

CAT404 – Software Engineering Major Project
Project Proposal
Family Engagement System (Subsystem 2 - Child Education
Tracking)
SE22230016

[Tay Ming Shan], [Dr Lim Chia Yean]

[mingshan99@student.usm.my], [cylim@usm.my]

School of Computer Sciences, Universiti Sains Malaysia
11800 USM, Penang, Malaysia

Abstract

The main problems that I would like to address is uninvolved parenting in children's education will become an obstacle to student success and can lead to a poor sense of self-worth or excessive emotional need in other relationships. Some children even become involved in offending. Most parents would argue that they are too preoccupied with their jobs to care about their kids' education. Some parents put some efforts to engage with their children such as talk to their children using Whatapps but this does not work well as parents cannot reply their children's messages as soon as possible. It is saddened to see these tragedies happen due to poor involvement of parents in children's growth. Hence, I decide to develop a subsystem that can ensure the involvement of parents in their children's education process under their hectic schedule. This subsystem also aim to promote healthy competition between siblings and help parents to identify strengths and weaknesses of their children. Techniques that will be employed is data visualization that used to display the performance of the children. Besides, database is used to store all the data information of user inputs. I expect this user-friendly subsystem can be used easily by most of the parents to get involved in their children's education. Parents can monitor desired development and assist in children's important events. In conclusion, this is a new subsystem that will be used by parents to keep track of their children's academic achievements.

Keywords: Parenting, Education, Children

1. Project Background

According to a previous study, having poor family interactions during childhood might have long-term negative effects on one's mental health. [1] This scenario has violated Sustainable Development Goal 3 (SDG 3), which encourages healthy lifestyles and well-being for all people of all ages. Research from the National Coalition for Parent Involvement in Education also shares that "no matter their income or background, students with involved parents are more likely to have higher grades and test scores, attend school regularly, have better social skills, show improved behavior and adapt well to school." [2] Unquestionably, parents who actively encourage their children's learning are providing them the best chance for academic achievement and supporting their children's mental health. However, the primary barrier to connection is a lack of time, with 54% of parents and guardians reporting that their busy schedules make it extremely difficult for them to engage with their children. [3] Negligent parenting not only will become an obstacle to student success and increased confidence but can also can lead to a poor sense of self-worth or excessive emotional need in other relationships. Feeling sad to see these tragedies happen due to poor involvement of parents in children's growth.

Parents use a variety of measures to make up for their inability to follow their children, such as purchasing a smart phone for them. However, it is useless. To ensure parental involvement in children's growth and education, I propose to develop Child Education Tracking Subsystem. By using this subsystem, parents can keep track of their children's academic performance. Weak parts can be identified and strengthened with ease. Besides, this subsystem can also promote healthy competition between siblings and ensure daily activity schedule of children is arranged properly.

Apart from project background, I will also talk about problem statements, motivation, proposed solutions, benefits of projects, uniqueness of proposed solutions, expected outcomes, status of project of this subsystem in the following next sections.

2. Problem Statements

Our world is changing with each passing day. We all need to work very hard so that we will not be eliminated by this era. This causes parents to have little time

and energy to involve in their children's development. Situation worsens when they have several children. As I have mentioned before, students with highly involved parents had better academic performance and higher test scores in all the subjects compared to students whose parents were not involved in their education. Thus, one of the problems is how to ensure the involvement of parents in their children's education process under their hectic schedule to improve the achievement of their children. Involvement of parents in the form of upbringing and development interest has a major effect on students' academic results, attitudes and behavior.

Besides, another problem is how to ensure their children's daily activity schedule is arranged properly. Without considering if their children actually need this tuition, some parents send their children to various tuition. They also unaware that this tuition would put a heavy burden on their children. Hence, I would like to develop a subsystem that can help parents to keep track their children's daily activity schedule so that their schedules are arranged appropriately.

3. Motivation

Negligent parenting can increase a child's propensity for antisocial behaviour, peer bullying, potential drug use and misuse, and a lack of motivation for academic achievement. This condition is saddening since all children ought to have a bright future, but instead, because of inadequate family involvement, they are ruined. Since we all know that involvement of parents in their children education plays a remarkable role on the students' achievement and development, I would like to develop a subsystem that can help parents to get involved in their children's development.

People who have a poor balance between work and life have greater issues with their physical and mental health. By utilizing this app, parents may monitor their children's daily activity routine. The daily activity plan may be adjusted appropriately so that children are not overwhelmed with excessive activities. Besides, important dates of children will be reminded. If parents manage to give some encouragements or supports to their children before they participate in some important events such as examinations, they would have a high drive to get good results.

Furthermore, the subsystem will also provide performance tracking functionality. Children's test and quiz scores, homework completion rates and behaviour assessments can be recorded. Weak parts of the children can be identified and appropriate actions can be taken as soon as possible. Awards recording features can promote healthy competition between siblings.

4. Proposed Solutions

To solve the problems stated above, I would like to develop a mobile app that can record and monitor all children's study matter such as daily activity schedule, important dates reminder, performance tracking, and awards. By having these features, I believe that parents can get involved in children's development even having hectic schedule.

Module	Sub-module	Description
Daily Activity Schedule	Schedule	Children enter their schedules here and their schedules are visible for them and their parents.
	Summary Report	Time spent on each aspect such as tuition, sport, piano, art and entertainment is calculated and display in a summary report
	Weekly timetable planning	Children can add what they want to do in the week, the system will create and suggest weekly timetable schedule to them.
Important Dates Reminder	Important dates record	Children can insert the dates of important events
	Countdown	Countdown the date of the events
	Notifications	Reminder notifications are sent when the event date approaches
Performance	Grade record	Children can insert the results of various

Tracking		aspects
	Data Analysis and Data Visualization	Results will be analyzed and display in charts
Awards	Awards Record	Users can insert the awards obtained
	Awards bookmark	Users can bookmark any award that they think it is significant
	Target and reward	Parents can set targets and design rewards for their children. If they can accomplish the targets, rewards are given.

Table 1: Modules and their descriptions

The table above shows the modules that I am going to do to accomplish the objectives. My subsystem consists of four modules. Each module has two or three sub-modules. Daily activity schedule consists of schedule, summary report and weekly timetable panning sub-modules while important dates reminder consists of important dates record, countdown and notifications sub-modules. Performance tracking includes grade record and data analysis and data visualization sub-modules while awards includes awards record, awards bookmark and target and reward sub-modules.

This subsystem is developed as a cross-platform mobile app which means that this mobile app can be run in Android or iOS phone. Besides, database will be used also to store information.

5. Benefits / Impact / Significance of Project

The benefits and impacts where Child Education Tracking Subsystem would like to achieve are as follows:

5.1 To ensure the involvement of parents in their children's education process under their hectic schedule

The suggested subsystem can keep track of a child's important events, academic achievements, and awards received. Parents can easily check their children's study's matter. Parents can utilize this information to learn about their children's academic achievement. If parents see that their kids struggle in a specific subject, they can enrol them in tuition classes. Additionally, since they will be reminded, parents won't forget significant events that happen to their kids. As a family, go to their events and utilize it as a platform to share knowledge and demonstrate your support. Children may be motivated to work hard as a result.

5.2 To ensure children's daily activity schedule is arranged properly

The suggested subsystem can keep track of kids' daily activity schedules. Each week, a summary report of the time spent on various activities will be created automatically. Parents may review the report and make the necessary adjustments to their kids' schedules to ensure that they are not overburdened. In addition, parents can limit their children's time spent on phone, television, or sports activities if they spend more time on entertainment or leisure. This subsystem also supports child weekly timetable planning.

5.3 To promote healthy competition between siblings

Performance monitoring and award recording can promote healthy competitiveness among siblings. For individuals who might fall more behind in some areas, there may be increased drive to keep up with their siblings. If they keen to accomplish this goal, they will get more out of their education and will be better prepared for their future jobs and other interests. By encouraging their children to cooperate rather than compete, parents can undoubtedly make this sibling rivalry constructive and healthy.

5.4 To identify strengths and weaknesses of children

The suggested subsystem's performance tracking function can assist in identifying children's strengths and shortcomings. Different subject test and quiz results, homework completion rates, and behaviour evaluations are all kept in the records. With the help of this function, parents will be able to identify the areas where their children need to improve. To bridge the children's knowledge gaps successfully,

appropriate developmental strategies might be made, assisting parents in raising their kids' academic performance as a result.

6. Uniqueness of Proposed Solutions

The application that is similar with my proposed subsystem is My Study Life - School Planner. This app allows users to enter their daily activity schedule to help users to organize their classes, homework and exams. There is no any report generated to conclude users' activities. This app also does not create and suggest weekly schedule for the users. These are the weaknesses of this app.



Figure 1: Daily Activity Schedule

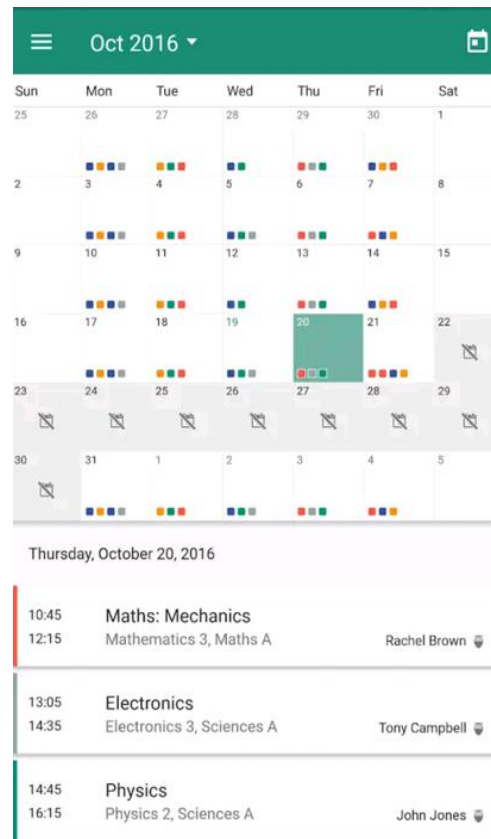


Figure 2: Daily Activity Schedule (Overall View)

Another application that looks similar with the proposed subsystem is Exam Countdown Lite. This app helps to keep track of exam dates. It will show the countdown to the exams and send reminder notifications to the users. The weakness of this application is it allows users to enter exam dates only. Other important events such as competition dates are not allowed to insert.

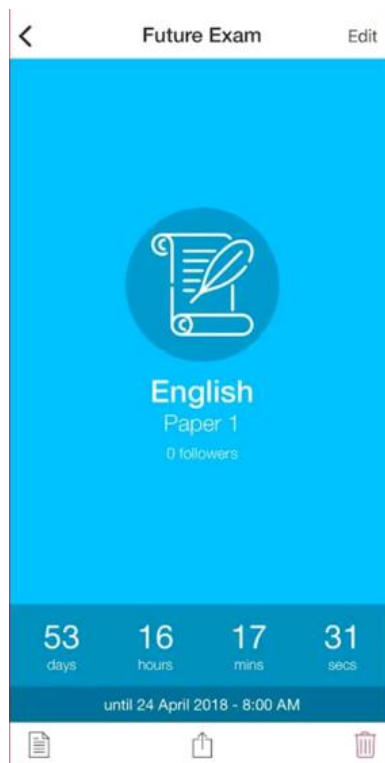


Figure 3: Countdown to the exam date



Figure 4: Countdown to the exam date (Overall View)

The proposed subsystem will have these features which help parents to record their children's daily activity schedule. However, in addition, this subsystem can generate a summary report of time spent on various activities automatically and plan weekly schedules for the children if they add the activities that want to participate in the week. This subsystem will also remind the users of the important date by counting down the days and send notifications to the users. Additionally, users can insert any important event date even if it is not an exam in this subsystem.

Apart from that, the proposed subsystem is able to record all the children's performance such as test and quiz scores, homework completion rates, behavior assessments. All these results will be displayed in charts. Besides, this proposed subsystem also can help users to record all the awards obtained. Users also can bookmark awards that they believe to be particularly significant. Lastly, parents can set the targets and rewards for their children. If they can accomplish the targets, rewards are given. These are all the uniqueness of the proposed subsystem.

7. Expected Outcomes

At the end of the project, this subsystem is expected to integrate with other two subsystems which are contact and appointment subsystem and finance monitoring subsystem and form family engagement system. This system is developed as a cross-platform mobile app which means that this mobile app can be run in Android or iOS phone. I expect this user-friendly subsystem can be used easily by most of the parents to get involved in their children's education.

Daily activity schedule can assist parents to keep track of their children's schedule as this feature will record children's activities such as tuition, sport activities, art, piano and entertainment on a timetable. In addition, summary report of the time spent on various activities will be created automatically. Parents can make adjustment to their children's schedule based on the report so that they can grow up healthy, emotionally and physically fit. If parents are not able to do so, this subsystem can suggest weekly timetable schedule to the children.

I also hope that parents will not miss out any important moment of their children through this subsystem. Children can add important events here. When the

events are around the corner, this app will remind parents of the events. Furthermore, performance tracking feature can help parents to record and monitor their children's academic performance. I expect this functionality can promote healthy competition between all the siblings and identify the strengths and weaknesses of each child. Appropriate actions will be carried out to overcome the weaknesses. For example, if children do not perform well in behaviour assessments, parents should teach them what is correct and what is incorrect.

Last but not least, this subsystem can record the awards obtained by the children. Parents can bookmark any reward that they believe to be particularly significant. Recognition and acceptance are fundamental human needs. They bolster our confidence by validating us. I hope that every kid can remember every honour they get throughout their lives. When they are having self-doubt, they can think back to the honour they have received and feel proud of themselves.

I expect this subsystem can assist parents who want to monitor their children's academic progress but find it difficult to do so because of their busy schedules. Parent involvement in children's education plays a remarkable role on the students' achievement. As a result, both users, parents and children can benefit from this subsystem.

8. Status of the Project

There are similar apps that can record users' daily activity schedule and remind users of the important dates but in this proposed subsystem, parents can also see their children's daily activity schedule and important dates, not only the child that enter this information. New features such as performance tracking and award recording are added in this subsystem. Thus, the proposed subsystem is a new subsystem.

9. References

[1] Alm, S., Brodin Låftman, S., & Bohman, H. (2019, May 14). Poor family relationships in adolescence and the risk of premature death: Findings from the Stockholm Birth Cohort Study. *International journal of environmental research and*

public health. Retrieved October 29, 2022, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6571769/#:~:text=Other%20possible%20pathways%20between%20poor,turn%20are%20associated%20with%20mortality.>

[2] National Coalition for Parent Involvement in education. 2006. Research Review and Resources. Retrieved September 16, 2011, from www.ncpie.org/WhatsHappening/researchJanuary2006.cfm.

[3] Education, P. (n.d.). Free guide: Reducing barriers to engaging families. Reducing Barriers to Engaging Families. Retrieved October 28, 2022, from <https://go.panoramaed.com/whitepaper/reducing-barriers-to-family-engagement>

10. Appendix

Milestones	Description	Date
1	Project Bidding	17 October 2022 - 23 October 2022
2	Proposal Preparation: Proposal review, amendment, proposal submission	24 October 2022 - 06 November 2022
3	Proposal Vetting: 2 nd proposal review, amendment, submission of proposal	07 November 2022 - 20 November 2022
4	System Requirement and Design (SRD) Report Preparation: requirements gathering, system analysis and report preparation	21 November 2022 - 18 December 2022
5	System Requirement and Design (SRD) Report Submission	19 December 2022 - 25 December 2022
6	System Requirement and Design (SRD) presentation	26 Dec 2022 - 01 January 2023
7	System Design and Development:	02 January 2023 - 09

	Prototype development and testing	April 2023
8	Progress Review Demo	10 April 2023 - 16 April 2023
9	System Development, integration and testing	17 April 2023 - 18 June 2023
10	Final Report Submission	19 Jun 2023 - 25 June 2023
11	System Demo	03 July 2023- 09 July 2023

Table 2: Milestones