through the use of vivid research conducted by the researcher to the respondents in order to gather more data and information in the further development of the game.

I. INTRODUCTION

Technology provided lots of benefits to human life. It had contributed into the development of mankind and enhances the way of living. Modern technologies have brought much improvement to human life through convenience, efficiency, and accessibility. Inventions and tool making have been around for as long as mankind has walked the earth. Ideas grow larger and deeper as human tend to create more inventions not only for the physical comfort of the people but also for the cognitive process and enjoyment of a person, therefore video games evolved.

The increasing sophistication of mobile phones means that people in this generation have access to smart phones with touch screens, location awareness, video, internet access, large amounts of memory and powerful processors. This makes it possible to design mobile learning experiences, using students' own devices, which were simply not realistic in the past. Many previous mobile learning projects that involved the creation of location aware augmented reality games relied on the provision of expensive and unusual devices by the learning provider, making such exercises limited in their scalability and reusability. Now, we can deploy complex mobile learning tools to everyday access. Android devices has a number of potential benefits in the context of developing a mobile learning application that is intended to be easily accessible.

With this, the idea of creating an android application which will entertain and test the color intelligence quotient of an individual was conceptualized. Hence, the researchers' had come up with the study of creating free game application that can be installed on android platforms gadgets entitled, "PaintLab". This game will determine user's capacity and accuracy in determining colors and applying it to the objects presented on the different levels of difficulty.

II. METHODOLOGY

System Design

The selection of the most adequate concepts and efficient tools is imperative in the proposal of PaintLab. Thus, the following are the essential concepts which contribute to the development and implementation of the game.
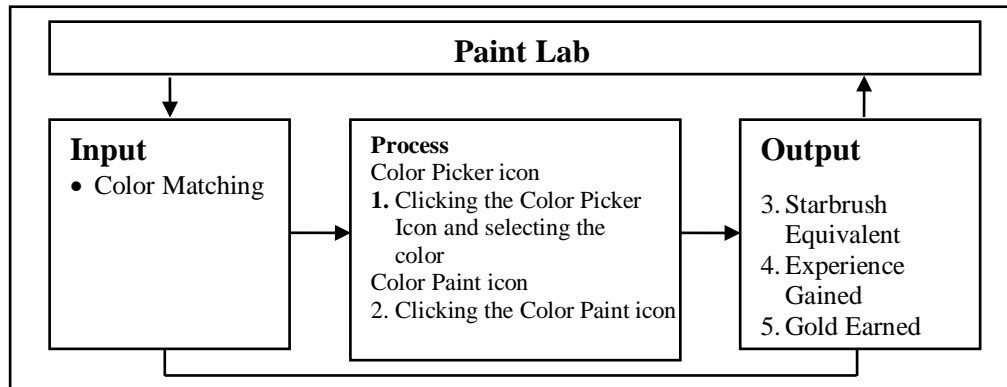
Figure 1. Schematic Diagram of Conceptual Framework

Figure 1 shows the relationship among the approaches and process in the development of the study. Thus, the relationship presented in the figure plays a significant role in developing the game. The study shows the method of color painting and the study of color identification accuracy through a process of using color picker and color paint; and the result of gaining experience, level up and earning of gold.

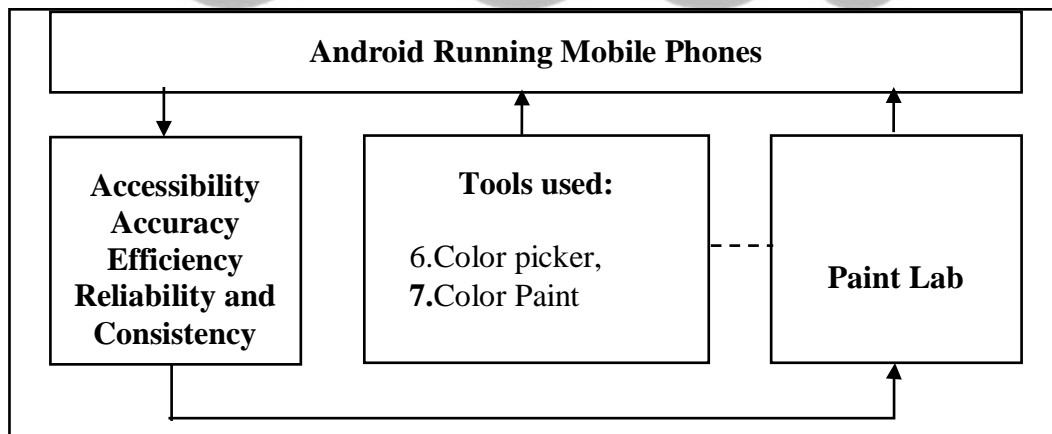Figure 2. Schematic Diagram of Operational Framework

Figure 2 shows the interrelationship of the independent, dependent and intervening variable. The independent variables are the Paint Lab and the tools used which consist of the color picker and color paint. The intervening variable is the android running mobile phones. These are the factors that affect the dependent variable which refers to the Accessibility, Accuracy, Efficiency Reliability and Consistency of the system in identifying colors accuracy percentage which is represented as a starbrush.

Requirement Gathering

The researchers conducted several procedures to gather data from the respondents.

First, the researchers provide a letter asking approval to conduct the research study in the High School Department of VMA Global College. A letter was also provided to the registrar's office to gather the exact population of the respondents.

Second, the researchers prepared a self - made closed – ended survey questionnaire that was evaluated by the experts to determine the validity and a survey was also conducted to determine the reliability.

Third, the sample size of the respondents was determined using the systematic random sampling technique. After which, distribution of the questionnaires were accomplished.

And last, the survey was gathered for the researchers to be able to evaluate and determine the results whether the desired output was achieved for the materialization of the research study.

Quick Design/Build

The researchers' decided to use Eclipse Juno Application with android sdk plugin for the front end of the system and the Java Programming Language for animation and functionalities and as database provider as the back end. This software is suitable for the Graphical User's Interface and lay-out outputs and android game development for PaintLab.

Research Design

The research design is a structure that gives direction and systematizes the research study. To develop deeper understanding about the proposed study, the researchers used the descriptive research design to describe and explain the proposed study by using the respondents and survey questionnaires to fully describe the entire study.

Research Respondents

The respondents of the study are the students from High School Department of VMA Global College who are currently enrolled in school year 2014-2015. Out of eighty nine (89) total respondents' population, 44 were selected as an actual sample size, fifteen from thirty students of grade 7, 22 from 45 students of grade 8 and 7 from 14 students of grade 9 who are currently enrolled in School Year 2014-2015 of VMA Global College.

III. RESULTS AND DISCUSSION

After using the validated research instruments, the data were analyzed to determine the assessment given by the respondents to the proposed game. The data collected were interpreted to further present a need to develop and create the game.

Table 1. Arithmetic Mean of Proposed Game

Questions	Mean	Interpretation
1. User Friendly.	4.5	Strongly Agree
2. Can be played by all ages.	4.5	Strongly Agree
3. Can be played on android platforms.	4.4	Strongly Agree
4. Adaptable to on demand updates.	4.6	Strongly Agree
5. Open source or free software.	4.5	Strongly Agree
6. Available online and offline.	4.4	Strongly Agree
7. Easy to understand functions.	4.4	Strongly Agree
8. Editable themes and user interface.	4.4	Strongly Agree
9. Displays exact percentage of color being identified.	4.3	Strongly Agree
10. Calculations of Gold earned in passing the game.	4.4	Strongly Agree
11. Calculations of the gained experience in completing every stage.	4.4	Strongly Agree
12. Easily displays matching objects.	4.4	Strongly Agree
13. Proficient in providing bonus gold in each level achieved.	4.4	Strongly Agree
14. Well organized presentation of every achievement.	4.5	Strongly Agree
15. Error free game	4	Agree
16. Dependable color information displays.	4.3	Strongly Agree
17. Standardize color display and color database.	4.3	Strongly Agree

Discussion

Questions number 1 and 2 has a result mean of 4.5 with the verbal interpretation of strongly agree which means; the game has a user friendly interface and can be played by all. Question number 3 has a result mean of 4.4 with the verbal interpretation of strongly agree, denotes that the game is applicable to all android platforms.

Question number 4 has a result mean of 4.6 with the verbal interpretation of strongly agree; this means that the game is adaptable to on demand updates. Question number 5 has a result mean of 4.5 with the verbal interpretation of strongly agree, this determines that the application is open source software and can be downloaded for free. Questions number 6 to 8 has a result mean of 4.4 with the verbal interpretation of strongly agree denotes the availability of the game online and offline, easy to understand functions and have editable themes and user interface.

Question number 9 has a result mean of 4.3 with the verbal interpretation of strongly agree denotes that the game displays exact percentage of color being identified. Questions number 10 to 13 has a result mean of 4.4 with the verbal interpretation of strongly agree, which determines that the game provides accurate calculations of Gold earned, accurate calculations of gained experience in completing every stage, proficient in providing bonus gold in each level achieved and it easily displays matching objects. Question number 14 has a result mean of 4.5 with the verbal interpretation of strongly agree the finding shows that the game definitely provide well-organized presentation of every achievement. Question number 15 has a result mean of 4 with the verbal

interpretation of agree; this only means that the application is an error free game. Lastly questions number 16 to 17 has a result mean of 4.3 with the verbal interpretation of strongly agree. Thus the game has dependable color information displays and standardizes color display and color database.

CONCLUSION

Based on the gathered data through the use of survey questionnaires which has the results of strongly agree the researchers' concluded that VMA Global College High School department found this study as interesting and the respondents are willing to support for the development of the proposed study. Thus, the development of the PaintLab application will go further to entertain and challenge the users by playing the game.

RECOMMENDATIONS

Based on the survey conducted by the researchers' it is recommended to develop the PaintLab game to be played by the users. The game must be a user friendly, free and downloadable offline and online.

REFERENCES:

1. New-Generation Storage Product, Time Magazine, October 28, 2013
2. Google's Ads Upgrade, Time Magazine, October 28, 2013
3. Innovation in Every Interaction, Time Magazine, September 22, 2014, Lev Grossman and Matt Vella/Cupertino.
4. From Innovations to Investments, Tech Innovations, Vol. 16, Issue 2, Feb-Mar 2013, pp.14.
5. Design Principles and Concept, Tech Innovations, Vol. 16, Issue 2, Feb-Mar 2013, pp.15.
6. A Bright Future for Wireless Technology, Tech Innovations, Vol. 16, Issue 2, Feb-Mar 2013, pp.24
7. Discovering and Unveiling India's IT Brain, Most Time Magazine, October 29, 2013 (Foreign Related Literature)
8. Color Blindness, Human Physiology and Mechanisms of Disease, Page 460, 1982 (Foreign Related Study)
9. Color Blindness, Medical Physiology, William F. Ganong, Page 152, ©1991
10. What is Color Blindness? http://www.news-medical.net/health/What-is-Color-Blindness.aspx (©2014)