The Development of MyMobileSLT: A tool for student time management skills

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Abstract. MySLT (Student Learning Time), a manual book for time management, was earlier created to assist students at the university level manage their time for academic activities effectively. It acted as a tool to guide students in time management, and as a preventive measure towards the problems of procrastination, disorganization, interruptions and workload stress. Supplementary to this MySLT manual was an SLT calculator to help students project the amount of time that should be allocated for each course for each semester. However, students who had used this MySLT tool perceived the hardcopy version of the manual as bulky and inconvenient. They suggested a more practical and convenient platform. Thus, a complete mobile application version of this manual, now named MyMobileSLT, was developed, to make it more convenient and versatile. The objective of this paper is to discuss the development of MyMobileSLT, which involved five stages including Identification, Design, Development, Testing and Maintenance. Although the development of this application is still at its infant stage, a pilot study involving 30 undergraduates from a local university shows an overwhelming response. The findings indicate that MyMobileSLT is perceived as convenient and practical compared to the previous MySLT manual. Further works recommended include features like pop up reminders or alarm in personal calendar.

Keywords: Mobile application; Student learning time; Time management skills

1. Introduction

Good time management can facilitate productivity and minimize stress, hence, contribute towards work effectiveness and academic success. Managing time for academic activities at the university level is different from the school level. At the school level, the learning process is fully guided and usually accompanied by detailed explanation by the teacher. In addition, time allocation for completing tasks is controlled, scheduled, reminded and monitored throughout. At the university level, on the other hand, learning mostly takes place in an autonomous manner. Most of the time, this includes superficial information and requires students’ independent learning to understand and explore further.

Studies related to the importance of time management and time practices, and studies related to time management and academic achievement have been replete [1-2]. These studies reported that
many university students lamented on the problems of meeting assignment deadlines or studying for tests and quizzes, especially if the dates for multiple assignments’ submission and tests were too near to each other, of which, could reflect their poor time management. This indicates that good time management skills are inevitable to ensure positive performance. Thus, specific tools in time management for university students can be useful. The objective of this paper is to discuss the development of MyMobileSLT, a mobile application that can be used to assist students manage their time for academic activities effectively.

2. Literature Review
This section discusses the significance of time management in academic undertakings and the application of mobile technology for academic activities.

2.1. Time Management
Time management is self-management which emphasizes on prioritising time in choosing what to do, how much time to allocate for certain activities, how to carry out activities efficiently and when is the right time for certain activities [3]. In other words, it is a skill of planning, preparing and estimating a person’s time to generate more effectiveness in work and productivity [1]. In academic venture, time management is a technique that may affect students’ academic performance. As reported by [4] study, there was a significant and positive correlation between time planning, time management and academic performance. Students, who carefully practice good time management would achieve more intellectually, and therefore, would obtain higher grades [4].

Effective time management should not only apply to academic life, but to the whole schedule to gain success and peace of mind. Unfortunately, there are many wasting activities that consume time and its usage. These results in the waste of time without achieving much [1] To obtain positive outcomes in time management, factors such as specifying objectives, planning, prioritising and monitoring seem to have an effect. Students need self-motivation, performance, ability and motivation to have good time management skills [6-7]. However, if students are unable to manage their time properly, there might be negative effects on their life and academics [4].

Bearing this in mind, the researchers created the MySLT (Student Learning Time) manual to help students at the university level manage their time for academic activities effectively [5]. This manual offered approaches and strategies on time management that every student should know and apply. This innovation acted as a tool to guide students in time management, and as a preventive measure about the problems of procrastination, disorganization, interruptions and work load stress. Supplementary to this MySLT manual was an SLT calculator to help students project the amount of time that should be allocated for each course for each semester. However, students’ who had used the MySLT perceived the hardcopy version of the manual as bulky and inconvenient. They suggested a more practical, sophisticated and convenient platform. As a result, the researchers came out with the application of mobile technology, named MyMobileSLT, to fill the gap.

2.2. Mobile Technology
The usage of mobile technology has become popular as it allows users to access and share information on the go. The advancement of mobile technology has led to a lot of development of mobile applications. The popularity of mobile apps is rising in daily activities. This is shown by the number of mobile apps available from two most popular app stores, Google Play and Apple’s App Store, with the total number of available apps 2.8 and 2.2 million respectively, as of March 2017 [9].

Mobile apps have been applied in many areas such as healthcare, business and education. Users, such as students, have benefited most from these applications. This is because they are incredibly mobile-literate and spend significant amount of time accessing different kinds of mobile apps on their mobile devices [10]. There are abundant of mobile applications available to assist students in their activities, such as electronic bilingual glossary application (AMIT) [11]. AMIT is used to facilitate students in the classroom by providing a quick reference and terminology for engineering students.
Other applications include RefMe, which is used to manage citation by scanning book and journal barcodes using mobile device and generate citations automatically, and Duolingo which helps students to learn other languages [12]. As for time management, there are also various types of apps available. Applications such as iStudiez Pro helps students around the world to plan their activities [9], while Listastic provides to-do lists apps to keep students’ life more manageable [13]. However, these applications are not as detailed as MyMobileSLT which can help students manage their time by taking into consideration the calculation of student learning time based on the subjects/courses taken.

3. Methodology
The first part of this section describes the development of MyMobileSLT. It discusses the system used and the stages involved. The second part of the section reports on the users’ evaluation on MyMobileSLT in terms of its contents, features and usability.

3.1 Methodology for Development
The development of MyMobileSLT is based on the information system methodology for mobile, called Mobile Application Development Cycle (MADLC), as proposed by [14]. The development of this application involved five stages: i) Identification, ii) Design, iii) Development, iv) Testing and iv) Maintenance (Figure 1). It is necessary to follow these stages as quality application with clear objectives and purpose would then be produced.

The first stage, i.e Identification, involved a thorough investigation where all requirements and specifications were collected and carefully reviewed. Ideas were discussed and filtered to ensure the feasibility of the application. Figure 2 represents the structure diagram of MyMobileSLT application. The diagram shows the breakdown of the system. It starts with a homepage and the user must go through a few details before the MyMobileSLT schedule can be generated.
The Design stage applied the ideas of a manual system. The conceptual design of the application was designed and described in detail. To understand the flow of the system, a use case diagram as shown in Figure 3 was sketched. It described major events involved in the application. By having a use case diagram, it would easier to identify, clarify and determined the system’s boundary. The user, i.e student, is responsible in keying in all information needed, while his/her Academic Advisor’s task is to monitor the student’s activities. During this phase, the deployment platform was identified together with the design of the application. User interface design was visualized by using storyboards. Changes can be done up to three times to ensure the application can be completed on time. Figure 4 shows the interface design of the MyMobileSLT application.

![Figure 3. Use case diagram for MyMobileSLT](image-url)

![Figure 4. Interface design of the MyMobileSLT application](image-url)
The development stage involved building the application. A personal Computer with MS Windows 10 OS and Intel i5 processor and 4 GB of memory was used to develop the apps. The application is developed for Android OS devices.

After going through the development phase, the application needs to be tested. This stage is important to ensure the apps work well in the real-world environment. In this study, real users, i.e. the students, were approached to verify the effectiveness and accuracy of the application. During this stage, any errors and bugs were identified and corrected. The application was tested on a few devices with Android operating system such as Samsung Galaxy Tab 4 and Samsung Smartphone to ensure its feasibility and reliability.

Stage five concerns with maintenance. This stage is an on-going process. Feedback from users will be collected and reviewed. Any modification or required changes will be carried out to improve the application.

3.2 Users’ perception
A pilot study was conducted gauge users’ perception on MyMobileSLT as a tool to aid time management for academic activities. 30 undergraduates from a public university in Malaysia were chosen to evaluate MyMobileSLT in terms of its features and usability. These students were chosen as they had been exposed to the concept of SLT and had had the experience of using the MySLT manual. Besides, all of these students owned an Android OS device, which is needed to download the application. They were given a questionnaire to evaluate the contents, features and usability of MyMobileSLT as a tool to develop students’ time management skills. The students’ perception was gauged through a questionnaire survey that contains statements regarding the features and usability of the application, requiring them to rate their response on a 5-point of Lickert Scale. The responses were then treated into simple frequency counts.

4. Results and Discussions
On the whole, the students’ acceptance towards MyMobileSLT was overwhelming in terms of its practicality. They agreed that MyMobileSLT was more interactive and practical compared to the MySLT manual. Details on the students’ evaluation on the content, features and usability of MyMobileSLT were discussed below.

4.1 Content and Features of MyMobileSLT
Prior to the evaluation, the students were informed that the development of MyMobileSLT was still its infant stage. Thus, any weaknesses and shortcomings of the application for room of improvement are expected. The objective of the evaluation was only to find out whether the content of MyMobileSLT can satisfy the students’ need in calculating their own learning time. With the earlier version of MySLT, the students had to calculate their learning time manually. Thus, there was actually a risk of
miscalculation. Bearing this in mind, MyMobileSLT was then designed to lessen errors in SLT calculation (against the credit hours) compared to the manual calculation.

All of the students agreed that MyMobileSLT was more practical compared to the MySLT manual. The felt that with the application on their smartphone device, they did not have to carry the MySLT manual around. They were able to access their MyMobileSLT whenever and wherever they need to do so.

After trying MyMobileSLT for the first time, the students agreed that (average mean score =4.5) MyMobileSLT had made the calculation of the learning time simpler, quicker and more accurate. Thus, they agreed that MyMobileSLT has added advantage in terms of the ease of use and accuracy.

4.2 Usability of MyMobileSLT
The students also rated the usability of MyMobileSLT as high (average mean score=4.3). Table 1 shows the details of the findings.

| No | Statement                                                                 | Average Mean |
|----|---------------------------------------------------------------------------|--------------|
| 1  | MyMobileSLT is more practical compared to the MySLT manual                | 5            |
| 2  | It is easy to use MyMobileSLT                                             | 4            |
| 3  | MyMobileSLT help me to calculate learning time quickly                    | 5            |
| 4  | MyMobileSLT lessen error of SLT calculation                              | 4            |
| 5  | The application is useful and resourceful to me                          | 5            |
| 6  | I can calculate my own SLT without helping from my lecture               | 5            |
| 7  | I will use MyMobileSLT in the future                                    | 4            |

As can be seen from Table 1, most of the students felt that MyMobileSLT is easy to use. They found that they could calculate their learning time quickly (average mean =5) and lessen the errors of SLT calculation (average mean=4). Furthermore, they were able to calculate their own SLT without help from their academic advisors (average mean 5).

4.3 Further recommendation works
Although the response of the usability of MyMobileSLT has been overwhelming, the application is far from perfect. The students felt that some features should be included to give MyMobileSLT more added value. They suggested including features like pop up reminders or alarm in their personal calendar for constant reminder of the scheduled activities. They also recommended an integration of MyMobileSLT with their university subject timetable or schedule. Hence, the subjects taken for that certain semester would automatically be filled in their SLT timetable. Thus, they would see what other slots would be available for them to plan their activities accordingly.

5. Conclusions
The development of MyMobileSLT set out to help students at the higher education level manage their time for academic activities efficiently. The users’ perception indicates that this application has potentials to be used as a tool for developing students’ time management skills. The practical features and the resourcefulness of the content has made MyMobileSLT worth considering as every university student’s companion for time management.

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