

Post-trial review report: Management of academically at- risk Bachelor of Commerce students at Curtin University

J-Han Ho, Hannah Carson, Fabio Costa,
Subra Ananthram, and Hannah Wilkinson

2026

Universities For All

aces.ed.au

Post-trial review report: Management of academically at-risk Bachelor of Commerce students at Curtin University

15 January 2026

J-Han Ho, Curtin University

Hannah Carson, Curtin University

Fabio Costa, Curtin University

Subra Ananthram, Curtin University

Hannah Wilkinson, Curtin University

Suggested citation: Ho J., Carson, H., Costa, F., Ananthram, S., & Wilkison H (2026). *Post-trial review report: Management of academically at-risk Bachelor of Commerce students at Curtin University*. Australian Centre for Student Equity and Success, Curtin University.

Australian Centre for Student Equity and Success

Tel: +61 8 9266 1573

Email: acses@curtin.edu.au

Web: www.acses.edu.au

Building 100

Curtin University

Kent St, Bentley WA 6102 | GPO Box U1987, Perth WA 6845

DISCLAIMER

Information in this publication is correct at the time of release but may be subject to change. This material does not purport to constitute legal or professional advice.

Curtin accepts no responsibility for and makes no representations, whether express or implied, as to the accuracy or reliability in any respect of any material in this publication. Except to the extent mandated otherwise by legislation, Curtin University does not accept responsibility for the consequences of any reliance which may be placed on this material by any person. Curtin will not be liable to you or to any other person for any loss or damage (including direct, consequential or economic loss or damage) however caused and whether by negligence or otherwise which may result directly or indirectly from the use of this publication.

COPYRIGHT

© Curtin University 2026

Except as permitted by the Copyright Act 1968, and unless otherwise stated, this material may not be reproduced, stored or transmitted without the permission of the copyright owner. All enquiries must be directed to Curtin University.

CRICOS Provider Code 00301J

ISBN 978-1-7644511-3-0

Acknowledgement of Country

The Australian Centre for Student Equity and Success acknowledges Indigenous peoples across Australia as the Traditional Owners of the lands on which the nation's campuses are situated. With a history spanning more than 60,000 years as the original educators, Indigenous peoples hold a unique place in our nation. We recognise the importance of their knowledge and culture, and reflect the principles of participation, equity, and cultural respect in our work. We pay our respects to Elders past, present, and future, and consider it an honour to learn from our Indigenous colleagues, partners, and friends.

Trial information

The trial was designed and delivered by: Associate Professor J-Han Ho, Mrs Hannah Carson, Dr Fabio Costa, Professor Subra Ananthram, and Mrs Hannah Wilkinson.

The trial was funded by the Australian Centre for Student Equity and Success (ACSES) and the Faculty of Business and Law, Curtin University.

Conflict of interest statement: We identify no relevant conflicts of interest.

This study received Curtin University Human Research Ethics approval (HRE2024-0078).

Table of contents

Acknowledgement of Country	ii
Trial information	iii
Table of contents.....	iv
1. Executive summary	1
1.1 Brief overview of the trial.....	1
1.2 Summary of outcomes	1
1.3 Key lessons and recommendations	1
2. Background.....	2
2.1 Policy context	2
2.2 Brief discussion of equity policy	2
2.3 Local context	3
3. Objectives	5
3.1 Purpose of the trial	5
3.2 Specific objectives or hypotheses	5
3.3 Overview of key outcomes	6
4. Implementation	8
4.1 Timeline and phases of the trial	8
4.2 Resources allocated.....	8
4.3 Description of how the trial was conducted in practice.....	9
4.4 Deviations from the planned protocol.....	10
5. Issues encountered	11
5.1 Design limitations	11
5.2 Inaccurate framing of objectives or hypothesis	11
5.3 Inadequate control groups, sample sizes, or variables	11
5.4 Operational issues.....	12
5.5 Coordination challenges.....	12
5.6 Incomplete data collection.....	13
5.7 Data quality and integrity.....	13
5.8 Unusable data	13
6. Lessons learned	14
6.1 What went wrong and why	14
6.2 Which assumptions or decisions contributed to unsuccessful trial.....	14
6.3 Insights into process gaps or organisational issues	15

7. Recommendations.....	17
7.1 Future trials	17
7.2 Institutional opportunities.....	17
8. References	19

1. Executive summary

1.1 Brief overview of the trial

This study aimed to evaluate the impact of targeted academic support provided to academically at-risk students—or Academically At-Risk Student Management (AARSM) practice—through a parallel randomised controlled trial (RCT) in Semesters 1 and 2, 2024. This academic support included the identification of academically at-risk second- and third-year Bachelor of Commerce (B.Com) students, and varying levels of targeted academic support. Due to challenges with gaining access to data in Semester 1, 2024 (detailed in Section 5), this phase was treated as a feasibility study, with this report focusing exclusively on Semester 2, 2024 data.

In Semester 2, 2024, the trial encompassed a population of 1,800 B.Com students, with 901 identified as academically at-risk, forming the study sample. These students were allocated into four groups (approximately 225 per group) receiving different levels of intervention intensity. However, inconsistent availability of assessment result data and issues arising relating to the quality of available data compromised the validity of the trial.

1.2 Summary of outcomes

The trial revealed shortcomings in the reliability and timeliness of data, impeding the ability for the trial to be implemented as intended.

As such, the trial was unable to determine whether the AARSM initiative resulted in statistically significant improvements in student engagement with the Learning Management System (LMS). No statistically significant increases in pass rates were observed across the intervention intensity levels.

However, the control group's fail rate (11%) was nearly double the faculty average (approximately 6%), suggesting the identification of students at elevated academic risk may be a useful indicator of later success. Consequently, the criteria employed for identifying at-risk students in this trial hold promise for future studies

1.3 Key lessons and recommendations

- To enhance data integrity and operational feasibility, future trials should incorporate comprehensive pre-trial scoping and a pilot, lead-in phase that focuses specifically on validating data accuracy and reliability, and ultimately suitability for evaluation purposes.
- Achieving an adequately powered trial necessitates suitable planning and consideration of appropriate contingency measures tailored to specific contextual requirements and challenges as they emerge. Continuous expert guidance is critical during both the design and implementation phases to ensure methodological rigor and effective execution.

2. Background

2.1 Policy context

In 2022–2023, the Australian Federal Government implemented a national policy whereby higher education students who failed more than 50% of their units in their first year of study became ineligible for Commonwealth assistance. Whilst the policy was discontinued in 2024, the revised framework places greater emphasis on institutional responsibility for student success, particularly in their first year of studies.

Effective from 1 April 2024, the Australia Government introduced the Support for Students Policy as an amendment to the Higher Education Support Act (2003) (HESA). This policy mandates that Higher Education Providers (HEPs) actively identify students at risk of failing to complete their units of study and ensure the provision of appropriate, effective, and sufficient support services. Each HEP is required to establish a Support for Students Policy outlining the available support services and the procedures for identifying and supporting at-risk students. Additionally, starting 1 March 2025, providers must submit an annual report detailing their policy implementation and compliance efforts, including the processes used to identify at-risk students and their needs, examples of types of supports offered and how these are communicated, and the processes in place to review and improve these supports.

The Support for Students Policy was introduced in the backdrop of the broader Australian Universities Accord, a year-long review of the Australian higher education system, which concluded in February 2024. The Accord aimed to establish performance targets and recommendations for improving the sector's long-term sustainability, with an emphasis on quality, affordability, and accessibility. The final report includes 47 recommendations, with a target to increase tertiary attainment to at least 80% of the Australian population by 2050. It also highlights the need to support under-represented groups including individuals from low socio-economic backgrounds, regional and remote areas, First Nations Australians, and people with disabilities.

2.2 Brief discussion of equity policy

Identifying equity students in need of support presents several challenges. Many equity students achieve academic success without requiring additional support, and assuming a deficit in these students can have detrimental effects (Larsen and Frost-Camilleri, 2023; Sharma 2018; Valencia 2010). A study by Sneyers and De Witte (2018) found that intervention through faculty mentoring has the largest influence on student outcomes that improves retention (8%) and graduation (5%) in higher education. Appropriate intervention is critical (Barnes et al., 2024; Macqueen et al., 2022) and requires skilled and experienced mentors and facilitators to provide relevant guidance that encourages students' buy-in. Targeted interventions such as task value, framing, and personal value, was found to be an effective tool in improving student outcomes (Harackiewicz and Priniski 2018). Helping students find value and prioritising their personal development and wellbeing is paramount, where academic achievements and student success will follow. This is supported by Benson et al. (2022), whose findings showed that failing students can be successful when they are encouraged to adopt a growth mindset and individually supported to develop their skills.

However, not all support initiatives require high levels of intervention. Low-cost light-touch interventions may still significantly affect student academic performance through referral for academic support on general skills such as study skills and time management (Gordanier et al. 2019).

Effective intervention hinges on inclusive strategies (Macqueen et al., 2022; Scobie and Picard, 2018) supported by skilled mentors and facilitators who deliver targeted guidance to foster student engagement and commitment. Prioritising students' personal development and wellbeing is essential, as research indicates these underpin academic achievement and broader success.

Consequently, this trial systematically evaluated the impact of intervention intensities on student outcomes. The trial posited that the timely identification of at-risk students is crucial for facilitating their success by addressing the various challenges they may face. It is reasonable to assert that at-risk students who do not fit within the traditional definitions of equity students may still be facing undisclosed, undiagnosed, or unrecognised challenges that require targeted academic support, intervention, and guidance.

2.3 Local context

Curtin University prioritises the identification and support of at-risk students. With more than 38,000 students enrolled at the Curtin Perth campus in 2023—including 9,934 students belonging to one or more equity categories—effective identification and scaling of support services are essential. Curtin provides a comprehensive array of academic and non-academic services, recognising the significant influence of non-academic factors on academic performance and student success. These include, but are not limited to:

- study supports through the University Library, Faculty of Business and Law (FBL) Academic Capability Development, Peer Mentoring, and UniPASS sessions in some units
- Curtin Connect for student queries
- career services and faculty-specific career support
- culturally-appropriate support for Aboriginal and Torres Strait Islander students, including academic tutoring
- accessibility services to assist students with disabilities and complex needs
- counselling and wellbeing services, social workers, and accommodation coaches for housing issues
- the Curtin Student Guild, including Guild Student Assist advocacy.

Curtin University's support services, accessible to all students including trial participants, face challenges in timely and accurate delivery to academically at-risk students (AARS). The diverse nature of academic units—varying in assessment designs, deadlines, and feedback schedules—complicates precise AARS identification. This complexity is amplified by diverse student backgrounds, evolving learning pathways, and operational constraints, including limited access to reliable, real-time data and sustainable workload management. Central operations track disengagement using metrics like no learning management system (LMS) interaction by Week 2, which may effectively identify first-year AARS but lacks validation for second- and third-year students. As students progress, their learning behaviours adapt to increased academic demands, competing priorities, and strategic engagement with

resources, often delaying interaction until later in the semester. Late-enrolled students face additional barriers, missing foundational content and struggling to meet deadlines, yet may not be flagged as AARS. Inaccurate contact information—particularly outdated phone numbers—hinders personalised outreach for wellbeing checks and interventions. Time-poor students balancing work, life, and study struggle to access services during standard hours, further limiting intervention efficacy.

The AARSM practice at Curtin University's FBL started in 2021. The initiative focused on first-year B.Com students, the faculty's largest undergraduate course with approximately 2,000 students enrolling annually. They found low engagement of students' interaction within the unit's LMS (engagement was quantified by the number of "clicks" on the unit LMS site) within the first three weeks of the study period was a reliable indicator of AARS. In the common core units (first five units that students enrol in when they commence the course), they observed students who interacted with the unit's LMS page fewer than 15 times in the first three weeks were more likely to fail their first assessment in Weeks 4–5. This group subsequently followed a trajectory of failing grades, or did not attempt further assessments, resulting in a Fail-Incomplete (F-IN) grade.

After identifying AARS, targeted interventions underpinned by a Learning & Teaching framework are essential to provide the necessary academic support. Since its inception in 2021, FBL's AARSM process, supported by multi-staged interventions from both professional and academic staff, has potentially contributed to a notable reduction in Fail and F-IN grades, as well as an increase in withdrawals prior to Census date (the last day to withdraw from a unit without incurring fees). Although AARSM has been implemented with a relatively small number of students, they observed a steady decline in the percentage of Fail and F-IN grades in the common core units following the introduction of the new B.Com structure in 2020. The primary aim of this trial was to extend the AARSM to second- and third-year B.Com students (those who have completed between 200 and 575 credit points [CP]), many of whom belong to at least one Curtin-defined equity category as there were 989 students enrolled in the B.Com in 2023 who belonged to at least one equity category.

3. Objectives

3.1 Purpose of the trial

The trial’s primary question to be investigated was:

What is the impact of the AARSM on second- and third- year Bachelor of Commerce students’ success?

“Student success” was defined as:

- increased LMS participation and engagement
- increased submission rates for assessments
- increased pass rates for students who had previously failed.

The identification of AARS for timely intervention has been widely demonstrated as effective in the literature, as early identification allows for targeted interventions that can guide students towards academic success. Supporting academic success in higher education can provide numerous benefits for students, including enhanced engagement with the learning environment; improved course progression (leading to reduced student debt); higher self-confidence and improved mental wellbeing; and improved academic outcomes, career advancement, and the potential for sustained life-long success. The theory of change underlying this initiative was based on the premise that early identification of disengaged students and subsequent targeted interventions would improve academic success (Cassells 2017).

3.2 Specific objectives or hypotheses

The trial’s *initial* primary objectives and hypotheses are described in the table below:

Initial trial objectives and hypotheses	
Objective	Hypothesis
Increase (LMS) participation and engagement, via monitored access of (LMS) unit analytics.	Hypothesis 1 Average of 35-unit (LMS) interactions (clicks) across the intervention groups by Week 7.
Increase withdrawal rates for intervention groups after ‘Week 3 at-risk’ intervention.	Hypothesis 2 Reduce F/F-IN by 5% across identified units by census date.
Increase unit completion rate leading to a decrease in F/F-IN results for units included in this trial.	Hypothesis 3 Decrease assignment non-submission rate by 5% for Assignment 2 (Week 7-10) compared to Assignment 1 (Week 3-5).
	Hypothesis 4 Increase in assignment pass (≥50%) rates by 5% for Assignment 2 in comparison to Assignment 1.

In Semester 1, 2024, it was hypothesised that low LMS engagement, informed by prior business-as-usual (BAU) observations in first-year units, strongly predicts academic failure, and that early identification enables effective student contact and support. The initiative sought to enhance engagement by contacting identified students via their registered phone numbers, aligning with Human Research Ethics (HRE) opt-in requirements. We believe that heightened student engagement contributes to academic success. The initiatives deployed aimed to increase student engagement to increase assessment submissions by 5%, increase assessment pass rate by 5% for assessment 2, and reduce Fail and Fail-incomplete (F/F-IN) rate by 5% in the unit.

Upon facing challenges from Semester 1's trial (discussed below in Sections 4 and 5), the objectives and hypotheses were revised and adjusted to the following (see table below).

Revised trial objectives and hypotheses	
Objective	Hypothesis
Increase (LMS) participation and engagement, via monitored access of LMS unit analytics.	Hypothesis 1 The initiative will increase average LMS interactions (Flag 1 of >15 interactions by end of Week 3) across the intervention groups by Week 7.
Increase unit completion rate and a decrease in F/F-IN results for those that received intervention.	Hypothesis 2 The initiative will reduce the non-submission rate for Assignments 2 and 3 compared to Assignment 1 for students in the intervention groups.
Increase unit completion rate leading to a decrease in F/F-IN results for units included in this trial.	Hypothesis 3 As a result of the initiative, students who fail Assessment 1 and receive the intervention at Flag 3 will remain enrolled and pass the entire unit.

3.3 Overview of key outcomes

The initiative did not increase student engagement in the LMS

The results showed that there was no statistical difference in average student engagement between the control and intervention groups when analysing increase of interactions between the groups from Week 4 onwards.

It was not possible to attribute an impact on assessment submissions to the initiative

The trial encountered issues pertaining to the validity and consistency of assessment submission data. The limited sample size in the previous study period, combined with variations in student cohorts and unit composition across assessments, makes direct comparison inappropriate. Inconsistencies in assessment submission timelines and result reporting also disrupted data uniformity, undermining the reliability of statistical analyses.

It was not possible to attribute an impact on unit withdrawals to the initiative

Retention data at Curtin University approved for use for this initiative could not confirm the withdrawal data because there were no simple or direct methods to check. Plans to implement supplementary methods were not pursued, as they required additional data

manipulation across platforms and datasets without the necessary approvals or available time. Therefore, our trial could not successfully track withdrawal rates in any meaningful and reportable way.

Furthermore, we could not collect or identify clear records of the impact of initiatives to determine whether support measures influenced students' decisions to withdraw from a unit. As mentioned above, withdrawal data is not reliably collected in Curtin databases within scope that we could discern and required manual processes that could not be resourced within the project.

The initiative did not increase pass rates amongst those potentially academically at-risk

Analysis revealed no conclusive evidence that initiatives significantly enhanced pass rates across the light-touch (Group B, 90%), mid-touch (Group C, 90%), or intensive (Group D, 91%) intervention groups compared to the control (Group A, 89%). Although pass rates increased between the control and light-touch/medium-touch (by 1%) and intensive (by 2%), the differences were not statistically significant. This may be because the sample size was too small to detect such small absolute differences given the high baseline rates (a ceiling effect). Delays and inconsistencies in result release may have added to the measurement noise.

Notably, the control group's fail rate (11%) was nearly double the faculty's average (approximately 6%), suggesting that the sample selection criteria may be one useful indicator of students at heightened academic risk compared to the broader population. However, the lack of statistical significance precludes definitive validation of these findings.

4. Implementation

4.1 Timeline and phases of the trial

In Semester 2, 2024, the trial had updated ethics approval to adopt an opt-out approach to student consent. To ensure appropriate communication, an announcement was posted on each unit's LMS page in Week 3 that had at least one student enrolled who may have been eligible for inclusion based on their enrolment and progression. The announcement included key facts on the trial, a link to the Participant Information Sheet, contact details for the trial, and a link to a Qualtrics survey form allowing students to opt-out of participation. All students with appropriate enrolment and progression who had a mobile phone number listed in their student profile also received a text message notification in Week 4 reminding them of the announcement.

In Week 4, students were identified as academically at-risk (AAR) if they engaged in LMS for fewer than 15 interactions in the initial three weeks of the Semester (Flag 1). It is important to note that identification of potentially AARS needs to be completed at the end of Week 3 due to the Census date at the end of Week 4, which is the final day students can withdraw without financial liability for unit fees. Students were also considered AAR if they met any of the additional criteria: on Conditional academic status; prior Fail or F-IN result in a unit during their study; and/or enrolled in a unit for a second or subsequent attempt. These identified AARS were verified as enrolled in the course, and then enrolled in the study if they had not contacted the team to opt-out of participation.

These potentially AARS were randomly allocated into one of four groups (no intervention, or one of the three treatments) by first generating a number for each person (using the "RAND" function in MS Excel), and then ordering this list by its random number. Each individual was then allocated into one of four groups: control (Group A), light touch (Group B), medium touch (Group C), or intensive support (Group D)—in that order to ensure individuals were evenly distributed across the four intervention levels.

The initiative started in Week 4, when Groups B, C, and D received the Flag 1 communication, and subsequently received the required Flag 2 intervention for assessment non-submission or Flag 3 intervention due to failing an assessment (if eligible) until Week 11, as the Friday of Week 10 was the final day that students could withdraw from their unit in the Semester.

4.2 Resources allocated

The trial ran from Semester 1, 2024 through Semester 2, 2024. Due to complications encountered in Semester 1, 2024 (discussed below in Section 5), this was handled as a feasibility phase and the data in this report is focused solely on Semester 2, 2024.

The initiative, as delivered in Semester 2 in 2024, required 1.6 FTE staff to design and deliver the initiative, coordinating across units and students and to extract student engagement data from the university administrative systems, collate and clean the data, and identify the at-risk students. The FTE were shared across an implementation lead (1.0 FTE)

and an implementation support for operational and data analyses (0.6FTE). Implementation staff utilised a text-messaging system to communicate with all relevant students in Semester 2, at a cost of 6.5 cents per message.

4.3 Description of how the trial was conducted in practice

All potential students were informed of the trial at the start of Semester 2 through announcements posted on all unit LMS pages in Week 3 (on 5 August 2024), where at least one student was enrolled in the unit who had 200–575 CP in B.Com. Communications were delivered as intended, with an opt-out weblink provided. Students in the population who had a mobile phone number listed in their student profile also received a text message alerting them to the LMS announcement in Week 4 (on 13 August 2024) to maximise the opportunity for students to receive information about the trial. These messages were sent to 1,650 students who had 200–575 CP in B.Com with an active enrolment in at least one unit, and who had an Australian mobile phone number listed in their student account.

A total of 18 student responses requesting to opt-out of the trial were recorded. Of those, nine students would have been eligible for inclusion in the trial. They were excluded from randomisation and the trial.

Quality assurance occurred over the duration of the trial at respective interventions. Throughout the course of the trial, anomalies detected included students who had an incorrect academic status applied to any of their unit enrolments (five students excluded due to no longer meeting eligibility criteria) and the mistaken inclusion of one experiential learning unit (six students excluded due to no longer meeting eligibility criteria). Additionally, one student was mistakenly being included at randomisation in both Group A (Control) and Group C (mid-touch intervention), after which point they were excluded from Group A as they had already received Group C interventions and support.

Students who withdrew from units during the trial are not included in the final dataset, as they are no longer identified in LMS engagement data and many were also excluded from the LMS Grade Centre data for result checking. These students could potentially be identified by comparing the sample population at randomisation with the eventual final results, as students who are missing from LMS data and do not have a final result in the unit in the student management system can be presumed to have withdrawn. The absence of a standardised university-wide metric for tracking withdrawals, particularly those occurring before the Census date, precluded precise measurement of withdrawal rates. This unforeseen limitation hindered our ability to evaluate the initiative's impact on reducing withdrawals among students with low engagement. Consequently, the final dataset for analysis included only students who remained enrolled in the unit at the study period's conclusion, limiting the scope of our findings.

Additionally, due to data limitations during final data collection, a total of 21 units were excluded from analysis, removing a total of 277 enrolments across 231 students. This includes incomplete, unavailable, and unresolved data due to operational limitations. As noted above, students who had withdrawn from units were excluded as their data was no longer available in the LMS. This resulted in a final dataset of 805 individual students with 1,810 enrolments across 87 units.

4.4 Deviations from the planned protocol

Due to additional operational complexities and complications, not anticipated during the trial design, the trial required the following adaptations during delivery:

Semester 1

- Far fewer students answered phone calls than anticipated. This was partly due to inaccurate phone numbers recorded in the system. This affected both trial participation and the number of students receiving the intensive phase of the support.
- A delay in receiving ethics approval resulted in the inability to fully operationalise the trial and/or receive informed consent from many students. This issue was partially addressed by deploying additional staffing resources, leading to an increased take-up of participants.
- Due to data being unavailable, the trial's initiatives were ineffective in operationalising key aspects of the initiative, including submission confirmation and marking feedback data.

Semester 2

- Data in the LMS and student management systems had complex linkage issues, limiting the ability of the implementation team to properly identify AARS and measure certain outcomes. For example, inaccurate reporting of some students' academic status raised false flags that students could potentially be AAR and thus eligible for the trial, when in fact this was not the case.
- Not all support programs could be delivered as expected, due to operational limitations such as data validity and student responses.
- Some units did not publicise when results were finalised for an assessment item, delaying support for those who failed assignments, or making interventions unachievable.
- Significant numbers of assessment results were not available for appropriate identification of those that failed assignments, and subsequent supports.

5. Issues encountered

While this RCT and intervention did not progress as planned, future activities may benefit from considering the issues identified below.

5.1 Design limitations

The initial design of the initiative—planned for Semester 1, 2024—targeted only students with low engagement, which was defined as fewer than 10 interactions on at least one LMS unit page by the end of Week 2. However, this criterion alone did not generate a large enough sample across the four groups, nor did it strongly predict pass rates. For Semester 2, additional factors were added, including previous unit failure, conditional academic status, and re-enrolment in a unit.

5.2 Inaccurate framing of objectives or hypothesis

The original outcomes and hypotheses did not match the practical realities of running the trial across multiple units. They were based on broad assumptions about unit structure, assessment timing, and results, which did not reflect how most units operated. In addition, as noted in Section 5.8, the student management system used in the trial produced unreliable withdrawal data. Since one of the trial's key goals was to provide and measure support for students at risk of withdrawal, this made it difficult to evaluate outcomes accurately. Without sufficient ongoing support and flexibility, the team could not adjust the trial to deal with the problems that arose during the semester.

5.3 Inadequate control groups, sample sizes, or variables

As noted earlier, the Semester 1, 2024 inclusion criteria did not produce large enough sample sizes. This problem was exacerbated by the ethics requirement for an opt-in model, where students had to give verbal consent over the phone. The process was very time-consuming, exceeding the capacity of two full-time staff, and was further hampered by disconnected or incorrect phone numbers and students not answering unfamiliar calls. A team of casual staff was hired in Week 4 to help contact students in Groups B, C, and D. Many students also objected to being labelled “academically at-risk,” which discouraged participation.

For Semester 2, 2024, the criteria were refined to align with the Support for Students Policy and Semester 1 data insights. Eligible students included those on conditional status, those who had previously failed a unit, those re-enrolled in a unit, or those with fewer than 15 LMS interactions by Week 3. Ethics approval was also updated to allow an opt-out model, supported by a new communication strategy. These changes increased participation but still did not provide large enough group sizes for statistically valid comparisons. Future trials could address this by reducing the number of groups to boost sample size per group.

Randomisation also did not account for student equity status, resulting in uneven distribution across groups. While randomisation helps balance differences overall, small sample sizes can still cause imbalances. Future trials could use stratified randomisation by equity group to ensure fairer comparisons.

Finally, achieving a truly representative sample remains difficult because of factors like intersectionality, undeclared conditions, and under-represented groups. The quantitative approach used here may not fully capture the experiences of marginalised students. Future trials might benefit from including qualitative or mixed-methods approaches to provide deeper insights and reduce bias.

5.4 Operational issues

In addition to the Semester 1 challenges, Semester 2 brought new complications. Some units were difficult to support because of how their assessments were designed, delivered, or marked. For example, 22 of the 108 units (20.4%) had in-class micro or incremental assessments that were completed over several weeks, which made it hard to track student progress. In these cases, results were not available until the end of semester, leaving no time for timely interventions. Four units had this issue for their first two assessments, with the final one due at the end of the semester, making it especially hard to identify at-risk students.

About 30 units (27.8%) also had long marking delays or unclear timelines for publishing results, which prevented the trial from identifying and supporting students who had failed early assessments. Some units only had assessments late in the semester, meaning interventions couldn't happen until Week 10 or later. This was too late for students to recover academically. In total, 33 units (30.6%) had no marks released before Week 11, while just over half (52.8%) had at least one mark finalised by Week 10. Out of 313 assessment items, only 57 (18.2%) had final marks by Week 10, with another 19 (6.1%) partially marked.

Because Flag 2 relied on missed submissions and Flag 3 on failed assessments, these delays and inconsistencies made timely support impossible. The trial also tried to use Microsoft Outlook's read receipts to see if students opened emails, but many had this feature disabled. Likewise, there was no way to tell if students accessed the linked online resources.

5.5 Coordination challenges

In Semester 2, the varied timing of assessment result releases across 108 units made it difficult to track students and deliver timely, scalable interventions. When fewer students than expected met the Flag 3 (failed assessment) criteria, the implementation lead asked all unit coordinators in Week 8 to notify the trial team via LMS when assessment results were released. Most complied, improving the identification and support of Flag 3 students.

LMS data extracts only provided snapshots in time, so some interventions were delayed. This meant that students flagged for missing an assessment (Flag 2) sometimes submitted their work before the communication reached them, reducing the accuracy and impact of outreach.

In Semester 1, many students reacted negatively to being labelled “academically at-risk,” even when support was offered. In Semester 2, communication was reframed using positive, inclusive language, which greatly improved student response and participation.

5.6 Incomplete data collection

Due to systems limitations during final data collection, a total of 21 units were excluded from analysis, removing a total of 277 enrolments across 231 students. This included errors with results finalisation, such as marks being unavailable for an entire unit at the determined point of data extraction, as well as other operational considerations. These issues were only discovered during final data analyses, by which time it was not possible to include the data for these units in the trial.

5.7 Data quality and integrity

The trial initially relied on LMS data to determine eligibility criteria, including academic status. However, a random sample audit at the outset of Semester 2, 2024, conducted by the implementation lead, revealed inaccuracies in LMS data due to complex data linkage issues. Consequently, academic status was excluded from the LMS analytics tool to prevent misidentification, requiring staff to consult a separate data source. This additional step may discourage staff from promptly identifying AARS and assessing risks of course termination due to insufficient academic progression. Further complicating matters, inconsistencies in LMS assessment types hindered accurate identification of non-submissions or failures, particularly for assessments with multiple components, “best-of” scoring systems, or provisions for multiple attempts.

Group assessments posed additional challenges, as the trial lacked resource-efficient methods to discern individual student contributions or attainment levels. Although interventions were offered, there was no assurance of student engagement with the provided advice or support opportunities. Moreover, establishing a true control group was problematic due to confounding factors, including communications from other university areas and direct outreach from academic staff, which could not be accurately tracked or controlled given the project’s staffing constraints.

5.8 Unusable data

It was not discovered until the end of Semester 2, when the team was attempting to analyse the results data, that the student management system approved for the trial did not accurately record nor easily report withdrawal data for students. The alternative would have been to manually cross-check data from other sources. However, this was beyond the scope and resources of the trial. This made it logistically impossible to definitively determine when a student may have withdrawn from a unit, thereby impacting the hypothesis regarding student withdrawal.

6. Lessons learned

6.1 What went wrong and why

The trial encountered several systemic and procedural challenges, many of which might have been mitigated through a more extensive pilot phase. A longer preparatory period would have enabled verification of the accuracy of data across various university systems and ensured that the implementation team was fully engaged before the start of the trial. Instead, Semester 1 effectively became a de facto pilot, with the compressed timelines limiting staff capacity to develop and finalise suitable trial protocols and identify issues in advance. Consequently, data validity problems were only uncovered well into Semester 2, after the project team had achieved full engagement, thereby constraining the ability to adapt in a timely manner.

Moreover, a retrospective analysis of historical data for second- and third-year B.Com students revealed that early low engagement—while initially assumed to be a key indicator of academic risk—did not reliably predict student outcomes. This finding, only apparent in hindsight during trial delivery, highlighted the limitations of relying on singular behavioural markers as risk criteria. Unfortunately, the timing of this insight provided little opportunity to recalibrate the AARS identification process. The trial thereby underscored the importance of robust pre-trial modelling and validation of risk indicators to ensure that selection criteria are both conceptually sound and empirically reliable.

Finally, given the substantive issues relating to data quality, where the data was admissible the trial faced significant challenges identifying AARS and delivering interventions, much less achieving adequate statistical power. Estimating the eligible sample size proved difficult, and the subsequent random allocation of students into four groups diluted statistical robustness. While potential remedies include reducing the number of groups or employing stratified random sampling to balance equity, demographic, course, year level, and engagement considerations, such approaches may be restrictive for smaller cohorts. More consistent guidance from a dedicated trial coordinator and a RCT expert would have substantially strengthened the study design. Expertise in frequent data analyses, sample selection, protocol alignment, in-flight adjustments, and reporting would have allowed the implementation team to adapt more effectively to emerging issues and achieve outcomes more closely aligned with the trial's objectives.

6.2 Which assumptions or decisions contributed to unsuccessful trial

Several underlying assumptions and decisions significantly contributed to the limitations and eventual shortcomings of the trial.

First, it was presumed that the available sample size would be sufficiently large to achieve statistical power, despite the absence of a definitive method for confirming this before the start of the trial. As a result, necessary adjustments to sample size and distribution could only be identified during implementation, thereby constraining methodological rigor.

Second, while students were randomly allocated into groups, the process did not sufficiently account for balancing distributions of personal, equity-related, and health-related (both physical and mental) challenges. This oversight introduced potential biases across groups and undermined the robustness of comparative analyses.

Obtaining accurate data was also a key issue. Despite the trial having three core objectives and four hypotheses, only two data platforms were formally obtained and approved for use in the trial when more data sources were needed for a robust investigation. Furthermore, as already described earlier, many units could not provide assessment feedback early enough in the study period. These limitations significantly reduced the trial's ability to generate reliable, comprehensive data.

Assumptions about student behaviour further compounded these issues, particularly the belief that students would actively engage with academic support services when such interventions were offered by staff external to their teaching team.

Finally, a series of resourcing and governance assumptions further constrained the trial's effectiveness. The compressed preparation period prior to commencement was deemed sufficient to assemble an effective implementation team, yet this proved inadequate to ensure readiness for the trial's objectives. Compounding these challenges, the majority of the trial team members were engaged only fractionally, which proved insufficient to deliver a resource-intensive RCT.

Collectively, these assumptions illustrated the need for more rigorous pre-trial planning, resource allocation, and methodological oversight in the design of future trials.

6.3 Insights into process gaps or organisational issues

As noted above, numerous inconsistencies were identified with the university's data systems, including that data in the LMS did not correspond to the correct data in the student management system due to complex linkage issues.

The ethics approval process in Semester 1 presented significant impediments to the trial, delaying the use of Semester 1 data in ways that limited timely adaptation. These delays highlight the critical importance of early and expert engagement with ethics processes to ensure that data access, approvals, and trial design are aligned at the outset. Without such alignment, implementation timelines are compromised, reducing the capacity to meaningfully adjust in response to early findings.

Methodologically, the trial revealed important limitations in the reliance on quantitative approaches alone. A sufficiently large sample is essential to ensure the representation of equity students, yet even when adequately powered, statistical methods often fail to capture the nuanced experiences of marginalised cohorts and the contextual factors shaping their engagement and outcomes. Compounding this challenge, student participation in academic interventions remained entirely voluntary, with no requirement to commit to an action plan or acknowledge the implications of disengagement. Highly disengaged students were frequently unreachable and unresponsive, thereby limiting the effectiveness of broad-based interventions and underscoring the need for more tailored strategies that foster commitment and accountability.

Structural features of assessment design further constrained the identification of AARS. Units with heavily weighted assessments late in the study period offered little opportunity for timely intervention, while the diversity of assessment types across units complicated the identification of consistent risk markers. More strategically placed assessments, with timely feedback early in the semester, are crucial—both for encouraging student engagement and for enabling effective intervention. Moreover, the trial highlighted the greater potential impact of support delivered by a unit’s teaching team, whose disciplinary knowledge, industry expertise, and rapport with students position them as trusted sources of guidance. Embedding teaching staff more actively in AARS initiatives could therefore evoke stronger engagement and yield more meaningful outcomes.

At the institutional level, the trial underscored the need for a more centralised and coordinated approach to AARSM. Key functions including data collection, dissemination, reporting, governance, and compliance would be more efficiently and effectively managed by a dedicated team of experts. Such a team could then collaborate with school- and unit-level staff to deliver interventions and provide targeted academic guidance. For universities to develop sustainable and scalable AARSM programs, careful review of staff resources and workloads is required, alongside the strategic use of technologies and integrated data platforms. Such infrastructure would enhance the identification and monitoring of at-risk students, improve evaluation of interventions, and ultimately strengthen institutional capacity to support diverse student cohorts.

7. Recommendations

The following recommendations aim both to enhance the identification and support of academically at-risk students and to enable more streamlined and effective processes for the conduct of future trials.

7.1 Future trials

Improve data analysis and preparation before trials: Before launching a trial, it's important to test all assumptions, check data quality and availability, and confirm that the design is realistic with the resources available. Data access and approvals can take time, which needs to be built into timelines. Ideally, feasibility checks and data investigations should be done before proceeding to trial, whether by application or otherwise. This helps identify risks, confirm that hypotheses are practical, and ensure alignment with university priorities. Trial plans should also allow flexibility for delays, ethics approvals, or other unforeseen issues.

Include experienced trial leadership: Inclusion of a trial expert helps ensure the data, design, and methods are sound and that challenges are managed effectively. Additionally, funding bodies (such as ACSES) can consider the previous experience of a trial team in the funding award process. Success also depends on having a committed project lead with enough time and resources to oversee the trial, monitor progress, solve problems, and guide the team. Early and ongoing data analysis helps refine the trial as it progresses.

Plan carefully when working with equity groups: When equity students are involved, trials need a clear data and evaluation plan that defines target groups, success measures, and realistic data expectations. This planning ensures that the results are meaningful and that interventions meet the needs of diverse student groups.

Investigate other risk indicators: Although not statistically significant in this trial, students who previously failed or repeated a unit were more likely to fail again. Further research is needed to confirm this pattern and refine early warning criteria.

7.2 Institutional opportunities

Fix LMS data bottlenecks: Timely access to student performance data—especially from early, low-stakes assessments—is essential for identifying and supporting at-risk students. This requires coordinated effort across the university, supported by a clear framework outlining roles and responsibilities. Data scientists can help clean and standardise legacy datasets, while upgrades to digital systems and data management practices can improve reliability, consistency, and integration. These steps enable faster, evidence-based interventions for student success.

Improve equity student identification: Better reporting tools are needed to track student progress from enrolment to completion and identify equity students early. This data can support governance, appeals, and access planning. Students facing severe challenges may also need flexible academic options or alternative statuses to ensure fair participation.

Understand the complexity of student engagement: Low LMS activity alone is not a reliable sign of risk. It ignores in-class participation and other factors like motivation, workload, and competing demands. Students may focus on certain units strategically rather than being disengaged. Future studies should take a broader view—combining online and classroom data across all units—to better identify genuine risk.

Build staff capability: Teaching staff need ongoing professional development to design effective, inclusive learning experiences. This includes well-aligned assessments, engaging activities, diverse learning formats, and timely feedback. When combined with unit- or course-level analytics, these practices can improve engagement and academic outcomes.

Balance central and local support: Effective support should combine central oversight with local expertise. Unit coordinators are best placed to identify low engagement within their classes, while central teams can monitor broader trends such as repeated failures or conditional status. Collaboration between both levels—supported by clear structures, technology, and shared data—ensures targeted, timely, and consistent interventions.

Use positive, inclusive language: Students in Semester 1 reacted poorly to being labelled “at-risk.” Reframing communications with strengths-based language—such as “Student Success Programs” or “Proactive Academic Support”—improved participation and perception. Support information should be easy to find in LMS platforms and portals. Positive language reduces stigma and encourages engagement.

Leverage technology and AI responsibly: Artificial intelligence can enhance student support systems by analysing large datasets, identifying trends, and using chatbots to guide students to relevant services. However, universities must test tools for accuracy and protect privacy, data integrity, and sustainability. Equity should remain central—flexible learning formats, accessibility tools like captioning and text-to-speech, and collaborative digital platforms can support diverse needs.

To ensure fair access, institutions should provide licences or alternatives for students with limited internet or device access. A central “digital toolbox” of approved technologies would help maintain equity and promote universal design for learning across all teaching and support activities.

8. References

- Barnes, Nicoli, Fischer, Sarah, and Kilpatrick, Sue. 2024. "Going above and beyond: Realigning university student support services to students", *International Journal of Educational Research*, 124, <https://doi.org/10.1016/j.ijer.2023.102270>.
- Benson, Jenelle, Marilyn Chaseling, Elizabeth Emmanuel, Christos Markopoulos, and Julie Ann Paredes. 2022. "Your success is our goal: An intervention for failing students", *Journal of University Teaching & Learning Practice* 19(2): 147-164. <https://doi.org/10.53761/1.19.2.10>
- Cassells, Laetitia. 2017. "The effectiveness of early identification of 'at risk' students in higher education institutions", *Assessment & Evaluation in Higher Education*. 43. 1-12. <http://dx.doi.org/10.1080/02602938.2017.1376033>
- Gordanier, John, William Haulk, and Chandini Sankaran. 2019. "Early intervention in college classes and improved student outcomes", *Economics of Education Review* 72: 23-29. <https://doi.org/10.1016/j.econedurev.2019.05.003>
- Harackiewicz, Judith M., and Stacy J. Priniski. 2018. "Improving Student Outcomes in Higher Education: The Science of Targeted Intervention", *Annual Review of Psychology* 69: 409–435. <https://doi.org/10.1146/annurev-psych-122216-011725>
- Larsen, Ana, and Frost-Camilleri, Liam. 2023. "Issues and Solutions: A Literature Review of the Deficit Discourses Concerning Under-Represented Students", In: Weuffen, S., Burke, J., Plunkett, M., Goriss-Hunter, A., Emmett, S. (eds) *Inclusion, Equity, Diversity, and Social Justice in Education. Sustainable Development Goals Series*. Springer, Singapore. https://doi.org/10.1007/978-981-19-5008-7_4
- Macqueen, Suzanne, Southgate, Erica, and Scevak, Jill. 2022. "Supporting students from equity groups: experiences of staff and considerations for institutions", *Studies in Higher Education*, 48(2), 356–367. <https://doi.org/10.1080/03075079.2022.2137124>
- Scobie, Helen, and Picard, Michelle. 2018. "Embedding Mental Wellbeing in Australian Regional Universities: Equity Interventions", *International Studies in Widening Participation* 5 (1): 65–79.
- Sharma, Manu. 2018. "Seeing deficit thinking assumptions maintain the neoliberal education agenda: Exploring three conceptual frameworks of deficit thinking in inner-city schools", *Education and Urban Society* 50(2): 136-154. <https://doi.org/10.1177/0013124516682301>
- Sneyers, Eline, and Kristof De Witte. 2018. "Interventions in higher education and their effect on student success: a meta-analysis", *Educational Review* 70(2): 208-228. <https://doi.org/10.1080/00131911.2017.1300874>
- Valencia, Richard R. 2010. "Dismantling Contemporary Deficit Thinking: Educational Thought and Practice", 1st ed. New York: Routledge.