ASCILITE 2021
Back to the Future

Increasing student grades in large online subjects: Combining tutorial support with technology

Kelly Linden, Neil Van Der Ploeg, Ben Hicks, Kirsten Locke
Charles Sturt University

Three large first-year undergraduate subjects with 240-517 enrolled students were selected to participate in this pilot study. A meeting scheduling tool was embedded in the learning management system and thirty-minute, one-on-one tutorial sessions were available to students in the 2 weeks leading up to the due date of at least one large written task. Thirty one percent (31%) of enrolled students attended at least one appointment with a tutor. There was no difference in the average assessment mark that students obtained before the first tutorial was offered between those who attended a tutorial session for a later assessment item and those who did not. There was a significant increase in the average cumulative grade (10%, $p<0.05$) of students who attended a tutorial. The novel use of the calendar booking tool combined with online meeting technology provides a simple and convenient method to provide personalised feedback to a large cohort of students.

Keywords: first-year, feedback, online meeting, student support

Introduction

There is a well-described body of knowledge detailing the importance of transition pedagogy. First-year students are known to face a unique set of challenges during the transition to university and have special learning and support needs (Kift, 2009). The literature is also clear that "just-in-time" and "just-for-me support" as well as a sense of belonging are critical to a successful transition, to ensure that students are supported to learn and are then successfully retained (Kift, 2015). It is also incredibly important that students receive formative feedback on assessment (Kift, 2009), however with increasing academic workloads, providing authentic and personalised feedback can be very difficult. With the expansion of participation in higher education, there has been an increase in the number of students from non-traditional backgrounds undertaking tertiary studies, increasing the importance of best practice transition pedagogy (Stone, 2019). For this group to be successful, institutions should provide targeted programs and academic support that recognise the challenges that are faced by students from non-traditional backgrounds (Cardak et al., 2017; Meer et al., 2018). This support becomes increasingly important for online students who are at a higher risk of attrition than students enrolled online (Stephenson et al., 2021).

In 2020, universities around the world were impacted by the COVID-19 pandemic. Campuses were closed and classes were suspended, while administrators scrambled to convert the traditional classes to online formats. To reduce the risk of COVID-19 transmission, physical distancing requirements have continued to impact face-to-face teaching in Australian universities in 2021. As lectures, tutorials (Ortiz, 2020), and examinations (Linden & Gonzalez, 2021) move online, a reduction in student-teacher engagement has been reported (Oyedotun, 2020). Not only do students miss the incidental student-teacher interactions that occur around face-to-face teaching, but more formal consultation times become difficult to schedule, particularly with large classes when all students are online. We know that a sense of belonging is critical for commencing students (Meehan & Howells, 2019), so what can be done in the online environment to ensure commencing students are supported in their studies?

Meeting scheduling tools are used widely across a multitude of professional settings and provide a convenient system for online bookings. There is great potential to use online meeting scheduling technology to provide a convenient option to enhance student-teacher engagement in the online environment. This pilot study provided just-in-time and just-for-me assessment feedback to commencing undergraduate students in the two weeks leading up to the due date of a high-stakes written task. One-on-one online tutorial sessions were available with a sessional academic to all students via a simple booking process utilising an online meeting scheduling tool embedded in the learning management system (LMS). The aim of this study was to examine if a 30-minute

consultation with a sessional academic prior to the assessment due date could increase assessment marks across 3 large first-year subjects.

Methods

Three large first-year service taught subjects that included at least one assessment item with a comprehensive written task were selected to participate in this pilot study. Each of the three subjects included students from a range of undergraduate courses from across the 3 Faculties at our regional university. Subject progress rates, calculated as the percentage of students receiving a passing grade, were between 72-80% in 2020. Over 90% of the students were enrolled in an online offering of the subject and the three subjects ranged in size from 240-517 students. The subject coordinators all agreed that each of the three subjects would benefit from one-on-one assessment support and nominated experienced sessional academic staff who read drafts of student assignments and meet one-on-one to provide feedback, advice and support over Zoom. Ethics approval was received from The Charles Sturt University Human Research Ethics Committee (HREC Protocol No H21170).

A meeting scheduling tool, Calendly (https://calendly.com/) was selected to manage bookings. A separate booking page was set up for each subject and embedded in a content area of the LMS (Blackboard, Figure 1) and made available to all students in the 2 weeks leading up to the due date. Each of the three subjects had at least one assessment item due before tutorial support was offered. In subject 1, appointments were available to all students for assessment items 3 and 4. Subject 2 had bookings available for assessment item 2 only and Subject 3 had bookings available only for the final assessment item, assessment item 3. Each assessment item was valued from 40-50% of the total subject mark.
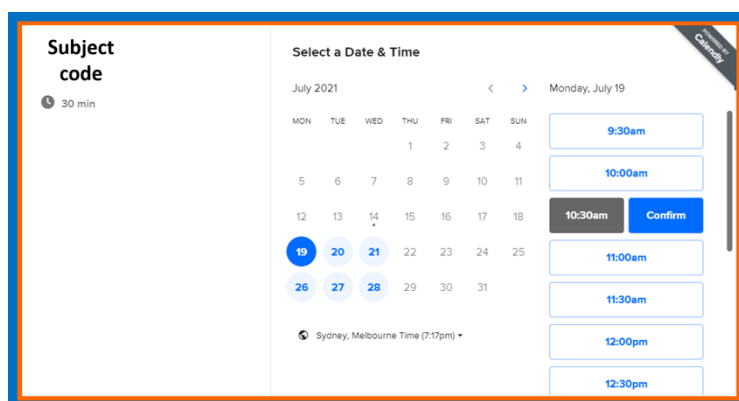

Figure 1. The calendar was embedded in the LMS, with time availability displayed.

To complete the booking, students were required to enter their name and email address (Figure 2). Upon completion, a Zoom link and calendar invitation was sent to the student and the sessional academic, and the time was blocked out in the linked Outlook calendar. Students were asked to submit their draft assignment at least 30 minutes before the scheduled time to allow the sessional academic time to read over the draft prior to meeting with the student.
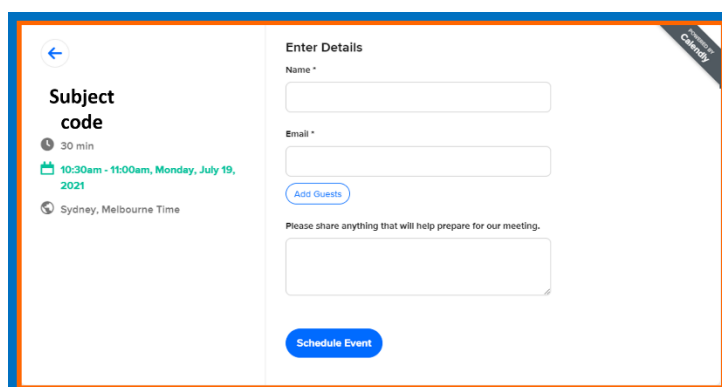

Figure 2. Only basic details were required to confirm a booking

The assessment mark before the tutorial support was calculated for each student as a percentage of the maximum available mark so the data could be pooled between the three subjects. Students that did not submit any assessment items and received a zero-fail grade for the subject were removed from the analysis. Group means were compared using a paired Student t-test and were analysed utilising the statistical package GraphPad Prism (version 9.1.0). The significance level was set at $P<0.05$. A Bayesian test to estimate the association between tutorial support and submitting all assessment items was conducted.

Findings and Discussion

In total, 315 of 1017 enrolled undergraduate students (31%) attended at least one tutorial support session. All three subjects offered a combination of lectures and tutorials and included synchronous academic skills and library skills sessions on skills such as referencing and essay writing and asynchronous resources to support students to complete the assessments as suggested by the literature (Cardak et al., 2017; Kift, 2015; Meer et al., 2018). Approximately 75% of students were from low socioeconomic and or regional rural and remote postcodes and almost all were in their commencing year of university. The novel use of the meeting scheduling tool for one-on-one appointments in key first-year subjects provides an innovative and convenient way to provide support to students. The convenience the technology provided was evidenced by the high uptake. As can be seen in Figure 3, there was no difference in the average assessment mark that students obtained before the first tutorial was offered between each of the two groups of students - those who attended a tutorial session for a later assessment item (66.6%) and those who did not (66.2%). The spread of results was also nearly identical, indicating that the tutorials were booked by a wide variety of students and not just those who are high performers. This was an important result given that the opportunity to use the service was not controlled as part of the study design. It was ensured that there were plenty of bookings available to be made in the two weeks before the due date at a range of times to suit the busy lives of online students. This allowed for those students who are well prepared and those who are more 'last minute' to still take advantage of the program. The 3 most popular times for were 10 am, 1 pm and 11 am.
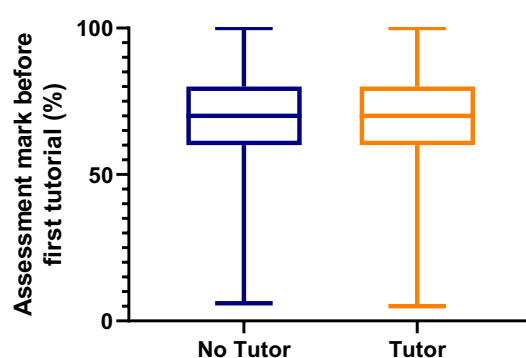

Figure 3. Box plot of assessment mark distribution for students who did not see a tutor for a later assessment item (No Tutor) and for those who did meet with a tutor later in the session (Tutor).

Students who met with a tutor had an increase in the average mark of the assignment that the tutorial was based on as well as an increase in the cumulative mark for the subject (Figure 4). In subject 1, 78 students (31% of the class) book at least one tutorial session with 61 students booking a tutorial for assessment item 3 and 46 students booking a tutorial for assessment item 4. A cumulative effect is evident for assessment item 4 with a 13.5% increase in the average mark for that assessment item. This is also reflected as a 12.9% increase in the cumulative mark for the subject. There were 156 tutorials (30% of the class) scheduled for subject 2, which resulted in a 3% increase in average grade for the assessment. This modest increase was surpassed by the 11% increase in cumulative mark for the subject (Figure 4, magenta). Results from subject 1 and subject 2 indicate that meeting one-on-one with a qualified subject matter expert provides the student with confidence and skills to excel in later assessment items in the same subject. Subject 3 included a tutor for the final assessment item valued at 40%. There was a 5.7% increase in the assessment item mark for those students who met with a tutor which corresponded to a 5.4% increase in the cumulative mark for the subject. Providing tutorial support for the final assessment item alone is likely less effective as students can only use the feedback for a single assessment item.
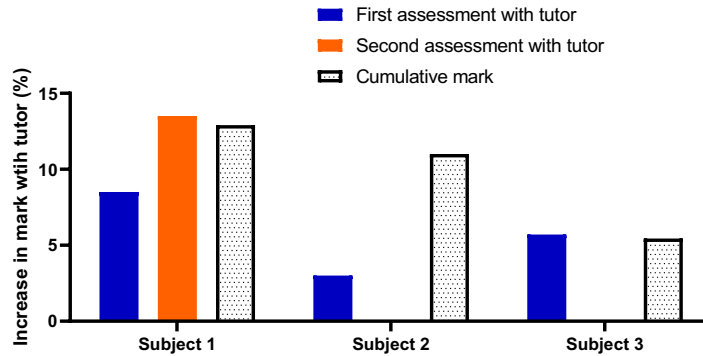
Figure 4. The average increase in assessment (blue and orange) and cumulative subject (magenta) marks for students who met with a tutor. In Subject 1, tutorial sessions were available for 2 assessment items while Subject 2 and 3 had tutors available for a single assessment item.

Of the 315 students who attended a one-on-one tutorial session, there was a significant increase of the average cumulative grade by 10% (55.7% vs 65.8%, $p < 0.05$, Figure 5). Attending the tutorial was also associated with an increased likelihood of submitting all assessments; a test of association for Subjects 1 and 2 produced a Bayes factor of 2,000,000:1 in favour of a relationship between attending a tutorial and continuing to submit all assessments. A total of 105 students missed at least one assessment item and subsequently received a failing grade for the subject, only 8 had met with a tutor. The flow-on effect from meeting one-on-one with a tutor provides students with the confidence to submit later assessments. There is no doubt that student success is of great concern for universities and the government, and while many studies focused on student retention monitor completely disengaged students (Linden et al., 2020; Linden & Webster, 2019; Stephenson et al., 2021), those students who are engaged but require additional support can easily be missed.
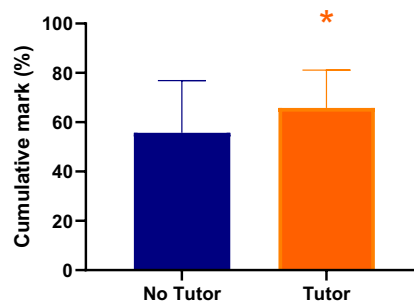

Figure 5. Average cumulative mark for students who did not attend any tutorial (no tutor) and those who did attend a tutorial (Tutor). Data are expressed as mean ± standard deviation, $p < 0.05$.

Conclusion

The novel use of a meeting scheduling tool combined with online meeting technology provides a back-to-the-future approach to the way that students previously met face to face with teaching staff during consultation times. Importantly, this technology provides a simple and convenient method for engaging a large cohort of commencing students in assessment support and feedback, which is incredibly important in the context of online learning (Meehan & Howells, 2019). These results have implications for other large online subjects, particularly those offered in a commencing session of study when students may lack the confidence or know-how, to seek out support themselves (Kift, 2015). As the authors write this paper amidst a snap lockdown, and many university students return to remote learning, there are also implications for providing a convenient method of meeting one-on-one with students for all academics. Part of the success of the pilot was likely due to the quality of the sessional staff available. Having an opportunity to meet with a highly qualified, inspirational tutor who can provide specific feedback on an assignment draft in the context of the subject not only increases a single assessment mark but appears to have a flow-on effect to increase the average marks for later assessment items. In addition, students are more likely to submit all assessment items for the subject and receive a higher cumulative mark. Future work should expand on this pilot and investigate if there are differences in performance gains between different subjects and student demographics.

References

Cardak, B., Brett, M., Barry, P., McAllister, R., Bowden, M., Bahtsevanoglou, J., & Vecci, J. (2017). Regional Student Participation and Migration: Analysis of factors influencing regional student participation and internal migration in Australian higher education. https://www.ncsehe.edu.au/wp-content/uploads/2017/02/Regional-Student-Participation-and-Migration-20170227-Final.pdf

Kift, S. (2015). A decade of transition pedagogy: A quantum leap in conceptualising the first year experience. *HERDSA Review of Higher Education, 2*(1), 51-86. https://altf.org/wp-content/uploads/2019/03/HERDSARHE2015v02p51-1-1.pdf

Kift, S. M. (2009). *First year curriculum principles: First year teacher*. http://transitionpedagogy.com/wp-content/uploads/2014/05/4FYCPrinciplesFirstYearTeacher_2Nov09.pdf

Linden, K., & Gonzalez, P. (2021). Zoom invigilated exams: A protocol for rapid adoption to remote examinations. *British Journal of Educational Technology*. https://doi.org/10.1111/bjet.13109

Linden, K., Van der Ploeg, N., Hicks, B., Wright, M., & Gonzalez, P. (2020). Peering into the crystal ball of the disengaged: What happens to students that do not submit an early assessment item? *37th International Conference of Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education: ASCILITE 2020* (pp. 48-53). https://2020conference.ascilite.org/wp-content/uploads/2021/04/ASCILITE-2020-Proceedings-Linden-K-et.al_.pdf

Linden, K., & Webster, L. (2019). Back to Basics: combining analytics and early assessment with personalised contact to improve student progress [paper presentation]. *36th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education (ASCILITE)*. Singapore. https://2019conference.ascilite.org/assets/papers/Paper-146.pdf

Meehan, C., & Howells, K. (2019). In search of the feeling of 'belonging' in higher education: undergraduate students transition into higher education. *Journal of Further and Higher Education, 43*(10), 1376-1390. https://doi.org/10.1080/0309877X.2018.1490702

Meer, J., Scott, S., & Pratt, K. (2018). First semester academic performance: The importance of early indicators of non-engagement. *Student Success, 9*(4), 1-13. https://go.gale.com/ps/i.do?id=GALE%7CA581622985&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=22050795&p=AONE&sw=w&userGroupName=anon%7E13e4cc10

Ortiz, P. A. (2020). Teaching in the time of COVID-19. *Biochemistry and molecular biology education*. https://doi.org/10.1002/bmb.21348

Oyedotun, T. D. (2020). Sudden change of pedagogy in education driven by COVID-19: Perspectives and evaluation from a developing country. *Research in Globalization, 2*, 100029. https://doi.org/10.1016/j.resglo.2020.100029

Stephenson, B., Cakitaki, M. B., & Luckman, M. M. (2021). " Ghost student" failure among equity cohorts: Towards understanding Non-Participating Enrolments (NPE). https://www.ncsehe.edu.au/publications/ghost-student-failure-equity-cohorts-non-participating-enrolments/

Stone, C. (2019). Online learning in Australian higher education: Opportunities, challenges and transformations. *Student Success, 10*(2), 1. https://doi.org/10.5204/ssj.v10i2.1299

Linden, K., Van Der Ploeg, N., Hicks, B., & Locke, K. (2021). Increasing student grades in large online subjects: Combining tutorial support with technology. In Gregory, S., Warburton, S., & Schier, M. (Eds.), *Back to the Future – ASCILITE '21. Proceedings ASCILITE 2021 in Armidale* (pp. 208–212). https://doi.org/10.14742/ascilite2021.0131