Smartphone Mobile Application Time-Based Features In Managing Daily Activities

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Abstract

Even though applications are often small software units with limited functionality, they still manage to provide users with quality services and experiences. The whole world has made extensive use of mobile applications, which are a type of technology that has helped make life easier for everyone. Mobile applications are widely employed in the current contemporary period and have integrated into daily life on a fundamental level. Productivity applications are one of many categories that can be categorized as mobile applications. Users frequently utilize this mobile application to assist them in their daily lives by utilizing the characteristics offered as a strength to their advantage. Through the to-do list function, this application idea is to help the user keep track of all the tasks that need to be completed by the user. The ADDIE model is the methodology applied in this project. Analysis, which involves analyzing all the information gathered, is one of the steps. Create a project sketch using design, everything created during the design process needs to be developed. The project's seamless operation is ensured by the implementation phase. Last but not least is the evaluation phase, which compares the knowledge learned from the project to outside feedback from others. The suggestion for this mobile application project is to develop a comparable application with a more appealing appearance and the ability to add a few new features so that users may access more features.

Keywords: Mobile Application, Smartphone Use, ADDIE Methodology, Time Management

1. Introduction

Smartphone Use and Mobile Application

Smartphones have transformed people's lives by providing easy access to information, diverse social communications, flexible task management, more entertainment options, and so on. According to Oxford Learner Dictionaries, smartphone is a mobile phone with some computer functions, such as the ability to use apps and the internet. It is difficult to imagine anyone today going without a smartphone. Smartphones now are full of functions that it can replace the laptop entirely and this comes in useful for work and social activities.
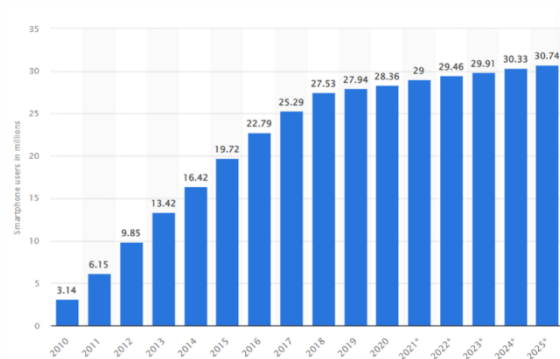
FIGURE 1. *Number of smartphone users in Malaysia from 2010 to 2020 and a forecast up to 2025(in millions) - Published by Statista Research Department, Oct 5, 2022.*
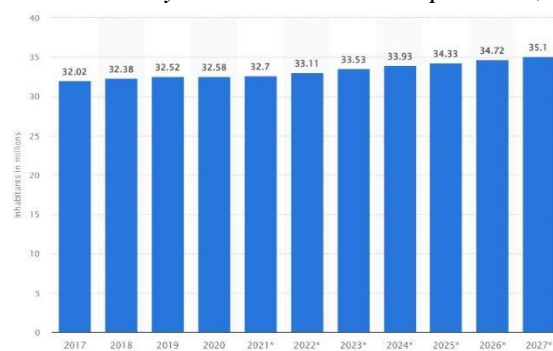

FIGURE 2. *Malaysia: Total population from 2017 to 2027(in million inhabitants) - Published by Aaron O'Neill, Statista Research Department, May 25, 2022.*

According to statistics, 3.14 million people in Malaysia used smartphones in 2010, and the number increased in 2021 to a total of 29 million people using smartphones in Malaysia, with a total of 30.74 million people using smartphones in Malaysia expected by 2025. Furthermore, statistics show that by 2025, Malaysia will have a total population of 34.33 million people. It has been estimated that more than 80% of Malaysians of all ages will use a smartphone. A smartphone has a feature known as a mobile application. A mobile application (also known as a mobile app) is a type of app that runs on a mobile device such as a smartphone or tablet. Even though applications are often small software units with limited functionality, they still manage to provide users with quality services and experiences (Mroczkowska, 2021).
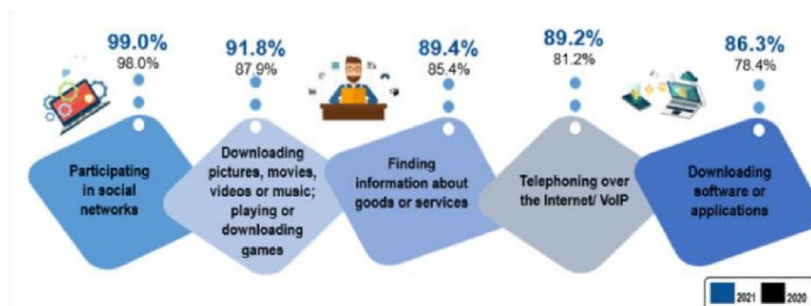

FIGURE 3. *Percentage of individuals using the Internet by top five Internet activities, Malaysia, 2020- 2021, ICT Use and Access by Individuals and Households Survey Report, Malaysia, 2021- Published by M. Y. A. Razak., Public Relation Officer Strategic Communication and International Division Department of Statistics, Malaysia, April 28, 2022.*

Participating in social networks was the most popular internet usage activity in 2021 (99.0%), followed by downloading pictures, movies, videos, or music, playing or downloading games (91.8%), finding information about goods or services (89.4%), making phone calls via Internet/ VoIP (89.2%), and downloading software or applications (86.3%). Therefore, based on the statistic provided, it is shown that downloading a software or applications is the lowest among all.

2. Smartphone Addiction

A researcher from McGill University in Canada released a study on smartphone usage with meta-analysis (from 2014 to 2020) based on a sample audience of nearly 35,000 young adults last week. The participants ranged in age from 15 to 35 years old, with an average age of 28.8 years, and came from 24 different countries. The Smartphone Addiction Scale (SAS) method was used in this study, which is the most widely used to assess the level of smartphone addiction. The research was published in the journal Computers in Human Behavior. Based on the research, they discovered that China, Saudi Arabia, and Malaysia had the highest rates of smartphone use, while Germany and France had the lowest.

3. Reminder Time Management

From Abi Bazrah al-Aslami he said: Rasulullah SAW said, will not step on the feet of the son of Adam on the Day of Judgment until asked about his age on what he spent, about his knowledge on what he did, about his property from where it was obtained and where it was spent and about his body on what it is spent. Al-Tarimizi, Muhammad bin Isa, al-Jami 'al-sahih sunan al-tarmizi, tahqiq, Ahmad Syakir, Bab yau al-qiyamah, no. hadith 2417, Dar ihya 'al turath al-arabi, Bairut, t.th., vol. 4, p. 612 (Bahagian Penyelidikan JAKIM, 2020).

Some of the most important time management skills include the organization (staying organized can help to maintain a clear picture of what we need to complete and when to finish), prioritization (assessing each of our responsibilities for priority is key in being a good time manager), goal-setting (it allows us to clearly understand our end goal and exactly what we need to prioritize to accomplish it), communication (developing strong communication skills can allow us to make our plans and goals clear to people we work with), planning (being efficient in planning out our day, meetings and how we will accomplish things will help us stick to our schedule), delegation (being a good time manager means only completing work that will help us and our company accomplish goals) and lastly, stress management (positively handling stress can help us stay motivated and perform well when going through our schedule) (Indeed Editorial Team, 2021)

The purpose of this research is to therefore create an application that provides reminder features that focuses on good time management for people especially students and youth in the google play platform. In this context, the following research questions have been formulated:
    i.   Lack of applications in the form of reminder features to users about time management.
    ii.   Majority of the application developer always overlooked the features of time reminders.
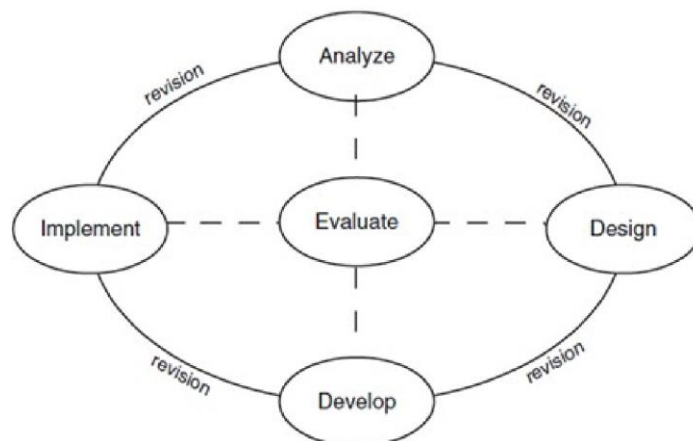
5. Theoretical Framework

FIGURE 4: *Theoretical Framework of The Study; ADDIE.*

Based on the objective of this case study which to provide an application that provide reminder features focuses on good time management for people especially students and youth in Google Play platform, the selected framework was adopted to ensure the optimization of the case study and successful final outcome. The instrument were chosen from Christina Peterson et al. "Bringing ADDIE to Life: Instructional Design at Its Best." Journal of Educational Multimedia and Hypermedia (2003).

6. Methodology
6.1 Sample and data collection method

The methodology will serve as a guide for the framework used to solve problems and complete projects. The ADDIE modelling approach, which is ideal for mobile applications, used by the developer in this project. The work began on mobile application project, it is a must to have a plan that includes the project scope, problem statement, and project goals. Knowing the process of developing an application is essential for effective project management and development, as well as being able to execute it on time and achieve its objectives.

Analysis(A)		Analysis of the instructional goals and objectives.
Design(D)		Define the requirement of the mobile application.
Development(D)	➡	Create and manage the content that was blueprinted in Design Phase.
Implementation(I)		A testing phase of a product.
Evaluation(E)		Receive the feedback from the end user.

Table 1: *Table Instrument Process.*

6.2 Analysis (A) – Comparison Study

Name of Application	Smarter Time – Time Management Productivity	TimeTune – Time Blocking & Planner	Boosted – Productivity & Time Tracker	TickTick: ToDo List Planner, Reminder & Calendar	MyHours: Track Your Hours, Time Management
Developer	Emmanuel Pont, Anis Fehri and also Anna Winterstein	TimeTune Teams	Boosted Productivity Team	TickTick Teams	Hightech Solution Teams
Platform App Size Elements of Multimedia	Android 6.1 MB • Text • Audio • Graphic	Android 5.7 MB • Text • Audio • Graphic	Android 6.4 MB • Text • Audio • Graphic	Android 17 MB • Text • Audio • Graphic	Android 4.5 MB • Text • Audio • Graphic
Advantages	• Has various features	• Easy to use • Simple and good UI • Has various features	• Easy to use • Simple and good UI	• Easy to use • Good and Professional looking UI • Built-in Voice Assistant • Has various features	• Has various features • User-Friendly
Disadvantages	• Too many text usage • Too complicated of UX	• Contain Ads	• Less Features	• Complicated usage of UX	• Too many Ads • Simple UI

Table 2: Comparison Study Time Management Smartphone Application based on five different categories.

These are five mobile applications that similarities to the developer project that are analysed in six different categories. The first category is based on developer developers which shows that all five selected applications were from different companies. The second category is the platform option. All developers used same platform which is Android platform. The third category is an application, the different in megabytes can be seen which the heaviest version is the application of TickTick: ToDo List Planner, Reminder & Calendar and the lightest version is TimeTune – Time Blocking & Planner. The fourth category is the element of multimedia which all developers provided the same element. The strength advantages of the application can be seen in the TickTick: ToDo List Planner, Reminder &

Calendar application which are good and professional looking User Interface together with Built-in Voice Assistant and has several additional of features compared with the others.

6.3 Design (D)

The application developer creates a prototype of the application to be developed during this design process. Among all, will be the introduction of the application's logo, whereas the logo is the identifying feature of each product. This phase will also include the creation of buttons, icons, and other items in Adobe Illustrator, and will conclude with the creation of a prototype for the application's user interface in Figma software. The following is a summary of what will be done during the design phase:

    i.   Review the wireframes that have been implemented in the previous phase.
    ii.   ii. Using Adobe Illustrator software to generate logo, icon, and button design for this application.
    iii.   Determine the appropriate theme to be used in the application to be developed.
    iv.   Include the content that will be used to improve this application by using Figma software.
    v.   Arrange and organize the position of each element included in Figma in the form of a prototype of the application to be developed.

6.4 Development (D)

In this step, the development strategy is defined based on the data obtained in the analysis phase and how the objectives are achieved is clarified. Built based on an analysis and design phase. The results of the design phase will be included in the development phase.

Every project done during the design phase is imported into a software called Bravo Studio. In Bravo Studio, the developer configures all the elements including animations, transitions, effects, etc. to show more interesting effects. Then the icon and button on the prototype will be activated by entering an action command so that it can understand the user's request. The development work of the resource project is carried out according to the requirements of the agreed specifications. Developers connect applications that have been activated to Google Firebase to get access from Google such as login using a Google account, importing data from Google etc. Each development will be tested to ensure it is consistent and effective. The following are the summary that will be done in the development phase;

    i.   Import each prototype that has been produced in Figma to the next software which is Bravo Studio.
    ii.   Setup all elements that have been imported into Bravo Studio by including animations, transitions, effects etc.
    iii.   Activate each function of the icon, and button on the prototype by including the action command.
    iv.   Connect applications that are ready to be processed to Google Firebase to get access from Google (login using a Google account, import data from Google etc.)
    v.   Test the application thoroughly.

6.5 Implementation (I)

The implementation phase represents the first test of completion of the entire course and it is therefore recommended to conditionally divide it into two parts: the test execution phase and the final implementation phase. The implementation phase is the testing phase. Completed requests will be checked by the supervisor. The tests aim to find weaknesses and detect errors that were not observed during the creation process. During the inspection, the supervisor freely comments and critiques the improvements that need to be made and any errors can be corrected. In the process of implementation, there are high risks of encountering errors or impossible situations. However, because the ADDIE approach supports iteration, it is possible to go back to the design phase and rebuild delivered products from that stage to eliminate risks, errors, and non-feasibility. Otherwise, testing and debugging will be done continuously until the errors disappear and solutions to the problems encountered are researched

using online sources. The following are the summary that will be configured in the implementation phase;

    i.   Applications that have been developed are being implemented into the Google Play Store platform as a beta test.

    ii.   If there is a bug or error, it is going to refer back to the design phase and also the development phase to be reprocessed.

    iii.   Once all the problems have been resolved and meet the requirements listed, then the application is eligible for use.

6.6 Evaluation (E)

This phase measures the effectiveness and efficiency of the instruction. This assessment involves the process of obtaining feedback from users on the content, graphics, audio, animation, interfaces and so forth contained in the application. This process is carried out through the methods of purchase, testing, questionnaire, interviews and so on to ensure the application will be in harmony with the needs of consumers. The following are the summary that will be collected in the evaluation phase;

    i.   Collect feedback from users through the comment section available on the Google Play Store platform.

    ii.   Make a questionnaire in the form of a Google Form which will be blasted to KUIS students as well as the target group specifically aged 13-25 years. iii. Summarize all the feedback into a conclusion as well as perform software updates in the future.

7. Finding & Discussion

7.1 Reliability analysis

Data was collected from people of various ages using electronic forms created in Google Forms. Links to the electronic forms were shared with recipients. Data was collected from willing participants over a one-month period in April 2021. Each participant's data collection procedure took between 10 and 15 minutes.

Question 1	Please select your gender?	
	Male	Female
	60%	40%

TABLE 3. *Section A: Sets of Demographic Question.*

Question 2	What is your occupation?		
	Students	Employee	Others
	60%	30%	10%

TABLE 4. *Section A: Sets of Demographic Question.*

Question 3	What is your age group?			
	16-20 years old	21-25 years old	26-30 years old	Above 30 years old
	20%	50%	20%	10%

TABLE 4. *Section A: Sets of Demographic Question.*

Question 4	I am the type of person who do daily notes activities?			
	16-20 years old	21-25 years old	26-30 years old	Above 30 years old
	20%	50%	20%	10%

TABLE 5. *Section B: Personal Daily Notes Feature.*

Question 5	Do you think we need daily feature in our daily lives?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	40%	50%	10%	-	-

Question 6	Daily notes are essential in everyday lives?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	40%	50%	10%	-	-

TABLE 7. *Section B: Personal Daily Notes Feature.*

Question 7	Do you agree that making notes helps you remember things?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	70%	30%	-	-	-

TABLE 8. *Section B: Personal Daily Notes Feature.*

Question 8	Your life will become disorganized if you dot make daily live notes?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	40%	50%	10%	-	-

TABLE 9. *Section B: Personal Daily Notes Feature.*

Question 9	The application helps me in my daily notes?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	20%	60%	20%	-	-

TABLE 10. *Section C: Effectiveness of the Application.*

Question 10	The application is a safe application for me to keep all my notes and daily notes?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	30%	60%	10%	-	-

TABLE 11. *Section C: Effectiveness of the Application.*

Question 11	The application works very well?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	20%	60%	20%	-	-

TABLE 13. *Section C: Effectiveness of the Application.*

Question 12	The application is easy to use and easy to understand?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	20%	70%	10%	-	-

TABLE 14. *Section C: Effectiveness of the Application.*

Question 13	The application an eye catching and neat display?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	30%	70%	-	-	-

TABLE 15. *Section C: Effectiveness of the Application.*

Question 14	The application display multimedia elements that attract interest of the user?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	20%	70%	10%	-	-

TABLE 16. *Section C: Effectiveness of the Application.*

Question 15	The application deserve satisfaction from the user?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	30%	50%	20%	-	-

TABLE 17. *Section C: Effectiveness of the Application*

Question 16	The application need to be recommended to more people?				
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
	10%	80%	10%	-	-

TABLE 17. *Section C: Effectiveness of the Application*

7.2 Descriptive statistics & analysis

The demographic data showed that the difference of gender was higher for males respondents with a total of 60% while female respondents only 40%. On the other hand, students occupation were the majority of the respondents with the total of 60% while the lowest occupation of the respondents was others with total only up to 10%. Furthermore, group age of 21 years old to 25 years old is the highest respondents with total of 50% which half from total of respondents. Overall, feedback from this demographic group of respondents showed that agree with application and main objective of the project.

8. Conclusion and Future Recommendation

This study sheds light on the use of smartphone application technologies, particularly with time management feature in the applications. In comparison to existing time management application, the existing application is more unable to attract the attention of the users. Based on the findings, it is safe to say that smartphone application technologies have the potential to be integrated into the time management function of people's daily lives, as the results of surveys were positive. Surveys were conducted with teenagers, specifically university students, as well as experts and professionals. With the fruitful findings, the researcher hopes that more research on the use of smartphone application technologies with time management features will be conducted shortly to make Malaysian people one of the countries that fully utilise time in their daily daily lives activities. Living in the twenty-first century, the researcher believes that smartphone addiction among people in Malaysia can be addressed by utilising new media technologies, as they are very familiar with their use and by doing so it is also able to overcome the issue of smartphone addiction in Malaysia.

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