TASO Evaluation Report: Analytics for Wellbeing Trials (University of East Anglia)

Technical report

March 2026

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Project title: Randomised controlled trials to test the impact of wellbeing interventions prompted by learning analytics in higher education (University of East Anglia)

Higher education provider(s): University of East Anglia

Evaluator(s):

- Impact Evaluation: The Policy Institute, King's College London
- Implementation and Process Evaluation: University of East Anglia

Project contributors:

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VERSION	DATE	REASON FOR REVISION/NOTES
1.1	10 March 2026	Updated introduction to include more recent citations. Copy edited report to fix grammatical errors and improve readability. Fixed page numbering/table formatting.
1.0 [original]	7 January 2026	Reviewed by external reviewer.
Pre-registration	29 October 2024	This design has been pre-registered on Open Science Framework[1]

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[1] TASO (2024, October 29). Analytics for Wellbeing trials – University of East Anglia. Retrieved from *osf.io/9zgxa*

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Acknowledgements

1. Summary

This study evaluates the impact of a wellbeing-focused learning analytics intervention delivered at the University of East Anglia (UEA) to support undergraduate students exhibiting early signs of academic disengagement.

Using the university's management information, students with less than 60% class attendance by end of Week 5 of the Autumn 2024 semester were identified and sent personalised emails between Weeks 7 and 10, highlighting their low engagement and linking to wellbeing support services.

This evaluation examines whether the email's design – specifically the use of concise (100-word) versus standard-length (700-word) formats – affected student engagement with university support services and their academic studies.

Table 1: Summary of evaluation details

Intervention	Email Interventions Prompted by Analytics[2]
Intervention type	Learning analytics (post-entry)
Higher education provider	University of East Anglia
Evaluator	Policy Institute, King's College London (Impact evaluation)
	University of East Anglia (Implementation and process evaluation)
Evaluation design	Randomised controlled trial (RCT)
	Implementation and process evaluation (IPE)
Comparison group type	Business-as-usual: long-form emails prompted by analytics

[2] The title of the intervention has been updated from "Wellbeing interventions prompted by analytics" as indicated in the trial protocol.

Sample size	1,213 students
	• 613 students in the treatment group
	• 600 students in the control group
Outcomes	Primary outcome:
	• Student engagement:
	o Attendance in timetabled taught events
	Secondary outcomes:
	• Student engagement:
	o Engagement with Virtual Learning Environment (Blackboard)
	o On time submission of summative assessments
	o On time submission of formative assessments
	• Student accessing resources linked in emails
	• Student wellbeing: ONS4 wellbeing measures

To assess the impact of changing the format of the emails sent to students, a two-arm randomised controlled trial (RCT) was conducted by the Policy Institute at King's College London. The RCT involved 1,213 undergraduate students who met the dis-engagement threshold and randomly assigned them to receive either the personalised short-form email (treatment group, $n = 613$) or the standard-length email reflecting business-as-usual (BAU) communication (control group, $n = 600$). It assessed the effects of this change on students' re-engagement with their academic studies using outcome measures such as attendance at timetabled taught events, engagement with the virtual learning environment (VLE), and timely submission of formative and summative assessments. It also examined students' interaction with the emails themselves, including the extent they accessed resources linked in emails, and changes in self-reported wellbeing captured through UEA's monthly student wellbeing surveys.

In addition to the impact evaluation, UEA designed and delivered an implementation and process evaluation (IPE) of this learning analytics prompted email-based intervention. Using a mixed-methods approach, the IPE focuses on how the

intervention was delivered and explores the experiences of both students and staff involved. Drawing on a range of data sources, including interviews with students and staff, responses to student surveys, administrative datasets and internal documents, it examines the fidelity of the implementation of the intervention, whether the intervention reached the intended students, differential engagement patterns among students, and whether repeated messaging to students raised the likelihood that students engage. It also identifies and explores perceived barriers to student re-engagement. Overall, the IPE complements the impact evaluation, providing further insights into the factors shaping the intervention's effectiveness.

Summary of findings

- There was no statistically significant impact of the treatment on attendance, nor on Blackboard logins.

- There was no statistically significant effect of the treatment on on-time submission of formative or summative assessment, among students who had at least one piece of such assessment due in Semester 1.

- Shortening the email significantly increased the probability of students engaging with it (filling in the linked Microsoft (MS) form), by 21 percentage points (95% CI = [17pp, 25pp]), meaning approximately 21 more people out of 100 in the treatment group filled in the form compared to the control group.

- No robust assessment of wellbeing was possible due to very low response rates to the wellbeing survey.

The IPE also provided important context to interpret the above results:

- There were mixed views about the short email format. While it was more accessible on mobile devices, it did not provide clear guidance about next steps.

- Staff found the email format lacked urgency and was not firm enough. They expressed the opinion that an email alone may not be sufficient to trigger behavioural change in disengaged students.

- Multiple factors led to student disengagement, which included structural and personal challenges such as health issues, commuting, finances, and family responsibilities.

- Staff raised concerns about using a one-size-fits-all threshold (e.g.<60% attendance) to identify disengagement across all students. Instead, they recommended adopting more flexible and tailored thresholds that reflect the needs of different groups of students.

- Staff noted that the timing of the intervention (week 7) may have been too late and suggested an earlier contact (e.g. by Week 2) and more regular monitoring of attendance data (e.g. every two weeks) to better identify and respond to student disengagement.

- Finally, staff also noted that implementation challenges such as difficulties in accessing real-time attendance data due to QR scanning issues prevented effective monitoring of attendance.

2. Introduction

Poor mental health not only affects students' wellbeing but is also linked to a range of adverse academic and life outcomes. These include reduced educational attainment, disengagement from university, increased dropout rates, and slower progression into employment. Additionally, poor mental health poses significant risks to physical health, including increased incidences of self-harm and suicide (Newham and Francis, 2018).

In recent years there has been growing concern around student mental health and wellbeing, which has intensified following the COVID-19 pandemic. Evidence suggests that the students in higher education (HE) face heightened and multifaceted pressures with various interconnected elements at play (Jones and Bell, 2024). This has been attributed to several factors such as academic workload, isolation and loneliness, financial difficulties and the challenges of adapting to a new environment (Worsley et al., 2020). In addition, a concerning trend is also the disproportionate impact of mental health issues on specific student groups. For example, students from ethnic minority groups, care-experienced students, as well as those from low socio-economic backgrounds are more vulnerable to mental health challenges (Robertson et al., 2022).

Despite the magnitude of these issues, the proportion of HE students who access help for mental health difficulties is much lower than the expected prevalence (McLafferty et al., 2024; Newham and Foster, 2025) However, HE CMH teams are already struggling to meet increasing demand despite increases in funding (Morrish, 2023; Pollard et al., 2021). Consequently, HE institutions are in the precarious situation of needing to empower struggling (and potentially the most at-risk) students to access support while maintaining support to an increasing caseload of students (Birch et al., 2026; Clegg et al., 2026).

With the increasing use of learning analytics to improve student retention and progression, policy has encouraged HE institutions to align these systems with the mental health and wellbeing agenda to identify vulnerable students, target interventions, and provide clear pathways for accessing support (Peck et al., 2025; Department for Education, 2024). By using data for profiling and promotion of specific pathways of support, it may lead to better allocation of scarce resources such as one-to-one counselling and guided self-help, and thus alleviate pressure and service demand (Foster, 2026). Examples of universities attempting to target and personalise student mental health support on a large-scale are starting to emerge (Keane, 2024), but there remains limited published research on their effectiveness in improving outcomes. Furthermore, the translation of testing wellbeing analytics into standard practice, and the impact of introducing such data systems on the practice and roles of those in CMH teams remains unclear (Newham and Foster, 2025). A

recommendation of the Higher Education Mental Health Implementation Taskforce (2024) is to gather views from providers on their understanding of wellbeing analytics, the benefits it might bring, and the institutional changes needed to implement and leverage the benefits of wellbeing analytics.

While learning analytics holds considerable promise, there is a lack of published research evaluating its effectiveness in improving student outcomes. This study contributes to a growing evidence base on how learning analytics interventions can improve student engagement with their studies and wellbeing. To further build evidence, TASO commissioned KCL to evaluate the impact of a wellbeing intervention driven by learning analytics at UEA. The intervention involved sending email prompts to students with low engagement. The emails contained information about and links to available support services.[3] UEA aimed to help students re-engage with their studies, feel supported, and ultimately reduce dropout rates.

This research builds on a growing number of existing trials including previous TASO evaluations of learning analytics prompted interventions, which aimed to increase student engagement (TASO, 2024b). It also contributes to the wider international literature on student communications (see Gilani, 2024; Shaw & Gilani, 2025), digital interventions to increase student engagement and wellbeing (for example, Canning et al., 2018; Harrer et al., 2019).

The remainder of the report is structured as follows. Section 3 describes the intervention's design, objectives, and underlying Theory of Change. Section 4 outlines the impact evaluation delivered by KCL, including research questions and methodology. Section 5 outlines the Impact findings. Section 6 presents the IPE by UEA, detailing how the intervention was delivered and received. Sections 7 and 8 discuss the implications of the findings for policy and future research. Section 9 outlines the roles and responsibilities of the project delivery and evaluation teams, and Section 10 summarises the ethical considerations and procedures that underpinned the study.

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[3] UEA support services are split into three areas: Wellbeing services which focuses on mental health support including stress, talking therapy, one-on-one and group sessions and support for people with disabilities. Student Life which focuses on accessing advice on any concerns including safety issues, accommodation and budgeting and Learning Enhancements which focuses on online resources to support with their courses (e.g. writing or English language support).

3. Intervention description

UEA has implemented a *Student Wellbeing Analytics intervention* designed to re-engage students who had demonstrated low levels of academic engagement. The present study tests a variation on this approach. Table 2 outlines the features of the intervention.

Table 2: Description of intervention

Section	Description
Why is the intervention being run?	Student engagement and wellbeing have been negatively affected by the lasting effects of COVID-19. Pro-actively signposting wellbeing support services to low-engaging students via concise focused emails may prompt re-engagement and improve wellbeing.
Who is the intervention for?	Undergraduate students who attended less than 60% of timetabled classes by Week 5 of the Autumn Semester 2024 (September 2024 – December 2024).
What is the intervention?	Students were randomised into treatment and control groups. Treatment group: Students received a personalised 100-word email between week 7 and week 10 of the semester. Control group: Students received the standard (BAU) 700-word email between week 7 and week 10 of the semester. Both groups received the following in the nudge email: - Trackable links to student support services. - An MS Form (The Student Response Collection Tool) embedded for students to acknowledge receipt, indicate device used, and explain reasons for low engagement.

Section	Description
Who is delivering the intervention?	Senior Student Engagement Team within Student Services at UEA.
How is the intervention delivered?	Emails were sent manually via mail merge by UEA's Senior Student Engagement Team to students below the engagement threshold.
How many times will the intervention be delivered? Over how long?	The intervention targeted students who had <60% attendance threshold identified by Week 5 of the semester. This was a one-off identification process. The intervention was delivered over a four-week period (Week 7 to Week 10) of the undergraduate semester (4 November to 29 November 2024). The first email was sent between 4 and 6 November 2024, with follow-up emails sent to the same students continuing until 29 November 2024.

Undergraduate students who had attended less than 60% of timetabled classes by end of Week 5 of the Autumn Semester (which ran from September to December 2024) were identified as the target group. A 'low engagement' alert was generated via UEA's learning analytics system if students had not attended at least 60% of taught events, as assessed at the end of Week 5 of the Autumn Semester of 2024/2025 (the third week of October). The 60% threshold for attendance was established centrally by the UEA student engagement procedure (University of East Anglia, 2023). It was selected as a manageable cutoff point to trigger administrative alerts.

Students who generated the alert were randomly assigned to either the treatment or control group. The treatment group received concise, 100-word emails between week 7 and week 10 designed to quickly flag their low engagement and provide clear, accessible information on available support services. The control group received longer, 700-word emails between week 7 and week 10, reflecting the university's business-as-usual (BAU) communication approach.[4] Both types of emails (in

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[4] Both groups comprised of students who had an attendance rate of less than 60% by week 5 and received multiple follow-up emails between week 7 and week 10.

Appendix D) included trackable links to student support services and an embedded MS Form, which allowed students to acknowledge receipt of the message, indicate how they accessed it (via phone or computer), and explain the reasons behind their low engagement. This process enabled UEA to monitor engagement with the different email formats.

The intervention was delivered by UEA's Senior Student Engagement Team. Measures were implemented throughout to minimise the risk of administrative errors and to ensure appropriate handling of student data and responses. From the participant's perspective, the journey involved receiving a personalised email that both recognised their current academic engagement status and provided a straightforward path to access wellbeing support.

3.1 Theory of Change

A Theory of Change (ToC) is a theoretical model that outlines how an intervention is expected to cause or contribute to a change in outcomes. It explains the logical sequence of the intervention, from its inputs, activities and outputs to proximate and distal outcomes and impacts. A ToC aims to articulate and illustrate the mechanisms and assumptions that explain why an intervention is believed to lead to its hypothesised outcomes. To develop the ToC for UEA's analytics prompted email-based wellbeing intervention, KCL initially created a draft ToC based on a set of scoping activities and then led a half-day online workshop with representatives from UEA to review and develop further its details.

The scoping activities included performing a desk review of intervention-related documentation, which were supplemented by some initial discussions about the intervention with UEA as part of the project's inception. These activities helped to develop an initial understanding of the intervention's rationale and its expected outcomes and impacts. The workshop consisted of group discussions, where attendees outlined and reviewed the intervention's expected inputs, activities, outcomes and impacts, as well as the critical assumptions underlining the relationships between each of these factors. Following the workshop, KCL refined the ToC and shared it with the workshop participants before it was finalised.

3.1.1 Description of Theory of Change

A written summary of the ToC developed for UEA's intervention is provided below. An illustration developed by KCL is also included in Appendix B using TASO's core ToC template (TASO, n.d.).

Aim: UEA aims to improve student engagement by identifying students with low engagement and providing them with prompt intervention support. This is done by sending them a 100-word email clearly flagging their low engagement and providing concise, clear information on existing support services they could access. By providing concise and clear information on relevant support services available within the university, as opposed to the 700-word email that is part of the standard university approach (BAU), UEA aims to help students re-engage with their studies, feel supported, and ultimately reduce drop-out rates. In the long term, this is expected to contribute towards better student wellbeing and improved academic outcomes.

Inputs:

- Engagement data from UEA's Student Engagement Dashboard
- Support services available to students at UEA: Senior Student and Wellbeing Advisers in six schools of study
- Student Response Collection Tool (an MS Form)
- Budget
- Staff time to design email communications

Activities:

- Monitoring student engagement through using the Student Engagement Dashboard
- Identifying students with low engagement levels through the dashboard
- Sending personalised emails with trackable links to support services/resources, the MS form by Senior Student and Wellbeing Advisers.
- Students completing the response form and follow up emails sent by the Advisers, if necessary
- Personalised wellbeing support package delivered to students

Outputs:

- Number of students identified with low engagement
- Number of students receiving messages
- Number of response forms completed
- Number of students accessing support services

Outcomes:

There are two primary stakeholders: students and UEA as an institution, particularly staff who are involved with supporting student engagement. The outcomes are divided into short, medium, and long-term outcomes below, for each of those stakeholders.

Short-term outcomes for UEA:

- Greater understanding of reasons for low engagement through response form responses

Short-term outcomes for students:

- Increased awareness of support services among students
- Students feel seen and supported by the university increasing sense of belonging

Medium-term outcomes for students:

- Increase number of students accessing UEA support services when needed
- Improved student engagement and academic performance

Long-term outcomes for UEA:

- Improved capacity to identify and support at-risk students (which leads to)
- Improved targeted offer of support services to students with low engagement
- Improved communications sent to students on support services

Long-term outcomes for students:

- Improved student wellbeing, mental health and sense of belonging

Impacts:

- Reduced number of students withdrawing from their studies due to mental health or wellbeing
- Improved educational attainment
- Improved students' chances of progressing into further studies or employment

3.1.2 Anticipated causal pathways and moderating factors

The following statements further characterise how the shorter email is expected to lead to the changes in the hypothesised impacts and outcomes. While some mechanisms may be shared across both treatment and control groups (e.g. increased awareness of support services), the shorter email intervention is anticipated to lead to these pathways more effectively due to its more concise format. The project team at

UEA viewed differential email lengths as a proxy for degree of information overload which they believed would influence students' attention and engagement.

Causal pathway 1: Increased likelihood of email being noticed and readable (short email treatment only)

Firstly, it is anticipated that the shorter format of the emails will make them more noticeable, thus increasing the likelihood of students opening and reading them. Shorter, more concise and clearer emails are likely to reduce cognitive load, improve clarity and increase the likelihood that students will understand, remember and act on the messages.

Causal pathway 2: Increased sense of recognition and sense of belonging (short email treatment only)

It is expected that receiving a clear and concise message when disengagement is detected by the university helps students feel that the university is paying attention to their needs and values them. This assumes the clarity of the email is likely to be interpreted as evidence that the university cares about them, increasing their sense of worth and belonging at the university, particularly if the email is easily digestible and they are not overwhelmed by it. Feeling cared for can be a key step to motivate students who feel unsure about their place in the university to increase their sense of belonging, act on the email messages and re-engage with their studies.

Causal pathway 3: Increased awareness of existing support services (for both treatment and control groups)

Both email versions contain links to university support services. These emails aim to address information and knowledge barriers by providing links to available support services at the university. The short email may improve visibility making it easier to digest compared to the long email. Some students' low engagement may stem from lack of awareness about what support is available at the university. Clear messages with links to support service removes knowledge barriers and increase the likelihood that students will access the support they need.

Causal pathway 4: Self-reflection and taking action (treatment and control groups)

Once students have an increased sense of belonging and improved knowledge of what support is available at their universities, the embedded MS Form in both emails provides students an opportunity to reflect on the causes of their disengagement and any challenges they might have and seek support. Completing the form is a mechanism that may motivate them to further reflect, take action and seek the relevant support. The short email's concise format may make it easier to enable students to take this action and seek support.

Causal pathway 5: Tailored support (treatment and control groups)

Once the MS Form is completed, UEA will be able to identify the specific causes or barriers for the students' disengagement (e.g. mental health, financial stress, caring responsibilities) and can provide tailored support to the students. This process is the same across both treatment and control groups, but the assumption is there would be a higher MS Form completion rate in the treatment group given the shorter email. It is then anticipated the tailored support will effectively address the students' needs and lead them to re-engage with their studies.

3.1.3 Discussion of moderating factors

The impact of these pathways may be affected by several moderating factors including:

- Whether the short email is both clear and meaningful to ensure it is noticeable by the target students in comparison with the other generic and often longer email they would have received.

- Whether students open, read, understand and respond to emails.

- How the students perceive the short emails pertaining to their disengagement. For example, whether they perceive the emails as supportive or as intrusive, overwhelming and punitive.

- The underlying reasons for student disengagement, which may require support outside of what UEA can provide. At the moment, the assumption is that students are disengaging due to wellbeing and mental health issues; however, if disengagement is due to financial hardship or caring responsibilities, for example, this may limit UEA's capacity to act.

- Engagement data is accurate and up to date to enable UEA to identify the target students and the system that sends out emails is functioning efficiently.

- UEA's support services have capacity and expertise to provide effective support, including to meet increased demand.

- The 60% attendance threshold was chosen by the UEA project team to strike a balance between identifying students at risk and keeping the number of cases manageable. If the threshold were higher (e.g. targeting anyone who missed a class), it would create a much larger caseload, making it harder for staff to follow up and potentially reducing the effectiveness of the intervention. A lower threshold would focus only on the most disengaged students, who may be much

harder to re-engage. Future studies might explore whether alternative thresholds would be more effective.

4. Impact evaluation

A key goal of the evaluation was to identify and measure the impacts of the analytics-driven wellbeing intervention, delivered through an email prompt, if any exist. This was assessed through an RCT.

4.1 Research questions

The research questions for the impact evaluation were:

1. To what extent does sending a shorter email (treatment), as compared to a longer email (control), to students who drop below a pre-determined engagement threshold increase their academic engagement?

2. To what extent does sending a shorter email, as compared to a longer email, to students who drop below a pre-determined engagement threshold increase their re-engagement in terms of accessing resources linked in the email?

3. To what extent does sending a shorter email, as compared to a longer email, to students who drop below a pre-determined engagement threshold improve their wellbeing status?

4. Are there differential effects of the shorter email by student demographic and socio-economic characteristics?

    a. (Exploratory) Ethnicity.

    b. (Exploratory) Age.

    c. (Exploratory) Gender.

    d. (Exploratory) Socioeconomic background, measured by POLAR4.

This RCT design therefore informs how to effectively tailor communication by altering the length and detail of the email notification to improve student engagement with the email, with the ultimate goal of improving their engagement with the university.

4.2 Impact evaluation design

4.2.1 Design

The impact evaluation was run as a two-arm individually randomised RCT to test the impact of a shortened email on the engagement levels of students. Students in the

treatment group received the short-form email ($n = 613$) and those in the control group received the standard-length email reflecting BAU communication ($n = 600$). Figure 1 provides an overview of the trial design.

Figure 1: CONSORT flow diagram of RCT
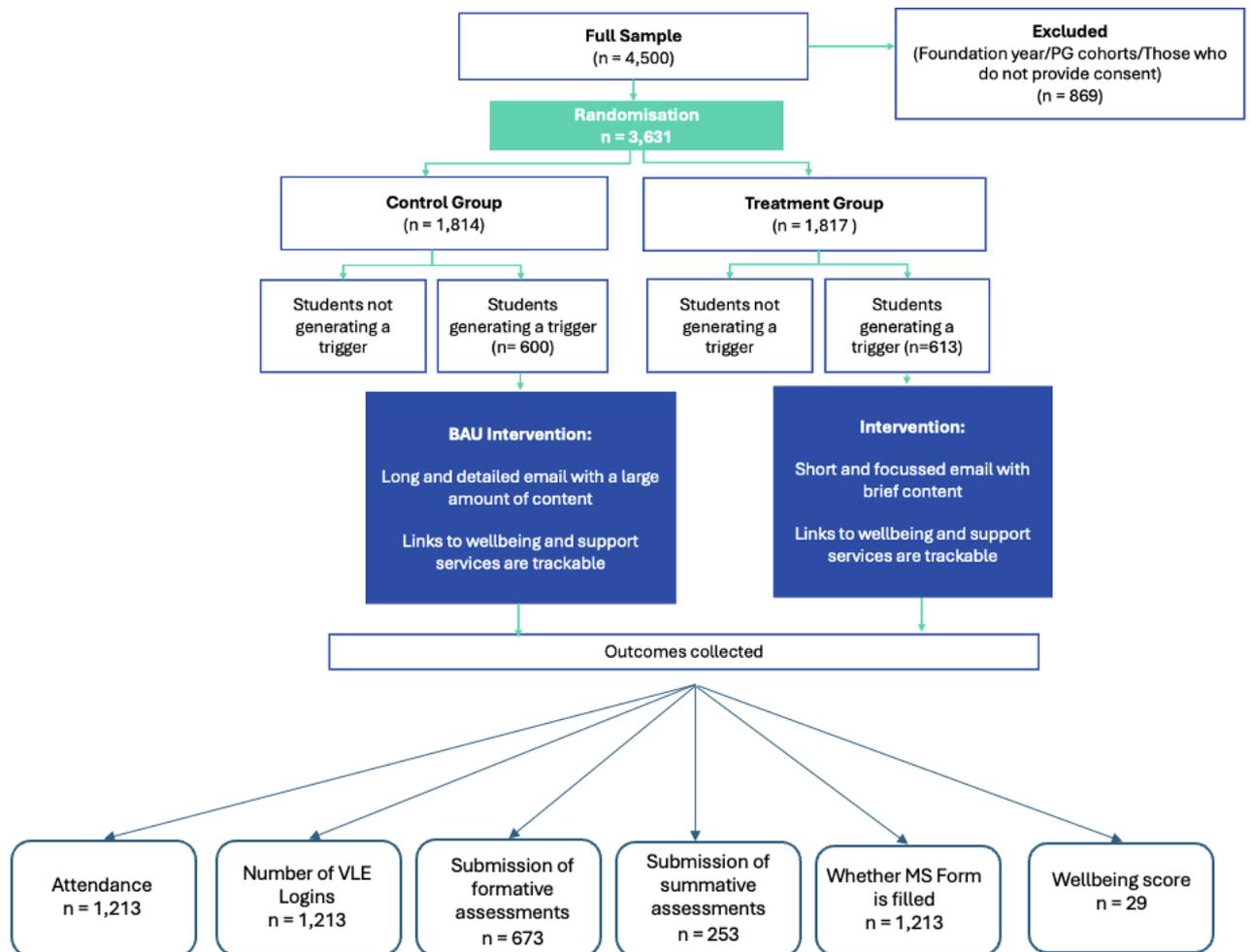
4.2.2 Sample selection

The starting cohort in the trial comprised 3,631 undergraduate students from eight schools at UEA. From this set, 1,213 (33%) met the low-engagement threshold.

The schools of study selected for the trial included:

- School of Law (LAW)

- School of Psychology (PSY)

- School of Education (EDU)

- School of Global Development (DEV)

- School of Politics, Philosophy and Area Studies (PPA)

- School of History and Art History (HIS)

- School of Economics (ECO)

- School of Media, Language and Communication Studies (MLC)

These eight selected schools were chosen because they used the same definition of 'low engagement' and followed the same process for re-engaging students. As the intervention focused on undergraduate students, schools with predominantly foundation year and/or postgraduate cohorts were also excluded from the trial. Additionally, international students were excluded before extracting the sample data due to separate visa-related attendance requirements and the possibility of late arrival at the start of the semester.

4.2.3 Randomisation

For students in scope for the randomisation, relevant contact details such as name, surname and email address were downloaded from the engagement dashboard by the Student Engagement Team.

Randomisation was conducted by UEA using R code provided by KCL (see Appendix E), which included stratification by school of study. UEA provided outputs to KCL for checking balance once randomisation was complete.

Due to time constraints, randomisation was conducted on the full in-scope sample of 3,631 students; this was a deviation from the study protocol, which envisaged randomisation would occur on the sample that dropped below the threshold in Week 5 of term (see Section 4.5).

Following stratified randomisation, a treatment/control group identifier was added to the spreadsheet to allow data filtering by group. The relevant email was sent via mail merge, using data directly from the engagement dashboard spreadsheet.

4.3 Data

4.3.1 Outcome variables

Table 3 describes the primary and secondary outcome measures for the impact evaluation. Academic engagement captured via attendance at timetabled classes was chosen as the primary outcome as the project team at UEA considered it to be the most useful measure to understand student engagement levels and was in line with UEA's policy related to student engagement procedures. Further, as shown in Table 3,

details of an outcome related to student wellbeing was included for an exploratory analysis.

Table 3: Details of outcome variables

Outcome type	Measure	Data source	Point of collection
PRIMARY: Academic engagement (timetabled events)	Proportion of timetabled events attended between intervention delivery and end of Semester 1	Live student engagement dashboard	w/c 18 December 2024 (end of semester)
SECONDARY: Academic engagement (VLE accessed)	Proportion of days where the student accessed the VLE at least once between intervention delivery and end of Semester 1	Live student engagement dashboard	w/c 18 December 2024 (end of semester)
SECONDARY: Academic engagement (summative work on time)	Proportion of submissions of summative work submitted on time between intervention delivery and end of Semester 1	Live student engagement dashboard	w/c 18 December 2024 (end of semester)
SECONDARY: Academic engagement (formative work on time)	Proportion of submissions of formative work submitted on time between intervention delivery and end of Semester 1	Live student engagement dashboard	w/c 18 December 2024 (end of semester)

Outcome type	Measure	Data source	Point of collection
SECONDARY: Accessing linked resources (clicks trackable links)	Whether the student clicks on the trackable links to resources and student support advice in the email prompts within two weeks of intervention delivery	Link tracking tool	Two weeks after intervention was delivered (21 November 2024)
SECONDARY: Accessing linked resources (fills embedded MS Form)	Whether the student fills the MS Form embedded in the email prompts within two weeks of intervention delivery	MS Form	Two weeks after intervention was delivered (21 November 2024)
EXPLORATORY: Student Wellbeing [5]	Mean of responses to four wellbeing questions, with a response scale of 0 – 10, where higher scores indicate a more favourable response.	Wellbeing survey	Pre-intervention survey: w/c 7 October 2024 Post-intervention survey: w/c 2 December 2024

Notes:
[1]Live Student Engagement Dashboard refers to a database that gets updated daily based on inputs by students who scan a QR code allocated to each taught event to register their attendance.
[2]The wellbeing survey is UEA's internal survey, that is administered monthly to all students. The questionnaire is based on the Office of National Statistics Survey questions (the ONS4). This was designated as an exploratory outcome due to anticipated low completion rates.
[3] The email intervention was delivered on 5 November 2024.

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[5] The questions in the ONS4 survey to capture Wellbeing are the following:
- Overall, how satisfied are you with your life nowadays?
- Overall, to what extent do you feel that the things you do in your life are worthwhile?
- Overall, how happy did you feel yesterday?
- Overall, how anxious did you feel yesterday?

For consistency in interpretation, where higher scores indicate more favourable outcomes, the natural ordering of this sub-item (lower score reflects a more favourable outcome) was inverted.
The responses from the above questions were averaged and missingness on sub-scales were handled by taking the average of survey scale items that were completed.

4.3.2 Other variables

Table 4 lists the covariates included in the main analysis. These were chosen in collaboration with UEA to capture variables correlated with the outcomes of interest, taking into account the feasibility of accessing them for the study.

Table 4: Covariates

Data Point	Purpose	Variable values	Data Source	Point of collection
School of study	Stratification Variable	"DEV", "ECO", "EDU", "HIS", "LAW", "MLC", "PPA", "PSY"	UEA management information	At enrolment September 2024
Gender	Predictor of outcomes, included in the model To investigate differential effects by gender	"Male", "Female", "Non-binary/Not Known"	UEA management information	
Age at entry	Predictor of outcomes, included in the model To investigate differential effects by age at entry	<21, >21	UEA management information	
Ethnicity	Predictor of outcomes, included in the model To investigate differential effects by ethnicity	"White", "Black, Asian, and minority ethnic (BAME)" "Other"	UEA management information	
Academic Year of Study	Predictor of outcomes, included in the model	"1", "2", "3"	UEA management information	
Disability Status	Predictor of outcomes, included in the model	"No disability", "Other" "Mental Health Condition"	UEA management information	

Data Point	Purpose	Variable values	Data Source	Point of collection
POLAR4	Predictor of outcomes, included in the model To investigate differential effects by POLAR4 quintile	"Q1", "Q2-5"	UEA management information	
Baseline Attendance rate	Predictor of outcomes, included in the model	0-100	Live Student Engagement Dashboard	Pre-intervention 1 November 2024

4.3.3 Data collection methods

Data was collected by UEA via their live student engagement dashboard, administrative datasets and an internally administered survey. Data on outcomes and covariates listed in Section 4.3.2 for the disengaged sample only were provided to KCL for analysis, with datasets linked by an anonymous key held by UEA.

Student wellbeing was recorded using UEA's regular student wellbeing survey (see Section 4.3.1). The UEA Wellbeing Survey is one of the weekly Student Pulse surveys that UEA uses to collect student voices on a range of topics, including wellbeing, sense of belonging, happiness, anxiety, stress factors, confidence and resilience, and finance, among others. The survey is administered to all students and sent to their email addresses every week. The survey results are reviewed weekly are reported on an internal dashboard. UEA tracks several outcomes including wellbeing, sense of belonging and teaching/research.

For the purpose of the trial, the Wellbeing Survey provided information on students' wellbeing across four indicators: anxiety, happiness, satisfaction, and feeling worthwhile. Students rated each indicator on a scale of 0 to 10. Responses of the students within the study cohorts (schools) for this IPE were then extracted before and after the intervention. The wellbeing survey was not carried out specifically for this project. For the purposes of the study, students' responses to wellbeing questions were tracked. The responses of any student who had been randomised as part of the trial was extracted by UEA and provided to King's. UEA advised that the response rates to the wellbeing survey are usually approximately 4%, so this data was expected to be drawn from a very limited subset of the sample.

Due to anonymity requirements under the UEA ethics approval, a separate ID number was generated for trial participants, which was used across the survey and administrative dataset, and was therefore sent to Kings in a de-identified format.

4.4 Analytical strategy

4.4.1 Descriptive analysis

The descriptive analysis has been presented to provide an overview of the key variables across the analytical sample, as well as separately for the treatment and control groups and any relevant sub-groups.

We explored distributions of key socio-demographic characteristics across the subgroups and by treatment allocation. This included gender, ethnicity, mature student status, POLAR4, study year, disability status and school of study.

The potential sources of heterogeneity in pre-intervention attendance rates in timetabled classes (primary outcome) are presented visually by subgroup. This helps identify whether the effect of the intervention varies for different groups of students. Covariates include age, disability status, POLAR4 ranking and study year. This analysis is exploratory in nature and its purpose is to provide initial insights into which subgroups may be driving the overall treatment effect.

Pre-post trends in the outcomes of interest were used to assess changes before and after the intervention.

4.4.2 Balance checks

A series of checks for imbalance were conducted across the treatment and control groups. The following rules were used to conclude if a covariate was imbalanced in terms of its distribution across the treatment and control group:

- For continuous variables: the absolute difference in the means between the two groups, as a proportion of the sample standard deviation (equivalent to a Z-score within a Standard Normal Distribution), exceeded 0.1.

- For binary variables: if there was a difference of more than five percentage points in the proportions of respondents in each category.

Balance was checked on the following covariates: ethnicity, gender, age group, POLAR4, disability status, study year, and baseline engagement (see Table 5). We considered a covariate to be imbalanced if either (a) the absolute difference in the means between the two groups, as a proportion of the sample standard deviation (equivalent to a Z-score within a Standard Normal Distribution), exceeded 0.1, or (b) for

binary variables, there was a difference of more than five percentage points in the proportions of respondents in each category.

4.4.3 Analysis of primary and secondary outcomes

Regression analysis was conducted to examine the impact of the shorter email on the primary outcome, the average post-intervention attendance, and the following secondary outcomes: the number of times the VLE was accessed; on-time submission of summative assessments; on-time submission of formative assessments; whether the MS form was completed; and whether students clicked on embedded links.

Analysis was conducted in R using ordinary least squares (OLS) regression with robust standard errors with the following specification:

$$Y_i = \alpha + \beta_1 D_i + \beta_2 A_i + \beta_{3:n} \boldsymbol{X_i} + \gamma_i + \epsilon_i$$

Where:

- Y_i is individual i's level of a given outcome, as outlined in Section 4.3.1;

- α is the constant

- D_i refers to student i's treatment allocation, set to 1 if they are allocated to the treatment group and 0 otherwise.

- A_i is individual i's level of a given outcome at baseline

- $\boldsymbol{X_i}$ is a vector of pre-treatment covariates as outlined in Section 4.3.2

- γ_i is the school of study-level fixed effect

- ϵ_i is the individual-level standard error term

When Y_i is a binary variable, this represents a linear probability model (LPM).

4.4.4 Multiple comparisons

The purpose of adjustment for multiple comparisons is to reduce the Type I (false positive) error rate arising due to the number of analyses that are carried out. Although there is no general consensus as to the most appropriate way to carry out multiple comparison adjustments (MCAs), in general, MCAs should be conducted when there are a large number of analyses occurring within a category (e.g. primary analysis or secondary analysis); it is up to the researcher's judgement when this requirement is triggered, based on the number of comparisons (outcomes x treatment arms) being

made (Sanders et al., 2025). In this study, per the protocol, adjustments for multiple comparisons were not conducted.

4.4.5 Missing data and imputations

Missingness on pre-treatment covariates (including baseline outcomes) are assumed to be Missing Completely at Random (MCAR). As specified in the protocol, since missingness on a given covariate was less than 5%, complete case analysis was used. Consistent with expectation, attrition for outcomes collected via UEA management information was close to zero as all student records systems are linked using the same student ID. Analysis was therefore conducted on complete cases.

Missingness on student wellbeing (exploratory) was, as expected, very high. Outcome imputation was not conducted as this is an exploratory outcome and, given the level of attrition, would have been inappropriate. Balance of missingness was checked on treatment assignment with and without covariates and it was found that missingness was balanced across treatment and control group.

4.4.6 Robustness tests

The primary specification (see Section 4.4.3) was re-run including and excluding covariates that were available, including running a model excluding all covariates. Since two of the outcomes of interest are binary, we also re-ran the primary analysis specification using a binary logistic (logit) estimator.

4.4.7 Heterogeneity analysis

We conducted exploratory analysis to investigate whether there are differential outcomes by subgroups, including age, gender, ethnicity, POLAR4 ranking and school of study. For those covariate subgroups where there were more than 100 cases in total in the subgroup across treatment and control we reran the analysis specified in Section 4.4.3 and included an interaction term[6] between the treatment and membership of that subgroup. The results for age, gender, ethnicity, POLAR4 rankings and school of study are presented in Section 5.3.4. The results for the following subgroups were not reported as they did not satisfy the 100 cases rule: Ethnicity=Other, POLAR4=Unknown and School=EDU.

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[6] Heterogeneity analysis was preferred over subgroup analysis as it keeps the full sample intact, thus preserving power, avoids statistical inefficiencies arising from multiple testing and enables explicit modelling of treatment effect variation across characteristics using an interaction term.

4.5 Deviations from study protocol

To the best of KCL's knowledge, based on data provided by UEA, the intervention was broadly delivered as intended. A minor deviation occurred in the timing of identifying students with low engagement. While the trial protocol specified that this would be based on attendance data as assessed at the end of Week 4, it was instead assessed up to Week 5. This shift was due to implementation and data collection challenges and but did not materially affect the intervention.

Next, as noted in the IPE (Section 6.6.5) changes to the QR code tracking system and inconsistent data flow meant that some students' attendance was underreported or, in some cases, overreported. These technical issues may have slightly limited the accurate assessment of student engagement based solely on attendance data and should be taken into account when interpreting the impact evaluation results. While we were unable to quantify the extent of this measurement error as we could not ascertain whose data was affected, it is reasonable to assume that any misreporting was random with respect to treatment status and underlying engagement levels. Under this assumption, any error would primarily increase noise in the attendance measure rather than bias the estimated treatment effect.

Overall, the analysis was conducted as per the trial protocol. However, there were a couple of amendments made. In the protocol it was anticipated that randomisation would occur on only those students who triggered the low engagement alert, prior to the sending of the intervention emails. However, due to tight timelines, randomisation occurred on the full eligible sample, with only the subset who ultimately triggered the alert being considered as the analytical sample. This carried a risk of compromising the stratification applied to the randomisation. Therefore, balance checks were conducted to ensure that no significant differences existed within the analytical sample between the treatment and control groups, supporting the robustness of the findings. UEA provided KCL demographic data for the full randomised sample; however, due to ethics and data protection constraints KCL was not able to access student-level data for the full randomised sample. Characteristics of the whole sample have been presented in Appendix F.

Another deviation from the protocol was that we were not able to procure student-level data on click-through rates to support resources embedded in the emails, due to clicks through on links not being individually recorded by the UEA system. This meant that we could not assess whether the intervention had a statistically significant impact on changing the likelihood of clicking on the links between the treatment and control groups. We have, instead, presented a tabulation of the number of clicks by treatment allocation in Section 5.3.2. While this does not offer robust insight into the effect of the intervention, it provides an indication of engagement patterns across the groups.

Finally, although the trial protocol included a plan to assess whether the inclusion of additional covariates would improve model efficiency, time constraints made it difficult to obtain approval to access supplementary variables, limiting our ability to fully implement this component. As a result, only two models are presented in this analysis: one including covariates and one excluding them. However, we were unable to formally evaluate the relative efficiency between these models as originally intended.

5. Results

5.1 Descriptive statistics

The analytical sample (consisting of the students who fell below the 60% attendance threshold) comprised 1,213 students, who fell below the 60% engagement threshold. Out of these, 613 students were from the treatment group, and 600 students were in the control group. Despite being conducted on the full sample prior to the low engagement alert being generated, the stratified randomisation led to a good balance across the two groups for all the covariates (mature student status, ethnicity, POLAR4 quintile, school of study and disability status).

The majority of the sample (90%) was below 21 at the start of the course. Students were predominantly from white backgrounds (74%) while Black and minority ethnic (BAME) students formed about a quarter of the sample. This remains broadly aligned with the general UK home student ethnicity distribution. Overall, those who fell below the threshold skewed slightly male (53.3%). On the POLAR4 variable, Quintile 1 (the lowest) was underrepresented in the sample with only 13% students from this POLAR4 category. Further, students in their third year (39%) formed the largest proportion of the sample, while there were 33% in their second year and approximately 28% in their first year. Finally, 33% of the sample reported a disability. This is substantially higher than the estimated 19% among UK undergraduates.[7] While this could indicate differential engagement by disability status, it is important to note that the full randomised cohort (n =3,631) also had a similarly elevated proportion (30.2%, in Appendix F). This suggests that the study population as a whole contained a higher share of students reporting a disability. Therefore, the difference observed in the analytical subset may not be driven by selective engagement but reflects the underlying composition of the randomised group.

When comparing the demographic characteristics of the full randomised sample (n=3,631 presented in Appendix F) with the analytical sample (i.e. those who were

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[7] Matthews, R. (2025, May 7). The state of disabled students in UK higher education – what the latest data tells Us. University Stats.

randomised but fell below the engagement threshold), the two groups are broadly similar across most key socio-economic characteristics. However, we found notable differences across gender and study year composition. While females make up a larger share of the full randomised sample (55.4% female; 44.6% male), this composition reverses among those who fell below the engagement threshold, with males making up a higher proportion (46.7% female; 53.3% male). Interestingly, it's a reversal also when comparing with the UK home student distribution on the gender front. Here, females make up around 57% of the students. Finally, there is a smaller share of Year 1 students in the analytical subset (28%) as compared to the full randomised sample (36%). These differences suggest that engagement may be associated with these characteristics, which could limit the generalisability of the findings. While our subsequent analyses control for gender and study year, the observed differences highlight the importance of accounting for this selective participation when interpreting the results.

5.2 Balance checks

Table 5: Balance test for covariates

Variable	Control	Treatment	Absolute Difference
Ethnicity (Percentage of white students)	73.8	73.1	0.7
Gender (Percentage of female students)	48.3	45.0	3.3
Age group (Percentage of students <21 years)	89.5	90.0	0.5
POLAR4 (Percentage of students in Quintile 1)	12.8	12.4	1.4
Disability status (Percentage of students who report being disabled)	33.2	32.3	0.9
Study Year (Percentage of students in Year 1	28.2	28.7	0.5
Baseline engagement	30.7	30.7	0.0

Table 5 shows that there are no differences of note between the groups across any of the variables. These findings help increase confidence in the reliability of the impact assessment, supporting the assertions that any observed differences in engagement outcomes are likely attributable to the intervention rather than pre-existing group disparities.

5.3 Results of impact analysis

Table 6 provides the full regression tables, while subsequent sections discuss each outcome in turn.

Table 6: Results of primary analysis

		Primary Outcome	Secondary Outcomes			
		Attendance at timetabled events	VLE logins	Summative work submitted on time	Formative work submitted on time	Engagement with MS Form
(Intercept)		14.89 [10.11; 19.67]*	22.24 [16.93; 27.56]*	60.69 [49.15; 72.24]*	76.91 [57.78; 96.04]*	0.14 [0.06; 0.22]*
Treatment		-0.42 [-2.76; 1.92]	-1.25 [-4.07; 1.57]	-2.19 [-7.34; 2.96]	-3.46 [-11.85; 4.94]	0.21 [0.17; 0.25]*
Gender (ref: Male)	Female	5.03 [2.61; 7.46]*	2.90 [-0.03; 5.84]	6.54 [1.27; 11.82]*	7.97 [-1.41; 17.34]	0.07 [0.02; 0.11]*
Above 21 (ref: No)	Yes	-6.47 [-10.23; -2.72]*	-4.13 [-8.96; 0.70]	-6.74 [-15.89; 2.41]	18.96 [6.09; 31.82]*	-0.08 [-0.14; -0.02]*
Ethnicity (ref: White)	BME	-3.99 [-6.67; -1.30]*	3.00 [-0.56; 6.56]	-3.77 [-10.31; 2.78]	8.77 [-1.16; 18.70]	0.02 [-0.03; 0.07]
	Other	1.68 [-4.98; 8.34]	-1.55 [-9.47; 6.38]	1.14 [-16.16; 18.44]	6.29 [-13.14; 25.72]	0.01 [-0.10; 0.12]
Study Year (ref: 1)	2	-4.98 [-7.88; -2.07]*	5.11 [1.28; 8.94]*	8.69 [2.37; 15.01]*	-7.38 [-17.85; 3.08]	-0.13 [-0.19; -0.08]*
	3	-3.62 [-6.71; -0.53]*	0.86 [-2.82; 4.55]	5.86 [-0.82; 12.54]	-7.65 [-17.28; 1.97]	-0.20 [-0.26; -0.15]*
Disability (ref: No)	Not known	2.32 [-5.03; 9.67]	-3.95 [-12.00; 4.11]	-8.03 [-23.90; 7.84]	-6.70 [-30.25; 16.85]	-0.13 [-0.24; -0.03]*
	Yes	-0.47 [-3.12; 2.19]	0.65 [-2.48; 3.79]	-2.52 [-8.35; 3.31]	-10.76 [-21.34; -0.18]*	0.03 [-0.01; 0.08]
POLAR4 (ref: Q1)	Quintile 2-5	2.21 [-1.31; 5.73]	-1.19 [-5.26; 2.88]	6.51 [-1.52; 14.54]	1.86 [-10.00; 13.72]	-0.00 [-0.07; 0.06]
Baseline attendance		0.63 [0.57; 0.69]*	0.44 [0.36; 0.51]*	0.36 [0.21; 0.50]*	0.26 [0.00; 0.53]*	0.00 [-0.00; 0.00]
R^2		0.31	0.13	0.07	0.09	0.14
Adj. R^2		0.31	0.12	0.06	0.04	0.13
Num. obs.		1213	1213	673	253	1213

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. 95% confidence intervals provided in brackets. Regression tables for other specifications provided in Appendix G; Summative and formative submission data were not available for the entire cohort (n=1213) because certain departments did not require these submissions from their students.

5.3.1 Impact of the intervention on average attendance at timetabled events

The primary analysis estimates the impact of the treatment on the average attendance rate post-intervention until the end of semester 1. The data was collected in the week commencing 18 December 2024, which is the final week of the semester. We find no significant impact of the shorter email on this outcome, across either the primary specification (Table 6, column 2) or other specifications (Appendix G, Table 21)

5.3.2 Results of secondary outcome analysis

Number of VLE logins

This analysis estimated the impact of the intervention on the average number of times a student logged onto the VLE post-intervention until the end of semester 1. The data was collected in the final week of the semester (w/c 18 December 2024). There was no significant impact of the shorter email on this outcome, across either the primary specification (Table 6, column 3) or other specifications (Appendix G,

Table 22).

Submission of summative and formative assessments

This analysis estimated the impact of the intervention on the proportion of assessments students submitted on time during the week commencing 18 December 2024, the final week of the semester. Note that this outcome was only estimated for students who had at least one in-scope (formative/summative) assessment due during this period.

There was no significant impact of the shorter email on timely submission of summative assessments, across either the primary specification (Table 6, column 4) or other specifications (Appendix G,

Table 23).

Likewise, there was no significant impact of the shorter email on timely submission of formative assessments, across either the primary specification (Table 6, column 5) or other specifications (Appendix G,

Table 24).

Completion of MS Form

An additional analysis examined the direct impact of the intervention on whether students completed the MS Form embedded in the email. Data on this was collected on 21 November 2024, two weeks following the intervention delivery. The shorter email was found to significantly increase the likelihood that students completed the MS Form, by 21 percentage points, in comparison with the 14% of participants in the control group who completed it ($p < 0.001$ – see Table 6, column 6). This finding retains its direction, magnitude and significance across other specifications (Appendix G, Table 25).

Click-through rate

Another outcome of interest was the number of times students clicked on the embedded links in the email, also collected on 21 November 2024. However, as noted in Section 4.5 we were unable to access this information at the individual student level due to the way the UEA system records the click-through rate. Aggregate click-through rates by condition are presented in the IPE, Section 6.7.1, Table 13.

5.3.3 Results of robustness tests

Robustness checks were conducted to verify the reliability of the main findings, as outlined in Section 4.4.6. Across all the specifications, the direction, magnitude, and statistical significance of the estimated treatment effects remained consistent. Detailed estimates and specifications are presented in Appendix G. These results support the credibility of the main findings.

5.3.4 Results of heterogeneity analysis

This section presents the results of the heterogeneity analysis conducted across gender, age, ethnicity, POLAR4 and school of study. These variables were selected for analysis because they represent key demographic and contextual factors that were expected to potentially influence the intervention's effectiveness.

For instance, ethnicity and POLAR4 have been found to shape students' cultural and social positioning within an academic environment, which may impact their level of engagement and, consequently, their response to the intervention. Gender differences in student engagement may be influenced by factors such as social expectations, access to resources, personal interests, and peer support. Female students may face additional academic and personal responsibilities, potentially lowering their engagement in university, making it valuable to examine whether the intervention had

differential effects. School of study, on the other hand, may be playing a role in how the students respond to the intervention due to varying peer groups, disciplinary culture, academic workload and support structures. Finally, analysing the impact by age group is crucial for understanding whether age-related differences in life circumstances and priorities moderate the relationship between the intervention and engagement levels.

As presented in Table 7, heterogeneity analyses for ethnicity, gender and age group indicate no statistically significant effect of the intervention on attendance. However, for POLAR4, students in Quintiles 2-5 exhibit positive and statistically significant coefficients. This might suggest that for this subgroup (i.e. those not in the lowest higher education participation postcodes), the shorter email treatment had a significantly stronger impact on attendance than for those in Quintile 1 (those in the lowest higher education participation postcodes). However, this finding would require further investigation to ensure the result is robust and not driven by chance. There may be a possibility that it might be driven by baseline heterogeneity like differing motivation and school characteristics. This is likely due to Q1 students facing higher barriers, where an email may not be sufficient to trigger help-seeking behaviour. The Q2-5 group face fewer barriers in comparison potentially making them more responsive to an email nudge. Additionally, these quintiles group together a wide range of students with different socioeconomic and geographic characteristics, thus hiding potential variation within Q2-5. To further ensure the result is robust, further investigation could include re-running the subgroup analysis with another metric for socioeconomic status (e.g. Index of Multiple Deprivation) to confirm a differential effect is present.

Table 7: Heterogeneity analyses

Subgroup	n (subgroup)	Interaction coefficient	Standard Error	P-Value	Confidence Interval
Gender = Female (ref: Male)	566	0.18	2.41	0.94	(−4.55, 4.91)
Above 21 = Yes (ref: No)	124	3.11	3.65	0.39	(−4.04, 10.27)
Ethnicity = BAME (ref: White)	282	3.59	2.70	0.18	(−1.72, 8.89)
POLAR4= Quintile 2-5 (ref: Quintile 1)	1000	7.30*	6.41	0.04	(0.33, 14.27)
School=ECO (ref: DEV)	216	0.46	4.51	0.92	(−8.39,9.31)
School=HIS (ref: DEV)	124	−6.88	5.29	0.19	(−17.25, 3.50)
School=LAW (ref: DEV)	224	5.56	4.48	0.21	(−3.23, 14.36)
School=MLC (ref: DEV)	150	5.27	5.44	0.33	(−5.40, 15.94)
School=PPA (ref: DEV)	126	1.80	5.04	0.72	(−8.09, 11.69)
School=PSY (ref: DEV)	204	2.74	4.83	0.57	(−6.74, 12.22)

Subgroup	*n* (subgroup)	Interaction coefficient	Standard Error	P-Value	Confidence Interval

5.3.5 Results of exploratory analysis

Wellbeing was assessed based on students who responded to UEA's regular wellbeing survey. We find no significant impact of receiving a shorter email on wellbeing as measured this way, across any specifications (see Table 26 in Appendix G). Only 29 students in the sample responded to this survey (16 treatment, 13 control) and this outcome was not analysed further.

5.3.6 Review of study minimum detectable effect size

At the trial design stage, MDES calculations were conducted to determine the minimum effect size that the study would be powered to detect, based on the following assumptions:

- Significance level: 0.05

- Power: 0.8

- Number of terms in model: 18 (baseline engagement score, age, gender (two levels and reference), ethnicity (two levels and reference), disability status (two levels and reference), POLAR ranking, academic year of study (two levels and reference) and school of study (seven levels and reference).

- Explanatory Power of covariates (R^2):

  - Equalling 0 to model MDES where the baseline covariates do not explain any variation in the dependent variable

  - We considered two scenarios for the proportion of variance in the outcome explained by baseline covariates:

    - approximately equal to 0.20, which accounts for the inclusion of the stratification variable (study department) among the baseline covariates, reflecting a more conservative estimate of covariate impact after balancing by stratification; and

    - approximately equal to 0.40, which excludes the stratification variable from baseline covariates, representing a higher estimate of

covariate explanatory power when not accounting for stratification effects.

For the purpose of ex ante power calculations, we assumed that the full student population for the trial consisted of 4,500 students, with an estimated 1,500 students expected to be identified as low-engagement and in scope. Power calculations were conducted in R using the `pwr` package.

We therefore modelled the MDES for sample sizes between 500 and 2000 split in equal proportions. It was found that the trial would be able to capture an effect size between 0.10 and 0.25 (Cohen's d).

Following trial implementation, the actual sample size that triggered was 1,213 (also presented in Figure 1.) This falls within the anticipated range of sample sizes for which MDES was computed, though a little lower than the expected size of 1500. Additionally, as discussed above, the MDES was originally estimated under three scenarios assuming $R^2 = 0$, 0.2, and 0.4. In the actual sample, the observed R^2 for the primary outcome was approximately 0.3—falling between the medium and high correlation assumptions. This implies that the available covariates explained a moderate degree of variation in the outcome, resulting in higher precision than projected under the $R^2 = 0.2$ scenario. Overall, based on the actual R^2, the study remained appropriately powered, with an MDES of approximately 0.13 (Cohen's d; in contrast to 0.14 under $R^2 = 0.2$). However, since the effect size of the actual estimate is 0.01 for the primary outcome (attendance at timetabled classes), the observed average difference was well below the study's threshold of detectability. While this does not rule out the possibility of a very small effect, the sample size was not sufficient to provide the statistical power needed to detect an effect of this magnitude.

5.4 Summary of impact evaluation findings

The impact evaluation sought to answer whether the intervention had a measurable effect on students' academic engagement as well as wellbeing status (see Section 4.1 for the research questions). Below is a summary of findings:

1. Academic Engagement:

    a. **Primary Analysis:** There is no evidence that the intervention improved the attendance rates of students in the shorter email treatment group compared with the control group. While the direction of the effect was positive, the estimated impact was small and not statistically distinguishable from zero.

    b. **Secondary analysis:** A statistically significant positive effect of the intervention was found on whether students filled out the MS Form

(binary) contained in the emails. While it was not possible to obtain individual-level click-through data to support resources, aggregate-level tabulations (see Section 5.3.2) suggest slightly higher engagement among treated students. No effects were found on the other secondary outcomes (VLE logins and timely submission of formative and summative assessment).

2. **Heterogeneity analysis:** This analysis suggested that the treatment effect on the attendance rate was stronger among students from POLAR4 Q2-5 compared with those in Q1, indicating that the intervention may not be particularly beneficial for those from the most disadvantaged backgrounds. No significant differences were found in the other subgroups.

3. **Exploratory analysis:** No statistically significant effect on wellbeing was found. A small positive effect emerged in the model without covariates, but given the study was underpowered with respect to this outcome, this finding should be interpreted with caution.

5.4.1 Summary of caveats and limitations: impact evaluation

Table 8 presents a summary of the risk of bias assessment conducted using the Risk of Bias 2 (RoB 2) tool, which is designed to evaluate individually randomised controlled trials. The tool assesses five domains of potential bias that may affect the validity of the trial's results. Each domain is judged as "Low risk", "Some concerns", or "High risk" of bias, and an overall risk of bias judgment is also provided for each study. This summary helps to transparently report the methodological quality and credibility of the included trials.

Table 8: Summary of assessment of risk of bias assessment using RoB 2 tool for an individually randomised parallel group trial

Domain	Comment	Risk of bias
Randomisation sequence and efficacy	The study employed a robust randomisation process with stratification, ensuring that the assignment of participants to treatment and control groups was well balanced and free from selection bias. While it was initially intended to randomise the sample of students who met the low-engagement threshold, the full student population from eight schools was randomised. Balance checks indicated that the balance across groups of the sample of students generating the low-engagement trigger was acceptable.	Low

Domain	Comment	Risk of bias
Deviations from intended intervention	There were minor deviations from the assigned interventions in terms of checking whether student engagement fell below threshold in Week 5 instead of Week 4. Monitoring data tracked students' engagement rates and have been referenced in the IPE section. Overall, it was found that email delivery was successful. The implementation followed the planned delivery protocol. No departures from the scheduled content or mode of delivery were reported by delivery staff, indicating a low likelihood of major deviations, supporting a low risk of bias rating.	Low
Missing outcome data	Most of the outcome data was sourced from UEA's management information resulting in near-zero attrition; therefore, for the primary outcomes risk of bias arising from missing data is low.

However, student-level data on engagement with embedded links was not collected as planned. Additionally, wellbeing data could only be collected from 29 students in the trial, which was expected, as it was being collected from an already disengaged sample. Low response rate for this outcome was anticipated. Hence the analysis of wellbeing outcomes was classified as exploratory in the protocol. | Low |
| Measurement of outcome data | Outcome data were drawn from UEA's management information or were measured using reliable and valid instruments. There were some instances of misreporting of the attendance data. Staff and student interviews confirmed inconsistent data flow and technical issues (e.g. quick expiration QR codes, students forgetting to scan) which led to, at times, either underreporting or overreporting of actual attendance. Given this was unrelated to treatment assignment or engagement, there was no evidence of overall measurement bias, hence limiting possibility of systematic errors. | Low |
| Overall risk of bias score | Some minor deviations were observed including: changes in the randomisation process, shifts in the timeline for checking students' engagement to generate alerts, missing data on individual-level engagement with embedded links and, as anticipated, high attrition on wellbeing outcome data. | Low |

Domain	Comment	Risk of bias
	Though, overall these issues do not substantially compromise the study's conclusions. The primary outcome data (attendance-based engagement) may be subject to some measurement-related noise. However, given that any misreporting is likely random with respect to treatment status and underlying engagement levels, this is expected to mainly increase variability rather than bias the estimated effects. Therefore, it does not materially affect the reliability of the findings.	

6. Implementation and process evaluation (IPE)

Alongside the impact evaluation, the UEA, with the support of KCL, designed and conducted an implementation and process evaluation (IPE) to understand implementation processes and the experiences of both the staff who delivered it and the students who received the intervention.

6.1 Research questions

The research questions (RQs) focus on understanding the implementation processes and why specific elements of the intervention are (or are not) working towards achieving their intended impacts.

The research questions for the IPE are as follows:

- **RQ1:** Does the receipt of a short email (the intervention) result in student re-engagement with their studies?

- **RQ2:** How does student re-engagement with their studies manifest in engagement metrics (which metrics improve after the intervention)?

- **RQ3:** What are the reasons cited by students for disengagement (including non-attendance of taught sessions, missed assessments and non-engagement with online resources)?

- **RQ4:** Are re-engagement levels and modes of engagement driven by the reason for non-engagement (Is there a link between different reasons for non-engagement and the nature of student re-engagement)?

- **RQ5:** What are the staff and students' experiences of the intervention, including any challenges encountered or perceived benefits?

The research questions are connected to specific IPE dimensions (see Table 9) and informed by TASO's IPE guidance (TASO, 2024a). The answers to the IPE research questions are used to contextualise the findings of the impact evaluation.

Table 9: IPE dimension and their relevance to the research questions

IPE dimension	Description	Research Question (RQ)
Fidelity	Analysis of the extent to which the implementation activities match the processes and relationships presented in the ToC, focusing on whether the designed intervention is implemented as planned and has a tangible impact in driving students towards wellbeing resources.	RQ1, RQ2, RQ3, RQ4, RQ5
Reach	Analysis of whether the email intervention is reaching the intended students, including an examination of the effects of different types of presentation and the impact this has on driving student engagement with wellbeing resources at UEA.	RQ1, RQ4
Exposure/Dosage	Examination of whether repeated messaging to students raises the likelihood that students engage (or disengage) with wellbeing interventions.	RQ1, RQ2, RQ3, RQ4
Monitoring of control/ comparison group	Examination of how the email messages change student engagement with their studies including any differences between treatment and control groups.	RQ2, RQ3

The choice of the IPE dimensions represents the focus of this study, which is to conduct an analysis within a limited timeframe. Thus, it was decided that the most efficient use of available resources would be focusing on the implementation expectations presented in the ToC and actual experiences.

6.2 IPE design and framework

The IPE was a mixed-method study designed to analyse the extent to which the activities associated with the intervention contributed to its effectiveness. The approach considered different stakeholders' perspectives on the intervention, and whether the intervention has worked as planned.

- The IPE was informed by a combination of qualitative and quantitative information about the intervention. This included semi-structured interviews with staff and participating students, institutional reports contextualising the policies and practices shaping the management of student engagement at UEA, and a Microsoft Form survey that confirmed student engagement with the intervention and collected data on the device they use to read the email. The IPE also used data from the UEA Wellbeing Survey, which included student metrics on engagement with wellbeing resources and re-engagement with studies within the participating UEA schools, and administrative records documenting implementation activities. Together, these sources provided a comprehensive view of how the intervention was delivered, how it was received, and the contextual factors that may have influenced its effectiveness.

Table 10 presents the different sources of data informing this study against the dimensions included in this IPE.

Table 10: IPE framework

IPE dimension	Data collection	Audience	Source of data	Data analysis method
Fidelity	Staff Interviews	Senior Student Engagement Team within Student Services at UEA Advisers in each of eight schools in the university at UEA	Semi-structured interviews	Thematic analysis (RQ1, RQ2, RQ5)
	Data from MS Form student survey	Students	Administrative dataset	Descriptive Analysis of management information (RQ1)
	Data from UEA student wellbeing survey	Students	UEA Wellbeing Survey	Analysis of student wellbeing and engagement metrics (RQ2, RQ3)

IPE dimension	Data collection	Audience	Source of data	Data analysis method
	Student Interviews	Students	Semi-structured interviews	Thematic analysis (RQ5)
	KCL views	KCL team members	Comments on the IPE	RQs 1–5
	Document Review	Students	Administrative Reports	RQ3, RQ4
Reach	Engagement rates tracking (actual vs expected)	Students	Administrative dataset	Analysis of management information (RQ1)
Exposure/ Dosage	Management information on student engagement and emails sent	Students	Administrative dataset	Analysis of management information (RQ1, RQ2)
Monitoring of control/ comparison group	Management information on student engagement and emails sent	Students	Administrative dataset	Analysis of management information (RQ2, RQ3)

6.3 Data

As highlighted above, data for the IPE were collected were collected through a range of sources of information for the four dimensions set out in Table 10.

- **Semi-structured interviews** were conducted with three staff members involved in delivering the intervention and two students in the treatment group. Several efforts were made to maximise participation, but we could not recruit the

planned sample size (ten students and ten staff members). KCL staff provided their views on the intervention through an iterative review of the IPE report.

- **A documents review** provided data on how UEA manages the student engagement process. The UEA Student Engagement Procedures (University of East Anglia, 2023) outline the University's approach when concerns arise regarding a student's academic engagement, such as frequent absences, missed coursework, or lack of participation. It also addresses situations involving student safety or conduct affecting others' welfare. Some school reports on engagement were also solicited from wellbeing advisers to understand how these procedures occur in practice.

- **Data from MS Form** were used to confirm how many students read the email and on what platforms (phone/tablet or PC) they read the email. Two different forms were created for the control and treatment groups and the links to the forms were embedded in the two emails sent out.

- **The UEA Wellbeing Survey** is one of the weekly Student Pulse surveys that UEA uses to collect student voices on a range of topics, including wellbeing, sense of belonging and teaching/research. The survey is administered to all students (~16,000) and sent to their email addresses every week. The survey results are reviewed by the Holistic Student Insight team and are reported on an internal dashboard. The Wellbeing Survey provided information on students' wellbeing across four indicators: anxiety, happiness, satisfaction, and feeling worthwhile. Students rated each indicator on a scale of 0 to 10. Responses of the students within the study cohorts (schools) for this IPE were then extracted before and after the intervention, we did not carry out a wellbeing survey specifically for this project.

- **Administrative Datasets** were collected from a range of Management information systems (MIS) that produced data on certain engagement metrics, including teaching session attendance, VLE login counts, percentage of formative and summative assessments, and adviser meetings. Data on how students interacted with wellbeing resources were also collected through a monitored MIS.

6.3.1 Sampling strategy

Student Recruitment

To recruit students for semi-structured interviews, we used the same dataset employed in the evaluation phase. From this, we identified students who had received

the intervention. Each eligible student was assigned a random number and then ranked in ascending order. We reviewed the distribution of key characteristics to ensure representativeness before proceeding. Students were invited to participate based on their rank order. We initially contacted the first 10 students, but due to low response, we extended the invitation to the next 30 and after that, the next 100. Continued non-response led us to request support from Student Services, who then contacted all treated students, though this occurred only a week before the project's completion deadline. Despite these repeated efforts, only seven students provided consent to participate. These individuals were sent additional study information and asked to propose a suitable time for interview scheduling. Ultimately, just two students confirmed and took part in the interviews, with five students dropping out a few minutes before the interviews.

Staff Recruitment

For staff participation, invitation emails were sent to all 15 Senior Advisers and members of the Senior Student Engagement Team involved in the intervention. Follow-up reminders were sent to increase participation. However, ongoing and planned redundancies across the university, among other factors, negatively impacted response rates. Of the four staff who responded, three agreed to be interviewed.

Table 11: IPE Sample sizes

Data collection tool	Intended Sample size	Achieved Sample Size
Student Interviews	10 students – all of whom will have been subject to the intervention	2 students interviewed
Staff Interviews	2 members from Senior Student Engagement Team within Student Services at UEA 8 representatives of advisers in each of eight schools in the university at UEA	1 Senior Engagement Team member 2 Senior Advisers
KCL interviews	Up to 2 interviews with KCL team managing the intervention	Noone was interviewed but their comments were used to shape the report.

Data collection tool	Intended Sample size	Achieved Sample Size
MS Form received by students targeted by the intervention	All trial participants (students in the treatment group)	190 participants (students in the treatment group)
UEA Wellbeing Survey	Students from the participating UEA schools (Wellbeing Engagement Metric)	8 students from the participating UEA schools (Wellbeing Engagement Metric)

6.3.2 Research material design

Materials used for the data collection including invitation emails, the participant information sheet, the signup/consent form, survey form and interview guides can be found in Appendix C: Data collection tools for IPE:

- **Invitation emails:** The invitation emails were tailored to students and staff participants. The email contained a link to the participant information sheet, consent form, and signup sheet (Appendix Ci: Invitation emails). The email also included information about where the interview will take place and incentives for participants.

Participant information sheet: The participant information sheet provided clear and accessible details about the project, why students and staff have been contacted, and what participation in the study means for them and how they can opt out of the study if needed (

- Appendix Cii: Participant information sheet and Consent Form).
- **Survey Form:** The survey form (the engagement email questionnaire in Appendix Ciii: Survey form (MS Form)) comprises two sections; the first section clarifies what data is being collected, how the data will be stored and shared, and the voluntary nature of the study. The second section consisted of two items (student number and how they read the email).
- **Interview schedules:** The interview schedules for staff and students (Appendix Civ: Interview guides) comprised three sections: the objectives of the study, the introduction of the interviewer and the interview process, and the interview questions. The section on the interview questions consisted of five sub-sections, each focusing on RQ1-5 with probes where necessary.

6.3.3 Interview conduct

Participants signed up for the interviews through an MS Form after signing the consent form. They were contacted with further information on how to participate, and a convenient time and date for both interviewee and interviewer were agreed. All interviews occurred via MS Teams and were recorded and transcribed automatically in Teams. The average length of an interview was 45 minutes. All participants were informed of their right to review the transcript and how the data from the interview was to be stored, used and disseminated. Please see Section 1084 for more information on ethics approval, consent, disclosure of harm and data protection statement.

6.3.4 Approach to maximising response rates

Significant efforts were made to maximise the response rates for the interviews. Our approach to maximise responses included:

- Offering student participants an incentive in the form of a £15 Amazon voucher.
- Adjustments were made to the invitation email to improve clarity.[8]
- We staggered the email invitations delivery by starting with the first 10 students, then the first 40, and the first 100 and making an average of 2-3 follow-ups from

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[8] The second version of the invitation email included bullet points outlining what participation involves and how students can take part. This was done to improve clarity about expectations, and it was the version used for the final batch of emails sent by the support services team.

the UEA's Centre for HE Research Practice Policy and Scholarship (CHERPPS) email address between January and February 2025.

- In March, we also sent the invitation email to the whole cohort (while exempting the two students who had been interviewed in the first iteration) from the central engagement team's email, as it was a familiar email address to the students.

- In total, each student who did not respond received the same invitation email a maximum of two times.

6.4 Analytical strategy

The interview transcripts were analysed using a simple reflexive coding approach in Microsoft Word.

The documents were reviewed using content analysis. Members of the UEA project team carried out the analysis and cross-checked how the data was grouped and interpreted, both during the early stage when initial codes were formed and later when broader themes were developed for the report.

Our approach to qualitative data analysis involved familiarisation with the transcripts before doing a thematic analysis of student and staff responses to answer the research questions (Clarke & Braun, 2016). We conducted an explanatory analysis to look for linkages, associations, and divergent views across the stakeholders.

Descriptive statistics were used to analyse the datasets from the MIS, UEA wellbeing survey and the MS Forms to understand who was reached by the intervention and answer relevant research questions and dimensions raised in Section 5.2. The collected documents were analysed using manifest content analysis to understand what is occurring on the surface while staying close to the text without needing to discern intent or identify deeper meaning (Kleinsheksel et al., 2020).

6.5 Deviations from study protocol

This study deviated from the original IPE protocol in several key areas, which limit the depth and generalisability of the findings.

- Firstly, the number of student interviews we conducted (two) fell short of the intended sample size (10), restricting our ability to explore the range of student experiences and factors influencing re-engagement.

- Secondly, staff interviews were limited to three UEA-based participants, and no staff from KCL were interviewed, though we used their comments in email to

refine the findings. This limitation thereby constrains the comparative and cross-institutional analysis of implementation practices we had planned to do.

- The data collected via the MS Form was reduced to two items, student number and device used to read the email, which foreclosed the analysis of students' reasons for re-engagement or preferences related to email content and format and could not directly inform RQ3, RQ4 and RQ5 as planned in the protocol.

- In addition, the low response rate of participants of the student wellbeing survey limited the applicability of this source to RQ4, as there was not enough data to conclude how re-engagement is linked to reasons for non-engagement.

These limitations affect the study's ability to fully apply the IPE framework, and therefore, the findings provided below should be interpreted as exploratory rather than conclusive.

6.6 Results

6.6.1 Does the receipt of a short email (the intervention) result in student re-engagement with their studies?

This question was explored using a combination of quantitative and qualitative data. Initially, the data on how students interacted with the emails was examined for any patterns. The views of staff and students were used to bolster this analysis. Student engagement with wellbeing support was determined using information from student and staff interviews as well as data from student interactions with the links to wellbeing support in the emails.

Engagement patterns in short vs long emails

The impact evaluation found 'no conclusive evidence that the intervention improved the attendance rates of students in the treatment group as compared to the control group' (see Section 0) but acknowledged that 'a small but statistically significant positive effect of the intervention was found with MS form…[this] suggest slightly higher engagement among treated students. Specifically, as shown in Table 12 below, students in the treatment group were more likely to complete the MS Forms survey

embedded in the email (28.3% vs 7.5%),[9] but in both treatment and control groups approximately three quarters of students used a phone or tablet to read the email.

Table 12: Student Engagement Behaviours by Group (Treatment vs. Control).

Group	Emails sent	MS Form completed	Read on laptop/desktop	Read on phone/tablet
Treatment	613	174 (28.3%)	44 (25.3%)	130 (74.7%)
Control	600	45 (7.5%)	10 (22.2%)	35 (77.8%)
Total	1213	219 (18.1%)	54 (24.7%)	165 (75.3%)

Notes: For completed MS Forms, percentage is calculated using the number of emails sent as the denominator. For the percentage in the columns indicating the device used to read the emails, the denominator is the number of MS Forms completed.

The pattern of data in Table 12 suggests that the short email may have facilitated more engagement among students in the treatment group compared to those in the control group. This includes a higher number of students who completed the MS Form and increased interactions with the email content across devices, including both laptops and mobile phones.

While this did not translate into significant improvements in broader engagement metrics (e.g. attendance or coursework submission) as evidenced by the impact findings, the trend may suggest that the short email format played a role in initiating some level of re-engagement in the short term.

Despite greater numbers of students in the treatment group engaging with the email, the overall proportion of students who used a phone/tablet to read the email was very similar for both groups (approximately 75%). This is likely reflective of how students communicate electronically and indicates that communication methods that favour mobile devices may be more likely to engage students.

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[9] An additional 18 (16 in the treatment group) responses to the MS Form were disregarded from the analysis as the identifying information was not filled in correctly and responses could not be definitively matched with trial participants.

Staff and student views on the short email intervention

Staff views on the intervention's impact differed from those of students and findings from the impact study. Staff noted that the number of students they had interacted with was too small to determine whether the short-form email had a significant effect. In contrast, students reported that the email was helpful in supporting their re-engagement with their studies.

However, they all agreed that the short email was effective in creating awareness about students' engagement issues but did not necessarily lead directly to re-engagement. For instance, a staff member noted that:

> *"The short message received more responses. Students experience email fatigue, and many only check emails quickly on their phones. A shorter message is more likely to be read." (Staff A)*

There were mixed views regarding the perceived effectiveness of a short email. The short message was perceived to be more effective by some interviewees as it required "less time to read and straight to the point" and students were more likely to engage with it. This was also further supported by the higher MS Form response rate from the treatment group (those who received the short email) and those who read the emails on their phones or tablets. However, staff also felt that the short email created confusion about the next steps for students. It also meant that whilst students acknowledged receipt of the shorter email via the MS Form, they took no further action, with only a handful reaching out to advisers for support. As noted by Staff B,

> *"A 100-word message with a general link may not be enough, as it lacks direction. A balance is needed; students should be guided without feeling overwhelmed. The best approach is direct intervention, such as helping students access resources during one-on-one conversations." (Staff B)*

Approximately three-quarters of students read the email on their phone or tablet. A staff member in the Wellbeing Team also noted this and acknowledged that even though it is hard to measure the impact the short email has had, they have seen, as noted by Staff C below

> *"Some really positive responses that we felt were being generated from the short one. I think there's an element that says when you do something different, people also take notice." (Staff C)*

Students also shared positive views on the short email. For instance, a second-year PSY student appreciated the clarity and tone, though they did not click the embedded wellbeing resources link because they were aware of wellbeing resources (see the

Introduction in Section 2) and did not have a need for them when the email was received:

> *"The length was fine, it was clear and to the point. The email highlighted key points. I didn't feel confused, but I knew I could get more information later if needed. "I read through it, but I didn't click on the link. I was already aware of wellbeing services because I looked into them last year. I wasn't in distress, so I didn't feel the need to explore further. If I had a specific issue, I would have looked into it." (Student B)*

When asked if receiving the message reinforced their commitment to staying engaged, a final year PPS student who had repeated a year due to a disengagement issue acknowledged that the email was effective in reminding them of their commitment to staying engaged.

> *"Yeah, in a small way. It reminded me a bit of my earlier years when I didn't care about my degree classification. But now, in my final year, I really want a 2:1, so I'm pushing myself. The email was like a little nudge, reminding me, "Come on, get yourself to class." (Student A)*

In comparing the intervention with previous practice at UEA where disengaged students received long emails, one staff member perceived a change in outcomes with the short emails:

> *"From previous years, when students only received the long message, about two-thirds re-engaged, while one-third remained disengaged. With the short message, I noticed fewer students reaching a concerning level of disengagement. Instead of one-third continuing to disengage, it was closer to one-fifth. This suggests that the short message had a stronger effect in prompting students to take action." (Staff A)*

Engagement with wellbeing resources via MS Form

Staff and students were asked whether receiving the message facilitated student's quick engagement with the wellbeing resources and whether they can distinguish differences in engagement level after receiving the short or long-form messages. They were also asked about the landing page for wellbeing resources at UEA. Overall, staff commented that the website could be more intuitive and user-friendly to reduce the effort required for students to get the help needed.

> *"Yes, I've looked at it. The link to services like talking therapies is there, but it's somewhat buried. The UEA website, in general, could be more user-friendly. Everything is available, but students have to put in effort to find the right support. I think the layout could be streamlined and simplified to make it more accessible.*

Students prefer interactive platforms and apps, and the current website is a bit clunky. There's too much text, and many students won't read through it all." (Staff B)

Staff also acknowledged that while some students may click on the embedded links immediately, particularly if they are experiencing ongoing struggles, taking further action, such as booking an appointment, takes more time and motivation.

"If a student is already struggling, they tend to click the link immediately. However, taking further action such as booking an appointment, reaching out for support takes longer. For some, clicking the link is just the first step, they then reach out to their adviser or respond to the email with their concerns. This suggests that the message prompts initial engagement, but follow-up support is needed to encourage full participation in wellbeing services." (Staff A)

When students were asked if they were willing to engage with the wellbeing resources after receiving the message or if they had previously engaged with student services before the intervention, the responses varied. Some students said the email served as a reminder of the wellbeing resources that exist but did not trigger action as they were not in distress. Others felt a lack of trust in institutional resources and preferred external help.

"No, I don't think so. I honestly don't recall ever doing that. I'm genuinely fine this year, so I didn't feel the need. But even in past years when I was struggling, I wouldn't have used them. It sounds bad, but I just don't trust my university to handle my wellbeing issues. I'd rather seek support privately." (Student A)

"It was useful in reminding me that the services exist. Even if I didn't need them at the time, it's good to know they are there for future reference. However, there was a lot of information at once, and I skimmed over it. I wasn't sure if I missed anything important or if I just didn't need it at that moment." (Student B)

Student A also acknowledged that it is difficult to engage students who are already disengaged:

"It's difficult to push resources onto students who aren't engaging with the university in the first place. I doubt people who aren't attending are even reading their emails." (Student A)

Student B shared they had engaged with wellbeing when they were struggling to understand course content but found the support was not in line with what they needed.

"I have had a 'one-off call with a wellbeing adviser.' It didn't help much because I later realised it was meant for immediate issues, while my struggles were long-term academic challenges. I was also directed to support groups, but I only attended one session and didn't continue." (Student B)

From a staff perspective, the timing and mental readiness of students to engage is a key factor. They argued that students must be in a position to be willing to talk about the problem before they can make use the wellbeing resources.

"When students are on that downward slide, doing a thing to look after yourself is almost the first thing that disappears. And you need to be in a place where you're ready to engage with that support, to engage with it." (Staff C)

One student also shared that despite accessing external private support previously, what they needed was practical motivation:

"But I didn't find it [private therapy] particularly helpful. I'm self-aware enough to recognise when I have a problem and what I need to do to fix it, I just couldn't bring myself to take action. Talking about it didn't help me, and what I needed was someone to actually push me to do something". (Student A)

These findings, therefore, suggest that while some students appreciate being reminded of the wellbeing services, others may avoid them due to a lack of trust in the university, preference for external support, or reluctance to acknowledge or act on their struggles.

The data showed a difference in student engagement between the treatment and control group in the rate at which they clicked the embedded links (28.3% vs 7.5% respectively, see Table 12). Additionally, clicking on the embedded wellbeing links remained low overall in both groups as demonstrated in Table 13 below, but the treatment group receiving the short email saw a significantly higher interaction with these links than the control group who received the long message.

Table 13: Engagement with embedded links by treatment assignment

	Number of students who click on the embedded links in the email		Number of clicks on the embedded links in the email	
	Wellbeing resources	Attendance monitoring support pages	Wellbeing resources	Attendance monitoring support pages
Treatment	19	12	27	16
Control	0	5	0	9

6.6.2 How does student re-engagement with their studies manifest in engagement metrics?

Students are informed through the Student Engagement Process that engagement with their studies is monitored in three ways (University of East Anglia, 2023); attendance at teaching events relevant to their course, assessment submissions and marks achieved in their assessments. The dashboard used by staff implementing the Student Engagement Process takes into account these measures and provides additional contextual information, which is used to understand a student's overall engagement:

- Overall taught sessions attended (%)
- On-time submission of formative assessments (%)
- On-time submission of Summative assessments (%)
- Average number of weekly logins to Blackboard VLE Sessions
- Adviser meetings attended (%)

Table 14 compares student engagement for the treatment and control groups before and after the intervention. Pre-intervention data were not available for summative assessment because the intervention was delivered before the summative period.

Table 14: Comparison of Student Engagement Metrics by Group and Time (Pre- and Post-Intervention)

Metrics	Treatment			Control		
	Pre	Post	Change	Pre	Post	Change
Teaching sessions attended (%)	30.7	33.6	2.9 pp	30.7	34.1	3.4 pp
Blackboard/VLE engagement (weekly logins)	14.5	37.2	22.7 logins	15.1	38.5	23.4 logins
Meeting with Advisers (%)	64.3	73.6	9.3 pp	85.0	84.7	-0.3 pp

Metrics	Treatment			Control		
Formative assessments submitted (%)	70.8	83.3	12.5 pp	33.3	90.0	56.7 pp
Summative Assessments submitted (%)	N/A	80.4	N/A	N/A	82.1	N/A

The control group showed similar or even slightly better improvements in some areas, such as teaching sessions, formative submission and VLE engagement, which could indicate that the amount of information in the control group email was helpful. The control group also had a higher initial engagement with advisers (85% vs 64.3%), but there was a +9.3 pp increase in the post-intervention metric for the treatment group and -0.3 pp decrease in the control group. The data does not strongly indicate that the intervention had a significant impact, as both groups showed similar trends. However, the largest unique improvement in the treatment group was in meeting with advisers, suggesting that letting students know they could meet their advisers to discuss their wellbeing issues may have encouraged more engagement.

Engagement with Advisers

Engagement with academic advisers is considered an important factor in ensuring academic success and wellbeing. However, students' and staff perspectives reveal that various factors shape students' willingness to seek or maintain contact with advisers. A recurring theme is that many students may not actively seek help, even when they need it. Some believe that requiring students to meet with an adviser could be beneficial as suggested by Student A below.

> *"I actually think forcing a meeting would be a good idea. A lot of students, myself included, won't actively seek help, even if we need it. But if you have to meet with an engagement or wellbeing officer, it forces you to address the problem. Even just a short Teams meeting could push students to take action." (Student A)*

Advisers' experiences also show that engaging students is an ongoing challenge, given the scale of outreach they have to do, and sometimes students' lack of commitment to following through on action plans. Staff B, for instance, shares their experience of engaging with students.

"So far, I've organised and held around 500 student meetings. Some students say they will re-engage after receiving support, but in reality, it's about 50/50 whether they follow through. For example, I recently emailed a student who missed two of my classes despite our previous conversation about improving their attendance. They apologised, but it's a pattern I see often." (Staff B)

Other metrics

To complement the attendance metric, staff suggested a range of other indicators to measure student engagement. Non-submission of coursework and consistently low grades are also considered as key indicators as sometimes "students are unaware of their academic struggles, and conversations reveal a disconnect between their perceived performance and reality" (Staff B). But for some courses, staff maintained that:

"Attendance is really the only clear metric. We don't have assignments until January, and formative submissions are optional, so they don't always indicate engagement. Blackboard (VLE engagement tracking) could be useful. We already use it alongside attendance records when meeting with students, checking if they are at least engaging with course materials online." (Staff A)

6.6.3 What are the reasons cited by students for disengagement?

Understanding the reasons students give for disengaging from taught sessions is important for interventions aimed at improving attendance and participation. This section draws on both interview data and internal records to understand the most commonly cited causes of disengagement.

In particular, we reviewed a periodic report shared by a Senior Adviser from one School of Study at the UEA (University of East Anglia, 2025), which allows us to situate the interview within the pastoral and academic support context.

This report highlighted a range of factors contributing to non-attendance, including scheduling clashes with paid work, financial pressures, anxiety around participation, health issues (both short- and long-term), commuting costs, caring responsibilities, and students opting to attend alternative seminar sessions. Some of these themes were also noted by staff and students during the interviews and are discussed below. By identifying these underlying reasons, the project is better positioned to design and implement targeted interventions that address the specific barriers students face.

Wellbeing and disengagement

To better understand the drivers of disengagement, it is also important to consider student wellbeing. Mental health concerns such as anxiety and stress can be associated with disengagement with studies. The UEA Wellbeing survey provides key insights into students' mental health and wellbeing which can influence their capacity to engage. Figure 2 below shows a snapshot of student wellbeing at UEA during 2024/25 academic year. Among other items, students were asked to rate four key aspects of their wellbeing including happiness, life satisfaction, sense of life being worthwhile and anxiety on a scale from 0-10. Figure 2 below shows that while students overall report a moderately positive sense of wellbeing- happiness (6.1), satisfaction (6.5) and worthwhile (6.6), anxiety remains a concern which scored 5.2. This may be due to a number of reasons including academic pressures, personal challenges or other external factors and highlights the need for mental health support and accessible wellbeing services for students.
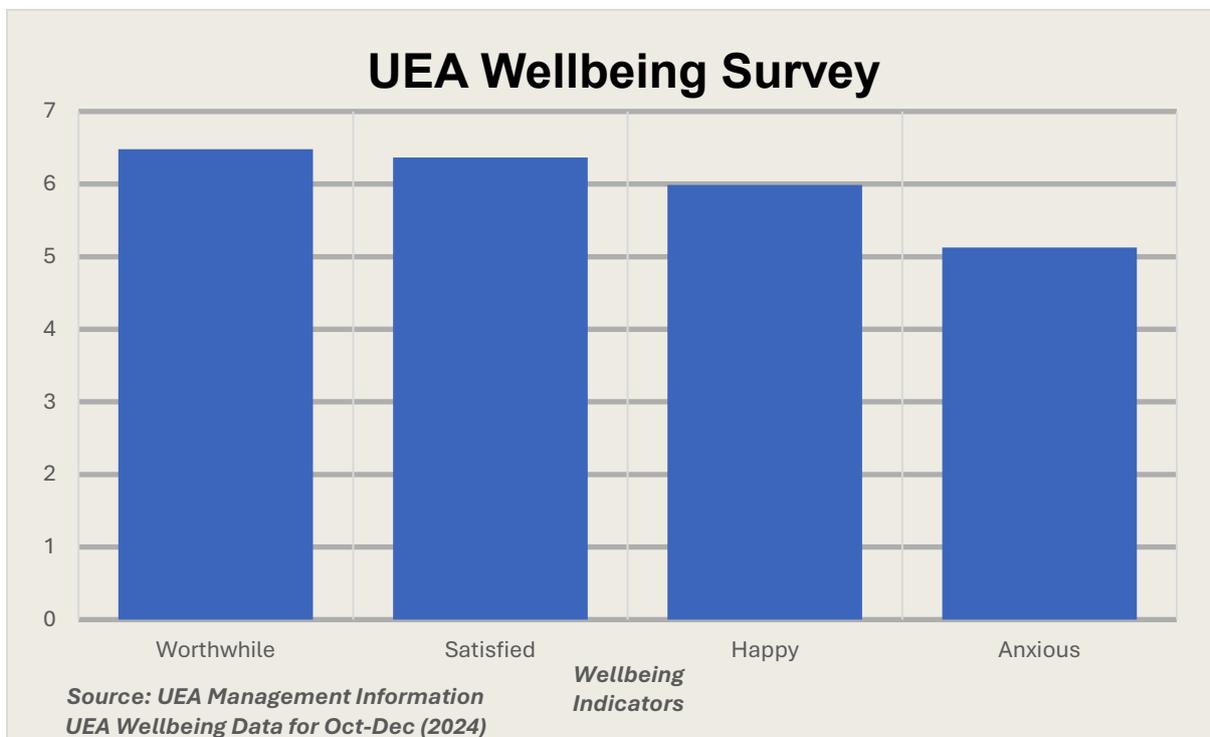
Figure 2: Mean of Responses to UEA Wellbeing Survey for October and November (n=8).

Logistical Barriers and Family Commitments

Findings from the interviews with staff and students also confirm that while some students actively disengaged due to scheduling conflicts or financial pressures, others struggled with issues such as anxiety or a lack of familiarity with in-person academic expectations. For the students in this study, disengagement was not necessarily a choice but a result of practical constraints such as travel distance, class schedules, and family commitments. As student A explained below:

"I genuinely had valid reasons for missing some sessions—I was sick, had poor sleep, or had to travel home to Oxford, which is far. So, I already knew I needed to get back into my routine. That being said, maybe if the message hadn't been sent, I would have been more tempted to let another week slip by. So, in a way, it might have helped remind me to stay on track."

Similarly, student B who travelled home frequently or had other non-academic obligations found it difficult to justify attending certain sessions, particularly when they believed that their absence does not directly affect their coursework.

"Sometimes, I go home or visit my partner on the weekends, which means I'm not in Norwich for some sessions. For example, this weekend, I had a one-hour seminar on Friday. I did all the work, talked to people who attended, and decided it wasn't worth making a round trip just for that one hour before traveling by train. There have been other times where I read the materials or followed up with classmates instead of attending in person. There are also cases where I simply couldn't attend due to family commitments."

Mental Health

Mental issues were a recurring theme both among students and staff interview findings. Staff members working with students also recognised that mental health plays a significant role in disengagement. Anxiety, depression, and a lack of motivation are common reasons why students avoid attending classes, even when they recognise the long-term consequences, as noted by Staff B.

"Low engagement can stem from various factors, including wellbeing issues, financial concerns, or simply a lack of motivation. Some students prioritise other activities over academics, failing to recognise the value of attending sessions. Research shows that even passive attendance benefits students and enhances their overall satisfaction with their studies." (Staff B)

Staff A further said:

"The top two factors are anxiety and financial pressure–many students report feeling too anxious to attend classes, especially seminars where participation is expected. Some prefer to rely on lecture recordings instead. Some students need to work to support themselves and can't prioritise attending classes. We try to help them adjust their schedules, but financial stress remains a major barrier" (Staff A)

Staff C also emphasised the importance of early intervention as the impact of anxiety could be particularly concerning, as small absences can quickly snowball into long-term disengagement.

> *"I see many students struggling with their mental health, so my perspective is sometimes influenced by those who face ongoing challenges. However, I believe that engagement is incredibly beneficial—it helps establish a routine, encourages students to get up, prepare for the day, and stay active, all of which contribute to better mental wellbeing. Additionally, disengagement can sometimes indicate uncertainty about university life. Some students may miss sessions simply because they don't know where to go and feel embarrassed to ask for help. Others may have physical disabilities that make it difficult to move between classes, creating further barriers to attendance." (Staff C)*

Academic Maturity, Time Management and Scheduling Conflicts

A number of staff members noted reasons for disengagement vary depending on the students' year of study. For example, Staff B observed that while second- and third-year students are generally more dedicated and do more independent study than first years they also think they know which sessions they can skip. First-year students, on the other hand, often struggle to adjust to the demands of university life and seem to develop bad habits early on as they quickly learn that they can get away with minimal engagement. Students also reported feeling lost on campus after COVID-19 as some students struggled with transitioning from online to in-person learning, particularly those who started university during or after the pandemic:

> *"I was part of a weird cohort that started in 2020. I never got into the habit of physically going to lectures and seminars because everything was online. When in-person learning resumed, it was a huge adjustment. I felt lost on campus, didn't know my way around, and had no idea how in-person classes were supposed to work. It was overwhelming. When I started my second year, I suddenly had to attend in-person, but I still didn't have the habit of going. So I just didn't. And for a while, I convinced myself I could get by without attending—until I couldn't. That's when I had to repeat the year." (Student A)*

For other students, factors such as daylight hours and travel safety could impact their willingness to attend in-person sessions and how they prioritise what session to attend or skip. Similar to Student B's notion of how gaps in timetable schedules determine whether to attend online or come to campus, Student A below highlights how weather and safety issues shape students' participation.

> *"I actually find the second semester easier to attend because the weather is nicer, and it's not as dark in the evenings. As a young woman, I don't like traveling home*

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alone when it's already dark and freezing. Even though it's only 5-6 PM, it still makes me uncomfortable. It's a small thing, but it does impact whether I feel like going to class." (Student A)

Staff also noted how other external factors, such as late-night social events, can influence student attendance and one adviser pointed out that:

"... Thursday morning classes are often poorly attended because of sports nights on Wednesdays. Just today, a student asked if they could switch classes because they wanted to attend a sports night. They didn't say it outright, but that's what they meant." (Staff B)

Another factor is students' academic maturity. In particular, first-year students do not take things as seriously as second- and third-year students. They also highlighted the fact that as students become mature in the system, they get to know which class to skip. Student B, who is now in the second year, recognised that while engagement is important, convenience and personal habits also shape their choices in their first year.

"I try to prioritise my time, and sometimes that means cutting out travel if I can catch up online. There's also a level of comfort in being at home, I know I can get away with not going, so sometimes I take that option." (Student B)

These findings highlight that low engagement is rarely the result of a single issue. It is shaped by many factors including mental health, logistical challenges, family commitments. Thus, there is a need for engagement interventions to be holistic, flexible, and sensitive to these different realities of students' lives.

Risks of Disengagement

Staff noted that when students withdraw from academic activities, the consequences can extend from poor academic performance to long-term personal and professional setbacks, highlighting the academic, institutional, and legal implications for the institution.

One of the most immediate risks of disengagement is the decline in students' academic performance and overall satisfaction with their studies:

"There are several risks. Their satisfaction with their studies will decline, their academic outcomes will suffer, and in some cases, there could be serious personal consequences. If we fail to intervene, it reflects poorly on the institution" (Staff B).

Persistent disengagement can impact the institution's reputation by undermining the integrity of academic courses. Additionally, increased reliance on independent study

and overconfidence in self-study erodes the value of face-to-face academic engagement.

> *"Because really that says that that course isn't valuable. Then all that teaching session isn't valuable. Actually, if people can, and I know there are people that pass without attending much, and they use the library and they do all these other things. But I think it diminishes the teaching events; I think it diminishes those seminars and how important they can be." (Staff C)*

6.6.4 Are re-engagement levels and modes of engagement driven by the reason for non-engagement?

We attempt to answer this question by showing how reasons for re-engagement (e.g. fear of failure, addressing family commitments, overcoming social anxiety, and responsive wellbeing support services) are shaped both by levels of disengagement (partial or complete disengagement) and modes (emotional, behavioural, social) of disengagement. The interview findings have shown that re-engagement with studies is a complex process shaped by multiple factors, including the academic consequences of failure, improved personal wellbeing, balanced family commitments, and social comfort. While partial disengagement is a common feature among students, structured support from lecturers and a sense of stability in personal life encourage students to reconnect with their studies.

Academic Anxiety and Fear of Failure

Student A shared that one of the most significant motivators for re-engagement is the fear of failure. For them, failing a year served as a major wake-up call that pushed them to take their studies more seriously. They also highlighted the importance of direct communication from lecturers and how a simple group email acknowledging low attendance and encouraging students to return can make a difference and could help students reconnect with their studies.

> *Failing a year is a huge wake-up call. That scared me into taking things more seriously. It also helps when lecturers personally reach out, even if it's just a group email saying, "We've noticed attendance is low. We're friendly, and we'd love to see you in class!" (Student A)*

Addressing Family Commitment and Practical Barriers

For some students, disengagement is temporary and situational. Student B describes experiencing short periods of disengagement due to illness or personal matters, which they thought did not require formal intervention but still impacted their engagement.

They also highlight how family commitments, such as travelling home over the weekend, occasionally interfere with academic commitment but do not always lead to complete withdrawal from studies. However, in the case of Student B, a change in circumstances, such as family members visiting instead of the student traveling, could limit impact on engagement levels.

> *"Not [travelling home] too often, maybe more in Semester 2 than in Semester 1. It's a three-hour round trip to Essex, so I usually leave Thursday and come back Sunday. This year, my family has been visiting me more, so I don't travel as much. But even when I stay, it's still a disruption because I focus on family rather than studying. In Semester 1, I avoided going home to prevent homesickness. This year, I feel more settled, but there's still a comfort blanket effect, I know I can go home if I need to, so sometimes I do." (Student B)*

Overcoming Social Anxiety

Data from the interview also revealed that returning to class after disengagement can be an emotionally difficult experience for students. Student A, for instance, described how the anxiety of re-entering the classroom and fearing judgment from peers can lead to further disengagement.

> *"The hardest part is actually walking back into class after missing a few weeks. You feel like everyone will notice and judge you. Even though that's probably not true, the anxiety makes it really difficult. It's also easy to convince yourself that another missed week doesn't matter, until suddenly, half the semester is gone." (Student A)*

Students also noted that positive and low-pressure encouragement from lecturers could play a key role in re-engagement and make returning to class feel less daunting and help in overcoming social anxiety. However, disengagement due to deeper mental health struggles requires a different approach. Student A noted that the real turning point in the circumstances was an administrative warning of potential withdrawal, which provided the necessary external pressure to take action.

> *"But when I was struggling in my second year, that approach wouldn't have worked. I was very unhappy, and I couldn't even leave the house for things I enjoyed. In that case, the problem had to be dealt with first before I could even think about attending. In the end, what pushed me to act was receiving an email saying I could be withdrawn from university. That was my wake-up call." (Student A)*

When asked if the message they received had any impact on their re-engagement, and what behaviour it changed, Student B acknowledged that it had a slight impact on them knowing that the university might contact them about their engagement.

> *"Maybe slightly, but not massively. I know the university monitors engagement, so in the back of my mind, I think, 'They might email me about this.' If I ever feel overwhelmed or lost in my course, I consider going to university services, but I don't have much experience with them. I prefer talking to friends or course mates first before seeking official support." (Student B)*

Responsive Wellbeing Support Services

Trust and efficiency in support services was another recurrent theme among students and staff. Staff members emphasise the improvements in student services over recent years, particularly in reducing wait times for counselling and wellbeing support. Staff C notes that services can now offer counselling within a week. Staff members and students also highlighted the role of the Student Information Zone as a 'one-stop shop' for support services and the university could deploy this approach for wellbeing support to increase the visibility of services beyond induction and orientation week. To make UEA wellbeing resources more trustworthy and efficient, student A observed that it starts with personal connections with advisers.

> *"For me, it's a lack of personal connection. I don't want to talk about my struggles with someone I have no prior relationship with. I also don't even know where some of these services are on campus. I've been to the Student Information Zone because it's visible, but other services feel hidden away. If wellbeing teams were more present on campus, maybe with a desk in a high-traffic area, it would make a difference." (Student A)*

6.6.5 What are the staff and students' experiences of the intervention, including any challenges encountered or perceived benefits?

The findings from the IPE highlight both perceived benefits and challenges of intervention, including the effectiveness of engagement messaging, data accessibility issues for staff, access to data during the intervention, timing and tone of the intervention, structural issues around engagement metrics and staff suggestions on how to improve the intervention.

Challenges in student engagement emails

A notable issue raised by staff is that early engagement messages were too soft, and trying to engage disengaged students via email was probably a difficult undertaking, which may have contributed to limited student responses. Staff B explains:

> *"One major challenge is reaching students who are completely disengaged. If they're not reading emails or checking their student accounts, it's difficult to make contact. Some students don't engage until they reach a head-of-school meeting, despite multiple opportunities before that. We've had cases where students ignored all early interventions and only responded when they were at risk of being referred to Senate Student Disciple Committee. By then, it's often too late to help them meaningfully." (Staff B)*

Staff also suggest alternative communication methods, such as text messaging or Microsoft Teams notifications. Staff C observed that while email is an important tool, it could be used alongside other tools to make it more effective.

> *"Yes, I think it's a tool, it's quite a big tool, it's an effective tool but it can't be used in isolation. So I think all the other stuff surrounding it needs to be there to help it and make it work. Again, this is a cost thing. I would be really interested in the system that allowed us to text people at a certain point." (Staff C)*

Staff appreciated the value of the project as it helps them evaluate their practices as wellbeing advisers in the university. They all agreed that messages help raise awareness, but personal interaction is crucial. They suggest that best solution would be more one-on-one meetings, but resource constraints could make that difficult. A combination of messaging, follow-ups, and personal check-ins is needed for maximum impact. Staff B commented that:

> *"I appreciate the value of this project because evaluating our practices helps determine what is effective. Just yesterday, I was discussing engagement data with a colleague. We explored statistical methods to assess the impact of our school's engagement policy, which has been approved by a Pro Vice-Chancellor. This policy aligns with the university-wide approach, and we are interested in measuring its effectiveness in improving student re-engagement." (Staff B)*

Data Access

Staff interviewed recognise that real-time access to engagement data is crucial for measuring the intervention's impact. However, inconsistent data flow and changes to the attendance monitoring system prevented effective monitoring. Staff C and Staff B (respectively) commented that:

> *"Last semester, data just wasn't flowing for us. That meant we've ended up in a very weird position, although we were able to get your emails out and the forms that we wanted to. The very standard idea of being able to get to people every two weeks didn't exist for that first semester." (Staff C)*

> *"One challenge is that recent changes to QR code tracking have made data inconsistent, leading to difficulties in monitoring engagement effectively." (Staff B)*

Also, without real-time universal access to student engagement data, some staff struggle to track whether messages lead to increased attendance or if students require further support. Staff B and A described this as a "black box issue" as they cannot immediately tell if there were any spikes in attendance after students received the message.

> *"No, I don't have access to that data. I would love to know how many students respond to these emails and what the engagement rate is. For me, this is a "black box" issue. I don't know what happens after the emails are sent. I've worked with the embedded team to get more clarity on who is actually engaging with support services." (Staff B)*

An additional comment from Staff A reinforced the point about data issues:

> *"This year, there were issues with accessing engagement data. The data was being collected, but senior advisers, including myself, didn't have access to it until mid-November. As a result, I can't say if there was a direct attendance spike after the messages were sent. However, the data is available and could be analysed later." (Staff A)*

Staff members acknowledged the need to do more in terms of pursuing a transparent and robust institution-wide approach to engagement or attendance. Students also noted that they are more likely to read an email from a lecturer they *know* than from a generic wellbeing engagement officer. Staff also mentioned that instead of providing a list of wellbeing resources on the website, we could make it more personalised by starting with a short message that asks students to select their main concern and then use Microsoft Flow to send a follow-up email tailored to their response. This would make the message more relevant to each student, rather than overwhelming them with all possible resources. Alternatively, direct one-on-one meetings would be ideal, but that would require more staff resources.

Timing of Intervention

Students and staff agreed that the timing was appropriate but could be a bit earlier. Disengagement habit-forming happens quickly and could become difficult to reverse as the semester unfolds. Staff highlighted two key points for intervention. One is after Week 2 as this allows students time to adjust but catches disengagement early. The second time is after Week 6 "where a stricter follow-up is needed, as by this point, missing content can become a significant issue. The first should be a soft push, while

the second should be a firmer call to action" (Staff A). However, Student A, for instance, noted that while the timing of the email is good it could be a bit earlier.

> "I would say early, after the first week. If you don't scan a QR code, you should get a message right away asking, *"Were you there? Is everything OK?"* That being said, I've never really responded to those messages. My adviser has reached out more this year, which I appreciate. When he asked if I was OK, I just told him, *"If you're flagging me for a wellbeing check, I'm fine. It's just that I don't get QR codes very often."* (Student A)

Staff also emphasised that engagement is more than just attendance. While attendance is a useful indicator, engagement includes broader aspects, such as active participation in studies and institutional involvement. Staff B also agreed and suggested for more early and more assertive intervention:

> *"A sharp decline in attendance should prompt early intervention. I believe monitoring every two weeks is useful, but I advocate for intervening earlier and more assertively. If students are struggling, they should formally take a break in studies rather than disengage entirely."* (Staff B)

Given that most students have an average of 6-7 contact sessions a week while some courses do more, Staff in the Student Support Services believe that

> *"You only have to miss a couple of those within a week to really hit that figure. So, spreading it over a couple of weeks works...but there are plenty of places where... we need to put extra pressure on people turning up. For me the very start of term is absolutely that point that we should do that."* (Staff C)

Early outreach is especially important to avoid compounding student anxiety about returning. Student A explains why this early conversation is critical.

> *"If you don't attend classes for the first two weeks, you start to feel like you can't attend anymore. The anxiety of walking into a class full of students who already know the lecturer and each other is horrible. Even though lecturers are usually nice about it, it's still intimidating."* (Student A)

If the intervention is not carried out sufficiently early, getting students back on track becomes incredibly difficult. But even early intervention is challenging given the numbers of students that will need to be seen. Staff A, who oversees about 600 undergraduate students, noted that:

> *"About 200 students typically receive the first round of engagement messages, and it's physically impossible for me to meet with all of them, even though individual meetings would be the most effective intervention."* (Staff A).

Tone of the Email

The students agreed that the tone of the email was formal and not aggressive. However, staff differed on its clarity and firmness. Staff commented that they initially thought the tone was fine, but feedback from students showed that the email created anxiety among students who did not feel reassured that help was available.

> *"At first, I thought the tone was fine, direct and to the point. However, after speaking with students, I realised that some felt worried after receiving it. The message could be clearer in reassuring students that support is available. Some students weren't sure what to do next. The inclusion of a Microsoft Form also confused them. They weren't sure why they needed to confirm they had read the message." (Staff A)*

Staff B, on the other hand, felt the tone of the message is too soft and lacked the needed urgency to communicate the importance of engagement and prompt action. They said it needed to forge a balance between support and firmness.

> *"If the message is too soft, students might ignore it, thinking, 'Oh, they'll just keep sending these gentle reminders.' It needs to strike a balance between support and firmness. I've experimented with different email tones for engagement purposes. Typically, I frame it like this: "There is an issue with your engagement, and we need to address it. General Regulation 13 requires attendance, and we don't want this to escalate to a course leader or head of school intervention. Let's address this early, come and see me in a supportive environment where we can discuss solutions." (Staff B)*

This position was also corroborated by Student A, who did not feel the need to take action after getting the email.

> *"Not really, I know attendance doesn't technically affect my grades, so I wasn't too concerned. There wasn't anything offensive or aggressive about the tone of the email, it felt very neutral. I guess the first time I ever got one, back in my foundation year, I was a little scared. I thought, "Oh no, am I in trouble?" But then you realise it's not like school, you're not actually going to get in trouble. (Student A)*

Structural Issues in Measuring Engagement Through Attendance Metric

Students flagged for low engagement (i.e. defined as attending less than 60% of taught sessions) were sent messages to investigate the underlying reasons and were also signposted towards support services. Two types of messages, which varied in length, were trialled to test whether this feature impacts student engagement. Findings from the interviews also show that attendance data may be underreported or overreported,

making it unreliable as the only metric to use. This is why it is important to explore other metrics that tell us how students engage with the cognitive, affective and behavioural dimensions of the university life.

Based on initial observations of the RCT data and interviews with student advisers, we identified several indicative patterns of student disengagement. While these are not formal categories, they suggest that disengagement occurs in a range of ways. For example, some students appeared to be entirely disconnected from their studies, with no attendance, activity on Blackboard, or contact with advisers. Others, although similarly absent from academic spaces, maintained some contact with support staff, often due to underlying wellbeing concerns. A third group seemed to engage only through digital platforms, participating in online learning or assessments but not attending in-person sessions. Lastly, some students attended classes but at consistently low levels (under 60% attendance). These patterns are provisional and intended to inform future inquiries; a more detailed analysis is needed to confirm and explore them further.

Inconsistent attendance data

The two students interviewed for the IPE noted that they had issues with scanning the QR code to register their attendance in taught sessions. But they both have a history of disengagement related to wellbeing concerns. Students A and B for instance, agreed that being targeted as disengaged because of <60% attendance would have been a true picture of things in the last years of their study, but their low engagement before the intervention was due to QR code issues. Student A commented.

> *"If you look at my previous years at university, yes. I did a foundation year, then repeated a year, and during those years, my attendance was poor. This year, though, I've actually kept my attendance up. The issue is that I often don't get QR codes, especially now that they expire right after the session ends. If a lecturer goes over time, even by five minutes, the code expires, and I can't scan it."* (Student A)

In addition, student B stated they did not always use the QR code system to register their attendance:

> *"I can see why they might have flagged me as having low attendance. I do try to attend, but sometimes I forget to scan the QR code even though I'm physically present. Last year was more difficult because I didn't always know how to scan the code properly. This year, I've been better at keeping track, but there are times when I'm present but not signed in, so it makes sense why the system might see me as disengaged."* (Student B)

Members of staff interviewed for this study also acknowledged that the recent changes to QR code tracking have made data inconsistent, leading to difficulties in monitoring engagement effectively. Staff B, for instance, mentioned that "before implementing this new [attendance monitoring] system, the QR code attendance system often underreported actual attendance, as students didn't always scan the codes." For large lecture sessions, staff reported an issue with students sharing QR codes and in some cases, attendance data is inflated because students who are not physically present still register as attending. However, they all agree that 60% metrics could still help identify students who are not engaging at all. However, there are diverse opinions on what the 60% metric should measure. Some staff want it tailored and bespoke to school needs and priority, while others note that it could be a lot higher for some intensive and contact-oriented courses where maximum attendance is needed or expected. Staff A on the one hand, argued that while 60% feels reasonable, there should be conversations at school levels on how they want to measure their student attendance:

> "If we have to choose a single metric, 60% feels reasonable. However, different schools have different professional requirements. For example, seminar participation is much more important in my discipline than lectures. Some students commute long distances and may choose not to attend lectures, especially if they are recorded. Ideally, the threshold would be tailored to each school's needs. If there were resources to make it more bespoke, that would be better." (Staff A)

On the other hand, Staff C believes that UEA could increase its attendance metric even though this would put pressure on advisers as this may increase the pool of students to be seen across schools.

> "I would love to have it higher, if I'm honest. And I firmly believe we could actually bring it to a much higher level, but that's an institutional approach. We're going to focus on attendance and bring it up. But there's a real-life consequence, which is now we're going to ask advisers to do more work with those students." (Staff C)

This also holds for what Staff C described as "high-risk students". Students who probably fall in this category are those who are likely to harm themselves or might even be at risk of suicide. They noted that for these students, attendance is not always a problem, as they most likely have 100% attendance, and any slight dip in their attendance should be a call for action.

> "So we have roughly about 40 of those students at the moment within the BA population, we can't turn off on them, and we're regularly checking in with those students. Some of them will turn up 100%. So when their attendance drops, even by a few days or even by one or two lessons, it's no longer 100, but it's sitting at 90. I would love a team to be able to reach out to that student at that point because

we recognise that even a little dip might be a really good early indication something's not OK. And so it takes so long to hit that 60% and truthfully that student might never get there. They're just so stressed. They've taken one day off." *(Staff C)*

What could make these messages more impactful?

A prominent theme on the impact of the email intervention emerging from the interviews with staff and students is that the email provided an opportunity for students to reach out, resulting in an increase in engagement, but the impact is not significant. Staff B, for example, shared their experience that they did not receive many responses from the students after receiving the email, which may be due to the embedded MS Form providing insufficient information as to what to do next.

> *"Most of the time, I don't get responses from students or the embedded [wellbeing] team. If I do, it's only from a handful. For example, out of 15 students who received the message, maybe one or two will reply. So, while it provides a small opening for students to reach out, I wouldn't say it's particularly effective. There's a slight increase in engagement, but it's not significant" (Staff B).*

Staff also agreed that the observed impact of the intervention is too small for them to be able to tell if it was entirely helpful in reengaging students, and they suggested possible ways to improve the overall impact of the message. They acknowledged that many students went to their advisers after receiving the message, even though the message came from the central engagement team. However, it could be more effective in re-engaging if it had come from the Senior Advisers or someone known to the students.

> *"This was useful because it led to direct conversations about their challenges. Some students need a reminder that their attendance is being noticed, this alone can encourage them to re-engage. However, others continued to disengage despite the message. It might have a stronger effect if it came from someone students already know, such as their school or adviser. That personal connection could make them more likely to respond." (Staff A)*

However, this raised tension between familiarity and privacy. Staff A (Student Adviser) and Staff C (Engagement Team) agreed there are pros and cons to centralised or school-based messaging. Students might be more likely to respond if it came from the school because they recognise the sender. However, there are privacy concerns, especially for students on professional courses. They may not want their school to know about their personal issues. Since the central engagement team does not control grading or fitness-to-study decisions, students might feel more comfortable opening

up to them. Staff C in the engagement team also emphasised that students are able to trust them with their wellbeing issues because they are external to the school.

6.7 Summary of IPE findings

The summary of the IPE results is presented below using the four dimensions of the IPE framework: Fidelity, Reach, Exposure/Dosage, and Monitoring of Control/Comparison Groups. Key points have been structured based on their thematic alignment with the IPE framework.

Fidelity

Students perceived the short message format as more effective in prompting engagement with wellbeing resources, especially when accessed on mobile devices. However, some students found the next steps unclear after receiving the email. They also highlighted the difficulty of navigating the university website and finding appropriate wellbeing resources.

There is also an indication that wellbeing resources should be more tailored to individual needs. Student disengagement was shaped by issues such as health issues, commuting, finances, and family responsibilities, suggesting that disengagement is often not voluntary.

Staff believed the 60% attendance threshold may be too low and suggested adjustments based on departmental context and needs. Staff felt that early emails lacked urgency and firmness and noted that email alone may not be sufficient to reach disengaged students as some do not read their emails in the first place. They emphasised the need for structured, personalised, and perhaps multi-modal messaging. Some of their recommendations include an automated intervention process (e.g., follow-up emails or SMS) and combining short initial messages with more detailed follow-ups to maintain engagement. They also noted the importance of early intervention in the first week, though they noted capacity constraints make one-on-one follow-ups unfeasible and would require more resources.

Reach

Both treatment and control groups received a similar number of emails (613 vs. 600), indicating equivalent initial reach. However, students in the treatment group were more likely to open emails than the control group (28.3% vs 7.5%). Some barriers remain for certain student populations (e.g., those who do not read emails or attend classes), making it difficult to reach the most disengaged students.

Exposure/Dosage

While both groups received a similar number of emails, the treatment group was more likely to complete the MS Form (28.3% vs 7.5%), indicating greater responsiveness. These emails were sent once during the intervention.

Students were more likely to engage with wellbeing resources if their disengagement was linked to acute personal or emotional challenges, which may suggest that dosage may be more effective when aligned with perceived personal relevance.

Low participation in the UEA wellbeing survey (n = 6 pre, n = 2 post) mirrors the institutional response rate but limits our understanding of the impact on student wellbeing due to the intervention.

Monitoring of Control / Comparison Groups

RCT results did not show strong evidence of the intervention's impact on re-engagement when comparing treatment and control groups, as both exhibited similar trends, which might suggest that the long-form email might have been no less effective than the short email in encouraging re-engagement. Post intervention, and in contrast to the treatment group, there was no increase in the percentage of adviser meetings attended by control group students.

Staff interviews supported the interpretation that some changes in behaviours may not be attributable to the email intervention alone, as both control and treatment groups improved similarly in areas such as teaching session attendance and VLE engagement. Re-engagement was understood to be a complex process shaped by internal motivation, wellbeing, social support, and perceived risk of failure.

6.7.1   Summary of caveats and limitations: Implementation and process evaluation

The research informing the IPE has benefited from a range of data sources including semi-structured interviews, descriptive surveys, administrative data and document analysis. While efforts were made to maximise response rates (see Section 6.3.4) and increase participation in the IPE, a significant limitation of the study is the number of interviews conducted with staff and students.

Even though the qualitative dimension of the IPE was not designed with the intention of generalisability, students and staff offered contextualised and nuanced perspectives on the impact evaluation. The attrition and lack of engagement with research are also symptomatic of the challenge of reaching students who are already

disengaged. This means that the findings of the IPE must be interpreted cautiously, given the sample size.

The study may also be limited by response bias, as those participating were aware of the nature of the study through the consent materials and may have responded in ways in which they perceived the researchers may have favoured. However, given that the researcher was not a familiar member of the student services team or a known academic, this is unlikely. Coder bias is a low-risk limitation as the researcher is not part of the team who are accountable for student engagement. Therefore, the steps taken by the research team to ensure that the person doing the fieldwork was seen by the participants and was unbiased are likely to have mitigated any risks in this regard.

7. Discussion

The analysis presented here offers a mixed picture regarding the effectiveness of the intervention. On one hand, the lack of significant effects on student engagement – measured by changes in attendance rates, timely coursework submission, and VLE access – suggests a limited overall impact of the shorter email form, compared to a longer BAU-style email. However, there are some findings that suggest the intervention may have achieved some of its goals and been appreciated by students. These are discussed below.

Although there was no impact on attendance, VLE access or on-time coursework completion, students in the treatment group were more likely to complete the MS Form embedded in the email. This finding is supported by the IPE, which found that some students appreciated the shorter format of the email, found it clear and also more accessible, particularly on mobile phones. The IPE also found those in the treatment group had significantly increased the completion of MS Form (28% vs 8%) showing greater responsiveness. This suggests that there may be some benefit to UEA continuing with shorter, more concise emails to students who are at risk of disengaging.

Engagement with email content may be viewed as a precursor to increased academic involvement, possibly reflecting an initial interest in the content that could eventually lead to higher attendance or deeper engagement with the university activities. More complex engagement behaviours such as attendance, VLE access and timely coursework submission, are influenced by multiple factors beyond a simple email prompt. The IPE suggested that student disengagement is frequently driven by structural and personal challenges such as commuting, financial stress, or caring responsibilities. These complex factors are unlikely to be addressed or influenced by light-touch email prompt intervention alone.

In fact, the IPE revealed mixed perceptions of the short email prompt. While students appreciated its clarity, staff were concerned it lacked urgency (was too soft) and failed to provide students clarity about what to do next. Some students also preferred emails from known staff rather than generic comms from the central university. Thus, an intervention based on email alone, particularly when not followed up by 1:1 meetings was likely not sufficient to trigger action or a change in behaviour for the students.

In terms of accessing wellbeing support services, the students shared they did not feel they were yet in crisis to seek support despite receiving an email highlighting their low engagement. Whilst one student shared that they lacked trust in the support services and preferred to access support externally. This confirms that raising awareness of available support services alone is not sufficient to trigger action in students and that

they may also need confidence/trust in the type of support services on offer. The IPE did suggest that a higher proportion of students in the treatment group responded to the email by following up and attending adviser meetings than in the control. However, this was not assessed as an outcome in the Impact evaluation and has therefore not been subject to statistical tests of significance or other checks on the robustness of this finding. Further, both students and staff noted that these meetings did not always lead to sustained action. Follow-through after initial contact was inconsistent and the academic advisers also had limited capacity to provide consistent 1:1 outreach to all students in need of support.

It is possible that the intervention's effects may not have had sufficient time to materialise. Behavioural changes, particularly those related to attendance and meeting deadlines, can take time to manifest, especially in a diverse student population. It is possible that, for example, the shorter email triggered some form of reflection or action that is not picked up by the outcomes measured in this report but would manifest in future as increased engagement. This possibility highlights the need for ongoing assessment of interventions, as their effects may evolve and become more pronounced over time; however, the general pattern is for effects to attenuate over time rather than increase.

Another potential factor is small effect sizes. Even with a large sample, detecting small behaviour changes can be challenging, particularly if these changes are subtle or take time to manifest. While the intervention may have had a small but real impact on certain students, these changes may not have been large enough to reach the MDES that the study was statistically powered for.

At the same time, it must be noted that statistically significant effects of the intervention were observed, for certain demographic groups. For instance, the treatment effect was significantly stronger on the students' attendance for those in Quintiles 2-5 compared to those in Quintile 1 of the POLAR4 classification. These subgroup effects suggest that the intervention may have had differential impacts depending on socio-economic status, as measured by POLAR4. The IPE also raised concerns about the appropriateness of a one-size- fits-all threshold (e.g. <60% attendance) for identifying disengagement across all students. Staff suggested that different groups of students may need different triggers for support, with some high-risk students requiring earlier intervention at much higher level of attendance (e.g. <90% attendance) and others suggested an earlier contact (e.g. by Week 2) and regular monitoring of engagement (e.g. every two weeks) might be more appropriate. This suggests that a more flexible approach with thresholds tailored to need could be more appropriate and effective.

Finally, the IPE also found broader implementation challenges that included lack of real-time access to accurate attendance data, inconsistencies caused by recent

changes to QR code tracking making it difficult to monitor engagement and difficulty engaging with disengaged students who may not read emails. Some staff suggested using multiple platforms to contact students in addition to email (e.g. SMS and Microsoft Teams) and suggested a more proactive approach to better support students.

Such findings are important to be accounted for because they underscore the complexity of student behaviour and ensure interventions are tailored to address the specific needs and characteristics of different student populations.

Despite the limited evidence of an impact of the shorter email on the outcomes measured, it is essential to reflect on potential improvements in the design or execution of the intervention. The results suggest that certain aspects of the intervention may not have fully resonated with students, limiting its effectives in addressing the underlying factors influencing low engagement. Moving forward, several strategies could be considered to improve the intervention's effectiveness.

Tailored Content and Delivery: Personalising the intervention for different student subgroups may improve engagement. For example, students from lower POLAR4 quintiles or female students may benefit from targeted interventions that address their unique barriers to engagement. This includes using earlier contact, more flexible and tailored monitoring and thresholds of low engagement and emails to come from known staff members.

Focus on Sustained Engagement: Given that the intervention had an impact on engagement behaviours like clicking on links and completing forms, it may be useful to build on these behaviours and develop strategies to convert initial participation into sustained engagement. This could involve periodic reminders, interactive and proactive follow-ups, or incorporating incentives to maintain engagement over time.

Longer Follow-Up Periods: The study collected data in January, only two months after the intervention was delivered in November. A longer follow-up period could help assess whether early engagement translates into lasting improvements in attendance and academic involvement.

8. Conclusion

Overall, our analysis does not find evidence of an impact of a shorter email form on engagement outcomes – namely attendance rates, VLE access, and timely coursework submission. However, the results suggest that the intervention fostered initial engagement, which may serve as a foundation for more complex behavioural changes such as improved attendance and meeting deadlines. This warrants further refinement of the intervention to produce more substantial effects and can include the following: tailoring the intervention to better suit specific student groups, allowing for longer follow-up, and focusing on sustained engagement. As such, while the current study does not demonstrate a definitive impact on engagement metrics, it provides valuable insights into how the email prompt intervention can be enhanced to better support students' needs and improve participation outcomes over time.

9. Roles and responsibilities

This evaluation was a collaboration between TASO, the Policy Institute at King's College London, and the University of East Anglia (UEA). Each organisation led a different aspect of the design, delivery, and evaluation of the wellbeing intervention.

TASO was the commissioning body and funder and advised on the design and management of this evaluation. It was also responsible for quality assuring its outputs, which was also supported by independent external peer reviews of this work. Rob Summers acted as the lead Research Manager. We would also like to acknowledge the contributions of Christoph Koerbitz, who supported the commissioning and management of the research, and Mikayla Boginsky and Luke Arundel, who provided project and research support.

The impact evaluation (IE) was designed and delivered by the Policy Institute at King's College London. Susannah Hume acted as Principal Investigator and Beti Baraki acted as Co-Investigator and Project manager of the evaluation. Parnika Purwar provided quantitative analysis and research support, and Megan Liskey provided qualitative and research support.

UEA delivered the intervention and led the design and delivery of the IPE. The IPE was supported by Prof Helena Gillespie who had strategic oversight, Prof Fabio Arico, Kristina Garner, Dr Abass Isiaka and Prof Matt Aldrich.

Table 15: Roles and responsibilities

Organisation	Name	Role and responsibilities
TASO	Dr Rob Summers	Senior Research Manager: Project management
	Christoph Koerbitz	Chief Research Officer: Commissioning oversight and management
	Luke Arundel	Research Officer: Project support
	Mikayla Boginsky	Research Officer: Project support
King's College London	Dr Susannah Hume	Principal Investigator
	Beti Baraki	Co-investigator, Project Manager, qualitative lead
	Irene Soriano	Theory of Change lead
	Parnika Purwar	Researcher, quantitative analysis
	Megan Liskey	Researcher, research support
University of East Anglia	Professor Helena Gillespie	Associate Pro-Vice Chancellor for Student Inclusion
	Professor Fabio Arico	Director of the UEA Centre for HE Research Practice Policy and Scholarship (CHERPPS)
	Prof Matthew Aldrich	Associate Professor of Economics and Associate Pro Vice Chancellor for Employability and Opportunities
	Kristina Garner	Associate Professor in Law and Widening Participation Academic Lead in Social Sciences
	Dr Abass Isiaka	Qualitative lead

10. Ethical considerations

Ethical approval

The impact evaluation and the implementation and process evaluation received separate ethical scrutiny by UEA's Research Ethics committee.

Impact evaluation reference: ETH2324-0598

Date of ethical clearance: 25 October 2024

IPE reference: ETH2425-1240

Date of ethical clearance: 20 January 2025

Consent and discussion of difficult experiences

For the impact evaluation, UEA was responsible for gathering students' consent to participate in any data collection activities required and ensuring privacy notices are clear about how student data can be shared, including with the evaluators. Informed consent was obtained by all interviewees involved in the implementation and process evaluation. Participants were adequately informed of their rights as data subjects and how the data collected through the interviews will be anonymised, stored, disseminated and shared with TASO (Transforming Access and Student Outcomes), and The Policy Institute at King's College London.

Interview participants were also given the opportunity to ask any questions prior to the commencement of the interview and were reminded of their right to refuse to answer any question without explanation. This was intended to enable participants to avoid the discussion of any difficult experiences. Further to this, they were informed about the process of withdrawing consent to use their data. The time limit given for withdrawal was up two weeks from the point of the interview at which point interview data was transcribed and anonymised.

Disclosure of harm

All interviews were governed by UEA's Safeguarding Policy (University of East Anglia, 2024). This policy sets out UEA's approach to safeguarding and handling disclosures that may arise when we have serious concerns about the health or wellbeing of a research participant we encounter while undertaking our project activities. After the interviews, interview participants were signposted to wellbeing resources and contacts.

Data protection

UEA, Kings College London and TASO have a Data Sharing Agreement and agreed data protection protocols for this project. All policies and procedures in place to transfer, store, process, analyse, and dispose of data securely are in line with the 2018 Data Protection Act and UK GDPR requirements.

All three parties were Joint Data Controllers for the duration of the evaluation. However, UEA are owners of the data that is collected as business as usual on the Data Subjects, so may keep this data for their own purposes.

All student data for the evaluation has been de-identified before being securely transferred by UEA to Kings College London for the evaluation's analysis. They received anonymous data with unique IDs only. The legal basis for processing this data is legitimate interests.

Interview data was also recorded and stored on the research team's secure SharePoint folder at UEA, with access restricted to only the research team and activity evaluation leads. The recording was deleted once it had been transcribed. Access to transcriptions were restricted to the same colleagues indicated above. The legal basis for processing this data is informed by participant consent.

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12. Appendices

Appendix A: Impact table

This impact table below summarises the results for the primary and secondary outcomes and communicates how confident we should be when making claims about the findings.

Table 16: Impact findings summary table

Outcome	Sample size	P Value	Coefficient (Confidence intervals)	Standardised Effect Size (Cohen's d)	Estimated 'real world' effect	Evaluation security (1 = not at all secure 5 = very secure)
Attendance in timetabled classes	1213	0.82	–0.42 (–2.76, 1.92)	–0.02 (Small negative effect)	Statistically insignificant as confidence intervals contains zero. The average attendance rate in the treatment group was 0.42 percentage points lower than in the control group. This means that if there are 1,000 attendance days, students in the treatment group missed approximately 42 more timetabled classes compared to those in the control group.	5
Number of VLE logins	1213	0.41	–1.25 (–4.07, 1.57)	–0.05 (Small negative effect)	Statistically insignificant as confidence intervals contains zero. The mean number of logins in the treatment group is 1.25 times lower than those in the control group.	5
Proportion of timely submissions of summative assignments	673	0.39	–2.19 (–7.34, 2.96)	–0.06 (Small negative effect)	Statistically insignificant as confidence intervals contains zero. The treatment group has a mean percentage of timely submissions that is approximately 2 percentage points lower than the control group. This means that if there were 100 summative submissions, students in treatment group submitted on time around 2 fewer times than the control group.	5

Outcome	Sample size	P Value	Coefficient (Confidence intervals)	Standardised Effect Size (Cohen's d)	Estimated 'real world' effect	Evaluation security (1 = not at all secure 5 = very secure)
Proportion of timely submissions of formative assignments	253	0.34	–3.46 (–11.85, 4.94)	–0.10 (Small negative effect)	Statistically insignificant as confidence intervals contains zero. The treatment group has a mean percentage of timely submissions that is about 3.5 percentage points lower than the control group. This means that if there were 100 summative submissions, students in treatment group submitted on time around 4 fewer times than the control group.	5
Whether MS form is filled	1213	0.00	0.21 (0.17, 0.25) *	0.55 (Moderate positive effect)	Statistical significance is confirmed by the confidence interval not spanning both negative and positive values, indicating a relatively more precise estimate of the effect. This means from 100 people, 21 more in the treatment group filled the MS form compared to the control group.	5

Appendix B: Theory of Change

TASO — Transforming Access and Student Outcomes in Higher Education

1 Situation: Evidence shows that engagement levels across the higher education sector have decreased since the COVID-19 pandemic and there is a need to re-engage students with their education. At the same time, it is crucial to provide support to disengaged students that might be facing mental health issues to prevent them from further disengaging or withdrawing from their studies.

2 Aims: UEA aims to provide a prompt intervention to support those students who are hitting low engagement levels by sending them personalised email nudges with support resources. By proving information on support services available within the university, UEA aims to help students re-engage with their studies, feel supported, and ultimately reduce drop-out rates.

7 Inputs	5 Activities	6 Outputs	3 Outcomes	4 Impact
Process			**Impact**	
• Student Engagement Dashboard and process • Knowledge and time of expert group of Senior Student and Wellbeing Advisors in 6 schools of study • Student Response Collection Tool • Budget	• Student engagement monitoring • Identification of students hitting low engagement levels through Student Engagement Dashboard • Distribution of personalised emails with trackable links to resources, advice, and response form by Student and Wellbeing Advisors • Student completion of response form, and follow-up emails sent by Advisors, if necessary • Personalised support package delivered to students	• Number of students hitting low engagement levels • Number of students receiving messages • Number of messages sent per student • Number of students completing response form • Number of students accessing support services	**Short-term outcomes for UEA:** • Greater understanding of reasons for low engagement through response form responses **Short-term outcomes for students:** • Increased awareness of support services among students **Medium-term outcomes for students:** • Increase number of students accessing UEA support services, when needed • Improved students' engagement and academic performance **Long-term outcomes for UEA:** • Improved targeted offer of support services to students with low engagement • Improved communications sent to students on support services **Long-term outcomes for students:** • Improved students' wellbeing, mental health and sense of belonging	• Reduced number of students withdrawing from their studies due to mental health or wellbeing • Improved educational attainment • Improved students' chances of progressing into further studies or employment

8 Rationale & Assumptions

Rationale: Students disengaging from their studies due to mental health and wellbeing issues would benefit from receiving personalised email-based nudges to access support services to re-engage with their studies, and ultimately improve their educational attainment. **Assumptions:** (1) UEA is able to collect engagement data from different sources, including a working QR code that is adequately distributed by teachers and staff at the end of lessons; (2) Student Engagement Dashboard works well; (3) Engagement measures used are comparable across schools; (4) The system used to send out emails is efficient, and students receive, open, read, and understand the emails received; (4) Students complete the response form, and decide to seek for support when needed; (5) UEA is able to support those students who seek for help from UEA support services.

Appendix C: Data collection tools for IPE

Appendix Ci: Invitation emails

Email Subject: Invitation to contribute to research on the student experience

Dear Student,

The University is conducting research to identify most effective ways to communicate with our students with the aim of increasing their engagement and boost their academic proficiency and wellbeing.

Detailed information about the project is attached to this email, and can also be read online from this link.

We would like to invite you to participate in an interview to contribute to this research. If you are interested in considering this opportunity, please read the information sheet and share your contact details along with your consent. The Research Team will get back you to arrange a convenient time for the interview.

The interview will take place on MS Teams, and it will take approximately 45 minutes. We would like to reward you for the time you will spend contributing to this project **by offering you an Amazon voucher for the value of £15.**

If you are willing to participate after reading the information sheet, please signal your interest following this link.

Should you have any questions, please do not hesitate to contact cherpps@uea.ac.uk with your queries.

We look forward to hearing from you.

Best wishes,
The Research Team

<u>Adjusted Version</u>

Email Subject: Help Improve Student Engagement – £15 Amazon Voucher for Your Time!

Dear [Student's Name],

The University is conducting research to improve how we communicate with students and better support your academic success and well-being at UEA. Your experience will directly shape how we enhance student engagement. To learn more about the study and why you have been contacted, please click here.

What's in it for you?

A £15 Amazon voucher as a thank-you for your time

A chance to share your thoughts and improve students experience

A 45-minute flexible online interview (MS Teams)

How to participate?

Click the link below to read more and sign up, it only takes 2 minutes!

If you are willing to participate after reading the information sheet, please click here to sign up.

Once you sign up, we'll contact you to arrange a time that works for you. If you have any questions, feel free to reach out at cherpps@uea.ac.uk.

Thank you for considering this opportunity, we would love to hear from you as soon as possible!

Best wishes,

The Research Team

Dear Colleague,

The University is conducting research to identify most effective ways to communicate with our students with the aim of increasing their engagement and boost their academic proficiency and wellbeing.

Detailed information about the project is attached to this email, and can also be read online from this link.

We would like to invite you to participate in an interview to contribute to this research. If you are interested in considering this opportunity, please read the information sheet and fill in your details along with your consent to participate in this research. The Research Team will get back to you to arrange a convenient time for the interview.

The interview will take place on MS Teams and it will take approximately 45 minutes.

If you are willing to participate after reading the information sheet, please signal your interest following this link.

Should you have any questions, please do not hesitate to contact cherpps@uea.ac.uk with your queries.

We look forward to hearing from you.

Best wishes,
The Research Team

Appendix Cii: Participant information sheet and Consent Form

Randomised control trials to test the impact of wellbeing interventions prompted by learning analytics in higher education

What is this study for and how does it work?

The University of East Anglia is conducting an evaluation of alternative ways to communicate with students with the aim of assessing most effective ways to increase student engagement and improve student wellbeing. This research is conducted in partnership with two organisations: TASO (Transforming Access and Student Outcomes), and The Policy Institute at King's College London. Students displaying low engagement were contacted, and two different messages were used (at random) to test which one generates more responses. We are now conducting qualitative interviews with a selected number of participants from the following groups:

- UEA students who received one of these messages;

- UEA staff who are involved in supporting student engagement and wellbeing;

- Colleagues from The Policy Institute involved in supporting the evaluation of this intervention.

Your involvement in this study

- We are inviting you to attend an interview of the duration of 45 minutes to hear about your opinions about the topics covered in this project, such as: student engagement and wellbeing at UEA, the ways we contact and reach out to our students, as well as the ways we used to design and conduct an evaluation of alternative ways to communicate with students.

- Your participation in this study is entirely voluntary and your decision to participate or not participate will not affect you in any way, personally or professionally.

- The interview will take place online, on Microsoft Teams. If you are interested in participating in, we will contact you to arrange a mutually convenient time.

Use of your personal data and data protection rights

- We plan to record the interview and produce a transcript of your responses, which we will analyse along with those emerging from other interviews. We will erase the recording once the transcript is produced.

- Your transcript will be anonymised and your identity as participant will not be disclosed outside the University, and it will not be shared with our partners (TASO and The Policy Institute).

- We will ensure that you will never be able to be identified by your answers, including quotes, in our reports, conference presentations, marketing materials or publications (e.g., the UEA website, leaflets, journals or social media) – they will always be used anonymously.

- We will not share any of your personal data and we will never sell your data.

- Individualised (raw) data – such as the data you provided when you expressed an interest in participating will only be accessed by UEA staff members working on this research project. These will be kept securely and confidentially by UEA only for as long as required for the purposes of this study.

- At the end of your interview, you will be given an opportunity to request to see the transcript and make amendments or withdraw from the study.

- All the data we collect from you will be stored digitally on UEA secure servers; the data will be password protected and only accessible to members of the project team. Anonymised transcripts and reports will be shared with our project partners: TASO (Transforming Access and Student Outcomes), and The Policy Institute at King's College London.

- The legal basis on which we will collect and process your data is public task. As a Higher Education institution, the University will conduct research on this data to improve its own student provision and to share good practice with other institutions as well

- UEA will only ever use the information that you give us in accordance with the UK General Data Protection Regulation (GDPR) and the Data Protection Act 2018, which should be read together. For more detailed information, please see the UEA privacy notice at https://www.uea.ac.uk/about/university-information/statutory-and-legal/data-protection [10]

What should I do if I have questions or concerns about this study?

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[10] University of East Anglia (n.d.) Data Protection Policy (Version 8.0). Available at: https://www.uea.ac.uk/f/185167/x/f5513702d0/data-protection-policy-v8-0.docx (Accessed: 16 May 2025).

In the first instance, you are encouraged to raise your concerns with the research team, by contacting the project leads: Prof Fabio Aricò (F.Arico@uea.ac.uk) and Prof Helena Gillespie (H.Gillespie@uea.ac.uk). However, if you do not feel comfortable doing so, please contact the Chair of UREC at ethics@uea.ac.uk.

Ethical approval

This research has been approved by UEA's University Research Ethics Committee (UREC), identifier ETH2324-0598 and ETH2425-1240.

Your consent

If you wish to participate in this study and be interviewed, please fill this consent form.

Appendix Ciii: Survey form (MS Form)

Engagement Email Questionnaire

You have received this link as it appears your attendance has fallen below the expected threshold. Please would you complete this form to help us to understand more about how students are engaging with our emails. Any data gathered from this questionnaire will only be used in an anonymised and aggregated form. It will be used to help the University to understand how students are engaging with emails. As part of a research project with TASO – Transforming Access and Student Outcomes in Higher Education we will share this anonymised and aggregated data with them. We may also present the results of this research in academic journals and symposia.

Before you begin we remind you that you are under no obligation to answer any of these questions.

If you have any questions please contact k.garner@uea.ac.uk

1.   Student Number (Required)

Enter your answer

2. How did you read the email? (Required)

Phone or tablet

Laptop or desktop computer

Other

Appendix Civ: Interview guides

UEA Staff Interview Guide:

Evaluating randomised controlled trial implementation to test the impact of wellbeing interventions prompted by learning analytics in higher education (University of East Anglia)

Objectives

To analyse the implementation of a randomised controlled trial which evaluates student engagement with UEA wellbeing resources and impact on their re-engagement with studies at UEA.

Introduction

Introduce the interviewer and explain position of the team and what we do.

My name is x and I will be conducting the interview today. Whilst I am a member of the staff at UEA, I don't work directly on any of the activities, services or opportunities that we are going to be discussing, so we will not be offended if you have any suggestions for improvements.

Introduce the topic we are here to discuss and how their feedback will impact future development (note to interviewer – have examples of the two messages ready to show in this section.

The evaluation aims to analyse how students displaying low engagement respond to different prompts. Once identified as displaying low engagement, students were sent messages to investigate the reasons, and they were signposted towards sources of help and support. Two types of messages were used varying in length, to test whether this feature impacts on student engagement. To our knowledge, there is no literature accounting for a similar design, thus we do not hold a priori information on which type of message could be more effective. The data collected during this evaluation will help improve how UEA communicates with students at risk of low engagement with studies, ensures access to wellbeing resources and facilitates student re-engagement with their studies to ensure a positive, inclusive learning environment within the University. The project is developed in partnership with members of The Policy Institute at King's College London, who act as Project Evaluators.

Note taking and recording

This session will be being recorded. We will use the recording to help us in writing up our findings.

Notes will be taken during the interview. For ease of taking notes, your name or initials will be used.

The recording and the notes will be used to write a short report where we'll summarise what we discussed today. We will anonymise this report so your name won't be in it and we won't use exact quotes from what you've said.

Once the report has been written, we'll delete the notes and recording.

If there's anything you say that you don't want included in the report, just let me know and you can retract your consent at any time.

How the session will work

So, in a moment, I will ask some open-ended questions. There are no right or wrong answers.

Take you time in answering and if you need to think about your answers. We will take as much time as you need.

At the end of the interview I will ask you whether you are happy with what we discussed and whether you want to see a copy of transcript of this interview before it is processed anonymously.

Consent and Data: Participants will have been sent the participant information sheet and consent form in advance of the discussion. Use this opportunity to check if they have any questions about the session or any of the points made on the consent form.

Any questions?

Questions

Being targeted by the intervention (message)	The students targeted by the message were selected based on UEA's engagement metrics and messages sent to those who had attended less than 60% of their timetabled sessions. Based on your experience working with students, do you believe the engagement metrics are sufficient to identify students who should be contacted with information about wellbeing resources at UEA? In your opinion, when is the right time to first intervene to support student engagement ? Are there other ways to identify students who should receive messages about wellbeing resources at UEA?
Engaging with the intervention (message)	Based on your experience, which of the messages are/were better at ensuring students engage with the wellbeing resources? The short or long form message? Why is that the case? In your opinion, is the content of the message effective in directing students towards wellbeing resources at UEA? Why? Is the message too short/too long? Are the wellbeing resources presented in a manner that is informative and clear to students? Is the tone of the message correct for directing students towards wellbeing resources? In your opinion, is the message and effective method of supporting student re-engagement with their studies?
Engaging with the wellbeing resources	In your opinion did receiving the message facilitate student engagement with the wellbeing resources at UEA? Can you differentiate between the short and long for messages? Which would you say was better at increasing engagement with wellbeing resources?

	Why do you think the messages achieve that result? In your opinion, did the message provide students with sufficient information and prompts towards engaging with wellbeing resources? After receiving the message, how long do you think it takes for students to use the prompts for wellbeing resources? Why do you think that is? Can you differentiate between the short and long form messages? Do you think the delivery, content of the message could be improved to facilitate engagement with the wellbeing resources? Based on your experience, could you estimate how many students who receive the message end up engaging with the wellbeing resources? Can you differentiate between the short and long form messages?
Re-engaging with studies	In your opinion, did receiving the message and being directed to the wellbeing resources result in increasing student re-engagement with their studies? Can you differentiate between the short and long form messages? Which would you say was better at increasing re-engagement with studies? Based on your experience, could you estimate how many students who receive the message have a positive shift towards re-engaging with their studies? Can you differentiate between the short and long form messages? In your opinion, how challenging is it to ensure students continue with re-engaging with their studies and do not withdraw again? Do you believe the wellbeing resources at UEA can help students from withdrawing from studies? Do you believe the message is sufficient in reducing, stopping student withdrawal from studies? Do you believe that the students should continue receiving messages regarding wellbeing resources if they were targeted by them before? For how long?

	What challenges could you identify regarding the intervention (message) and facilitating student access to the wellbeing resources and re-engagement with studies?
Challenges	Do you believe messaging students about the wellbeing resources is sufficient to help students find help and re-engage with their studies?
	In your opinion, what are the risks of students not engaging with their studies despite receiving the message?

UEA Student Interview Guide:

Evaluating randomised controlled trial implementation to test the impact of wellbeing interventions prompted by learning analytics in higher education (University of East Anglia)

Objectives

To analyse the implementation of a randomised controlled trial which evaluates student engagement with UEA wellbeing resources and impact on their re-engagement with studies at UEA.

Introduction

Introduce the interviewer and explain position of the team and what we do.

My name is x and I will be conducting the interview today. Whilst I am a member of the staff at UEA, I don't work directly on any of the activities, services or opportunities that we are going to be discussing, so we will not be offended if you have any suggestions for improvements.

Introduce the topic we are here to discuss and how their feedback will impact future development

This project is aimed at understanding how emails sent to students can help university staff better understand the reasons that students don't attend taught sessions and engage in their studies. We sent two types of messages to help us understand what actions and interventions work best to help students re-engage.

Note taking and recording

This session will be being recorded. We will use the recording to help us in writing up our findings.

Notes will be taken during the interview. For ease of taking notes, your name or initials will be used.

The recording and the notes will be used to write a short report where we'll summarise what we discussed today. We will anonymise this report so your name won't be in it and we won't use exact quotes from what you've said.

Once the report has been written, we'll delete the notes and recording.

If there's anything you say that you don't want included in the report, just let me know and you can retract your consent at any time.

How the session will work

So, in a moment, I will ask some open-ended questions. There are no right or wrong answers.

Take your time in answering and if you need to think about your answers. We will take as much time as you need.

Consent and Data: Participants will have been sent the participant information sheet and consent form in advance of the discussion. Use this opportunity to check if they have any questions about the session or any of the points made on the consent form.

Any questions?

Questions

Being targeted by the intervention (message)	You were identified for this study due to low engagement metrics. Based on your circumstances, do you believe you should have received the message? Why? In your opinion, should this type of message be sent out to students earlier or later, based on their engagement metrics?
Engaging with the intervention (message)	After receiving the message, did you use any of the provided links to the wellbeing resources at UEA? Why? In your opinion, is the content of the message effective in directing students towards wellbeing resources at UEA? Why? Is the message too short/too long?

	Are the wellbeing resources presented in a manner that is informative and clear to students? Is the tone of the message correct for directing students towards wellbeing resources?
Engaging with the wellbeing resources	After receiving the message, did you want to engage with the wellbeing resources at UEA? Did you already have contact with student services before you received the messages? Why did you have that reaction to the message? In your opinion, did the message provide you with all the wellbeing options that you would have expected? Did you use the links to the wellbeing resources provided in the message? If you did engage with the wellbeing resources, how long did it take for you to use them after receiving the message? Did you use the links immediately or did some time pass?
Re-engaging with studies	Did receiving the message result in positive developments for you and your engagement with your studies? Have you been engaging with your studies more often than before the message? Are you worried that you might face challenges in attendance and engagement again? Do you believe the wellbeing resources at UEA can help you and other students re-engage with their studies?
Challenges	What challenges did you experience when engaging with the message and the wellbeing resources? Do you believe messaging students about the wellbeing resources is sufficient to provide support and help them use the wellbeing resources and re-engage with their studies?

Students were directed to sources of advice and support according to the information available here:

https://my.uea.ac.uk/divisions/student-services/wellbeing

Appendix D: Emails for treatment and control group

Intervention emails: both emails link to an MS form which gathers student responses and enables the students to have a more 'personal' dialogue

Treatment Group: Short-form email.

Dear,

As you will be aware, the University monitors attendance using QR codes. It appears that between 3rd and 14th October, your registered attendance fell below the expected threshold, so we wanted to check in to see if everything is okay?

Please would you consider completing this form to let us know that you have seen this message and help us to understand your reasons for absence.

There is lots of support available including your academic adviser and the wellbeing team (embedded link)

More information about QR codes and how to report any problems may be found here (embedded link).

If you do feel that you need any support at this time, then please do not hesitate to contact us.

Warm regards,

Control Group: Long-form email:

Dear,

We hope that this finds you well, that you're settling in, engaging well with your studies and enjoying the academic challenges and social opportunities available at the university. We are, however, aware that many students can be facing difficult challenges affecting their academic engagement and/or their personal wellbeing.

Homesickness, social isolation, financial worries, academic difficulties and mental health struggles can be common issues for students at this time of year. We wanted to remind you that the University has a wide range of support services to help students whatever their situation and we encourage you to get in contact with us if you feel that are struggling in any way so that we can help.

As you will be aware, the University monitors attendance using QR codes. We are aware that lower than expected attendance can be an early indication that a student may be struggling and in need of support. It appears that between 3rd and 14th October, your

registered attendance fell below the expected threshold, so we wanted to check in to see if everything is okay?

What support is available to me?

1. If you feel that you need support then you may wish to speak to your Academic Adviser as they will be able to discuss and advise on your academic options and will be able to support you moving forward.

2. However, if you do not feel comfortable talking to your school or you would rather more specialised support then please contact your SSF Faculty Embedded Team (embedded.ssf@uea.ac.uk). Someone from the Wellbeing Team will be able to talk you through the range of help available and ensure you have the most appropriate support in place to help you with your situation.

The webpage for the Wellbeing Team can be found here – this includes links to resources and information on who they are and how they can help

You can view a list of your recently registered sessions by going to the webpage found here and then clicking on the 'View Your Attendance Registrations' button.

Problems with the QR / 6-digit codes?

- If you have any problems or issues registering the QR or 6-digit codes then please see the guidance page found here: link

- You can report any problems to DQS using the simple form found here so they can resolve these for you.

Who has sent me this email?

This email is sent by the STS Attendance Monitoring Team. We are part of the Wellbeing Team within Student Services and reach out to students on the basis of wellbeing.

A message from the Wellbeing Training Team

Our wellbeing theme for October is connection and so we are encouraging you all to think about how you can connect with your peers to help support each other's wellbeing. One way you can do this is by joining the Wellbeing Trainers for our 'Connect' event in The Exhibition Space in the SU. Taking place on Wednesday 19th and 26th October from 1pm–4pm. Drop in to connect and play some board games with your peers. Relax and have some fun, and find out more about wellbeing support at UEA. More details can be found here.

There are also some fantastic wellbeing workshops running throughout October such as 'Managing Anxiety' (10th Oct), Overcoming Social Anxiety - A 4-Week Course (starts 20th Oct), 'Finding Clarity When Feeling Overwhelmed' (24th Oct) and 'Managing Change' (27th Oct). The workshops aim to give you information on a variety of topics and provide you with tools to use in your life beyond the workshop. You can also check out the wellbeing workshop page on MyUEA to see what we offer, to book on or express your interest.

Other Useful Webpages

Wellbeing Team: https://my.uea.ac.uk/divisions/student-services/wellbeing

SIZ: https://siz.uea.ac.uk/

Self Help Wellbeing: https://my.uea.ac.uk/divisions/student-services/wellbeing/resources-and-self-help

Wellbeing Workshops: https://my.uea.ac.uk/divisions/student-services/wellbeing/wellbeing-workshops

Being Well Living Well: https://my.uea.ac.uk/divisions/student-services/wellbeing/being-well-living-well

buddySU: https://www.ueasu.org/opportunities/buddy/ (The buddy SU Scheme is run by the Students Union who match up new students with continuing students who can share their hints and tips for settling in to life at University.)

Please would you consider completing this form to let us know that you have seen this message and help us to understand your reasons for absence.

If you do feel that you need any support at this time, then please do not hesitate to contact us.

Warm regards,

Appendix E: Code for stratified randomisation

```
# Preliminaries ----

## Clear the environment ----

rm(list = ls())

## Install required packages -----

# To load and save xlsx - let us know if the data needs importing in a
different format

install.packages("openxlsx")

library(openxlsx)

install.packages("readxl")

library (readxl)

install.packages("dplyr")

library(dplyr) # To enable cleaning

install.packages("randomizr")

library(randomizr) # For randomisation

# Set the Working Directory ----# Add the file path of the randomisation
data file here: NB- R requires forward slashes between folder levels - i.e.
C:/Documents rather than C:\Documents

setwd("(DIRECTORY) ")

##importing from excel to R

##spreadsheet 1: data on covariates

data <- read_excel("Summary sheet MER.xlsx", sheet = "COVARIATES") ##
replace by the name of spreadsheet with actual here

##spreadsheet 1: data on engagement metrics with the stratification
variable (school of study) contained in it

#which has to be matched with covariates spreadsheet

data_key <- read_excel("Summary Sheet MER.xlsx", sheet = "ENGAGEMENT
METRICS") #replace by the name of spreadsheet with actual here
```

```r
ls(data) # Check headings in data

ls(data_key) # Check headings in data_key

#####based on the dataset shared, school of study data was not in the
covariates spreadsheet

##but it was there in the engagement metrics spreadsheet, so the following
code matches based on student number

## remove if school of study is available in covariates spreadsheet

data_key <- data_key%>%select(StudentID, School)

data <- data %>% inner_join(data_key, by="Student ID")

##### randomisation code below

set.seed(011024) # Set randomisation seed so that randomisation is
consistent over rerunning code

data$allocation <- block_ra(blocks = data$School, # School of study is the
stratification variable, replace this if the variable is renamed

                            prob = 0.5, # 50/50 chance of treatment or
control

                            conditions = c("Control", "Treatment")) #
Conditions are labelled "Control" or "Treatment"

# Checks on the randomisation - per protocol

# Check stratification has worked

tab_age <- data %>%

  group_by(Under21AtEntry) %>% # Change this if the name of the age
variable changes

  summarise(Count_treat = sum(allocation=="Treatment"),

            Count_control = sum(allocation=="Control"))

# Check balance on gender

tab_gender <- data %>%

  group_by(Gender) %>% # Change this if the name of the Gender variable
changes

  summarise(Count_treat = sum(allocation=="Treatment"),

            Count_control = sum(allocation=="Control"))

# Check balance on Ethnicity
```

```r
tab_ethnicity <- data %>%

  group_by(EthnicityGroup) %>% # Change this if the name of the Ethnicity
variable changes

  summarise(Count_treat = round(sum(allocation=="Treatment"), -1),

            Count_control = round(sum(allocation=="Control"), -1))



# check balance on polar groups

tab_polar <- data %>%

  group_by(POLAR4) %>% # Change this if the name of the polar variable
changes

  summarise(Count_treat = sum(allocation=="Treatment"),

            Count_control = sum(allocation=="Control"))



# check balance on academic year

tab_year <- data %>%

  group_by(StudentStage) %>% # Change this if the name of the academic year
variable changes

  summarise(Count_treat = sum(allocation=="Treatment"),

            Count_control = sum(allocation=="Control"))




# check balance on disability

tab_disability <- data %>%

  group_by(Disability) %>% # Change this if the name of the disability
variable changes

  summarise(Count_treat = sum(allocation=="Treatment"),

            Count_control = sum(allocation=="Control"))



# It will also be useful checking balance on engagement score, will that be
added to the spreadsheet?
```

```
# tab_Baseline_engagement <- data %>%

#   group_by(...) %>% # Change this if the name of the engagement score
variable changes

#   summarise(Count_treat = sum(allocation=="Treatment"),

#            Count_control = sum(allocation=="Control"))


# Write balance checks

dataset_names <- list("Under21atEntry" = tab_age, Gender = tab_gender,
"EthnicityGroup" = tab_ethnicity,

                    "POLAR4" = tab_polar, "StudentStage" = tab_year,

                    "Disability" = tab_disability)



write.xlsx(dataset_names, file="balance_checks.xlsx") # This file will
generate in the same folder as the input spreadsheet.



##retrieving list of participants with their group allocation

rand_out <- data %>% select("StudentID", allocation)

write.xlsx(rand_out, file="allocation_list.xlsx") # This file will generate
in the same folder as the input spreadsheet.
```

Appendix F: Description of baseline sample and pre/post trends

Table 17 and Table 18 provides a breakdown of students by gender, ethnicity, age grouping, disability status, POLAR4 ranking, and study year for the randomised sample and analytical samples respectively.

Randomised Sample characteristics

Table 17: Demographic characteristics of the randomised sample

Variable		Full		Treatment		Control	
		n	%	n	%	n	%
Gender	Female	2011	55.4	981	54.0	1030	56.8
	Male	1620	44.6	836	46.0	784	43.2
Age at entry	<21	3282	90.4	1642	90.4	1640	90.4
	>=21	349	9.6	175	9.6	174	9.6
Ethnicity	BAME	740	20.4	370	20.4	370	20.4
	Other/Unknown	110	3.0	50	2.8	60	3.3
	White	2780	76.6	1400	77.1	1380	76.1
Study year	Year 1	1314	36.2	661	36.4	653	36.0
	Year 2	1092	30.1	527	29.0	565	31.1
	Year 3	1225	33.7	629	34.6	596	32.9
Disability Status	No	1619	44.6	797	43.9	822	45.3

		Full		Treatment		Control	
	Not known	917	25.3	471	25.9	446	24.6
	Yes	1095	30.2	549	30.2	546	30.1
POLAR4	Not known	235	6.5	108	5.9	127	7.0
	Quintile 1	426	11.7	218	12.0	208	11.5
	Quintile 2-5	2970	81.8	1491	82.1	1479	81.5

Number of students: 3,631

Source: UEA management information

Analytical Sample characteristics

Table 18: Socio-demographic characteristics of analytical sample

		Full		Treatment		Control	
Variable		n	%	n	%	n	%
Gender	Female	566	46.7	276	45.0	290	48.3
	Male	647	53.3	337	55.0	310	51.7
Age at entry	<21	1,089	89.8	552	90.0	537	89.5
	>=21	124	10.2	61	10.0	63	10.5
Ethnicity	BAME	282	23.2	146	23.8	136	22.7

Variable		Full		Treatment		Control	
		n	%	n	%	n	%
	Other/Unknown	40	3.3	19	3.1	21	3.5
	White	891	73.5	448	73.1	443	73.8
Study year	Year 1	345	28.4	176	28.7	169	28.2
	Year 2	401	33.1	196	32.0	205	34.2
	Year 3	467	38.5	241	39.3	226	37.7
Disability Status	No	773	63.7	396	64.6	377	62.8
	Not known	43	3.5	19	3.1	24	4.0
	Yes	397	32.7	198	32.3	199	33.2
POLAR4	Not known	60	4.9	34	5.5	26	4.3
	Quintile 1	153	12.6	76	12.4	77	12.8
	Quintile 2-5	1,000	82.4	503	82.1	497	82.8

Number of students: 1,213
Source: UEA management information

In addition to the primary demographic variables, Table 19 provides the distribution for treatment and control groups by academic school (the department in which the student is enrolled) which served as the stratification variable during randomisation.

Table 19 below outlines the distribution of students between the treatment and control groups.

Table 19: Distribution by academic school

School	Full		Treatment		Control	
	n	%	n	%	n	%
DEV	107	8.8	49	8.0	58	9.7
ECO	216	17.8	106	17.3	110	18.3
EDU	62	5.1	30	4.9	32	5.3
HIS	124	10.2	68	11.1	56	9.3
LAW	224	18.5	126	20.6	98	16.3
MLC	150	12.4	75	12.2	75	12.5
PPA	126	10.4	58	9.5	68	11.3
PSY	204	16.8	101	16.5	103	17.2

Number of students: 1,213
Source: UEA management information

Despite variations in the number of students across various academic schools, stratification has helped achieve a balanced distribution between the treatment and control groups.

Summary statistics table for the outcome measures are presented in Table 20.

Table 20: Baseline summary statistics of engagement outcomes

Outcome	Possible Range	Mean	Median	Observed Minimum	Observed Maximum	Standard Deviation	n
Attendance (%)	0-100	30.7	33.3	0.0	83.3	20.0	1,213
On-time summative assessment submission (%)	0-100	88.1	100.0	0.0	100.0	32.7	67
On-time formative assessment submission (%)	0-100	71.1	100.0	0.0	100.0	41.0	123
Number of VLE Logins	≥0	14.8	12.0	0.0	99.0	11.7	1,213
Wellbeing Score	0-10	5.6	5.5	3.5	8.2	1.0	45

Source: UEA management information
Notes: The summative and formative assessment data includes those students who had an assignment due in the time period of data collection

Regarding attendance rate, it is important to note that while the eligibility for participating in the study, as described in Section 4.2.2, required students to have an attendance rate of up to 60% (the threshold), the maximum attendance in the sample is 83.3%. This is because eligibility for the study was based on attendance dropping below the threshold during the first four weeks of the 2024/25 academic year (i.e. in September/October 2024), whereas the attendance data reported in the table is from November 2024, just before the email was sent. Students who fell below the threshold in September may have increased their attendance rate between September and November 2024. We were not able to access attendance data from the first four weeks due to operational constraints and poor data quality.

Overall, the mean attendance rate is 30.7%, indicating that, on average, students in the study attended approximately 3 out of 10 timetabled classes. At the same time, the median score of 33% shows that around half the sample attended fewer than 3 out of 10

timetabled classes. However, it is important to remember that this data represents only the low-engaged sample and does not reflect the attendance median for all UEA students.

Engagement measured by the on-time submission of both formative and summative assessments, is generally positive, with the majority of students in the sample meeting deadlines. The median of 100% implies that half of the sample submitted the assignments on time. However, the lower mean suggests that a substantial proportion of students failed to do so. This is further evidenced by the large standard deviation, both greater than 30, signalling considerable variability in the distribution of the outcomes. The high variability in on-time submissions may reflect differences in students' needs, behaviours, priorities, or circumstances in the sample.

Students also demonstrate a good degree of engagement with the VLE, with approximately 50% of the sample opening it 12 or more times during the final week of the first semester (week commencing 18 December 2024). The high maximum value suggests that even among students with low attendance, the VLE serves as a valuable support tool. However, a significant number of students did not open it at all, indicating a substantial degree of variability in engagement.

Finally, the wellbeing score, measured on a scale from 1 to 10, has a mean of 5.6 and a median of 5.5, suggesting that wellbeing in the sample is generally centred around a moderate level. However, the range of 3.5 to 8.2 indicates the presence of outliers at both ends of the scale, with a few individuals at either extreme displaying notably different levels of wellbeing compared to the majority. It is worth bearing in mind that wellbeing has so far been collected from a very limited sample.

Heterogeneity baseline analysis

This section explores the relationship between baseline attendance rates and key demographic characteristics, including age group, disability status, POLAR4, and study year. The purpose of these visualisations is to determine whether variations in attendance are observed across different demographic subgroups and to identify any underlying patterns that may drive engagement with the intervention.

As noted previously, all participants had an attendance rate below 60% at the end of Week 5 of 2024/25 academic year. Therefore, the comparisons below reflect variation within this group rather than across the whole UEA undergraduate student population.

Engagement prior to email by Age

There are clear differences (see Figure) in attendance between younger and older age groups, suggesting that age influences the engagement of students prior to the

intervention. Approximately 43% of students aged over 21 have an attendance rate between 0-20% compared with only 27% students aged under 21. Younger students in the trial sample generally demonstrate better engagement with timetabled classes. Possible factors driving this pattern may include lower levels of motivation or competing responsibilities among older participants.

Figure 3: Engagement prior to email by age group

**Students aged 21 and above
have lower attendance**
Attendance by age group

Attendance: 0-20%
Under 21 — 27.1%
21 or above — 42.7%

Attendance: 20-40%
Under 21 — 32%
21 or above — 23.4%

Attendance: 40-60%
Under 21 — 37%
21 or above — 31.5%

Attendance: >60%
Under 21 — 3.9%
21 or above — 2.4%

Participants (%)

Source: UEA Management information
Number of observations: 1213
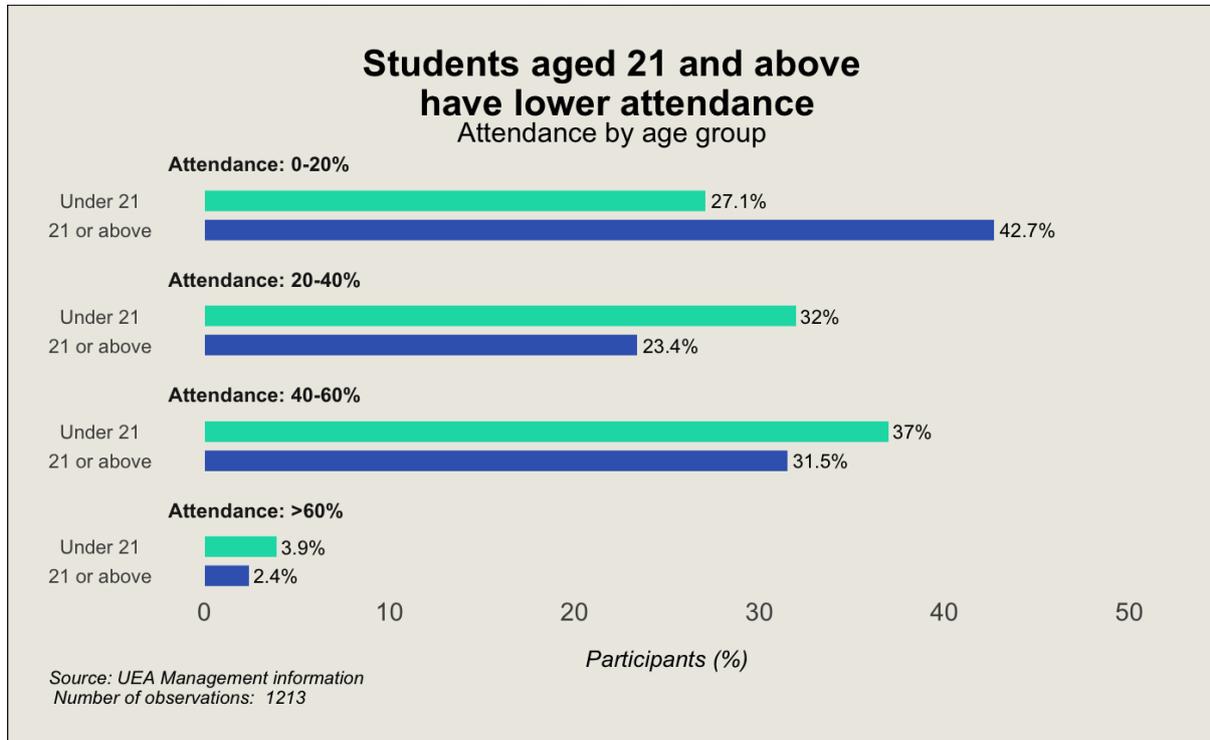
Engagement prior to email by Disability Status

There were no notable differences in attendance were found between participants with and without disabilities (see Figure) despite the initial hypothesis that barriers such as health-related issues or accessibility challenges might have an impact on attendance.

Students with and without disability have similar attendance rates

Attendance by disability status

Attendance: 0-20%
- Yes: 30.5%
- No: 28.5%

Attendance: 20-40%
- Yes: 29.2%
- No: 31.6%

Attendance: 40-60%
- Yes: 36.5%
- No: 36.1%

Attendance: >60%
- Yes: 3.8%
- No: 3.9%

Participants (%)

Source: UEA Management information
Number of observations: 1213

Engagement prior to email by POLAR4

Students in the lower POLAR4 quintiles may face challenges such as logistical barriers, availability of resources, or other social and cultural constraints that hinder their ability to attend classes regularly. As expected, overall, students from quintile 1 generally exhibit lower attendance compared to those in quintiles 2-5 (see Figure).

Students from Q1 have relatively lower attendance rates

Attendance by Polar4 quintile

Attendance: 0-20%
- Quintile 2-5: 28.5%
- Quintile 1: 30.1%
- Not known: 28.3%

Attendance: 20-40%
- Quintile 2-5: 30.9%
- Quintile 1: 34.6%
- Not known: 26.7%

Attendance: 40-60%
- Quintile 2-5: 36.9%
- Quintile 1: 31.4%
- Not known: 41.7%

Attendance: >60%
- Quintile 2-5: 3.7%
- Quintile 1: 3.9%
- Not known: 3.3%

Participants (%)

Source: UEA Management information
Number of observations: 1213

Engagement prior to email by Study Year

First- and second-year students generally have the highest attendance rates (Figure). For instance, around 40% of students in their first and second years have an attendance rate between 40-60%, compared with only 31% of third-year students. This trend may be attributed to a stronger academic focus and more structured schedules in the earlier years of study and shifting priorities in the final year due to an increased workload, associated stress, or other external factors such as job applications.

Figure 6: Engagement prior to email by study year

Year 3 students have relatively lower attendance

Attendance by study year

Attendance: 0-20%
- Year 3: 34.9%
- Year 2: 26.2%
- Year 1: 23.2%

Attendance: 20-40%
- Year 3: 31.5%
- Year 2: 30.9%
- Year 1: 31%

Attendance: 40-60%
- Year 3: 30.6%
- Year 2: 39.7%
- Year 1: 40.6%

Attendance: >60%
- Year 3: 3%
- Year 2: 3.2%
- Year 1: 5.2%

Participants (%)

Source: UEA Management information
Number of observations: 1213
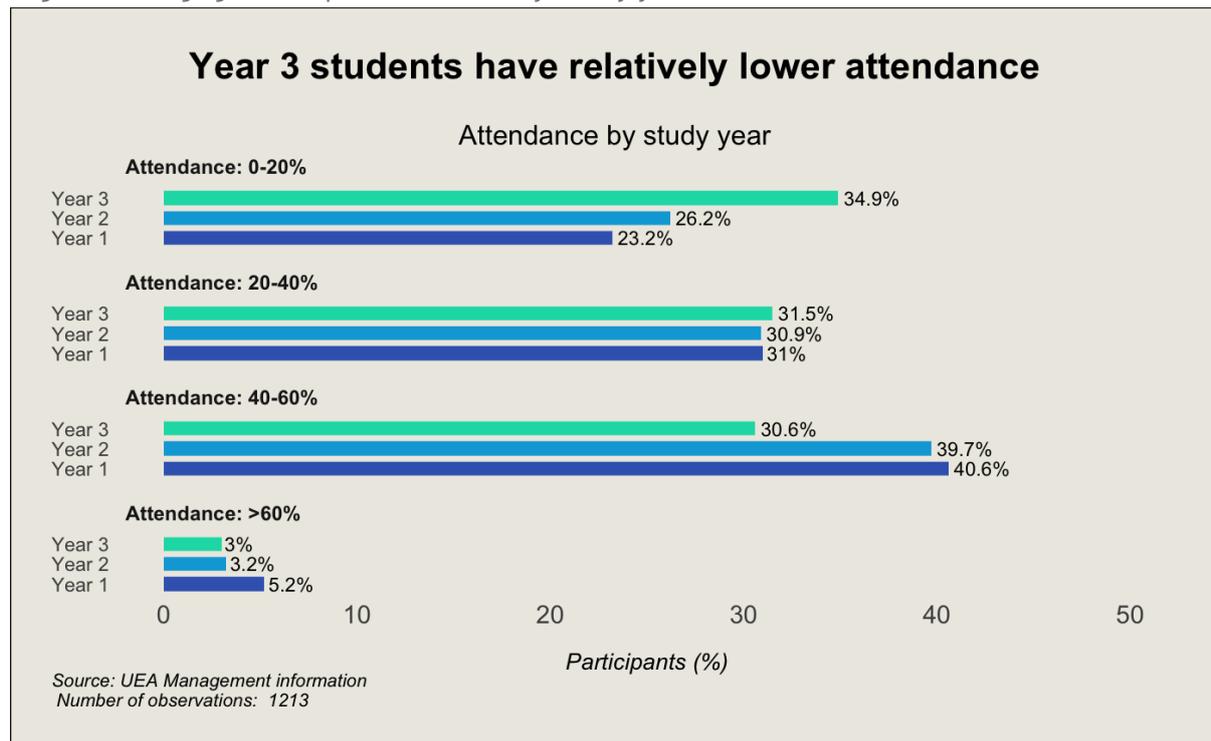
Pre/Post trends

Box plots[11] of pre/post differences in attendance, VLE logins and wellbeing score are presented below (Figure , Figure and Figure). We did not produce box plots for formative and summative assessments as the dataset contained only three values: 0, 50 and 100, with no intermediate values.

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[11]The box plot displays the distribution of the data, with the central box representing the interquartile range (IQR), spanning from the 25th percentile (Q1) to the 75th percentile (Q3), the horizontal bold line inside indicating the median (50th percentile). Whiskers outside the box extend to the smallest and largest values, respectively, illustrating the range of the data. Data points outside this range are shown as individual dots which are representative of outliers.
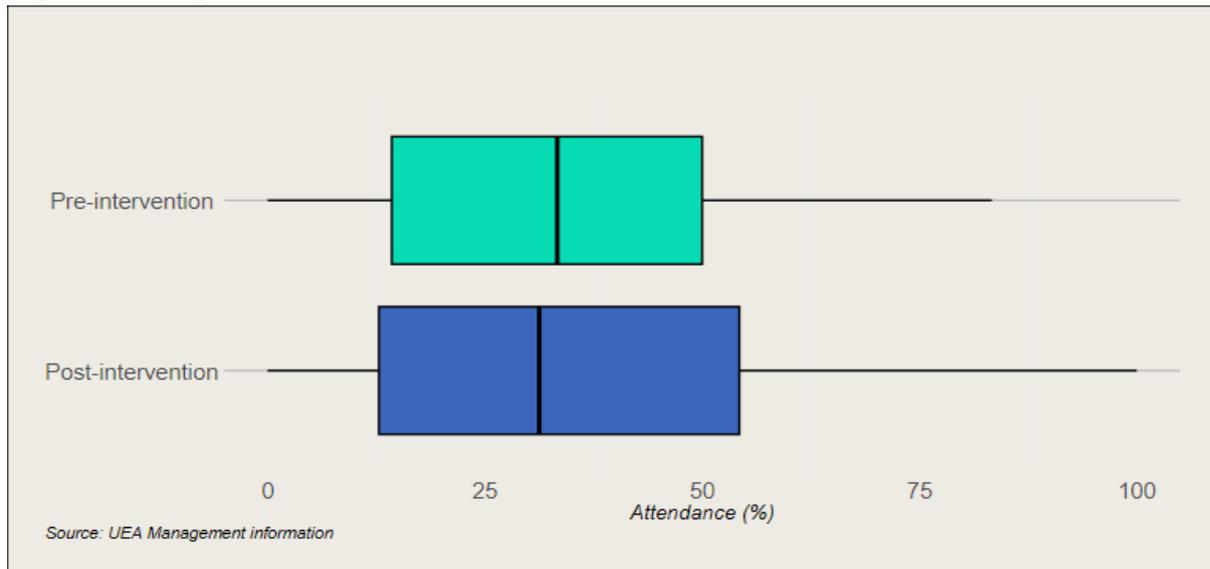
Figure 7: Pre-post attendance rate distribution

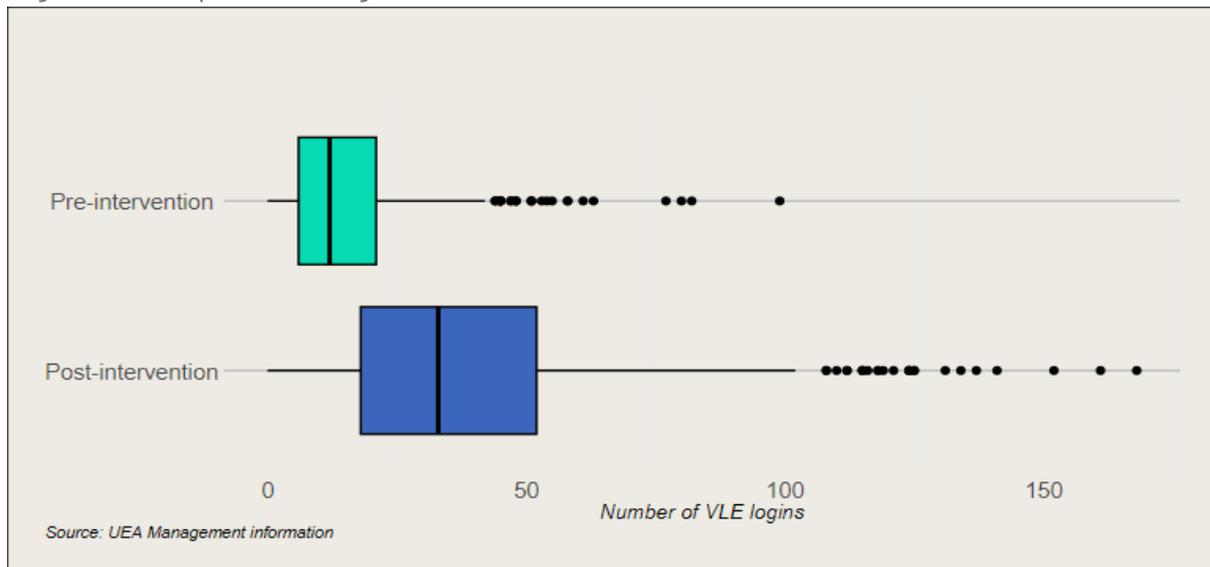Figure 8: Pre-post VLE logins distribution

Figure 9: Pre-post wellbeing score distribution

Source: UEA Management information

There are only modest shifts in the data distribution. Post-intervention distributions are slightly wider than their pre-intervention counterparts across all outcomes. This wider distribution may reflect differences in how individuals responded to the intervention or indicate other factors that influenced engagement or outcomes in different ways.

We did not produce box plots for formative and summative assessments due to the limited range of distinct values. The dataset contained only three values: 0, 50 and 100, with no intermediate values. Thus, the plots for these two outcomes did not provide meaningful variation for visualisation.

The density curves for the distributions of attendance rates in the treatment and control groups for treatment and control are in Figure and Figure for before and after the intervention, respectively. The baseline distribution appears similar between the two groups, with a large proportion of students (*n=346* in total) clustering around 40-50% attendance.

The attendance distribution changed considerably post-intervention. A notable concentration of students in the control group now falls around 15%, whereas a concentration of students in the treatment group is observed around 30%. At the same time, we can see that the overall spread has increased, with more students reaching higher rates of attendance.

Figure 10: Pre-intervention attendance distribution by treatment assignment

Prior to notification, treatment participants' attendance is skewed slightly lower

Baseline Attendance Distribution

Density

Baseline Attendance (%)

Control
Treatment
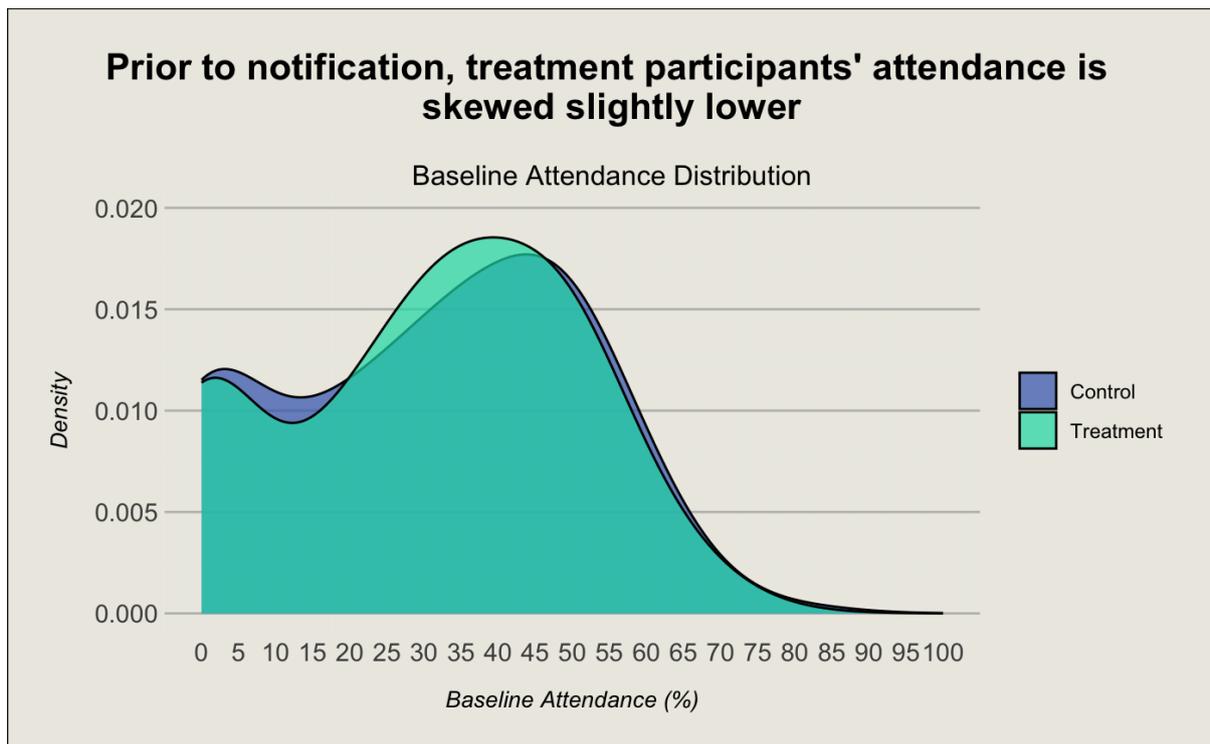
Figure 11: Post-intervention attendance distribution by treatment assignment

**Following intervention, treated participants' distribution skews slightly higher
but is overall lower than pre-intervention**

Post-Intervention Attendance Distribution

Density

Post-intervention Attendance (%)

Control
Treatment
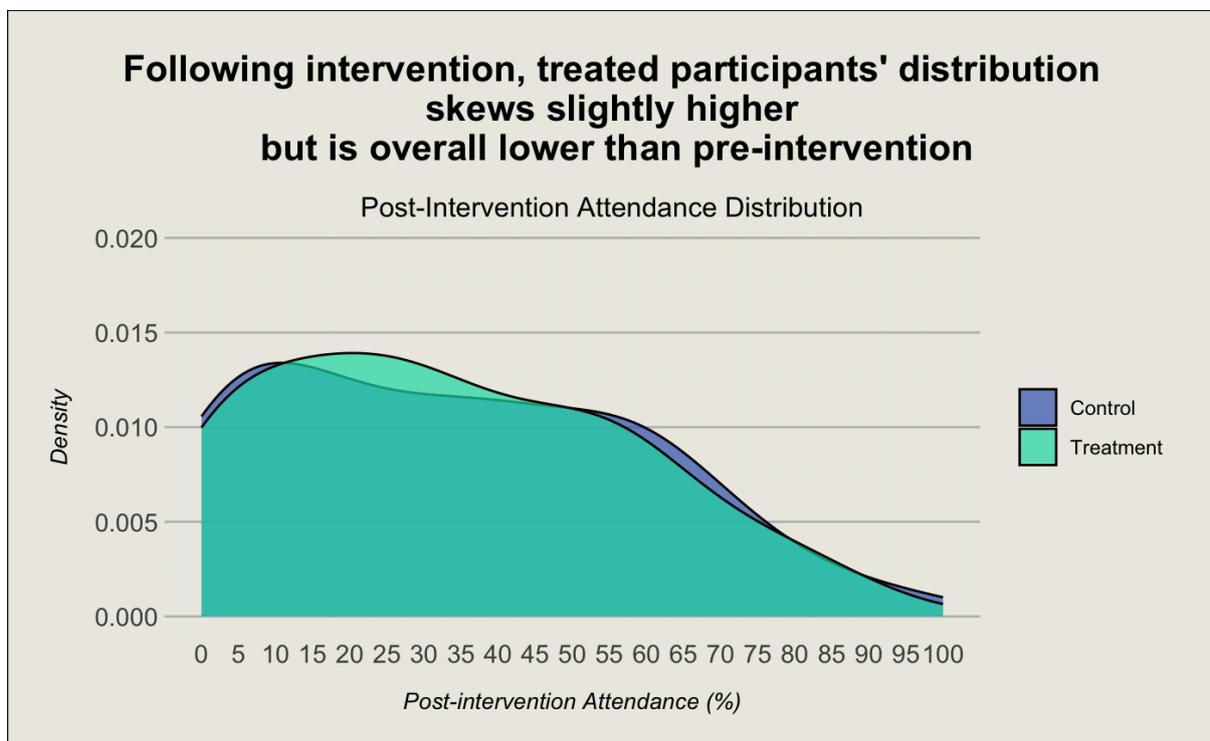
Appendix G: Regression Tables

Table 21: Regression of attendance on treatment assignment

	Model 1	Model 2
(Intercept)	14.89 [10.11; 19.67] *	34.15 [32.12; 36.19] *
Treatment	-0.42 [-2.76; 1.92]	-0.55 [-3.35; 2.25]
Female	5.03 [2.61; 7.46] *	
Above 21=Yes	-6.47 [-10.23; -2.72] *	
Ethnicity=BME	-3.99 [-6.67; -1.30] *	
Ethnicity=Other	1.68 [-4.98; 8.34]	
Study year=2	-4.98 [-7.88; -2.07] *	
Study year=3	-3.62 [-6.71; -0.53] *	
Disability Not known	2.32 [-5.03; 9.67]	
Disabled=Yes	-0.47 [-3.12; 2.19]	
POLAR4=Quintile 2-5	2.21 [-1.31; 5.73]	
Baseline attendance	0.63 [0.57; 0.69] *	
R^2	0.31	0.00
Adj. R^2	0.31	-0.00
Num. obs.	1213	1213
RMSE	20.71	24.86

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates.

Table 22: Regression of number of VLE logins on treatment assignment

	Model 1	Model 2
(Intercept)	22.24 [16.93; 27.56] *	38.53 [36.43; 40.64] *
Treatment	-1.25 [-4.07; 1.57]	-1.30 [-4.30; 1.69]
Female	2.90 [-0.03; 5.84]	
Above 21=Yes	-4.13 [-8.96; 0.70]	
Ethnicity=BME	3.00 [-0.56; 6.56]	
Ethnicity=Other	-1.55 [-9.47; 6.38]	
Study year=2	5.11 [1.28; 8.94] *	
study year=3	0.86 [-2.82; 4.55]	
Disability Not known	-3.95 [-12.00; 4.11]	
Disabled=Yes	0.65 [-2.48; 3.79]	
POLAR4=Quintile 2-5	-1.19 [-5.26; 2.88]	
Baseline attendance	0.44 [0.36; 0.51] *	
R^2	0.13	0.00
Adj. R^2	0.12	-0.00
Num. obs.	1213	1213
RMSE	24.95	26.62

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates.

Table 23: Regression of timely submission of summative assessment (%) on treatment assignment

	Model 1	Model 2
(Intercept)	60.69 [49.15; 72.24]*	82.10 [78.26; 85.94]*
Treatment	-2.19 [-7.34; 2.96]	-1.68 [-7.04; 3.69]
Female	6.54 [1.27; 11.82]*	
Above 21=Yes	-6.74 [-15.89; 2.41]	
Ethnicity=BME	-3.77 [-10.31; 2.78]	
Ethnicity=Other	1.14 [-16.16; 18.44]	
Study year=2	8.69 [2.37; 15.01]*	
study year=3	5.86 [-0.82; 12.54]	
Disability Not known	-8.03 [-23.90; 7.84]	
Disabled=Yes	-2.52 [-8.35; 3.31]	
POLAR4=Quintile 2-5	6.51 [-1.52; 14.54]	
Baseline attendance	0.36 [0.21; 0.50]*	
R^2	0.07	0.00
Adj. R^2	0.06	-0.00
Num. obs.	673	673
RMSE	34.38	35.43

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates.

Table 24: Regression of timely submission of formative assessment (%) on treatment assignment

	Model 1	Model 2
(Intercept)	76.91 [57.78; 96.04] *	87.70 [82.07; 93.32] *
Treatment	-3.46 [-11.85; 4.94]	-4.49 [-12.89; 3.90]
Female	7.97 [-1.41; 17.34]	
Above 21=Yes	18.96 [6.09; 31.82] *	
Ethnicity=BME	8.77 [-1.16; 18.70]	
Ethnicity=Other	6.29 [-13.14; 25.72]	
Study year=2	-7.38 [-17.85; 3.08]	
study year=3	-7.65 [-17.28; 1.97]	
Disability= Not known	-6.70 [-30.25; 16.85]	
Disabled=Yes	-10.76 [-21.34; -0.18] *	
POLAR4=Quintile 2-5	1.86 [-10.00; 13.72]	
Baseline attendance	0.26 [0.00; 0.53] *	
R^2	0.09	0.00
Adj. R^2	0.04	0.00
Num. obs.	253	253
RMSE	33.25	33.91

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates.

Table 25: Regression of whether MS form is filled on treatment assignment

	Model 1	Model 2	Model 3
(Intercept)	0.14 [0.06; 0.22] *	0.08 [0.05; 0.10] *	-2.38 (0.34) ***
Treatment	0.21 [0.17; 0.25] *	0.21 [0.17; 0.25] *	1.72 (0.19) ***
Female	0.07 [0.02; 0.11] *		0.52 (0.17) **
Above 21=Yes	-0.08 [-0.14; -0.02] *		-0.69 (0.31) *
Ethnicity=BME	0.02 [-0.03; 0.07]		0.16 (0.19)
Ethnicity=Other	0.01 [-0.10; 0.12]		-0.04 (0.50)
Study year=2	-0.13 [-0.19; -0.08] *		-0.88 (0.19) ***
Study year=3	-0.20 [-0.26; -0.15] *		-1.51 (0.21) ***
Disability Not known	-0.13 [-0.24; -0.03] *		-1.15 (0.56) *
Disabled=Yes	0.03 [-0.01; 0.08]		0.26 (0.18)
POLAR4=Quintile 2-5	-0.00 [-0.07; 0.06]		0.02 (0.24)
Baseline attendance	0.00 [-0.00; 0.00]		0.01 (0.00)
R^2	0.14	0.07	
Adj. R^2	0.13	0.07	
Num. obs.	1213	1213	1213
RMSE	0.36	0.37	
AIC			995.09
BIC			1061.40
Log Likelihood			-484.55
Deviance			969.09

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates. Model 3 runs a logistics regression.

Table 26: Regression of wellbeing scores on treatment assignment

	Model 1	Model 2
(Intercept)	4.89 [2.92; 6.86]*	5.40 [4.87; 5.94]*
Treatment	0.06 [–1.06; 1.19]	0.05 [–0.72; 0.82]
Female	–0.09 [–1.01; 0.83]	
Ethnicity=BME	1.07 [–0.13; 2.26]	
Ethnicity=Other	0.25 [–0.82; 1.31]	
Studyyear=2	1.92 [0.68; 3.17]*	
study year=3	–0.07 [–1.13; 0.98]	
Disabled=Yes	–1.21 [–2.24; –0.17]*	
Baseline attendance	0.19 [–0.91; 1.29]	
R^2	0.39 [–0.55; 1.33]	0.00
Adj. R^2	0.01 [–0.01; 0.03]	–0.04
Num. obs.	0.48	29
RMSE	0.15	1.02

p < 0.001; ** p < 0.01; * p < 0.05. Covariates in model 1 include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes. Model 2 excludes all covariates.

Table 27: Heterogeneity analysis

	Gender	Ethnicity	Age group	POLAR4 Quintile	School of study
(Intercept)	16.73 (-6.13; 39.60)	16.36 (-6.70; 39.43)	16.90 (-5.87; 39.66)	20.85 (-1.65; 43.36)	18.11 (-5.50; 41.71)
Gender = Female	0.05 (-4.71; 4.81)				
Gender = Other	-8.19 (-17.49; 1.11)				
Ethnicity = BAME		3.59 (-1.72; 8.89)			
Above 21=Yes			3.11 (-4.04; 10.27)		
POLAR4=Quintile 2-5				7.30 (0.33; 14.27)*	
School=ECO					0.46 (-8.39; 9.31)
School=EDU					-0.85 (-16.12; 14.42)
School=HIS					-6.88 (-17.25; 3.50)
School=LAW					5.56 (-3.23; 14.36)
School=MLC					5.27 (-5.40; 15.94)
School=PPA					1.80 (-8.09; 11.69)
School=PSY					2.74 (-6.74; 12.22)
R^2	0.31	0.31	0.31	0.32	0.34
Adj. R^2	0.30	0.31	0.30	0.31	0.33
Num. obs.	1213	1213	1213	1213	1213
RMSE	20.73	20.71	20.72	20.69	20.37

$p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Covariates include gender, ethnicity, study year, disability status, age category, POLAR4 quintile category and baseline engagement (pre-intervention attendance in timetabled classes.