

The Impact of an Immersive Block Curriculum on Student Achievement and Feedback across Disciplines

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Abstract

With greater diversity in student cohorts globally, higher education institutions are seeking innovative curriculum delivery forms which better serve students' learning needs and improve their learning experiences. Immersive block models are one such innovation that can make a sustained, positive difference to student outcomes, yet their impact across disciplines is underexplored. This study examined student achievement ($N = 92,461$) and satisfaction ($N = 26,298$) across nine discipline groups at a public Australian university that has moved all coursework units into a 6-week immersive block model. Inferential statistical tests were used to compare results between the traditional semester and immersive block delivery over four years, as well as with results from control groups that stayed in the traditional model. Results demonstrate that the immersive block model was effective for delivering learning across all discipline groups with a statistically significant, positive impact on the academic success of students across seven of the nine discipline groups analysed. Strong improvements in student success were observed in a broad array of subject areas, including Natural and Physical Sciences, Society and Culture, Information Technology, Creative Arts, and Management and Commerce. Satisfaction results statistically improved when compared with the traditional semester model in the discipline areas of Information Technology and Management and Commerce. While such findings are encouraging, further investigation is required into causes of lower satisfaction in other disciplines.

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Practitioner Notes

1. Immersive block models underpinned by focused, guided and active learning are a viable curriculum reform strategy to drive significant improvements in student success in higher education.
2. The benefits of immersive block learning can be realised at scale across diverse discipline groups, and among cohorts that comprise high proportions of non-traditional learners.
3. Student satisfaction may be more resistant to change when moving to immersive block learning.
4. Care should be taken to scaffold practical and theoretical learning in immersive block learning.
5. Natural and Physical Sciences, Society and Culture and Creative Arts appear well-suited to immersive block learning; however, further research is required.

Keywords

Immersive scheduling, block model, student success, curriculum reform, discipline specific teaching.

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Introduction

Over the past five decades, with increasing numbers of students participating in higher education (HE) and greater diversity in HE student cohorts globally (Marginson, 2016), there has been growing interest in new forms of HE curriculum design and delivery (Roche et al., 2025). Increasingly diverse student cohorts often include non-school leavers looking for a career change or upskilling, people with caring duties or family commitments, and part-time students seeking formal qualifications (Naidu, 2018; Stone, 2022). Many of these learners may be considered 'underrecognised', meaning that traditional models of HE have historically failed to recognise and value their capabilities and knowledges (Roche et al., 2025). Post the COVID-19 pandemic, many of these students are increasingly expressing preferences for more flexible, blended forms of learning that enable them to succeed in their studies around competing family and work commitments (e.g. in the USA see Fishman et al., 2022 and Kelly, 2021; globally see Quacquarelli Symonds, 2022). In response, HE institutions across the globe are considering how to better support students in a manner that meets their needs and preferences while establishing the conditions for academic success.

These changes in student cohorts, study needs and preferences have become a prominent catalyst for curriculum reform. Developing a curriculum involves purposeful approaches to content, assessment and pedagogy (Woelert et al., 2024) and is considered core to student success in HE (Honkimäki et al., 2022; Kahu & Nelson, 2018; Kift, 2015). Curriculum reform-based approaches to improving student outcomes stress the importance of moving beyond 'tinkering' at the edges of the student experience – through, for example, extra-curricular support initiatives for first-year and underrecognised students – to establishing the conditions for student success across the curriculum through a whole-of-institution approach (Kift, 2015; Tinto, 2009; Wilson et al., 2024). One such example of this is the growing interest in innovative teaching delivery approaches variously referred to as 'accelerated', 'intensive', 'time-shortened', 'flexible delivery', 'compressed' or 'block mode' courses (Davies, 2006). Immersive block curricula, often labelled as 'block models', typically enrol students in a single subject at a time over teaching periods of approximately four weeks (Konjarski et al., 2023), contrasting with the more traditional model of four subjects taken concurrently over a semester of 12-15 weeks. Although this semester model is the standard model for university learning in most western contexts, there is no definitive evidence that 12–15 weeks is the optimum time frame for learning, and the model has "persisted more due to tradition than evidence-based reasoning" (Lodge & Ashford-Rowe, 2024, p. 4).

Block models therefore represent a break with traditional scheduling in the pursuit of more effective modes of university education. They often involve curriculum reform beyond a simple scheduling change and draw on active learning pedagogy in their design and delivery (Roche et al., 2024a); however, it is of note that active learning pedagogies are not always used consistently in 'accelerated', 'intensive', 'time-shortened' or 'compressed' approaches.

One of the first reported examples of block model curriculum reform in HE was at Colorado College in 1970, followed soon after by Cornell College in Iowa in the late 1970s (Heist & Taylor, 1979). The approach is therefore not new, and a review in 2012 identified that 20 of 37 Australian universities were using some form of "intensive" education, albeit mostly at the postgraduate level (Harvey et al., 2017). Block model education has been recently introduced as part of whole-of-institution reform at Victoria University (VU; McCluskey et al., 2020) and Southern Cross

University (Roche et al., 2022) in Australia; and Suffolk University (Buck & Tyrrell, 2022) and De Montfort University (DMU; Allman, 2024) in the United Kingdom (UK) to improve student achievement. It has been argued that time-shortened models can improve learning achievement without sacrificing learning outcomes (Daniel, 2000). However, the success of block teaching may vary by subject area (Dixon & O’Gorman, 2020; Wilson et al., 2024), with, for example, differing outcomes for students observed in humanities (Lee & Horsfall, 2010) and the natural sciences (Harvey et al., 2017).

This paper provides preliminary insights into the impact of introducing an immersive block model across various HE disciplines at one Australian university with high proportions of underrecognised students, including those who are from low socio-economic areas, registered with a disability, from regional areas, first-in-family to study, or identifying as Indigenous (Roche et al., 2025). While subject-specific curriculum change has long been reported on in the HE literature, and more recent studies discuss at scale institutional reform (in Australia see Loton et al., 2022; Roche et al., 2025; Wilson et al., 2024; and in the UK see Buck & Tyrrell, 2022), analyses comparing outcomes across disciplines in a comprehensive university are less common. The data from this study will enable an overview of student academic performance and their satisfaction in the initial years of block model delivery across nine discipline groups, comparing outcomes with those from the earlier traditional model.

Literature

There is a growing body of evidence suggesting that immersive block models can lead to improvements in HE student learning outcomes, and that students are satisfied with these experiences (Goode et al., 2023, 2024a). For example, Loton et al.’s (2022) natural observation study reporting on the introduction of a block model to first-year university students in Australia revealed a significant improvement in assessment results ($N = 86,545$), with students achieving on average 10 marks higher, or an entire grade category in the block model. The effect was found to be particularly strong for younger, non-English-speaking background, and socio-economically disadvantaged students, thus emphasising the potential of block teaching to benefit underrecognised students in an era of widening participation. These effects were robust across different unit assessment designs (Loton et al., 2022). A subsequent study at the same institution found higher increases in block mode study for first-in-family, non-English-speaking background, and low socio-economic status students than for students who did not identify with these groups (Samarawickrema & Cleary, 2021). Similar results were found at a public, regional university in Australia with gains made in academic results ($N = 30,108$) for many of these same underrecognised student groups (Roche et al., 2025). Positive experiences have been observed in time-compressed mode subjects for some time across various disciplines, with students reporting better focus, motivation, and academic improvement (Ellis & Sawyer, 2009; Goode et al., 2024c, 2024d; Lee & Horsfall, 2010).

It is important to note that there are varied pedagogies employed in immersive block models. The pedagogy of interest for this paper, most often associated with block models, is a specific form of guided, active learning that engages students in media-rich, interactive and responsive learning experiences across online modules and classes (Roche et al., 2024a; see also Buck and Tyrrell (2022) and Sidiroglou and Fernandes (2019) for other examples of blended and active learning pedagogies in block model contexts). Active learning has been shown in HE contexts to improve

knowledge retention and retrieval (Karpicke et al., 2009) and real-world problem-solving skills (Crouch & Mazur, 2001). A meta-analysis of some 200 studies of active learning pedagogy in undergraduate STEM courses identified improved student achievement outcomes in classes where students were active rather than remaining passive while an academic lectured (Freeman et al., 2014). This is unsurprising given that more than seventy years of cognitive psychology research demonstrates that passive students are less likely to learn: in order to learn, students must be focused, active and engaged (Dehaene, 2020) – precisely the conditions immersive block scheduling aims to create (Wilson et al., 2024).

Immersive block models are, however, not without their critics. Dixon and O’Gorman (2020) noted self-reported improved time management for lecturers, but expressed concerns about students’ development of time management skills for future employment. Another issue that has emerged is the appropriacy of block models across disciplines (Dixon & O’Gorman, 2020; Konjarski et al., 2023). While more recent studies suggest that block models support increased academic achievement across whole institutions (Buck & Tyrrell, 2022; Goode et al., 2023; Wilson et al., 2024), the literature includes examples of varying outcomes for student achievement across certain HE disciplines. For example, Davies’ work (2006) reporting on a metanalysis of time-shortened units noted that across 21 disciplines studied: nine showed student learning improvements (psychology, macroeconomics, computer science, Russian, German, Spanish, human sexuality, general education, business administration); 13 showed no difference; and one unspecified language subject showed lower outcomes. In a more recent review by Dixon and O’Gorman (2020), positive learning outcomes were found in intensive undergraduate business and the humanities. Similarly, Loton et al.’s (2022) analysis at Victoria University found the greatest gains in student performance were for business, with more modest improvements in arts and education. In contrast, a US-based review (Daniel, 2000) has indicated that with appropriate planning, discipline areas such as algebra and earth science delivered similar academic achievement results to traditional semesters, and that only business students demonstrated lower comprehension scores in comparison with students in traditional semester courses.

Student satisfaction levels also appear to vary by discipline in immersive block approaches. Satisfaction is commonly measured via Likert-scale questions on standardised unit feedback surveys, known as Student Evaluations of Teaching (SETs) in the literature, administered by the university in the final weeks of a study period (Goode et al., 2024a). While these surveys are contentious, with various sources noting that their results can reflect negative biases towards minoritised academics (Gatwiri et al., 2024), they can allow some time-specific insights into “what worked and what might have worked better” (Ali et al., 2021, p. 7). They can, for example, be a useful way of comparing student perceptions of units and teaching before and after a curriculum intervention (Goode et al., 2024a; Loton et al., 2022).

A variety of literature draws on SET results as well as researcher-designed surveys to provide insights into student satisfaction with immersive block learning in specific contexts. Positive experiences in block mode subjects have been reported in the disciplines of Information and Communication Technology (ICT) and the social sciences, especially in terms of the social aspects of learning, motivation to learn and confidence in their learning (Lee & Horsfall, 2010). Visual art students have also expressed a preference for intensively delivered courses (Mims, 1983), indicating that deeper focus on one piece of work may better meet students’ artistic and educational needs. More recently, however, Wilson et al. (2024) noted declines in unit satisfaction

in health, while in science and engineering, even larger decreases were observed for both unit and teaching satisfaction. Loton et al. (2022) also found declines in unit satisfaction in health and law, attributed to content-related factors and varied levels of implementation of a block model pedagogy. This, however, contrasts with student satisfaction in intensive neuroanatomy courses, where higher levels of satisfaction to semesters were found (Whillier & Lystad, 2013). Block model curricula have also been successfully implemented in engineering (Smith et al., 2016) and science, as evidenced by student and staff perceptions (Huber et al., 2022). Ellis and Sawyer's (2009) study also found that multiple advantages were reported by statistics and law students undertaking intensive mode studies. Survey results indicated that students reported being better able to focus on their studies, and found classes were more interactive and teachers supportive. Whether these findings reflect something inherent about these disciplines, or about the pedagogies or how a given immersive block model was implemented, remains unclear.

Given the evidence pointing to disparities between the outcomes of block teaching across disciplines, this paper addresses the following research questions:

Research Question 1. How did student success (pass rates) change in units that transitioned from a traditional semester model to a 6-week immersive block model across nine broad Fields of Education, relative to a pre-reform baseline?

Research Question 2. How did overall unit and teaching satisfaction change over the same period and disciplines?

Insights into impacts across discipline groups are provided, exploring whether the inclusive and effective educational practices of block models that cater to the diverse needs of students are effective across various academic domains.

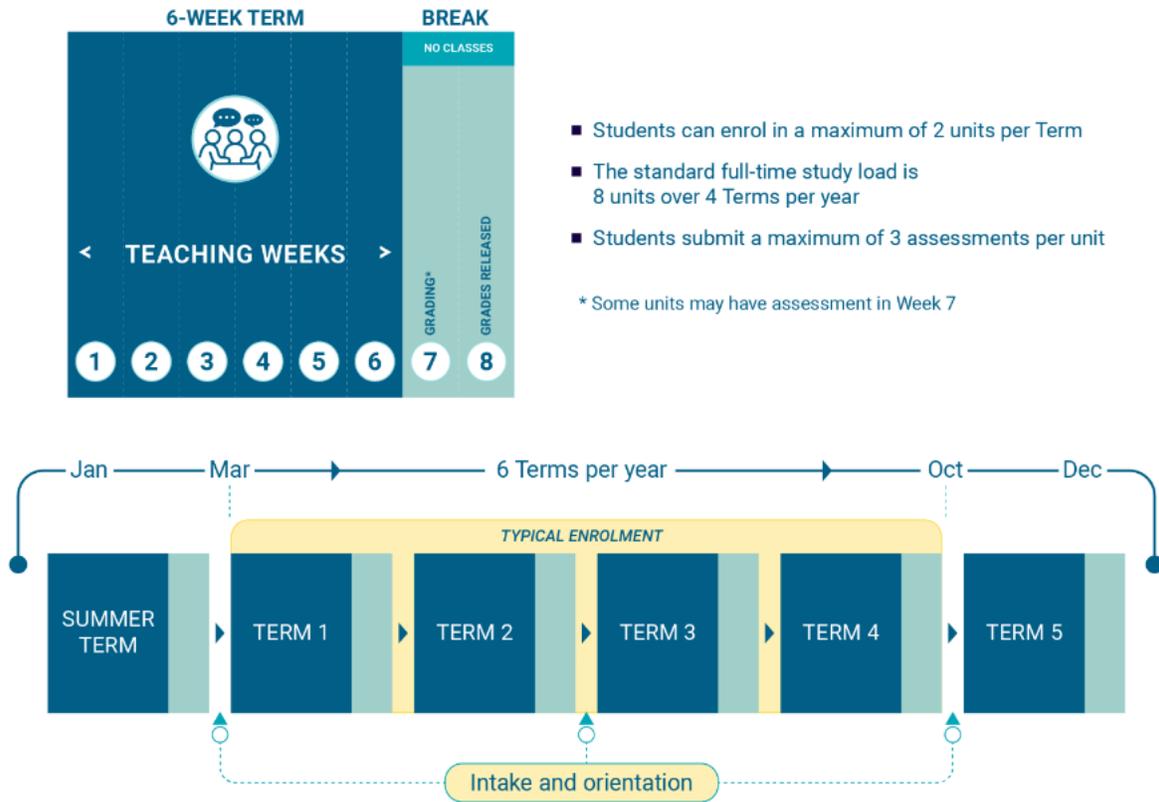
The Southern Cross Model

The immersive block model reported on in this paper, the Southern Cross Model (SCM), was implemented at the institution in 2021 to address the University's persistently low student retention and success rates (see Roche et al., 2024a). The Model re-schedules the academic calendar into six, six-week terms. Full-time enrolled students typically study two units per term (see Figure 1) for four consecutive terms per year. Units in the SCM are designed to be equivalent to traditional model units in terms of the volume of learning and the learning outcomes achieved by students. As a result of which, in an academic year, students will usually complete the same number of credit points over the same total time as they would have in the traditional model.

The SCM endeavoured to improve students' learning outcomes through a shift in teaching and learning practices, driven by new institutional policies and procedures that required a more consistent, learning-centred teaching approach across the institution (Roche et al., 2024a; Wilson et al., 2025). The model is underpinned by principles of: constructive alignment; focused learning; active learning (Biggs, 1996, 1999); interlinked assessments that are manageable and which support each other; guided learning with opportunities for feedback; and a carefully sequenced curriculum (Roche et al., 2024a; Wilson et al., 2025).

Figure 1

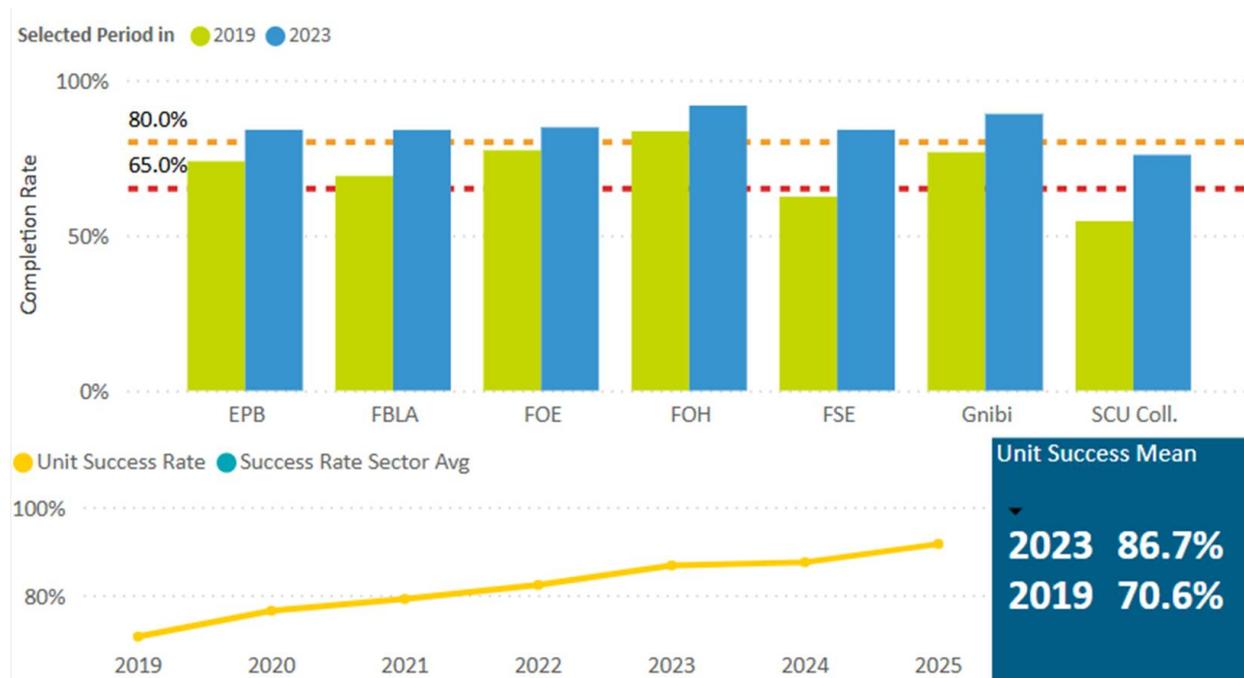
Teaching Terms in the Southern Cross Model. Source: Goode et al., 2023



Institutional policy operationalises these principles across three modes of learning: a) self-access online modules that are media-rich, interactive and responsive, as well as providing students with ongoing opportunities for practice and feedback; b) scheduled classes that are guided and interactive, involving tasks such as problem-based scenarios, discussion and simulations, with no lectures used, and c) assessments that are authentic and manageable in volume, limited to a maximum of three tasks that are scaffolded across a unit. As reported elsewhere (Roche et al, 2024b), at an institutional level the immersive block model has delivered positive outcomes for students, with success rates rising across the institution by 16.1% (see Figure 2). The acronyms per faculty are: EPB (Educational Partnerships Board); FBLA (Faculty of Business, Law and Arts); FOE (Faculty of Education); FOH (Faculty of Health); FSE (Faculty of Science); Gnibi (College of Indigenous Australian Peoples); and SCU Coll (SCU College – pathways programs).

Figure 2

Unit success rates in 2019 compared with 2023. Source: SCM Dashboard, 28 March, 2025.



Faculties and colleges, however, obscure differences between disciplines (e.g. Law, Business and Arts appear in one faculty) as some disciplines may be taught across faculty structures. In the below we describe an investigation of the impact of the SCM on student outcomes (as measured by pass rates and unit feedback survey results) across more granular discipline groups known in the Australian context as Fields of Education (FoEs). These are clusters of subject areas that form broad HE disciplines, as defined by the Australian Bureau of Statistics (2001).

Method

The study was approved by the Human Research Ethics Committee at the host institution (approval 2022/054). Institutional data (including Figure 2 above) were collected from the university's Business Intelligence and Quality (BIQ) unit, comprising students' grades and satisfaction survey results. While BIQ are the custodians of these data, the lead author is the Executive sponsor of the institution's quality assurance activities, including data collection and reporting pertaining to educational quality. Data obtained from BIQ are considered official institutional records, collected to meet reporting obligations, as well as for evaluative and research purposes. The satisfaction survey is delivered across the university in the latter weeks of a teaching period, before final unit grades are released. The survey is conducted online, is voluntary and anonymous, and is distributed centrally by BIQ. These quantitative data allow insights into whether students' success rates or overall unit or teaching satisfaction rose in the immersive block model compared to the traditional semester delivery. It provides an initial view of these outcomes across nine discipline areas.

Microsoft Excel and SPSS (29) were used for data storage, cleaning and analysis. Various filters and flags were applied to the data:

1. Non-award pathways and postgraduate student records were removed due to their differing entry requirements and academic levels compared to undergraduate cohorts.
2. Only records that were obtained from the traditional semester model delivery in 2019, 2021 or 2022, or the SCM in 2021, 2022 or 2023 were retained.
3. To address RQ1, academic results were dichotomised into Pass (Completed) or Not Pass (Failed or Withdrawn after Census, the date until which students can withdraw from a unit of study without financial penalty). Although losing some nuance compared to an analysis of grade distributions, this method aligns with the standard approach to measuring student success in the Australian HE sector (Department of Education, 2025). Other records (e.g. Early Withdrawn, Incomplete) were removed.
4. To identify discipline groups for the analysis, records were classified according to the course's Broad FoE, as defined by the Australian Standard Classification of Education (Australian Bureau of Statistics, 2001).
5. Records were flagged as either baseline or comparison data in two groups of units:
 - a. A SCM group: comparing the baseline traditional semester model delivery (2019) with the SCM delivery (2021–2023).
 - b. A control group: comparing the baseline traditional semester model delivery (2019) with offerings that remained in the traditional model while the SCM was progressively rolled out across the institution (2021–2022).
6. The study samples were restricted to matched-pairs of units, i.e. only units that appeared in both the baseline and comparison within each group. As such new units, or existing units that were discontinued after the model was implemented, were not included.

To address RQ2, responses to two specific questions on the satisfaction survey were considered: 'Overall, I am satisfied with this unit' and 'Overall, I am satisfied with the teaching in this unit'. Responses on a 5-point Likert scale were dichotomised into positive (4 Agree or 5 Strongly Agree) or neutral/non-positive (1 Strongly Disagree, 2 Disagree, 3 Neither). Response rates were calculated by considering the number of survey responses in a study period as a proportion of the total number of students enrolled at the study period Census Date.

Descriptive statistics were generated for academic success (RQ1) and unit and teaching satisfaction (RQ2) across both groups. Pearson's chi square tests were conducted to test for significant differences between the baseline and comparison cohorts, and Cramer's *V* outputs were used to investigate effect sizes.

Results

Success increased in seven of nine disciplines in the immersive block model, with the largest gains in Natural and Physical Sciences, Society and Culture and Information Technology. In contrast, satisfaction rose in Information Technology and Management and Commerce, was stable in several disciplines, and declined in Engineering and Related Technologies, Health, and Education.

Student Success (RQ1)

Table 1 shows the results for student success (also known as pass rates), in both the SCM and control groups across the FoE categories. Statistically significant increases ($p < .001$) were observed in the SCM across seven disciplines: Natural and Physical Sciences; Information

Technology; Health; Education; Management and Commerce; Society and Culture; and Creative Arts. In six of the nine disciplines, success rose for both the SCM group and the control group, which had experienced a university-wide shift towards active, guided and blended learning. However, success rate increases were larger in the SCM than they were in the control groups in all of these disciplines except Management and Commerce, where the increase was 0.2% higher in the control group. In two disciplines, Engineering and Related Technologies, and Agriculture, Environmental and Related Studies, there were non-significant increases in the SCM and decreases in the control groups. The highest rise in success in the SCM occurred in Natural and Physical Sciences, with a 15.4% point increase. The largest difference between SCM and control group results was observed in Society and Culture, where there was a difference of 9.2% points. Effect sizes were generally, but not universally, found to be stronger in the immersive block model cohorts.

Student Satisfaction (RQ2)

Tables 2 and 3 include results for overall unit and overall teaching satisfaction. Considering the samples in Table 1 as the total population invited to respond to the UFS, survey response rates varied from 21.3%–37.8% in the baseline cohorts, and from 27.0%–41.7% in the comparison cohorts. There were significant decreases in unit satisfaction in three disciplines in the SCM: Engineering and Related Technologies; Health; and Creative Arts. There was a significant increase in Management and Commerce. Unit satisfaction changes were more positive in the SCM than the control groups in two disciplines: Agriculture, Environmental and Related Studies; and Management and Commerce.

Overall teaching satisfaction declined significantly in the SCM in three disciplines: Engineering and Related Technologies; Health; and Education. There were significant increases in the SCM in two disciplines: Information Technology; and Management and Commerce. Teaching satisfaction changes were more positive in the SCM than the control groups in three disciplines: Information Technology; Agriculture, Environmental and Related Studies; and Management and Commerce. Effect sizes also tended to be stronger in the immersive block model groups compared to the control groups.

Table 1*Student Success in the Traditional Model and the Southern Cross Model (2019–2023)*

Broad Field of Education (FoE)	Baseline		Comparison		Success rate change (%)	$\chi^2(1)$	<i>p</i>	Cramér's <i>V</i>
	<i>n</i>	Success rate (%)	<i>n</i>	Success rate (%)				
Natural and Physical Sciences	387	69.3	1,539	84.7	15.4***	48.9	< .001	0.16
<i>Control</i>	380	68.9	1,358	77.9	9.0***	13.1	< .001	0.09
Society and Culture	8,850	69.1	8,614	82.5	13.4***	428.1	< .001	0.16
<i>Control</i>	8,803	69.1	14,101	73.3	4.2***	46.2	< .001	0.05
Information Technology	5,008	65.9	6,837	78.0	12.1***	213.7	< .001	0.13
<i>Control</i>	5,006	65.9	4,034	77.1	11.2***	136.3	< .001	0.12
Creative Arts	1,789	75.2	2,535	84.5	9.3***	57.7	< .001	0.12
<i>Control</i>	1,755	74.9	1,719	79.5	4.6**	10.1	.001	0.05
Management and Commerce	12,139	71.2	5,239	79.1	7.8***	115.7	< .001	0.08
<i>Control</i>	11,939	71.0	10,407	79.0	8.0***	185.1	< .001	0.09
Health	4,517	86.4	7,902	89.7	3.3***	30.2	< .001	0.05
<i>Control</i>	4,510	86.4	11,654	86.1	-0.3	0.2	.640	0.00
Education	8,107	81.1	16,536	84.3	3.2***	41.2	< .001	0.04
<i>Control</i>	8,091	81.1	10,067	82.6	1.5**	7.4	.007	0.02
Agriculture, Environmental and Related Studies	543	80.5	224	85.7	5.2	2.9	.086	0.06
<i>Control</i>	523	79.9	308	76.0	-3.9	1.8	.181	0.05
Engineering and Related Technologies	393	76.3	1,302	78.0	1.7	0.5	.479	0.02
<i>Control</i>	286	75.4	332	73.2	-2.2	0.4	.525	0.03

Notes. The baseline results were obtained from units offered in the traditional semester model in 2019. The comparison results were obtained from the same units in either the Southern Cross Model in 2021–2023 (discipline groups), or in the traditional model in 2021–2022 (control groups), during the University's transition to the new model.

* $p < .05$; ** $p < .01$; *** $p < .001$. Statistically significant results ($p < .05$) are bolded.

Table 2*Unit Satisfaction in the Traditional Model and the Southern Cross Model (2019–2023)*

Broad Field of Education (FoE)	Baseline		Comparison		% agree change	$\chi^2(1)$	<i>p</i>	Cramér's <i>V</i>
	<i>n</i>	% agree	<i>n</i>	% agree				
Natural and Physical Sciences	98	84.7	620	79.0	-5.7	1.7	.195	.05
<i>Control</i>	97	84.5	520	86.0	1.5	0.1	.712	.02
Society and Culture	2,460	81.5	3,230	81.1	-0.4	0.2	.680	.01
<i>Control</i>	2,444	81.5	4,708	84.4	2.9**	9.7	.002	.04
Information Technology	1,068	78.5	1,860	80.0	1.5	1.0	.322	.02
<i>Control</i>	1,067	78.4	1,210	79.8	1.4	0.7	.415	.02
Creative Arts	591	87.0	917	81.7	-5.3**	7.4	.007	.07
<i>Control</i>	587	86.9	601	85.9	-1.0	0.3	.607	.02
Management and Commerce	2,622	78.8	1,832	86.4	7.6***	42.2	< .001	.10
<i>Control</i>	2,565	78.7	3,107	85.1	6.4***	40.0	< .001	.08
Health	1,179	76.9	2,398	71.0	-6.0***	14.2	< .001	.06
<i>Control</i>	1,178	76.9	3,504	78.8	1.9	1.8	.181	.02
Education	1,997	78.1	4,462	79.7	1.7	2.3	.126	.02
<i>Control</i>	1,991	78.1	2,991	81.3	3.2**	7.5	.006	.04
Agriculture, Environmental and Related Studies	195	91.8	85	89.4	-2.4	0.4	.520	.04
<i>Control</i>	192	91.7	99	88.9	-2.8	0.6	.439	.05
Engineering and Related Technologies	141	90.8	543	74.4	-16.4***	17.4	< .001	.16
<i>Control</i>	108	88.9	127	85.0	-3.9	0.8	.385	.06

Notes. The baseline results were obtained from units offered in the traditional semester model in 2019. The comparison results were obtained from the same units in either the Southern Cross Model in 2021–2023 (discipline groups), or in the traditional model in 2021-2022 (control groups), during the University's transition to the new model.

* $p < .05$; ** $p < .01$; *** $p < .001$. Statistically significant results ($p < .05$) are bolded.

Table 3*Teaching Satisfaction in the Traditional Model and the Southern Cross Model (2019–2023)*

Broad Field of Education (FoE)	Baseline		Comparison		% agree change	$\chi^2(1)$	<i>p</i>	Cramér's <i>V</i>
	<i>n</i>	% agree	<i>n</i>	% agree				
Natural and Physical Sciences	98	91.8	620	85.5	-6.4	2.9	.089	.06
<i>Control</i>	97	91.8	520	88.1	-3.7	1.1	.295	.04
Society and Culture	2,460	83.9	3,230	85.3	1.4	2.2	.140	.02
<i>Control</i>	2,444	83.9	4,708	86.8	2.9***	11.3	< .001	.04
Information Technology	1,068	79.8	1,860	84.5	4.7**	10.4	.001	.06
<i>Control</i>	1,067	79.8	1,210	80.6	0.8	0.2	.623	.01
Creative Arts	591	87.6	917	87.1	-0.5	0.1	.769	.01
<i>Control</i>	587	87.6	601	89.5	1.9	1.1	.290	.03
Management and Commerce	2,622	80.8	1,832	88.3	7.4***	44.2	< .001	.10
<i>Control</i>	2,565	80.6	3,107	86.9	6.3***	41.3	< .001	.09
Health	1,179	83.0	2,398	78.9	-4.1**	8.5	.003	.05
<i>Control</i>	1,178	83.0	3,504	83.8	0.8	0.4	.554	.01
Education	1,997	86.6	4,462	84.1	-2.5*	6.6	.010	.03
<i>Control</i>	1,991	86.6	2,991	85.3	-1.3	1.8	.181	.02
Agriculture, Environmental and Related Studies	195	92.8	85	94.1	1.3	0.2	.692	.02
<i>Control</i>	192	92.7	99	93.9	1.2	0.2	.694	.02
Engineering and Related Technologies	141	90.8	543	81.6	-9.2**	6.9	.009	.10
<i>Control</i>	108	89.8	127	85.8	-4.0	0.9	.354	.06

Notes. The baseline results were obtained from units offered in the traditional semester model in 2019. The comparison results were obtained from the same units in either the Southern Cross Model in 2021–2023 (discipline groups), or in the traditional model in 2021–2022 (control groups), during the University's transition to the new model.

* *p* < .05; ** *p* < .01; *** *p* < .001. Statistically significant results (*p* < .05) are bolded.

Discussion

In a recent overview of immersive block models in higher education, Solomonides et al. (2024) pose a question that is at the heart of this study: “Are there discipline areas that lend themselves to intensive modes of study?” (p. 6). This is an open issue, where differing or ambiguous outcomes are sometimes observed in different disciplines (Dixon & O’Gorman, 2020; Konjarski et al., 2023). This study sheds some light on this question by investigating the impact of a six-week, two-unit-at-a-time immersive block model on nine disciplines offered at a public Australian university across 2019–2023, comparing the outcomes for units offered by that institution in both the traditional and the immersive block model. Overall, the study’s results provide broad support for the applicability of an immersive block model across multiple, divergent disciplines in HE,

including STEM, the Arts and Humanities, and professional practice-focused areas such as Health and Education.

In relation to RQ1, student success rates rose for all nine disciplines studied, with statistically significant increases occurring in seven disciplines. This is congruent with a number of studies that have identified positive impacts on academic achievement in multi-disciplinary block model contexts in the UK (Buck & Tyrrell, 2022; Turner et al., 2021), the US and Australia (Davies, 2006; Konjarski et al., 2023; Loton et al., 2022).

Notably, we found particularly strong support for the efficacy of immersive block delivery in four broad fields of study where success rates were uplifted by 7.8 to 15.4% points: Natural and Physical Sciences; Society and Culture; Information Technology; Creative Arts; and Management and Commerce. These disciplines with significantly heightened success cover diverse skills, knowledges and competencies. This further highlights the potential of immersive block approaches for enhancing student achievement at scale across multiple disciplines. Furthermore, as others have recognised (Harvey et al., 2017; Huber et al., 2022), there is a notable dearth of evidence concerning several of these disciplines in immersive block literature. These findings therefore carry some importance as a reference point for future applications and investigations of immersive block learning in these areas.

The results in Natural and Physical Sciences are particularly noteworthy, as there is some contention in the literature as to the suitability of block approaches for “content-heavy courses such as science and math” (Konjarski et al., 2023, p. 11). Some sources note that academics in the sciences may be less likely to perceive immersive block teaching favourably, given “fundamental acceptance of the belief that more time is needed to take in information” in these areas (Dixon & O’Gorman, 2020, p. 587; see also Huber et al., 2022; Sewagegn & Diale, 2019). There is some support for this in the research, with one of the few available studies on student performance in immersively-delivered science and mathematics subjects finding small but significant decreases in student grades in a block format compared to a traditional semester (Harlow et al., 2015) and another finding decreased understanding of statistics in shorter time frames (Budé et al., 2011).

The results in this study counter these outcomes, with a success rate increase of 15.4% points in Natural and Physical Science units that shifted to the SCM, a result exceeding control group outcomes by 6.4% points. This demonstrates that significantly higher proportions of students were able to meet the learning outcomes in the shorter model, potentially due to the more focused structure that such formats provide, reducing cognitive load and motivating students towards timely completion of learning tasks (Buck & Tyrrell, 2022; Goode et al., 2024c, 2024d; Wilson et al., 2024). Although this change was accompanied by small declines in satisfaction in the immersive block model, these were not found to be significant. Even with the decrease, student feedback on Natural and Physical Science units and teaching in the immersive block model remained high at 79.0% and 85.5% respectively, indicating students were positive about their learning experience in this model.

The largest gap in success rates between the SCM and control group units was observed in Society and Culture, with a 9.2% point difference across the two models of study in the post-reform 2021–2023 period. Coupled with the stable satisfaction results, this provides a strong indication of the immersive block model’s efficacy in this discipline. The findings here also appear

consistent with pass rate increases in the Arts in Victoria University's block model in Australia (Loton et al., 2022), as well as with positive assessments of Law delivered in block mode (Ramsay, 2011; Samarawickrema et al., 2020). It is noteworthy that the range of subjects included in Society and Culture are generally considered to develop generalist knowledge (i.e. through a curriculum centred on extensive reading, discussion and writing), rather than develop technical skills (i.e. through a curriculum centred on practicing laboratory skills, administering medical interventions, or using computer assisted design technology) (Fraser & Thomas, 2013; Klein & Walton, 2023). Consequently, Society and Culture units are often reading-heavy. The large, significant increase in student success observed here was despite the shorter time frame to engage with reading material. The implementation of the SCM drove a swathe of changes to policy, pedagogy, and process, including a reduction in prescribed readings (Thorpe et al., 2024). It therefore seems likely that efforts to sequence, scaffold, and offer manageable reading lists were key factors behind the positive outcomes in this discipline, within broader efforts to design a focused, active, and guided curriculum (Thorpe et al., 2024).

The employment of active learning pedagogies, moving from lectures about readings to more dialogic, engaged classes may have contributed to the improved results too. We note that the government-defined field of Society and Culture crosses a range of sub-disciplines, including Law, Language and Literature, Political Science, and others. Therefore, future investigations could consider, at a more granular level through a combination of quantitative and qualitative data, which pedagogical strategies appear to drive positive outcomes in particular subject areas.

There is very little extant research on Creative Arts in block models, apart from some early research indicating a preference among visual arts students for block model delivery (Mims, 1983), and a few more recent investigations of student experiences in art and design in the UK (Slevin, 2021) and in units drawing on arts-based pedagogies in Australia (Long & McClaren, 2024). This existing research indicates that Creative Arts education can be delivered successfully in immersive blocks, with students reporting that the "focused and sequential" design of creative units supports clarity, motivation, and successful transition into HE (Slevin, 2021, p. 173). The research presented in this paper reinforces this, with a significant uplift in student success compared to the pre-reform delivery. However, a decline in unit satisfaction signals that the student experience may need to be carefully considered alongside the more focused scheduling structure. Therefore, while this study indicates that immersive block models can support student achievement in Creative Arts, additional insights into students' views on their learning experiences are required to more fully investigate the benefits and challenges of immersive block learning in creative fields.

Results in Information Technology and Management and Commerce highlight the key role of pedagogical uplift in transitioning to an immersive block model. These disciplines both experienced a significant increase in both student success and teaching satisfaction. However, comparable increases in success, and to a lesser extent satisfaction, were also observed in the control groups. As we have argued elsewhere, the success of immersive block models is attributable not only to scheduling changes, but also, and importantly, to transforming pedagogy and teaching and assessment approaches (Wilson et al., 2025). At Southern Cross, the implementation of the SCM involved a concerted shift towards active learning pedagogy and authentic assessment; these were central to the model, alongside scheduling reforms (Roche et al., 2024a; Wilson et al., 2025). The importance of these pedagogical changes can arguably be

seen in the parallel uplift in the control groups, as these units would have benefitted from the academic practice uplift taking place across the university. While the scheduling aspect of the immersive block model may not have been *the* key feature supporting improved outcomes in these disciplines, it seems evident that the pedagogical reforms that were a core part of the model have had a strong positive effect.

In contrast, there was no significant change to success and a significant decrease in both unit and teaching satisfaction in the immersive offerings of Engineering and Related Technologies. This diverges from recent findings in the UK, where 94% of survey participants ($N = 320$) in the Faculty of Computing, Engineering and Media at De Montfort University indicated that they enjoyed the added focus of a block model, and 85% were satisfied with the quality of their course in block model delivery (Allman, 2024). Several issues may be impacting these results. Case and Heydendrych (2018) highlight the importance of both professional skills and conceptual understanding in engineering education, and it is possible that the scaffolding of conceptual learning with practical or applied learning was not optimum in the engineering curriculum in the early years of the SCM's implementation. Although untested, this could explain the decrease in satisfaction. Other block models, such as those at VU and DMU, also have longer contact hours than the model investigated here, which centres guided but flexible learning through self-access modules and three hours of class weekly in a typical unit (Nisbet et al., 2025). Therefore, reduced contact hours in the SCM may have also had a negative influence on student satisfaction. Aligning the SCM delivery with external accreditation requirements may also have presented challenges that affected student satisfaction. Additionally, the majority of units in Engineering and Related Technologies were not included in the analysis, as they were not matched across the traditional model and the immersive block model. Sample sizes were therefore limited, and more energies may have been invested in creating new units rather than redesigning the transitioned ones which serve as the data in this study, with negative impacts on satisfaction in the transitioned units. However, these factors remain speculative rather than evidence-based, and further research in this specific discipline at this institution, drawing on the views of both students and educators, may assist with understanding why satisfaction fell significantly in Engineering and Related Technologies.

Small or inconclusive changes were observed in three disciplines: Health: Education; and Agriculture, Environmental and Related Studies. In Health and Education there were small but significant increases in student success, alongside some declines in satisfaction. In terms of student success, these two disciplines were performing above other disciplines prior to the introduction of the SCM. With less room for improvement it is therefore still promising that success rates increased to a statistically significant extent, exceeding control group outcomes. Given the practice-focused nature of these disciplines, declines in satisfaction may, similarly to Engineering, reflect challenges with scaffolding and sequencing practical and theoretical learning. Student feedback has previously indicated that this is a core factor underpinning satisfaction in these disciplines (Goode et al., 2024b). Results for Agriculture, Environmental and Related Studies are more limited in interpretability, given the smaller samples sizes. However, this is a discipline that also places a strong emphasis on effectively integrating experiential and reflective learning (Lehrer, 2023). The findings in these three disciplines suggest that redeveloping curricula with a strong focus on practical and experiential learning may require time and continued reflective practice to support strong, significant improvements to student success and satisfaction.

The immersive block model explored in this study represents a holistic curriculum reform, incorporating concurrent changes to scheduling, pedagogy and curriculum design. The findings therefore reflect the impact of the model as an integrated whole, which presents a limitation in terms of disentangling the relative contributions of specific factors. Nonetheless, it is now well-documented that implementing immersive block models in this holistic way – as an integrated reform to pedagogy, curriculum and scheduling – is best practice (Buck & Tyrrell, 2022; Konjarski et al., 2023; Roche et al., 2024a; Wilson et al., 2025). The analysis in this paper therefore offers insights into a ‘real world’ example of a complex, multi-layered curriculum intervention.

The absence of qualitative data from students or academics, and that several of the disciplinary areas examined in this study encompass a range of subject areas and professional practice domains, are additional limitations. The use of dichotomised results for academic achievement and satisfaction may also lack some nuance compared to more granular approaches to analysing grades and Likert scale responses. Therefore, while this research provides some preliminary insights into how students have responded to the immersive block model in disciplines separated according to FoE, longitudinal mixed-methods investigations focused on narrower discipline levels (e.g. Law; Nursing) and drawing on both more granular quantitative outcomes and qualitative student sentiments, are recommended to enable more nuanced insights into student experiences and outcomes in immersive block model delivery. Smaller sample sizes in some disciplines, particularly Agriculture, Environmental and Related Studies and Engineering and Related Technologies, may have also weakened the robustness of results. We also acknowledge the possibility of non-response bias in the satisfaction results, whereby students with strongly positive or strongly negative experiences may have been more likely to participate. As noted above, student satisfaction responses can also be skewed by biases against minoritised academics (Gatwiri et al., 2024), and the absence of controls for such factors is a limitation. Changes to the staff delivering units is another factor that may have influenced the data, but which was not controlled for here. Examining how approaches to assessment are related to outcomes are also not considered in the present study, presenting additional opportunities for future research.

Conclusion

Understanding how immersive block models, as an examples of major curriculum reform, can affect student achievement and satisfaction across disciplines is vital to assessing their effectiveness and viability as alternative models for HE delivery. This study has demonstrated that an immersive block model not only worked effectively to deliver all of the nine disciplines reported here, but also that it can make a significant positive difference to student academic achievement across a range of disciplines. The model appears particularly suited to institutions that enrol high proportions of students from underrecognised backgrounds (Roche et al., 2025).

Statistically significant increases in student success were observed in seven of nine disciplines, with particularly notable enhancements in Natural and Physical Sciences; Society and Culture; Information Technology; Creative Arts; and Management and Commerce. The increases in Natural and Physical Sciences are of particular importance, given sentiments in previous studies that maths and science disciplines may not be as suited to block model learning as others (Konjarski et al., 2023). The transition to immersive block model delivery appears to have been least successful in Engineering and Related Technologies, where no change to student success,

and significant declines in satisfaction were observed; potential reasons for this are discussed above and further exploration of this discipline is warranted. Meanwhile, Health and Education experienced small but significant increases in success, and some declines in satisfaction, while no change to student outcomes was observed in Agriculture, Environmental and Related Studies. It is of note that where decreases in satisfaction were observed, across these disciplines unit and teaching satisfaction remained positive (>70%). To gain additional insights into strategies and challenges for implementing immersive block learning in these disciplines, future research should consider outcomes over longer periods of time, as refinements to curricula are made, and investigate student experiences through qualitative methods. Research into post-graduation outcomes such as employability and the preparedness of students for professional practice, is also notably absent in the literature and could be a fruitful area for future investigations.

Nonetheless, as universities globally seek to innovate in the way they deliver teaching and learning to more effectively engage and retain changing student cohorts, the evidence presented in this paper offers an important contribution. An immersive block model, implemented over a three-year period at an Australian university with a diverse student population, has made a significant positive difference to student achievement across a broad range of academic disciplines, crossing Arts, Science, Health, and Education. This has enabled more HE students to succeed, and highlights the strong potential of curriculum reform resulting in the use of more focused, guided and active modes of study.

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