

Improving the Academic Performance and Mental Health of Non-Traditional University Students Through a Shorter Delivery Model: Exploring the Impact of the Southern Cross Model

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Abstract

University students are often depicted as carefree young adults; however, many students struggle to manage the “normal” stresses of university life and may experience high rates of psychological distress. This study compared a traditional delivery model to a shorter delivery model (i.e., the Southern Cross Model) in terms of students’ psychological distress, their perceived time pressure, and academic performance. The results indicated a significant difference in academic performance and psychological distress between the shorter delivery model and the traditional delivery model, with students in this shorter delivery model experiencing lower levels of psychological distress and enhanced academic performance. No significant difference in time pressure was found between the delivery models. This study indicates that the Southern Cross Model may enhance students’ academic performance and help them to better manage the normal stresses of university life.

Keywords: Academic success; higher education; mental health; shorter delivery models; time pressure.

Introduction

University students are often depicted as carefree young adults. However, for many students the university experience includes financial stress, problems balancing study-work-family responsibilities, and academic difficulties (Orygen, 2017). Many university students struggle to manage the ‘normal’ stresses of university life and may feel depressed, anxious and stressed (Crawford, 2021). Research has shown that university students experience rates of psychological distress at comparable or higher rates than the general adult population (Nieuwoudt, 2021; Sharp & Theiler, 2018; Stallman, 2010; van Agteren et al., 2019). Psychological distress has implications for retention and completion rates (van Agteren et al., 2019), as it is associated with reduced engagement and academic performance (Stallman, 2010). Indeed, university students from regional and remote Australia cited stress and feeling overwhelmed by their university study-load as the main reasons for thinking about leaving their university study prior to completion (Crawford, 2021).

One of the most stressful aspects of tertiary education is “having enough time” (Bennett & Burke, 2018). Not having enough time due to an increase in workload is perceived as time pressure (Vollrath, 2000), with feelings of time pressure increasing when the time available for a task is perceived to be insufficient for the completion of the task (Ordóñez et al., 2015). First-year university students may have more pronounced feelings of time pressure, especially if they are still getting used to their increased study workload. There are many competing demands on university students’ time (Leahy et al., 2010), and these



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demands may reduce the amount of time students have available for their studies (Larcombe et al., 2016). Many first-year students also have difficulties managing their time effectively (Brooker et al., 2017), which may have a negative effect on retention. Indeed, time management is one of the most commonly cited factors contributing to students' consideration of leaving university without completing their studies (Nieuwoudt & Pedler, 2021) and actually leaving their studies early (Li & Carroll, 2020).

Students enrolled in enabling programs are typically diverse, from multiple equity groups and are thus considered to be non-traditional university students (Lomax-Smith et al., 2011). They have different demands on their time (Richardson et al., 2019), such as work, carers duties, and study. This is very different to the traditional university student with few responsibilities outside of university studies. In fact, a high proportion of university students are now more likely to be "non-traditional" as the number of students from low socio-economic backgrounds increased by 66%, students from Indigenous backgrounds increased by 111% and students from regional and remote areas increased by 48% between 2008 and 2018 in Australia (Universities Australia, 2020). Regardless of the increase in the number of non-traditional students, many university practices and expectations are still based on traditional students (Remenick, 2019). For example, student service departments such as counselling services, academic advising, and career services are only available during regular working hours Monday to Friday (Fairchild, 2003) and most university classes are during the day (Tyson, 2012). The traditional 12-16 week semesters that worked well for traditional students may not be a good fit for non-traditional students, and some universities are thus providing "intensive" modes of teaching (Davies, 2006).

There are many different variations of intensive modes of teaching, but they are typically shorter in duration than the traditional delivery model (TDM) consisting of 12-16 week semesters, and will be referred to as shorter delivery models (SDMs) in this article. Shorter delivery models vary widely in length and scheduled class time, and are often based on pre-existing academic structures or programs (Walsh et al., 2019). In some SDMs students undertake more than one subject at a time, while in other SDMs students undertake only one subject at a time. Though many higher education institutions are offering an increasing number of subjects and courses using a SDM, the implementation of SDMs across entire institutions is not a common practice. In Australia, Victoria University and Southern Cross University have implemented SDMs across their courses in 2019 and 2021 respectively. In Victoria University's Block Model, students focus on one subject at a time over four weeks (Samarawickrema & Cleary, 2021). In Southern Cross University's Southern Cross Model, full-time students focus on two subjects at a time over 6 weeks while part-time students focus on one subject at a time over 6 weeks (see Roche et al. 2022 for a detailed description of Southern Cross University's curriculum reform).

Research Gap and Aims of Study

Findings from recent studies regarding academic performance in SDMs and TDMs are conflicting. Some studies found no differences between SDMs and TDMs in terms of academic performance (Ho & Polonsky, 2009; Simunich, 2016), while other studies indicate that SDMs may lead to increased academic performance (Goode et al., 2021; McCluskey et al., 2020; Samarawickrema & Cleary, 2021; Walsh et al., 2019). It appears that the increased academic performance in SDMs may be facilitated by the implementation of active learning pedagogy (Goode et al., 2022; Lee & Horsfall, 2010). Some researchers argue that SDMs reduces cognitive load compared to TDMs, as the competing demands from multiple cognitive demands are reduced in SDMs where students focus on less subjects/tasks/assessments (Goode et al., 2021). Recent Australian studies reported improved academic performance of non-traditional students including first-in-family, low socio-economic status, Aboriginal or Torres Strait Islander, and non-English-speaking background students in SDMs (McCluskey et al., 2020; Samarawickrema & Cleary, 2021). However, other researchers found that SDMs had lower academic performance compared to TDMs (Harlow et al., 2015; Whillier & Lystad, 2013). It seems that the weaknesses of SDMs stem from the decreased amount of time available for study compared to TDMs (Daniel, 2000; Kuiper et al., 2015). It is possible that SDMs may lead to increased feelings of time pressure, especially for non-traditional students. More research is thus needed to understand university students' use of time and their perceived time pressure when enrolled in SDMs. Especially since feelings of time pressure (i.e. feeling rushed or pressed for time) are associated with lower psychological wellbeing (Roxburgh, 2004). Indeed, a review of the literature indicated that stress and fatigue are disadvantages of SDMs (Daniel, 2000).

It is increasingly acknowledged that the teaching and learning environment has an impact on student mental wellbeing (Crawford, 2021). While literature on psychological health within tertiary education in Australia has been emerging over the past decade, there is a dearth of research investigating the psychological wellbeing and perceived time pressure of students enrolled in SDMs. There is very little Australian research available on SDMs for undergraduate students. The majority of SDM research is from the USA, which differs from the Australian higher education system (Davies, 2006).

This research sought to contribute to the understanding of students' perceived time pressure and mental health within SDMs compared to TDMs. This research was intended to assist institutions who are seeking to better understand and support students' psychological wellbeing, especially in times of sustained concerns about retention. This study aimed to determine if differences in: (a) psychological distress; (b) perceived time pressure; and (c) academic performance, might exist between students engaged in traditional models of delivery and those engaged in shorter models of delivery.

Study Context

This study is situated within a regional university in New South Wales, Australia. Participants in this study were from this university's enabling program. Students enrolled in this enabling program complete four subjects, one of which is an elective. The three core subjects cover managing study, academic literacy and mathematics; the two elective options cover science, and arts and business. Full-time students complete the managing study and the academic literacy subjects in the first study period, and the mathematics subject and one of the elective subjects in the following study period.

The data in this study were obtained from the enabling program offered in 2019 and 2021. In 2019 this program was offered in a TDM, and from 2021 it has been offered in a SDM known as the Southern Cross Model. The university started implementing this SDM across its courses from 2021. When the first data set was obtained in 2019, it was not known that this program's delivery would change from a TDM to SDM. In late 2020, a curriculum reform project was launched to develop this SDM. The second data set was obtained in 2021, when this enabling program was first offered in SDM. In the TDM, full-time students complete four subjects at a time over 12 weeks (a session), and there are three sessions scheduled per year. Learning typically consists of 3-4 hours of scheduled classes and students are expected to complete 10 hours of self-study per week. In the SDM, full-time students complete two subjects at a time over 6 weeks (a term), and there are six terms scheduled per year (*Appendix* Figure 1). To increase engagement and flexibility, the Southern Cross Model offers students two main forms of learning: up to 20 hours of self-assess learning through interactive online learning materials, complemented by three hours of active learning experience in scheduled classes per week. Drawing on cognitive load theory, this SDM reduces the number of concurrent subjects and consequentially allow students to focus on fewer assessments at any one point in time than in the TDM (Goode et al., 2022). Drawing on active learning pedagogy, this SDM requires students to complete media-rich, interactive, and responsive online self-access modules and participate in active, guided experiences in classes.

Methodology

Students from Southern Cross University were invited to participate in a research project that aimed to explore students' time use, their psychological distress, and "grit" (i.e., the ability to persevere and passion for long term goals). Potential participants were recruited via emails sent to all students enrolled in this university's enabling program in Session 1, 2019 (of the TDM) and in Term 1, 2021 (of the SDM). The emails were sent on the day after the census date, that is the Tuesday of Week 4 of the session and Tuesday of Week 3 of the term. A link (web address) to the online survey was provided (ethics approval number ECN-16-039). In Session 1, 2019, 687 students were invited to participate in the online survey, and 391 students in Term 1, 2021. A total of 92 students completed the survey in 2019 (response rate = 13.39%, completion rate = 91.30%) and 66 in 2021 (response rate = 16.88%, completion rate = 81.82%). In 2019, eight surveys were discarded and 12 surveys were discarded in 2021, as they were largely incomplete.

A cross-sectional design was used, with an online survey consisting of self-report measures assessing psychological distress, grit, and students' time use, and provided demographic information. Students' psychological distress was assessed with the Depression, Anxiety, and Stress Scale – 21 Items (DASS-21). The DASS-21 consists of three subscales (i.e., depression, anxiety, stress), and the score obtained for each subscale provide a dimensional description (Lovibond & Lovibond, 1995). Higher scores for each subscale indicate increasing severe emotional states, and cut-off points for levels of severity allows for grouping of scores into "normal", "mild", "moderate", "severe", and "extremely severe". Good internal consistency for the subscales, ranging .807 - .909, are reported by previous studies (e.g., Osman et al., 2012; van Agteren et al., 2019).

The use of students' time was assessed with questions from, and based on, the Australian Bureau of Statistics' 2006 time use survey, as well as questions developed by the researcher following a review of the literature on academic performance and time use. Time use and perceived time pressure were assessed in two sections, consisting of 21 questions in total. Perceived time pressure was assessed via a Likert scale question, and a "select all that apply" question to indicate the reasons they often feel rushed or pressed for time during the session/term.

Final grades (in percentage format) were acquired from the Blackboard Learn™ learning management system as an indicator for academic performance. Students' time use is reported elsewhere (Nieuwoudt & Stimpson, 2021), and students' grit will be reported separately.

Participants

The TDM sample consisted of 92 participants, aged 17 to 60 years ($M = 28$, $SD = 10.41$). The SDM sample consisted of 54 participants, aged 17 to 58 years ($M = 26$, $SD = 9.81$). The majority of participants in both samples were female, studying full-time, working part-time in a paid job, and had no dependents (see Table 1).

Table 1

Participants' Demographic and Study-Related Variables in the Session (Traditional Delivery Model) and Term (Shorter Delivery Model)

		Session	Term
Participants (N)		92	54
Age (M)		28	26
Gender (%)	Female	77.2	66.7
	Male	21.7	33.3
	Non-binary	1.1	0
Study load (%)	Part-time	31.5	20.4
	Full-time	68.5	79.6
Study mode (%)	On-campus	50.0	50
	Online	40.2	48.1
	Mixed mode	8.7	1.9
Working in a paid job (%)	Not disclosed	1.1	0
	Full-time	18.5	18.5
	Part-time	56.5	55.6
	Not working in a paid job	23.9	25.9
Dependents (%)	Not disclosed	1.1	0
	No dependents	67.4	70.4
	One or more dependents	32.6	29.6

Data Analysis

Descriptive statistics were used to explore the study population's characteristics. Cronbach's alpha was used to determine the reliability and internal consistency of the DASS-21. Mean (M) and/or median (Md) values of the measurements with standard deviation (SD) were reported. Non-parametric tests were used, as the variables were not normally distributed. Mann-Whitney U Tests were used to test for differences between the delivery models on time pressure and psychological distress. The level of significance was set at $p \leq 0.05$. IBM SPSS, Statistics 28, was used to perform statistical analyses.

Results

Psychological Distress

Participants' depression, anxiety, and stress were assessed with the DASS-21 in Session 1 2019 of the TDM (Figure 2) and Term 1 2021 of the SDM (Figure 3). The DASS-21 subscales had good internal consistency for both samples, as indicated by Cronbach alpha coefficients (Table 2).

Table 2

Cronbach Alpha Coefficients of the Subscales of the DASS-21

	Depression (α)	Anxiety (α)	Stress (α)
TDM	.915	.884	.842
SDM	.924	.875	.888

Figure 2

The Severity of Participants' Depression, Anxiety, and Stress as Measured in the TDM by the DASS-21

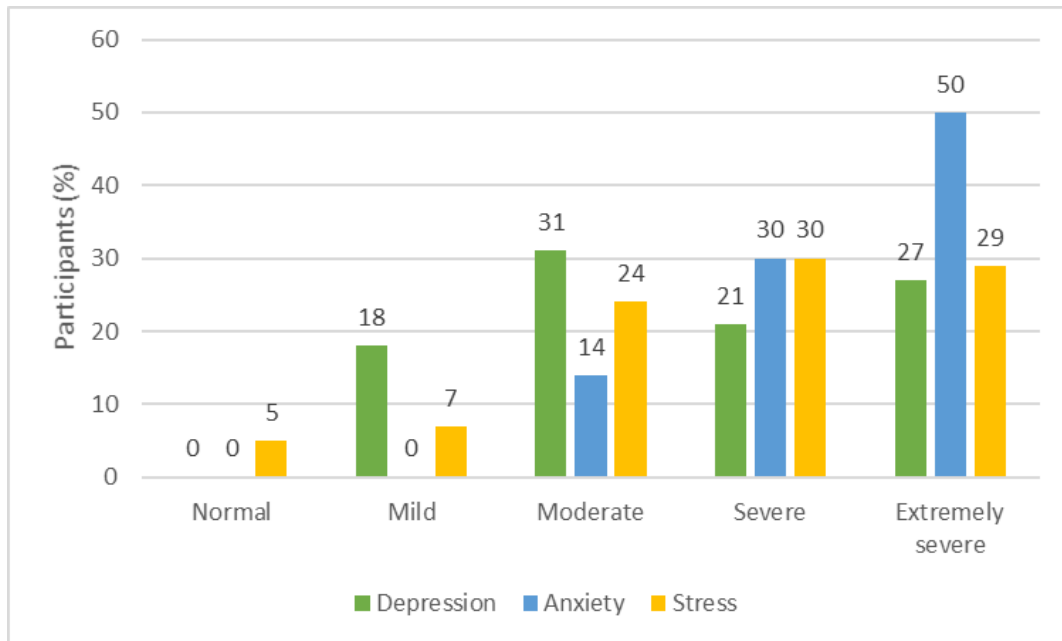
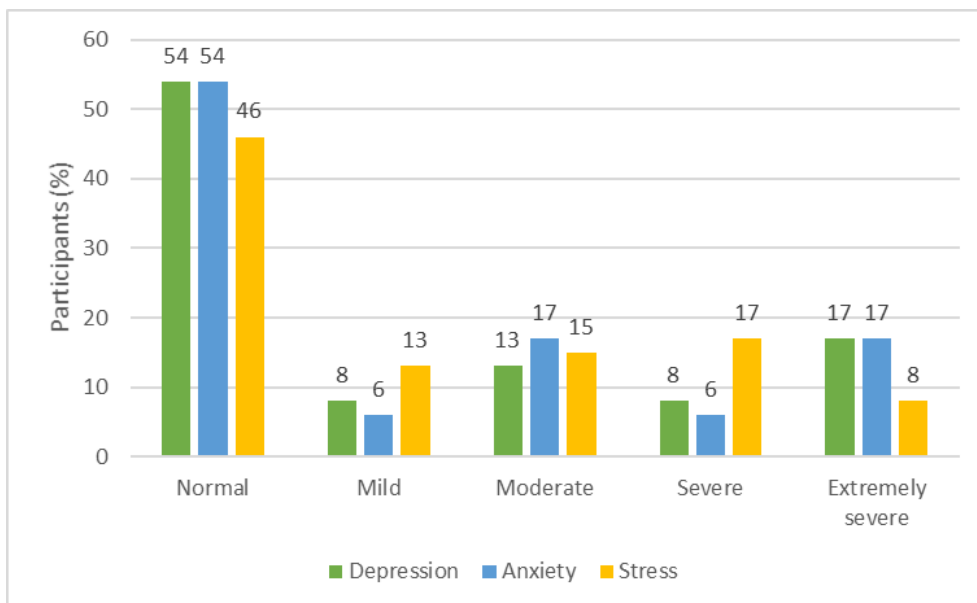


Figure 3

The Severity of Participants' Depression, Anxiety, and Stress as Measured in the SDM by the DASS-21



A Mann-Whitney U Test revealed a significant difference between the severity of participants' depression experienced in the TDM ($Md = 20, n = 84$) and SDM ($Md = 6, n = 52$), $U = 632.500, z = -6.972, p < .001, r = -0.598$.

A Mann-Whitney U Test revealed a significant difference between the severity of participants' anxiety experienced in the TDM ($Md = 20, n = 81$) and SDM ($Md = 17, n = 52$), $U = 1418.000, z = -3.183, p = .001, r = -0.276$.

A Mann-Whitney U Test revealed a significant difference between the severity of participants' stress experienced in the TDM ($Md = 28, n = 83$) and SDM ($Md = 8, n = 52$), $U = 696.500, z = -6.620, p < .001, r = -0.570$.

Time Pressure

As seen in Figure 4, about half of the participants (51.2%) enrolled in the TDM and 57.4% of participants enrolled in the SDM, always or often felt rushed or pressed for time (discussed as feeling time pressure). The most commonly cited reasons for feeling time pressure was the pressure of work/study and balancing work and family responsibilities (Figure 5).

Figure 4

Participants' Perception of Time Pressure in the TDM and the SDM

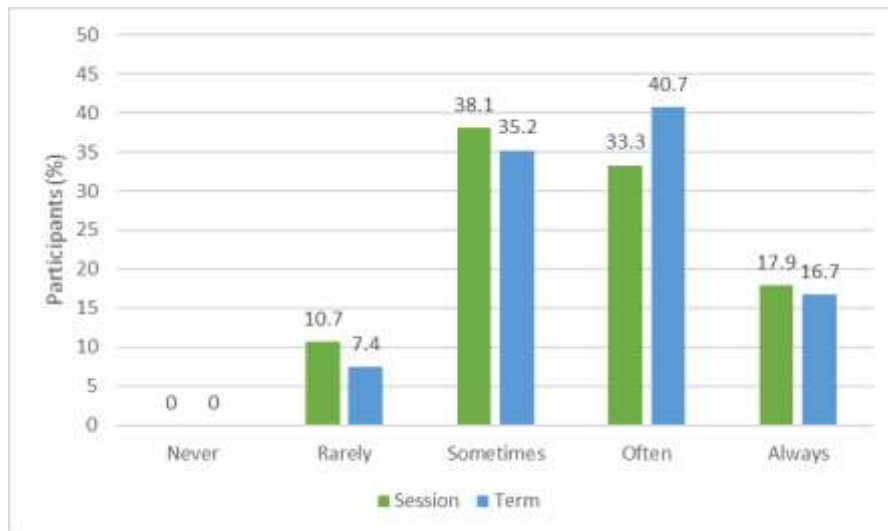
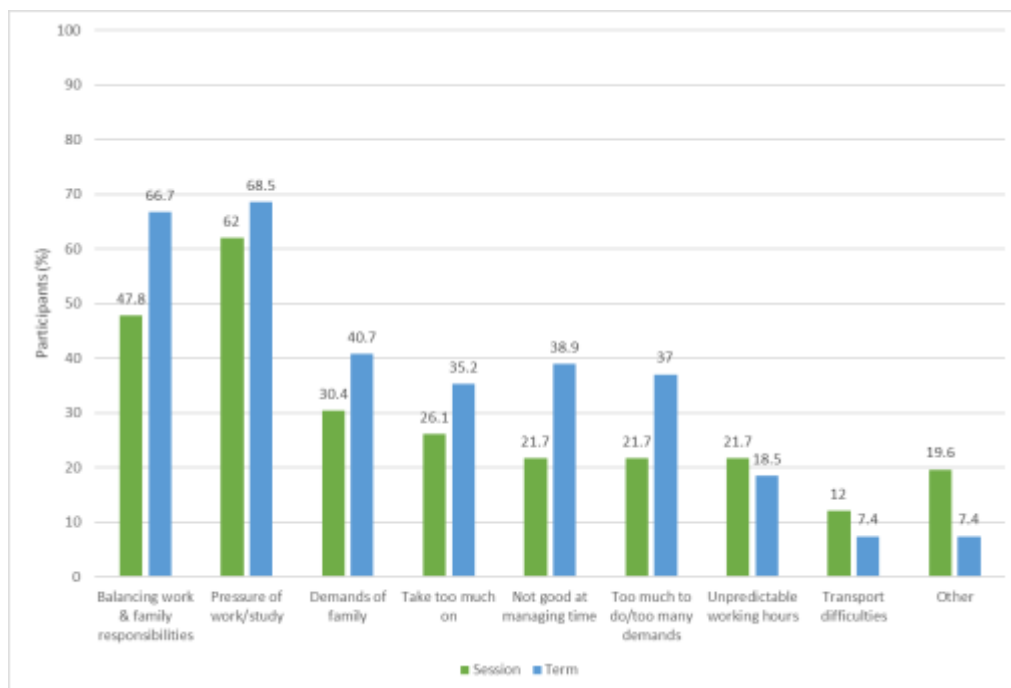


Figure 5

Participants' Responses Indicating the Reasons for Time pressure in the TDM and the SDM



Academic Performance

As per Table 3, the mean final scores achieved out of a possible 100 indicated that academic performance were higher in the SDM. The scores of the mathematics, science, arts/business subjects are not included, as these subjects were not available in the term when the data were gathered.

To ascertain whether enhanced academic performance was achieved *across* the cohort, descriptive statistics were generated for the session and corresponding two 6-week terms, as shown in Figure 6. In Term 2, students were enrolled in the mathematics subject and in the science or arts/business subjects.

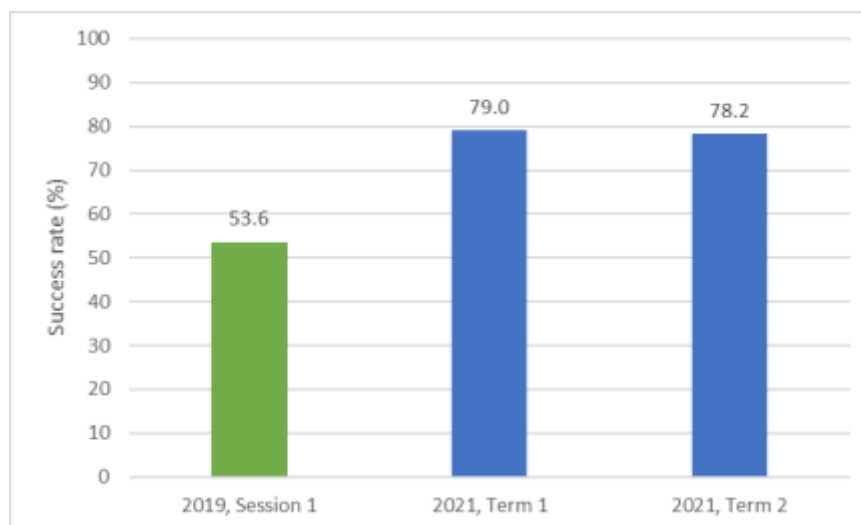
Table 3

Participants' Academic Performance Indicated by Mean Final Scores in the Subjects in the TDM and the SDM

Subjects	TDM <i>M (SD)</i>	SDM <i>M (SD)</i>
Managing study	64.9 (20.9)	68.2 (21.6)
Academic literacy	61.9 (23.4)	70.4 (18.8)
Mathematics	63.1 (23.6)	n/a
Science	66.1 (18.8)	n/a
Arts/business	53.9 (23.98)	n/a

Figure 6

Success Rates of Enabling Cohorts in the Session (TDM) and the Terms (SDM)



Discussion

University students are an at-risk population for mental health problems, and resources are needed to support their psychological wellbeing (Nieuwoudt, 2021). Some researchers are urging universities to take a whole-of-curriculum approach to student wellbeing, instead of implementing a single program (Brooker et al., 2019). Addressing students' personal issues such as work responsibilities and health are difficult, but universities can support students by addressing academic factors (Roche et al., 2022). One way to address academic factors is through the implementation of a SDM. At the author's institution, the Southern Cross Model (a SDM) is progressively implemented across all disciplines between 2021-2023 and constitutes a radical, institution-wide transformation to learning and teaching delivery to increase success rates and decrease attrition (Roche et al., 2022).

In the Southern Cross Model, students focus on one or two subjects at a time over 6 weeks, instead of focusing on up to four subjects at a time over 12 weeks as per the TDM. In the current study, much lower levels of psychological distress were reported in the SDM compared to the TDM. More than half of the participating students (54%) in the SDM reported normal levels of depression and anxiety (see Figure 3). This is a great improvement compared to the TDM when all students had above normal levels of depression and anxiety (see Figure 2). In the SDM, 46% of participating students had normal levels of stress; compared to only 5% in the TDM. Statistical analysis revealed a significant difference between participants' depression, anxiety and stress levels reported in the TDM and SDM. It appears that students may be less depressed, anxious, and stressed when focusing on one or two subjects at the same time for 6 weeks, instead of up to four different subjects for 12 weeks. Psychological distress (e.g. anxiety) may be reduced by working on one or two assessments concurrently, instead of having to potentially work on up to four assessments at the same time. It is also possible that the lower levels of depression, anxiety and stress may be attributed to the increased flexibility of the Southern Cross Model that permits students to balance competing commitments and responsibilities more effectively. The result from this current study is in support of recent research reporting that students find learning in a SDM less stressful than the traditional format (Walsh et al., 2019), but it is in contrast to a review of the literature that indicated that stress and fatigue are disadvantages of SDMs (Daniel, 2000). This difference in the findings may be explained by the improvements in university systems and processes during the past 20 years (Flattery & Thomson, 2022), including the advances in internet technology. It is also possible that the increased confidence that students experience in the SDM may contribute to higher psychological wellbeing. Goode et al. (2021) and Lee and Horsfall (2010) reported students develop increased confidence due to the greater content focus provided by SDMs. However, it is not possible to ascertain whether the significant difference in psychological distress in the current study between the SDM and TDM is due to the delivery model or due to other unknown factors.

Non-traditional students, such as the participants in this study, have numerous responsibilities and conflicting demands on their time that may lead to feeling rushed or pressed for time (Nieuwoudt & Stimpson, 2021). The results of the current study indicated that a slightly higher percentage of participants in the term always, or often, felt rushed or pressed for time (Figure 4). However, this study found no significant difference in time pressure between the shorter term and longer session. It is plausible that the increase in time pressure in the SDM may be due to the higher percentage of participants that worked full-time during the term compared to TDM (Table 1). Time pressure experienced by university students mostly reflects students' commitments external to their study commitments (Vollrath, 2000). In this study the majority of participants were studying full-time, while also working either part-time or full-time (Table 1). Understandably, the main reasons given for feeling time pressure were the pressure of work/study, trying to balance work and family responsibilities, the demands of family, and taking too much on (Figure 5). Time pressure is thus not necessarily related to the 'compressed' 6 weeks of the SDM, and time pressure is not increased as a result of "less time available" during a 6-week term compared to the longer 12-week session. Time pressure had no detrimental effect on academic performance in the current study. Time pressure is typically perceived as being detrimental, but moderate amounts of time pressure can enhance performance and productivity (Isenberg, 1981), helping individuals to stay on task and improve time management (Denton, 1994). Shorter delivery models may help students that need assistance with time management and activity prioritisation (Samarawickrema & Cleary, 2021). Students enrolled in the Southern Cross Model explained that the shorter time period that is available for study actually helped them to stay on task and reduce procrastination, as there was a healthy sense of urgency when focusing on two subjects for 6 weeks (Goode et al., 2021). The shortened time period may thus be beneficial for students, as opposed to focusing on four subjects over 12 weeks of study in the TDM.

Participants' mean score in subjects were higher in the SDM compared with the TDM (Table 3). As seen in Figure 6, success rates increased across the enabling cohort after the introduction of the SDM. This study supports findings that SDMs can enhance the academic performance of non-traditional university students (McCluskey et al., 2020; Samarawickrema & Cleary, 2021; Walsh et al., 2019), including students in enabling programs (Goode et al., 2021). Importantly, academic performance is increased through evidence-based improvements in active learning curriculum design (Theobald et al., 2020), not by merely shortening the delivery model. Curriculum design incorporating flexibility is increasingly important to help students reach their academic goals while juggling the many competing demands on their time (Nieuwoudt & Stimpson, 2021). Through the implementation of active learning pedagogy, the Southern Cross Model uses guided, active learning experiences in both self-access and class learning. The self-access learning modules of the Southern Cross Model provide students with choice and control, thus increasing flexibility and permitting students to successfully juggle competing demands and responsibilities (Goode et al., 2021) while facilitating academic success. To reduce cognitive load, this SDM decreases the number of concurrent subjects and consequentially allow students to focus on fewer assessments at any one point in time than in the TDM (Goode et al., 2022).

Limitations and Future Research

It is acknowledged that the current study had several limitations. The participants in this study consisted of students from one Australian enabling program only, and the participation rates were quite low. This limits the generalisations that can be made. While it is anticipated that the findings of the study are likely to be found in other courses, a broader study exploring the impact of the SDM on students' mental health, perceived time pressure, and academic performance would provide greater confidence in the relevance of the findings and ensure appropriate generalisation of findings.

In this quantitative cross-sectional research study, the variables were measured as they occurred and variables were not controlled. For example, there may have been some differences between the TDM and SDM in some aspects of the participants and in some aspects of teaching methods. It is thus possible that extraneous variables may have impacted the results of this study. Future studies may use an experimental design to further explore differences in academic performance and psychological distress between students engaged in TDMs and SDMs. Future research can also incorporate qualitative inquiry to provide a richer picture especially as psychological distress and time pressure may be episodic and context related.

Conclusion

This research provides evidence that SDMs may be part of the solution to combat psychological distress and thus support university students' mental wellbeing. This study indicates that focusing on up to two subjects at a time over six weeks can enhance students' academic performance and reduce their psychological distress, in comparison with the TDM. While a higher percentage of students always or often felt time pressure in this shorter delivery mode, the difference was not statistically significant and it did not impact academic performance. The reasons for time pressure were the same across both delivery models. The increased flexibility of the Southern Cross Model may enable non-traditional students to balance competing commitments and responsibilities more successfully, while also achieving their academic goals. This study indicates that the Southern Cross Model may enhance students' academic performance and help them to better manage the normal stresses of university life, and thus merits more consideration and further investigation.

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Appendix

Figure 1

Teaching Terms in the 6-Week SDM

