Equity through complexity: Inside the "black box" of the Block Model

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This study investigated an innovation in higher education that has achieved demonstrable results for equity students: the Block Model at Victoria University (VU). It looked inside the "black box" of the Block Model, focusing on its positive impact on first-year student outcomes in science, technology, engineering and mathematics (STEM) subjects. The included interviews with leaders, academics and students at VU about why the Block Model has improved retention and learning. The findings show that the Model's impact comes not only from its design, but also from the complex context of its implementation. The study's analysis can assist other universities in recognising and managing complexity in equity-focused innovations.

○ DISABILITY	○ NON-ENGLISH SPEAKING BACKGROUND	○ INDIGENOUS	○ LOW SES	○ REGIONAL/REMOTE

BACKGROUND

In the Block Model at Victoria University (VU), subjects are delivered in intensive four-week blocks—one after the other—instead of concurrently as per the traditional semester model. VU introduced the Model for all first-year subjects in 2018, and is now expanding it across all courses. Student retention and outcomes in first year have improved significantly since its introduction, with the greatest gains in pass rates and learning achieved by equity students, an important consideration as VU has one of the highest enrolments of equity students in Australia.

This study focused on the impact of the Block Model on retention and outcomes for equity students in first-year science, technology, engineering and mathematics (STEM) subjects. STEM subjects face particular equity challenges, as reflected in their under-representation, but also have high potential for student-centred, inquiry-based learning, which is a feature of the Block Model design.

OBJECTIVES AND METHODOLOGY

The study commenced with quantitative analysis of student outcomes from two pre-Block and two post-Block first-year STEM cohorts. The analysis compared results for equity group students using student management system data (full student cohorts), and the Student Experience Survey (SES). Equity students comprised around three-quarters of each data set.

The qualitative phase of the study comprised three components:

- Interviews with seven selected VU leaders involved in Block Model implementation.
- Focus groups with 11 VU academics teaching first-year STEM subjects in Block Mode.
- Focus groups with 10 students who completed first-year STEM subjects in Block Mode.

The qualitative data was analysed to explore hypotheses generated at the beginning of the study in relation to how the Block Model improved outcomes for equity students in first-year STEM.

KEY FINDINGS AND RECOMMENDATIONS

Summary of key findings

The quantitative analysis demonstrated two facets of the Block Model's success:

- The unit failure rate among all students declined by 9.2 percentage points between the most recent pre-Block (2017) and post-Block (2019) cohorts, with the equity students' fail rate declining by 9.8 percentage points over this time.
- General student satisfaction with first year STEM units also improved, as survey items relating to teaching quality showing a steady improvement from 2016 to

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NCSEHE Research Fellow Matt Brett once said that 'equity is everyone's business'. This study, by Jen Jackson, Kathy Tangalakis, Peter Hurley and Ian Solomonides, shows how that is true of Victoria University's introduction of the Block Model, where students take subjects sequentially rather than simultaneously, and the classes are more personal and interactive than previously. Focusing on the model's implications for STEM subjects, the report demonstrates that students in general benefited from it, but equity students benefited the most compared to their previous outcomes.

Pedagogical changes cannot deal with all the issues equity students face, but teaching is the single most important way that universities can practically make a difference to equity student outcomes. Over the last decade, national completion rates among low SES students have deteriorated, making this a priority area. Some attrition is due to academic failure and student disengagement, which could be reduced with better program design.

Using interviews with students and staff, this report unpacks how the Block Model helped increase pass rates, retention, and student satisfaction. Focusing on one subject at a time helped students to manage their workload and commitments, but smaller, more intensive classes were also a vital part of the model's success. This aspect will interest universities not planning on shifting to block mode, but which have the same need as VU to improve student outcomes.

2019, with the only survey item showing a decline for equity students relating to the perception that unit workload was manageable.

The qualitative analysis explored questions around the hypotheses about the Block Model's impact:

- *The Block Model is informed by a rigorous base of theory, evidence and reflection:* The Block Model is based on similar models from North America and was adapted to VU's context in consultation with staff and drawing on equity-focused research.
- *The Block Model is situated in a supportive organisational context:* The establishment of a separate, interdisciplinary First Year College (FYC) at VU is widely seen as critical to the Block Model's success, with the challenge now to extend this success.
- *The Block Model prioritises strong relationships that enhance teaching and learning:* Improved relationships between academics and students was a strong theme in interviews, facilitated by smaller classes and intensive engagement.
- *The Block Model is being implemented by expert higher education practitioners:* FYC academics were selected because of their passion for teaching first-year students, and deliberately organised into a community of practice. This activated existing teaching expertise and established a space in which expertise is developed.
- *The Block Model enables time to be used more effectively for learning:* Students and academics emphasised the benefits of focusing on one subject at a time, with many students saying this had reduced their anxiety about study. The intensity of the Block also necessitates well-planned pre-class activities, scaffolded assessments, and a constant pace of learning. However, the rapid pace

of teaching was demanding for many students and staff.
- *The Block Model involves engaging curriculum that builds skills for learning:* The Block Model required all units to be redesigned. Most STEM subjects have been successfully transformed to offer more action learning and engagement, and all are undergoing continual revision and renewal.
- *The Block Model enables learning progress to be more actively monitored:* Students reported increased confidence after obtaining results for their first Block. Innovative, regular assessment and feedback—underpinned by better data use by staff—enables students to demonstrate knowledge in diverse ways, although some challenges remain in calibrating assessment.

Summary of recommendations

VU's introduction of Block Model shows that innovation in teaching equity students is achievable but that it involves considerable complexity. VU's experience of the Block offers insights into how other institutions can manage complexity in their own innovations.

For policymakers, the Block Model shows the importance of regulatory environments that actively support innovation, especially as financial necessity generates more institutional experimentation. It also reaffirms that a quality focus in teaching and active learning can improve student engagement and skill acquisition, especially for equity group students.

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