

Time Management Apps and Student Success: Pilot study and focus group findings UNSW/OLT Report September 2014

Project team

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Background

Time management among university students has long been associated with academic performance and physical and psychological wellbeing (Britton & Tesser, 1991; Gortner Lahmers & Zulauf, 2000; Misra & McKean, 2000). Good time management skills are thought to contribute to effective studying at university and are strongly associated with academic success (Cleland, Leggett, Sandars, Costa, Patel & Moffat, 2013; Winston, Van Der Vleuten & Scherpbier, 2010).

In recent years we have been increasingly concerned about the readiness and ability of our students to manage their studying at university in terms of self-regulation. Learning resources are made available online and assistance/workshops are offered to students but, in our experience, those most in need tend not to access these. Therefore this project aimed to focus on more accessible preventive strategies that might assist students to develop and maintain effective time management skills from early on in their university studies.

Mobile apps are regarded as an important and emergent technology increasingly utilised by university students for effective learning and time management (Corlett, Sharples, Bull, & Chan, 2005; Motiwalla, 2007; Seppala & Alamaki, 2002). However, the variety of mobile apps currently available is constantly increasing and being updated (Perez, 2014), thus it is difficult to ascertain the types of time management apps being used, or how they are being used by university students. Also, little is known about the general attitudes and practices towards time management among medical students who are experiencing a transition in learning environment from high school to the very different approach to learning in higher education. We applied for and obtained a small grant from the OLT Student Success Project, led by UNSW and designed a trial to scope the use of an app and the evaluation of this using first and second year (Phase 1) medical students in semester 1 of 2014. Also we had resources to run two focus groups to examine what students feel about time management and study.

Project Aims

This project aimed to scope the design and evaluation of a trial to evaluate whether a time management app could assist Phase 1 UNSW medical students to manage their time. The aim of the focus groups was to further explore the attitudes and practices of time management among Phase 1 Medical Students at UNSW.

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Methods

The TM App Scoping Trial:

We approached the companies that we considered offered the most useful commercial 'productivity' apps to ask for their involvement and partnered with a company that was keen to organise free access to our participants to their commercially available list and collaboration style productivity app (hereafter known as the 'trial app').

UNSW Phase 1 medical students (years 1 & 2) were recruited via announcements in their semester 1 introductory course lectures and Moodle courses. Out of those consenting on initiating the preliminary survey online, 30 students completed the full set of questions. Students answered questions via a UNSW KeySurvey on: 1) basic demographics, their current app use, time management and their best contact details; and 2) the General Self-Efficacy Scale (GSE). The GSE is a scale validated across international population groups. It is useful in measuring perceived self-efficacy with a view to predicting how well one can cope with life's daily hassles as well as adapting to more important stressful life events (Schwarzer & Jerusalem, 1995). On completing the questionnaire items, participants were directed to an external link to log into and complete the Learning and Study Skills Inventory (LASSI) (Cano, 2006). The LASSI is a norm-referenced descriptive/prescriptive self-rated 5-point Likert test of 80 items relating to successful learning skills, covering: behaviours thoughts attitudes, motivations and beliefs. It has been used successfully in a study of early phase medical students, despite there not being a norm for medical students per se (West & Sadoski, 2011).

Students finishing all of the surveys were directed to download the full version of the trial app free of charge. Students were given free rein to use the App how and when they liked. All participating students were contacted via email at three spaced intervals during the trial and asked to take a brief online survey (via a UNSW KeySurvey link) on their basic usage of the trial app in the previous 24 hours. At the end of the 17 weeks of the trial, all participants were again contacted via email and asked to take the post-trial survey in a similar manner to the pre-trial online survey. This final survey involved participants repeating the pre-trial GSE and LASSI questions with some additional trial app usage questions, but omitting the original demographic and app use questions. Only six students finished all the post-trial survey questions. The survey data were analysed using SPSS.

The Focus Group Research:

Participants were recruited through email announcements in their current course in Moodle, one of the official course-based learning management systems used by the medicine program. Following an announcement after a lecture, a research assistant (who was not in a teaching relationship with students) also approached students face-to-face to enrol those who were interested. Two focus groups took place on campus, and lasted approximately one hour each. The same research assistant facilitated both focus group discussions.

There were a total of 12 participants. The first focus group (FG1) consisted of nine participants, and the second focus group (FG2), consisted of three participants. In

addition, a short and anonymous written survey was conducted among all participants collecting basic information such as age, gender, year enrolled, high school attended, language spoken at home, and the names of mobile apps they currently used. The focus groups were transcribed and coded by the research assistant using NVivo10 qualitative data analysis software. All participants were de-identified and each assigned a pseudonym.

Ethics approval was obtained from UNSW HREA Biomedical Panel: HREA 2014-7-09.

Key findings

The TM App Scoping Trial:

Out of the 563 Phase 1 students, 30 participants consented and completed all of the pre-trial survey, who responded to the trial request. There were 18 first-year students and 12 second-year student aged from 17 to 23 years old.

Fifteen participants completed any one of the three usage surveys during the trial and nine of these responded that they had used the app within 24 hours of the survey on any one of these occasions. Only six students completed the post-trial surveys and all of these students stated they had actually used the app.

No pre/post analysis was possible due to the small numbers completing the final surveys, but limited analysis of pre-trial survey data using chi-square tests (gamma for ordinal data) was possible regarding the usage data obtained during the app trial (identifying those participants who or did not identify using the app in the previous 24 hours during the trial at one or more of the three survey points).

This analysis showed that those who responded to the usage surveys during the trial and said they had NOT used the trial app (in the previous 24 hours in any of the 3 survey points) were less likely to have a tablet (odds ratio 0.094 (95% CI 0.01-0.891). These participants also responded more negatively to the pre-trial GSE scale question *“I am confident that I could deal efficiently with unexpected events”*, $\gamma=0.6$, $p<0.05$ and also the pre-trial GSE scale question *“I can solve most problems if I invest the necessary effort”*, $\gamma=0.857$, $p<0.05$.

All other analyses showed no statistically significant associations between those who identified as using and those not using the trial app in the usage surveys: there were no demonstrable differences by gender, year of study, type of smartphone, number of apps downloaded/used, or the other GSE survey items. The LASSI survey data was not analysed fully due to concerns regarding the sample size, however, we hope to look at this further in a later study (see Recommendations below).

The Focus Group Research:

There were 12 participants who attended two separate focus groups. Several key themes emerged, some expected, some not:

- Students appeared knowledgeable about time management methods: concepts and approaches, e.g. appointments and timetabling, listing goals and also how to use tools (i.e. enabling instruments, e.g. alarm clock reminders on their phones).
- It appears that the challenges to time management for Phase 1 Medical Students is not in the lack of knowledge or access to time management methods or tools, but perhaps deeper psychological factors:

A lot of people almost put more effort into trying to plan how to do things than actually getting it done (Jacquie, Year 2) [FG2].

- Students saw the importance of time management for doing well academically but felt that motivation was the key to their engagement and also balancing work, study and social life. They identified long and short-term motivators, e.g. long term: looking forward to becoming a good, safe doctor; short term: assessment deadlines and exams.

I think at the end of the day, time management is important because when you just cram, you don't retain the knowledge, at the end of your degree, you won't remember the things that you learn at the beginning if you just cram for the exams all the time (Jasmine, Year 1) [FG1].

- Group work and collaboration is a key motivator mostly due to the effect of peer pressure. Course exams also motivated the students but in a very different way.

In group work you have to have higher standards, like you can't just do a crappy job. You don't want to let anyone else down (Boris, Year 1) [FG1].

I also think having a lot of hard working people around you would motivate you more. Like if other people are studying then I would go study (Saraya, Year 1) [FG1].

- Stress factors due to being medical student were acknowledged and most students seemed to consider their personal well-being as important but a good balance of work/ study with a happy social life seems hard to achieve.
- The participants discussed some interesting ideas for future support for time management, including developing apps for motivational/inspirational approaches, encouraging competition and peer-motivation during courses and studying, as well as apps for recording and tracking individual progress.

Discussion

Unfortunately, our aim to scope a time management app use trial was not fully achieved due to small sample size and high drop-out rate. From the trial results, we found that those who weren't frequent users of the trial app were less likely to have a tablet, and were more likely (with the following GSE items) to have lower confidence in dealing with unexpected events and be less likely to have confidence that they can solve problems by putting in effort. This aligns with what we have observed about our students; that those at higher risk of study skill problems appear less likely to take up offered interventions or plan carefully for improvement. This fits well with the theories of self-regulation and how students with good self-efficacy beliefs are more likely to proceed into a good self-regulatory process with active preparation of setting goals and planning to perform well (Sanders & Cleary, 2011; Dunning et al, 2011). These findings were not backed up by any other statistically significant findings, although this could have been due to our small sample size.

The delivery of the survey questions and study process appeared to work smoothly but low uptake for original participation and also low completion rates made it hard to clarify whether this study design and its evaluation of usage would be useful in a future study. There may be varied reasons for the low participation rate. Firstly, we wonder if most students already have a good system in place and saw no need to participate. Secondly, some students have expressed that they preferred a read/writing format for time management so would not be keen to use an app. Thirdly, we made no attempt at explaining or supporting how or when students should use the trial app or how it might be integrated with students' current time management and study processes. Fourthly, the students were under usual course study pressure during the trial as it was the beginning of the university year (and the first ever university course for most first year students). This might have inhibited their ability to participate fully with the study and a new system of time management. Fifthly, a key consideration could be that the trial app was not the right tool for many of the students; for instance, they might have used it before or used a similar app and found it unhelpful. Hence they did not think this trial was for them and providing a choice of different types of productivity apps might have been more inviting. Any of these factors could well have helped contribute to the poor enrolment and follow-up results. Another possibility is that providing a productivity app may not be the best solution to our students' time management issues, i.e. a time management app wasn't what was actually needed by some students for achieving good time management.

Interestingly, the focus groups that we ran after the trial gave us some of the most useful material. The focus group findings suggest that these students thought that their personal *motivation* was key to engagement and getting down to organise their work and study. Students seemed to realise that this is what makes it difficult to initiate work and also makes it so hard to improve when things are going wrong or when they are not interested in a particular topic or task.

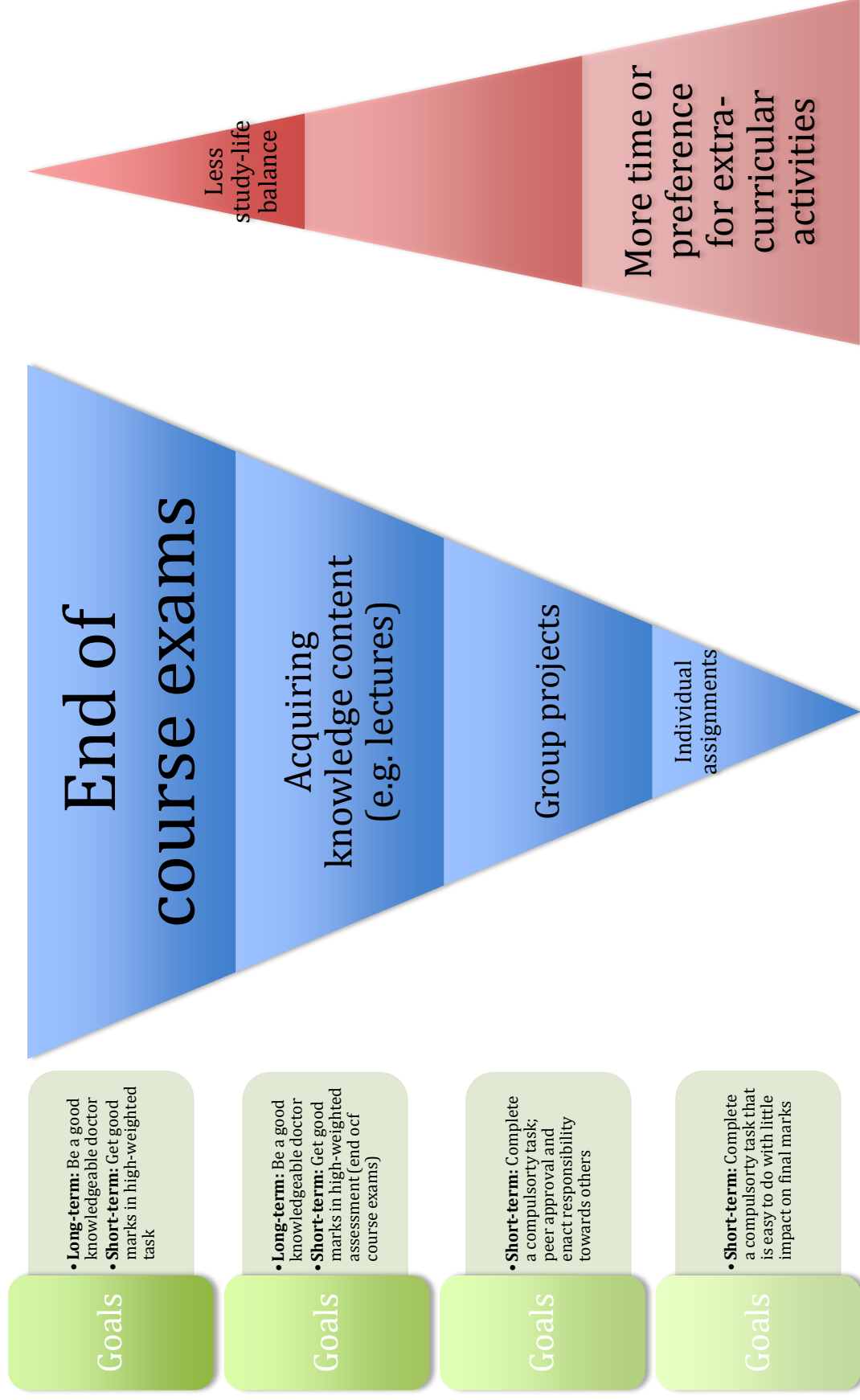
Group work appears a key motivator due to the collaborative elements, specifically the sharing of the workload, peer pressure to produce a good product and finish it on time. With the sense of responsibility towards others and peer pressure being

another short-term motivator, adding more emphasis on group work can potentially intensify the sense of peer support and aptitude for collaboration that is already currently found among the students. Wentzel, Elliot, and Dweck (2005)'s study on social competence among students, suggests that positive peer relationships tend to increase better academic performance. Further, a crucial concept not yet identified by participants is that collaboration and teamwork is in fact vital to the work of successful professional clinicians, which students' value as a key motivator. Therefore this might be an element that we can target in future interventions.

Exams were also identified as a short-term motivator but also high stressor for the individual. Stress of being a medical student is acknowledged but crucially most students consider their well-being as very important. Some students seemed to be finding this more difficult than others, and are already experiencing burn-out and sleep disorders as a result of stress. Dyrbye, Thomas, and Shanafelt (2005) suggest that mental health among medical students worsens after they begin medical school, and remains poor throughout their training. Given stress and other psychological strain being more commonly found among medical students than the general population, it is crucial for physical and mental wellbeing to be better addressed in early medical training.

Balancing the stress of being a first or second year medical student with short and long term goals was identified in the focus groups as a stressful element of being a medical student. Figure 1 below demonstrates that the motivators of spending time and effort towards each academic task are determined by the balancing of short-term and long-term goals associated with each. At the same time, personal wellbeing, closely associated with study-life balance (such as fitting in extracurricular activities and health) are implicated by the lack of time and attention available for these, and tend to decrease and suffer as academic priorities overtake students' overall priorities.

Figure 1: Representing the hierarchy of time management priorities for academic tasks as valued against goals and study-life balance by Phase 1 students attending the focus groups



The revealing of these long and short-term motivators has helped our understanding of what might help the students in studying through Phase 1 of our medical program. We have identified some possible engagement and intervention points to target innovative course / assessment designs to help support students in their study and learning; using their desire to become safe and competent practitioners in the long term, and the pressure to perform their allotted tasks and complete their group assessments on time when working together. While it is possible to encourage short-term and long-term facilitators of motivation, we need to ensure that stress is not simultaneously increased (Moffat, McConnachie, Ross, & Morrison, 2004). For example, time management tools that can assist in creating an immediate sense of urgency and healthy competition among users could potentially motivate some short-term action, yet the potential stress could at the same time cause imbalance of wellbeing.

A complete report of the focus group findings with a fuller discussion will be available shortly. The budget summary of the project is available in Appendix 1.

Recommendations

1. Further research into motivation could be helpful in working out how to support students in getting organised and studying, especially when motivation levels are not high and a cycle of lack of motivation, struggling to study and poor outcomes eventuates. Our scoping using the GSE and LASSI surveys in this current project will be examined in more detail to aid this future research.
2. Further research could be used to examine other aspects that we were unable to examine in detail, e.g. struggling students and sub-groups such as rural and Indigenous students. These could be used to find out these students have the same motivators, the same stressors, the same approach and attitudes to study in the medical program as our focus group participants, who seem to be doing OK overall.
3. We could move onto investigating and developing interventions that could support student motivation and therefore help time management, based on:
 - a. Competition
 - b. High functioning groups
 - c. Peer support/ peer pressure

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