

Analysing Engagement in an Online Management Programme and Implications for Course Design

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Context

- New online postgraduate Management programme (2 year) at Imperial College London Business School
 - delivery of education to an additional pool of students who are unable or unwilling to attend classes on campus
- Delivered via bespoke in-house LMS, that tracks interactions and activity completions
- Aim now is to investigate the relationships between different forms of participant engagement in the online courses delivered via the LMS and their effects on students' levels of performance and satisfaction
- Hence to derive improved guidelines for course designs and to engage course leaders in reflection, peer discussion and ongoing professional development

Context

- The online Management programme at Imperial can be distinguished from other distance learning courses due to its
 - relatively small cohort size
 - highly selective nature of admissions
 - presence of a small amount of face-to-face tuition (three on-campus weeks, one at the start of year 1 and two at the start of year 2)
- However, there is still variability in students' performance and their levels of satisfaction with their courses
- Both these factors require attention from a learning perspective, and this paper focuses on the former

Context

The study reported here looks at 67 students (see paper for demographics) studying on 2 new online courses – Accounting and Marketing – during first semester of the new online Management degree

Both courses follow same structure (2 weeks pre-course study, 10 weeks main course, 4 weeks exam period)

Both courses are designed to encourage an active approach to learning and community-oriented activities

Learning design

Learning design is 'lock-step', aiming for a sense of study cohort and community

All students are expected to complete set activities each week which are predominantly asynchronous in nature

The activities are categorised as:

- Demonstration and exposition (DE)
- Practice and application (PA)
- Construction and connection (CC)
- Production and submission (PS)
- Feedback (F)

Learning design – Accounting course

Activity breakdown each week:

Table 2: Accounting course design

Module structure	Activity	Breakdown
Pre-Study	[DE]	[100%]
Week 1	[DE, PA, CC, F]	[60%, 30% 8%, 2%]
Week 2	[DE, PA, CC, F]	[70%, 11%, 8%,9%,2%]
Week 3	[DE, PA, CC, PS, F]	[48%, 20%, 1%, 20%, 11%]
Week 4	[DE, PA, CC, PS]	[30%, 43%, 16%,11%]
Week 5	[DE, CC, PS]	[59%, 37%, 4%]
Week 6	[DE, PA, PS, F]	[44%, 44%, 10% 2%]
Week 7	[DE, PA, CC, PS, F]	[50%, 18%, 11%, 14%, 8%]
Week 8	[DE, PA]	[62%, 38%]
Week 9	[DE, PA, CC]	[50%, 31%, 18%]
Week 10	[DE, CC, PS, F]	[13%, 49%, 23%, 15%]
Exam Period	[DE]	[100%]

CC: Construction and connection; DE: Demonstration and exposition; F: Feedback
 PA: Practice and application; PS: Production and submission

Learning design – Marketing course

Activity breakdown each week:

Table 3: Marketing course design

Module structure	Activity	Breakdown
Pre-Study	[DE]	[100%]
Week 1	[DE, PA, CC, PS, F]	[66%, 8%, 8%, 13%, 5%]
Week 2	[DE, CC, PS, F]	[39%, 38%, 20%, 3%]
Week 3	[DE, CC, F]	[43%, 52%, 5%]
Week 4	[DE, CC, PS, F]	[31%, 46%, 10%, 13%]
Week 5	[DE, PA, CC, PS]	[58%, 4%, 25%, 13%]
Week 6	[DE, CC, PS]	[51%, 19%, 30%]
Week 7	[DE, CC, PS]	[23%, 41%, 36%]
Week 8	[DE, CC, PS, F]	[33%, 36%, 29%, 2%]
Week 9	[DE, PA, CC, PS, F]	[40%, 3%, 30%, 10%, 17%]
Week 10	[DE, PA, PS]	[32%, 15%, 53%]
Exam Period	[DE, CC, F]	[48%, 20%, 32%]

Engagement data

Engagement data was collected for students and for course staff (course leaders, teaching assistants, admin staff)

Student engagement events were categorized as follows:

- **Material-initiated events:** events that result from prompts within the course materials (e.g. quizzes, polls, open discussions)
- **Tutor-initiated events:** replies by students to forum discussion topics initiated by course staff
- **Student-initiated events:** forum topics initiated by individual students

Engagement data

Course staff engagement was measured by two metrics:

- **Material-initiated engagement opportunities:** designed opportunities within the course materials for students' engagement
- **Tutor-initiated forum discussion topics,** again providing opportunity for students' engagement

Research questions

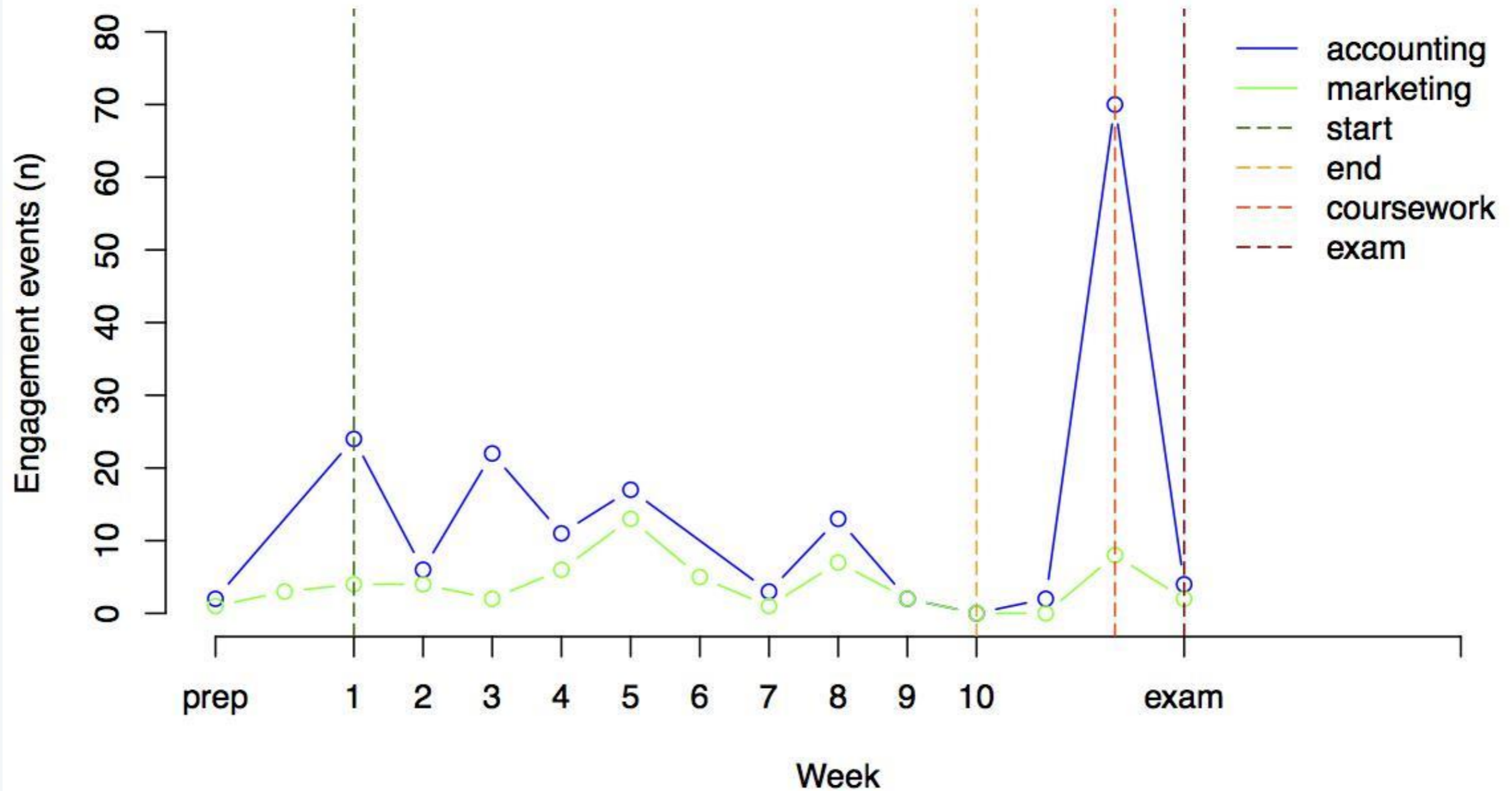
Question 1

Effect of staff engagement on student engagement.

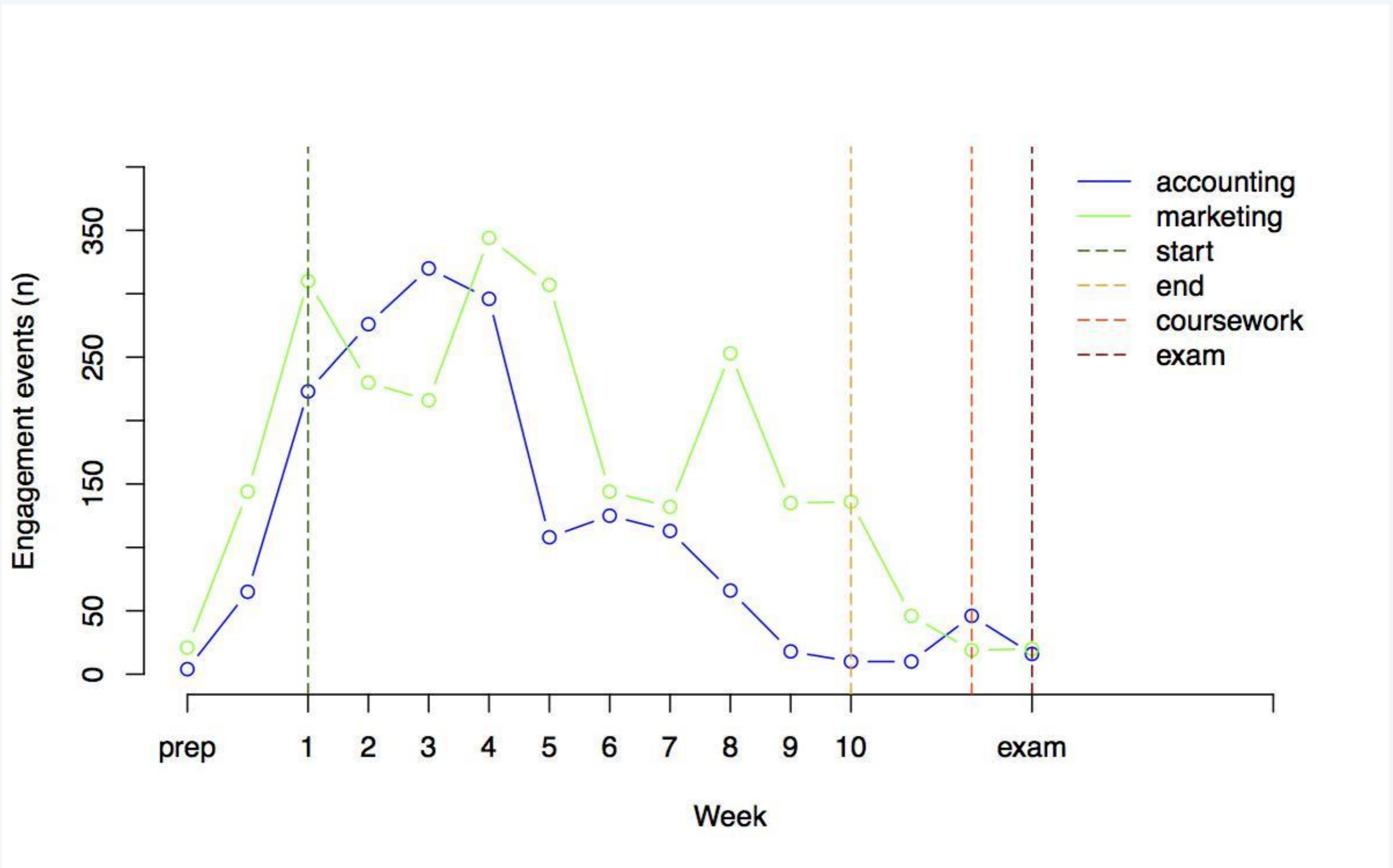
Question 2

Effect of student engagement on student performance.

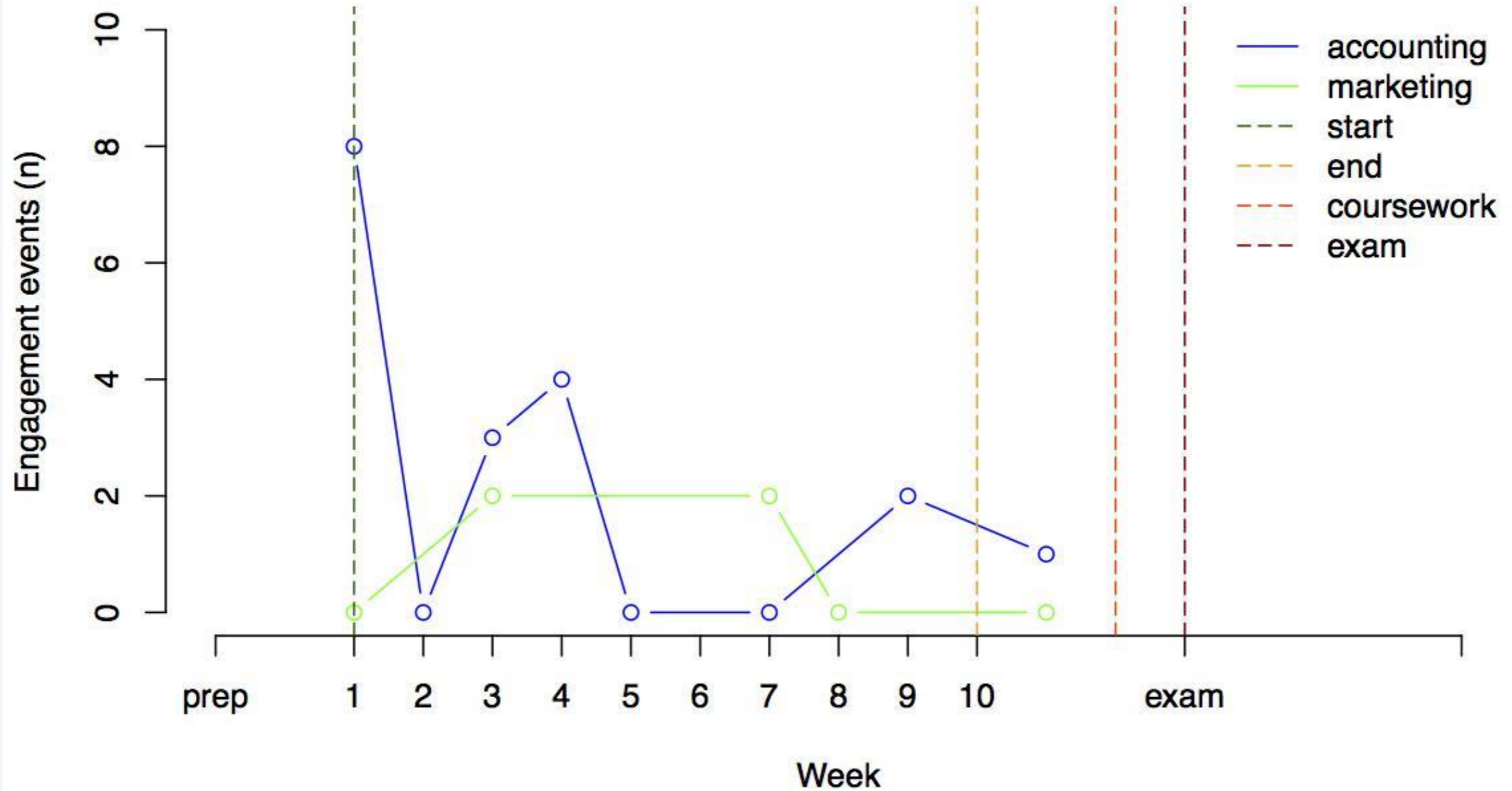
Q1: Student-initiated engagement



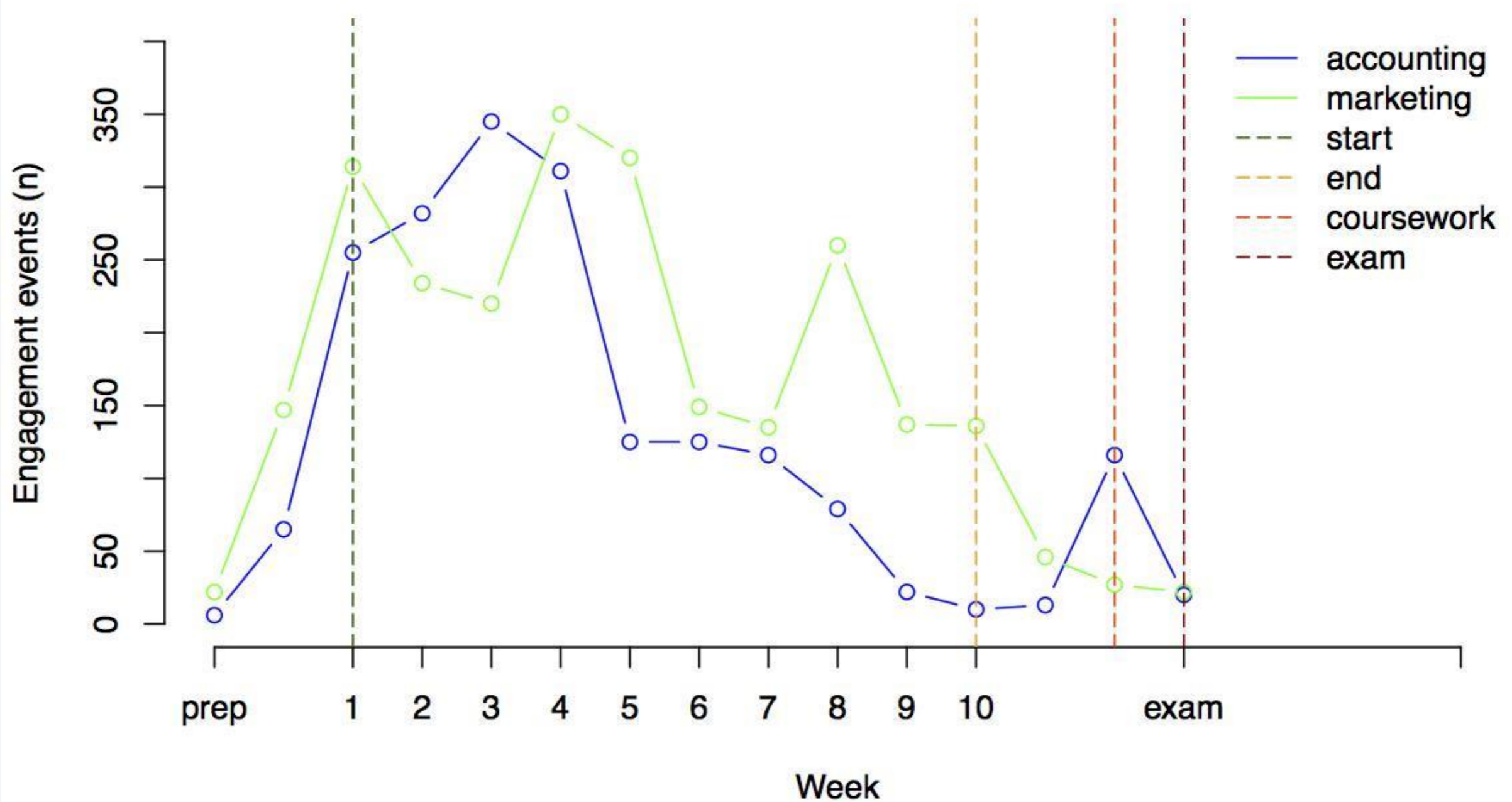
Q1: Material-initiated engagement



Q1: Tutor-initiated engagement



Q1: Overall engagement



Results on Q1 - Effect of staff engagement on student engagement

- Engagement was largely driven by course material
- Engagement prompted by staff interactions was particularly low
- Overall engagement dropped in the second half of the term
- Student-initiated engagement rose in the period preceding the final exam for the Accounting course, that did not include a formal revision session
- These observations may be useful for course leaders in improving their future deliveries of these and similar courses

Q2 – Engagement vs Performance

For this question we wished to determine whether the level of engagement exhibited by students was reflected in the marks they obtained

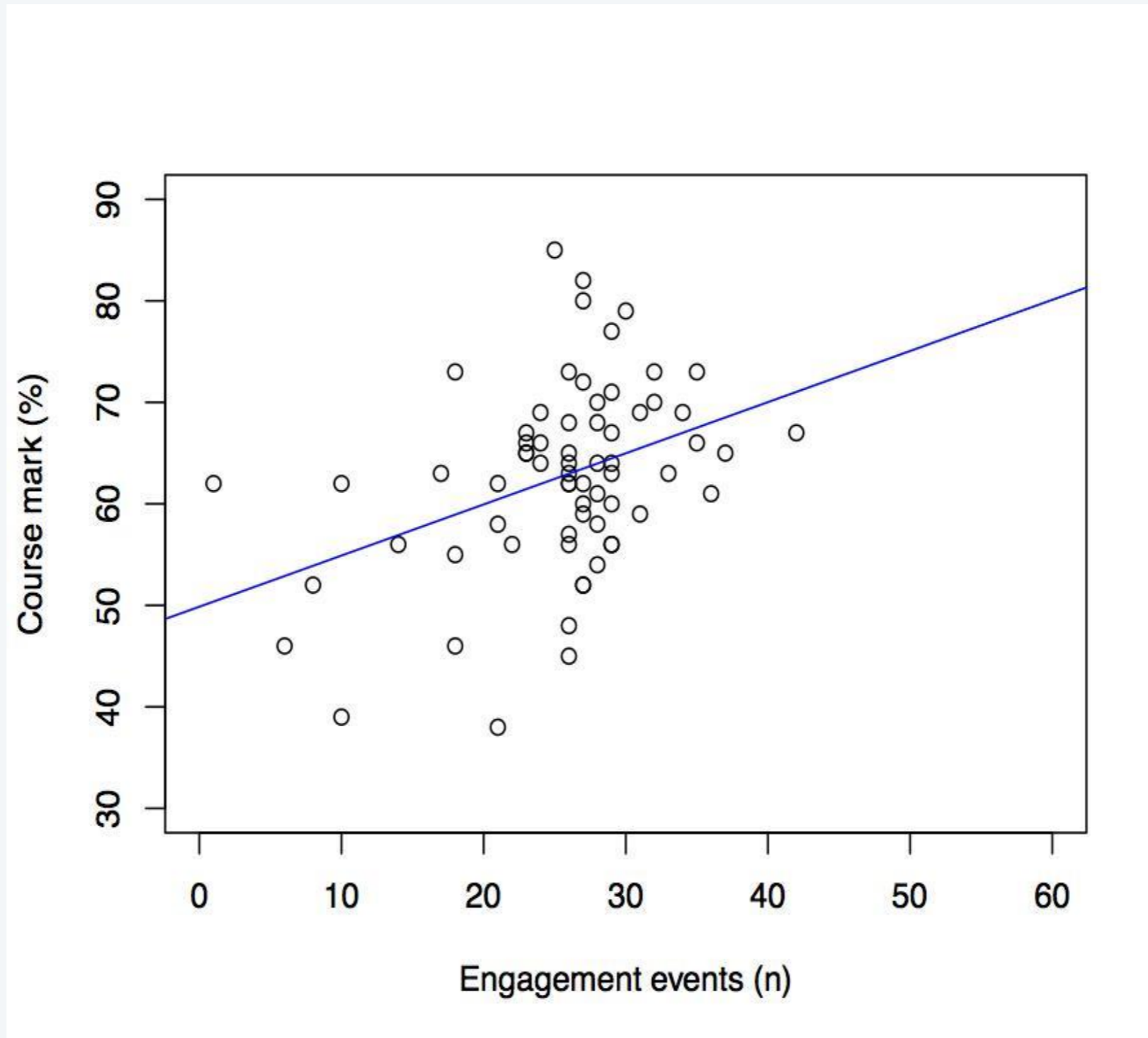
Required a measure of individual student engagement:

- natural choice was to use the overall engagement as defined for Question 1, aggregated at the student level

Student performance was represented by the overall mark obtained by a student on a course (Accounting or Marketing)

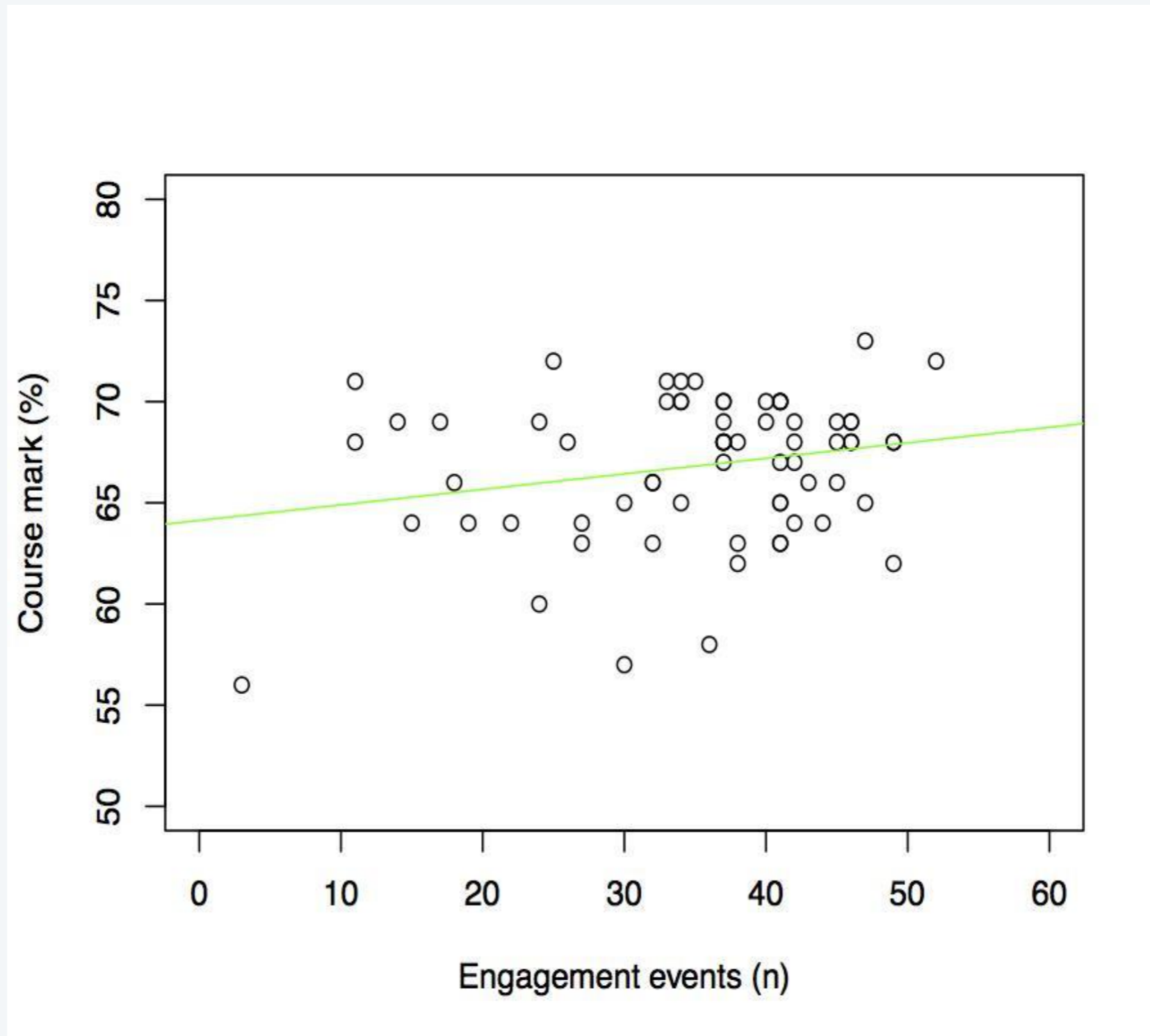
Q2: Engagement vs Performance

Accounting course: significant positive relationship



Q2: Engagement vs Performance

Marketing course: no significant relationship



Results on Q2 - Effect of student engagement on student performance.

- Weak positive relationship between individual student engagement and performance for the Accounting course
- No evidence of similar relationship for the Marketing course
- Overall, small positive relationship between engagement and performance at the level of individual students
 - intake is highly selective, so students could be performing well regardless of engagement
 - also, by design, majority of engagement events are driven by the course material, so the overall student engagement metric may not capture well individual student characteristics
 - a more discriminating metric that captures individual differences may be able to identify more clearly an effect between engagement and performance

Conclusions, Recommendations

- Our analyses showed that student-initiated engagement was relatively stable over time, although increasing in the run-up to the examination period if there was a lack of an explicitly planned revision session in the course
- Material-initiated events are the result of engagement activities explicitly planned by the course staff, and our analyses showed a drop-off in these in the second half of both courses
- Recommendations to course leaders going forwards are to:
 1. include an explicit revision session within their courses, and
 2. continue to design opportunities for material-initiated engagement even within the sessions in the latter parts of their courses introducing revision material

Next Steps

- Larger-scale investigations over more courses, and more students on the Accounting and Management courses as the current and new student cohorts progress
- One of the guiding principles of course design on Imperial's Online Management Programme is to encourage sustained and synchronised engagement by a student cohort with rich online course material, rather than *ad hoc* recourse to contacting the course staff:
 - primary aim is to maximise students' opportunities to share their experiences through the planned discussion activities
 - secondary aim is **scalability**: by keeping the student cohort 'in-step' it should not be necessary to deploy increasing numbers of course tutors as cohort numbers grow: to be tested