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Improving Student Engagement in Co-curricular Programmes: The Role of Monitoring and Incentive Structures

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Abstract

Management educators are becoming increasingly interested in preparing their students for managerial and leadership roles in the job market, and soft skills have been touted as useful in this transition. Nevertheless, soft skills in public universities are difficult to develop in large class sizes, making co-curricular skills development training a good alternative. This paper is an instructional innovation piece that reports on the results of experimenting with different combined incentive and monitoring structures to understand their role in improving student engagement in a design thinking course aimed at developing soft skills in the extra-curricular setting. In this study, we analyzed quantitative and qualitative data from administrative records and interviews using descriptive, t-test and thematic analysis techniques to understand the effect of the combined mechanisms on engagement. Our findings indicate a significant difference between the control and treatment groups with regard to all engagement variables except for efforts to work harder. However, the mechanisms are more important in promoting behavioural engagement than cognitive and affective engagement. We recommend that management educators tailor incentives to specific engagement variables that drive desired outcomes rather than tying them to programme-level outcomes. Additionally, we suggest a need to understand the communication culture of students to shape decisions regarding monitoring mechanisms.

Keywords: Co-curricular Activity, Experiential Learning, Incentives and Monitoring, Public Universities, Student Engagement, Twenty-first Century Skills.

1. Introduction

In the context of the current dynamism of our business world, employee skill set requirements are changing. Soft skills are becoming paramount for the 21st-century workforce (Dean, 2017), especially for business leaders, managers and administrators. Therefore, management educators are becoming more interested in how they can better prepare their students for careers in management and leadership (Schmidt-Wilk, Lovelace, 2017). Critical thinking, problem-solving, negotiation, communication and information sharing constitute soft skills crucial to developing effective managers and leaders (Delise, Mello, 2017; Stepanovich et al., 2017). However, employers bemoan the gap between their expectations of the soft-skill performance of management graduates and their actual performance on the job (Gunarathne et al., 2021; Ofoegbu et al., 2018). Thus, calls have been made for

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changes in management education to help close this gap (Ginting et al., 2020; Ofoegbu et al., 2018; Gunarathne et al., 2021). To this end, there is consensus that management educators need to shift from curriculums that highlight "what students need to know" to curriculums that emphasize "what students need to be able to do" (Schmidt-Wilk, Lovelace, 2017).

To meet the demands of the job market, management educators need to be intentional about soft skill development in the design of their curriculum (Ritter, 2018). Real learning is more likely to occur when students are involved in what they are being taught (Schmidt-Wilk, Lovelace, 2017); thus emphasizing the importance of student engagement in achieving desirable learning outcomes (Carini et al., 2006). This suggests that soft skill acquisition requires consistent and active engagement of learners. Nevertheless, high enrollment rates coupled with limited classroom infrastructure restrict the ability of faculty in public universities to deploy experiential learning strategies (Delise, Mello, 2017; Stepanovich et al., 2017), which have been touted as effective in soft skill training (Stalp, Hill, 2019). Public universities in Africa are not exempt from this challenge. Chikoko (2017) describes current pedagogies in African higher education as teacher-centred, leading to rote memorization and surface learning. Therefore, McCowan et al. (2022) recommend a shift towards learner-centered education; a change that would require institutional and individual-level adjustments (McCowan et al., 2022). Barriers such as limited resources, weak governance and poor pedagogical culture inhibit this transition towards a learner-centered teaching and learning approach (McCowan, 2018).

In the face of the challenges mentioned above, co-curricular activities present an opportunity for soft skill development (Afzali, 2023). Co-curricular activities are flexible and offer participants multiple training session options, which helps circumvent challenges with large class sizes and limited infrastructure. Additionally, organizers of co-curricular activities have greater training design autonomy, facilitating smaller group sizes that support experiential learning. Suskie (2015) mentions that the use of out-of-class experiences can improve students' learning, growth, and development. Several researchers (Lourens, 2014; Turrentine et al., 2012), also argue that programmatic involvement in extra-curricular activities is linked to a variety of favourable outcomes, including increased self-efficacy, satisfaction, feelings of support, retention, academic success and intellectual engagement and improved interpersonal understanding. Additionally, Millunchick and Zhou (2020) found that engineering students' participation in co-curricular activities in a large public university contributed positively to academic, social and professional outcomes.

Ankoma (2024) also argues that extra-curricular activities are particularly useful for international students in promoting inclusivity and connectivity and career development opportunities that balance theory with practices to help make international student experience positive. However, anecdotal evidence from the researchers' practice shows that students sometimes perceive a negative relationship between engagement in co-curricular activities and academic outcomes because it is not considered in computing Grade Point Averages (GPAs). While Mansi (2023) found a positive relationship between extra-curricular activities and graduate employability, a 2019 Job outlook survey confirmed that about 73 % of employers use GPAs in screening job candidates (Tai, 2020). Thus, making it more attractive for students to focus on activities that have a direct relationship with their GPA, while ignoring those that do not. Donald et al. (2018), recommend that facilitators offer rewards to encourage students' participation in co-curricular activities. Additionally, monitoring structures could help facilitators gauge the level of commitment students have made to the learning process, so that the necessary support can be offered to them. Despite this, literature on the subject of monitoring and incentive structures for promoting student engagement in co-curricular soft skills development is scarce to date.

This study experiments with monitoring and incentive structures to understand their role in fostering student engagement in a co-curricular design-thinking training programme aimed at developing management-relevant soft skills in a large public university in Ghana. In the paragraphs that follow, we lay out the theoretical underpinnings of the study, after which we describe the methods employed. Next, we describe the structure of the proposed co-curricular program, present the results of our experiment and discuss the findings and their implications for management education.

2. Literature review

Theoretical background

Two theoretical frameworks and one model underpin this study; Kolb's Experiential Learning Theory (1976), Vroom's Expectancy Theory (1964) and the threshold model for explaining the

impact of student participation in co-curricular activities on student academic performance. Based on Kolb's Experiential Learning Theory, we argue that skills development involves the continuous discovery, assimilation and accommodation of knowledge from experience (Piaget, 1999). Skill acquisition comes from understanding and understanding in turn comes from exposure to cognitive and affective behaviors embedded in the four components of the learning cycle (Kolb, 1984). Findings from Babu et al. (2020) and Mayombe (2022) show that experiential learning theories facilitate skill acquisition but require learner commitment for success.

We infer from Vroom's Expectancy Theory (1964) that the extent to which learners commit to participating in experiential learning will depend on their expectations about the likely outcomes and their attractiveness to them. Therefore, student commitment to participate in co-curricular skills development training programs could be low considering the absence of direct linkages with overall student performance measures like the GPA. This necessitates the use of strategies such as incentives and monitoring mechanisms to alter the attractiveness of outcomes.

Our study encourages student participation in co-curricular activities because it contributes positively to the acquisition of industry relevant competencies. Nevertheless, we argue from the threshold model perspective (Seow, Pan, 2014) that there are trade-offs between participation in extra-curricular activities and academic performance beyond a threshold point where time and cognitive capacity requirements could become a burden (Seow, Pan, 2014). Therefore, there is a need for proper design of co-curricular activities and support mechanisms for students in their pursuit of co-curricular activities.

Relevant soft skills for management education

Ingols and Shapiro (2014) and Ritter (2018) describe soft skills as intra and interpersonal skills that enhances an individual's contribution to an organization and chance of professional success. Literature emphasizes generic soft skills more than sector-specific soft skills (Oppong, Segbenya, 2023). Joie-La Marle et al. (2022) identified seven soft skills including problem-solving, interpersonal and comfort with uncertainty that are generic and apply to managerial and administrative roles. Gutterman (2023) highlights that relevant soft skills can vary based on a manager's scope of work (e.g. general or functional) and place in the organizational hierarchy. Whereas top managers need more interpersonal skills, middle and first-line managers stand to benefit more from technical and diagnostic skills (Anzengruber et al, 2017; Laud et al., 2016).

Maduko and Puche (2020) found that communication, strategic influencing, problem-solving and interpersonal skills had a positive effect on front-line managers' innovativeness. Further, Oppong and Segbenya (2023) observed that communication, leadership and teamwork were the topmost managerial skills in a study focused on six Ghanaian sectors. These findings show the relevance of conceptual and human skills for would-be managers and administrators. The importance of these skills in organizations today guided the selection of targeted skills for our study.

Pedagogies for improving student engagement

As previously argued, improving student engagement is pivotal to soft-skill development in co-curricular learning environments. Student engagement has been conceptualized as having three dimensions: behavioural engagement, affective engagement, and cognitive engagement (Fredricks et al., 2004; Eccles, 2016; Kelly et al., 2022). Thus, developing the conceptual and human skills of managers would require a focus on achieving these engagement outcomes; namely behavioural, cognitive and affective. Behavioral outcomes relate to learner engagement in learning activities and signify a positive attitude towards course completion (Wei et al., 2021). Cognitive outcomes concern learner knowledge and skill acquisition while affective outcomes encompass learner perception of the course, learning experiences and benefits (Wei et al., 2021). Various researchers have established the important role of cognitive and affective learning in management education (Bagley et al., 2020; Decker et al., 2015; Montiel et al., 2018).

Calhoun et al. (2009) call for an investigation into pedagogies that facilitate behavioral and cognitive engagement in business education. Studies like Quibrantar and Ezezika (2023) and Li et al. (2019) emphasize the importance of experiential learning approaches in the improvement of student engagement. Ritter (2018) also proposes experiential learning pedagogical tools like video and written case reviews, role plays, debates, discussions and team projects as useful in developing soft skills in management education. Additionally, Delise and Mello (2017) and Stepanovich et al.

(2017) suggest various in-class experiential learning exercises that can be useful in developing specific soft skills. These resources leverage case study analysis, group discussion, and project-based learning all of which were considered in the design of the intervention. We argue that experiential learning approaches play a two-pronged role of improving student engagement while facilitating skill acquisition.

Operationalizing student engagement

Engagement can be used as a proxy for learning (Carini, 2012). Kuh (2009) defines engagement from two perspectives as time and effort invested in learning activities and activities conducted by educators to induce participation. Although learning requires more than engagement, Perry (2022) argues that learning cannot occur without student engagement; thus, making engagement an assessment indicator that can contribute positively to outcomes. Kuh (2003) suggests that level of engagement can be explored from three dimensions: cognitive, affective, and behavioural. Cognitive engagement describes the mental processes students use to participate in learning (Walker et al., 2006). Behavioural engagement involves making an effort, being persistent, and taking part in learning activities while affective engagement relates to how students feel about their education and their institution (Lam et al., 2014). Pickering (2017) found that cognitive engagement is a more reliable proxy for measuring learning although all three levels of engagement work together with other factors to deliver intended outcomes.

Mandernach (2015) developed assessment indicators to gauge cognitive, affective and behavioural dimensions of engagement. Assessment indicators for the cognitive dimensions included (1) proportion of coursework emphasizing higher-order thinking strategies, (2) time spent on projects requiring integration and synthesis of ideas, and (3) the amount of coursework requiring practical application of knowledge or skills. For behavioural engagement indicators consisted of (1) frequency of asking questions in class, (2) frequency of group projects or collaborative work, (3) frequency of tutoring others and (4) frequency of attending events related to course material. Finally, Mandernach (2015) measured affective engagement using (1) student effort to work harder to meet the instructor's expectation, (2) investment to better understand someone else's perspective, (3) time invested in studying, (4) tendency to be prepared for class and (4) frequency of discussing course material outside of class time. Data collection using these indicators can be self-reported or directly observed (Kerr, 2018). These assessment indicators guided the design of data collection instruments.

Incentive and monitoring structures for improving engagement

Incentives represent a key success factor for co-curricular programmes. Donald et al. (2018) assert that teachers ought to offer rewards to encourage students to take part in co-curricular activities. Using incentives can help attract and retain students by promoting programme attendance and making them feel invested in programmes. According to Collins et al. (2008), incentives not only promote programme attendance; they also foster a sense of belonging to a programme while spurring academic achievement. Deci et al. (1999) explain that students' response to incentives meant to promote engagement can be influenced by multiple factors including level of intrinsic motivation, student goals and student perception of likely success.

Incentives can be monetary (cash, checks, gift cards), non-monetary (certificates, recognition, praise etc.), tangible or intangible; and their effectiveness depends on frequency and duration of the incentive as well as what is rewarded (Pavetti, Stanley, 2016). Additionally, incentive size and stressful conditions like poverty can alter the effectiveness of incentives in changing behaviour (Pavetti, Stanley, 2016). Although, both tangible and intangible rewards have been found to play a pivotal role in improving student engagement and performance, tangible rewards have been found to have a greater significant effect as compared to intangible rewards (Xiao, 2023).

Shaker, Brignell and Pugh (2023) found that incentivization through mark allocation increased student engagement in pre-class reading. Incentives like financial resources, food, and prize recognition have also been found to be effective in encouraging participation in out-of-school programmes (Collins et al., 2008). Angrist (2009) observed a positive effect of financial incentives on student engagement in comparison to other incentives like peer advising and organized study groups.

While programme incentives can indeed encourage participation and help maximize programme benefits, research suggests that incentives should not be used excessively (Collins et al, 2008).

Kuh (2003) emphasizes the reciprocal responsibilities of both the institution and the students to create engagement. This nexus between the responsibilities of students and institutional agents reiterates the need for monitoring and incentive structures to achieve increased student engagement. Schrock, Iqbal and Masood (2022) proffer email notifications, reflexive teacher evaluations and badge achievement awards as mechanisms for monitoring student engagement in virtual learning environments. Mandernach (2015) asserts that using student self-assessment reports as a monitoring tool is a good way to gauge how engaged students are in the learning process. Self-assessments can take the form of questionnaire completion, focus group discussions, and reflective journaling (Mandernach, 2015). Students can also be monitored using administrative records. According to Mandernach et al. (2011), indicators of student engagement can be found in administrative data such as attendance, assignment submissions, adherence to assignment rules, and involvement in supplementary activities. These monitoring structures will help teachers to know the level of commitment students have made to the learning process.

3. Methods

A pragmatist research paradigm guides this study. We adopt a mixed method approach, specifically the explanatory sequential, where a quantitative approach is followed by a qualitative approach. Kroll and Neri (2009) suggest that the mixed method approach is appropriate in instances when researchers want to gain a deeper understanding of quantitative results using qualitative data. In this study, we used qualitative data to better understand the factors driving the different levels of engagement observed quantitatively.

Quantitative study

Our quantitative study employed a quasi-experimental research design involving the exposure of a treatment group to different incentive schemes and monitoring structures in each project cycle to understand their effect on participants' engagement. This design is considered appropriate in educational settings where randomization of participants can be difficult (Harris et al., 2006). We also observed a control group to allow for comparison. The population for our qunaititative study comprised a total of 540 students in the needy but brilliant students' database of the students' financial support office of the university.

Sampling

First, we placed out a call for expression of interest to the population. Second, we screened applications purposively using motivation and academic performance as criteria for selecting 40 participants as our sample (see Table 1 for demographics), jointly shortlisted by the head of the students' financial support office and the research team. Then, we randomly split the 40 participants into two using the lottery approach and labelled them as control or treatment. Sampled participants included male and female students between the ages of 18 and 30. Participants came from different academic levels and areas of study. However, this short course was offered to them in cognizance of the importance of management skills regardless of the area of study and this aligned the university wide vision of providing all students with some basic form of management education.

Data collection and analysis

Our study was designed to use multiple data types: system-generated, observational and self-reported data. System-generated data comprised attendance statistics and assignment submission reports from the university's learning management system. Observational data consisted of notes taken while reviewing recordings of Zoom meetings and evidence submitted by participants to show real-life engagement. During these observations, we focused our attention on highlighting relevant information, like the number of students asking questions in the class and the relevance of the evidence submitted. Self-reported data also included student evaluation of their group activity using the group engagement log.

We consulted varied sources for data collection for this study. Our quantitative data collection sources included: (1) Participants' engagement activity reports from the university's LMS, (2) Participants' engagement activity reports from Zoom and Physical Meetings, (3) Participants' entries in reflection journals, and (4) Participants' submission of evidence for real-

life engagement in ethnographic research. Quantitative data was analyzed using descriptive statistics and t-test analysis.

Table 1. Participant's demographics

Variables	Treatment Group	Control Group
Gender		
– Female	5	10
– Male	15	10
Level of study		
– 1st Year	9	13
– 2nd Year	11	7
Age Range	18-25	18-25
Area of study		
– Agriculture and natural sciences	9	2
– Humanities and legal studies	10	11
– Educational studies	1	7

Qualitative study

The qualitative aspect of the study adopted an exploratory research design (Swedberg, 2020) aimed at gaining insights into a new area of study.

Sampling

We used a sample of 10 participants randomly selected from the pool of 40 participants earlier sampled using purposive techniques for the quantitative study. In line with arguments by Sarfo et al. (2021), our focus was not necessarily on the numbers but in ensuring a good fit between our research goal of gaining deeper insights, our sampling approach and the principles of data saturation.

Data collection and analysis

The study employed interviews for data collection being guided by a semi-structured interview guide. According to Cresswell (2014), interviews create room for deeper insights into a studied phenonomenon making it suitable for the qualititative aspect of this study. Two rounds of interviews were conducted, the second being a follow-up meant to fill in the gaps identified during the analysis. Each interview lasted an average of 30 minutes and was audio recorded after permissions were sought. Audio recordings were then transcribed verbatim and analyzed thematically (Cresswell, 2014) by reducing the data through open and axial coding, displaying the data using tables to identify emerging themes and drawing of conclusions (Schutt, 2011).

Intervention design

Table 2 summarises the content, structure, and learning activities in the training programme curriculum. Participants attended ten physical meetings either aimed at exposing them to knowledge on the design thinking process or providing opportunities to apply knowledge to real-life projects. Students worked in static self-selected teams throughout the duration of the programme. Students were required to complete six (6) assignments; namely, challenge framing, sense making, ethnographic research, ideation, prototyping, and reflection assignments. While the first five assignments were team-based, the last was individual-based. One instructor facilitated Training sessions separately for the control and treatment groups, which two volunteers supported. Different monitoring mechanisms were introduced in each project cycle for participants in the treatment group, as shown in Table 3 below. The study also experimented with three different financial and non-financial incentives, as shown in Table 3. Participants in the control group were neither monitored nor received any incentive across the duration of the training. A monitoring and evaluation (M&E) role was created and mandated to 1) remind participants in the treatment group of upcoming/past deadlines and offer support if needed and 2) take feedback on each team's progress with their project.

Table 2. Training Programme Overview

Description	Details
Course descriptions	Introduce participants The programme was designed as a co-curricular design thinking training for students in a public higher education institution.
Learning objectives	The aim of the programme was to enable participants to develop management-relevant soft skills.
Skills targeted	ICT literacy, critical thinking, communication, collaboration, creativity, leadership, and perseverance skills.
Number of sessions	Nine (9) sessions
Length of sessions	1 – 4 hours

Table 3. Monitoring and Incentive Mechanisms

Project Cycle	Monitoring Structure	Incentive
Project cycle 1	**Email notifications** Before deadlines: The M&E officer sent each team an email two days before each deadline. After deadlines: The M&E officer sent emails to teams that were yet to submit their assignment on the LMS prior to the arranged meeting.	**Internship opportunity** Internship award was conditioned on a perfect attendance score by attending the two project meetings in the cycle and submitting all assignments related to Project cycle 1
Project cycle 2	**Telephone calls** Before deadlines: The M&E officer called each team lead two days before each deadline. After deadlines: The M&E officer called teams that were yet to submit their assignment on the LMS prior to the session.	**Perks: Airtime and lunch** Project cycle 2 offered airtime and lunch to every participant who showed up for a project cycle meeting.
Project cycle 3	**Coaching via WhatsApp** Before and after deadlines: The M&E officer joined the WhatsApp group of each team in the treatment group. The M&E officer provided reminders on upcoming deadlines, answered questions, asked for feedback on projects, and initiated discussions among team members	**Cash prize** A cash prize to the best performing team. The best performing team was selected on the basis of attendance, submission of tasks and innovativeness of solution.

4. Results

Descriptive Analysis

Quantitative data on engagement was organized in line with Mandernach's (2015) engagement measurement model under three headings; namely: behavioural, affective, and cognitive. A review of the data collected revealed that some participants failed to input data on some of the indicators under behavioural and affective engagement since it was self-recorded.

Behavioural engagement was measured using frequency of tutoring others, frequency of asking questions and frequency of attendance. Figure 1 below represents the level of behavioural engagement for participants in the treatment group. The chart indicates that 17 participants attended at least one of the 10 sessions. Individual attendance was encouraging with one person attending all 10 sessions and four other participants making it to 9, 8 and 7 sessions respectively. The rest of the participants attended less than 5 sessions. Overall, 8 out of the 17 participants asked

questions in the sessions but only 3 made an effort to tutor others by answering questions and making comments.

Findings from the study shows the behavioural engagement levels for the 11 out of 20 participants in the control group who engaged with the training on a behavioural level. Individual attendance was recorded at a minimum of 1 and a maximum of 7. This means there was no individual who attended all 10 sessions. Additionally, over the course of the training only 7 out of these 11 participants asked questions in class while 3 made an effort to tutor others by answering questions or making comments. Behaviourally, most participants engaged mainly through attendance. Additionally, we observe that participants engaged a lot more by asking questions than supporting their peers in learning.

Fig. 1. Level of behavioural engagement of participants in the treatment group

Attendance for the treatment and control groups as shown in Figure 2 indicates a higher attendance rate for the treatment group in comparison to the control group at the start of the training. However, attendance levels increased for both groups over a short period and then dropped for a number of sessions. While this decreases continued steadily for participants in the control group, the graph shows that attendance level picked up again for the treatment group.

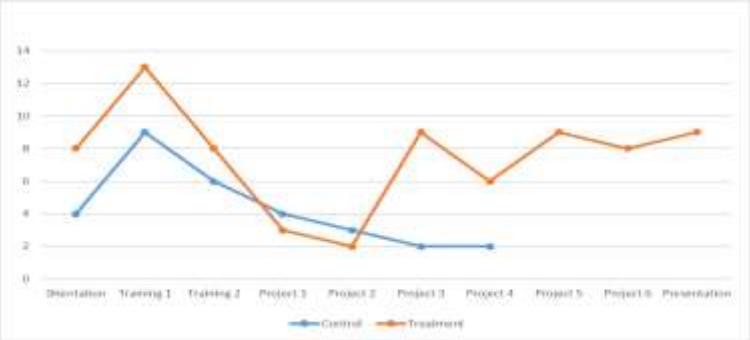

Fig. 2. Comparison of behavioural engagement in control and treatment groups

Figure 3 below shows an illustration of the level of cognitive engagement that treatment group participants displayed. According to the chart, all 11 respondents submitted assignments on higher order thinking skills. However, only 2 of the respondents submitted several reflection assignments. For instance, participant S submitted 11 higher order thinking skills assignments while participant A submitted only 1. Efforts made by most participants for the practical assignment submission were generally below average, with the highest being 5 submissions considering that a total of 12 practical assignments were given throughout the training. For the control group, cognitive engagement was observed for 6 participants, but this was relatively lower than the treatment group.

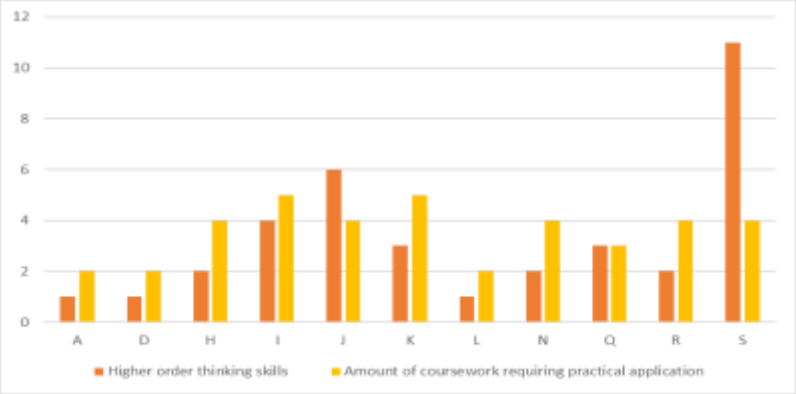

Fig. 3. Comparison of behavioural engagement in control and treatment groups

Findings from the study show that six out of the seventeen participants in the treatment group demonstrated affective engagement by giving more than 20 hours of their time to the training. Additionally, in terms of participants' commitment to work harder, measured by the amount of evidence submitted to support the completion of the real-life engagement assignment and the number of requirements in the reflection guide they addressed, we found mixed results. Although the percentage of participants who demonstrated effort to work harder to meet instructor expectations was higher than that of the control, the level of effort made by the few participants in the control group was greater than that of those in the treatment group.

T-test Analysis

To validate the observations above on the dynamics of the effect of different monitoring and incentive structures on engagement, we conducted a t-test analysis. The results of the t-test, as shown in Table 4, indicate a significant difference between the control and treatment group regarding all engagement variables ($p < 0.05$) tested except for efforts made by students to meet instructor expectations where the p-value was greater than 0.05. This shows that overall, the incentives that were put in place made a significant difference in attaining the project objective of greater engagement measured by all variables of interest except for the effort that both groups made to meet instructor expectations.

This finding could be because this engagement variable required participants to engage in activities which were relatively more tasking than the other activities. The task required students to engage with real-life to provide real-life evidence in support of the activity. This engagement variable required participants to leverage a wide range of skills, including interpersonal, questioning, and cognitive skills. Additionally, it generally required a higher time commitment in comparison to the other tasks. We also considered it important to further break down the data into sub samples to enable us to better understand the effect of each intervention on engagement for both the control and treatment groups, with the results shown in Table 5.

Table 4. Paired T-test results-Complete Project Data

Variables	Control Group		Treatment Group		
	Mean	Std. Error	Mean	Std. Error	P Values
Attendance	0.433	0.135	0.967	0.141	0.0072
Tutoring Others	0.183	0.115	1.217	0.295	0.0017
Asking Questions	0.2	0.1422	0.152	0.304	0.0002
Number of HoTS	0.1	0.0391	0.6	0.1526	0.0023
Practical Assignments	0.267	0.134	0.933	0.174	0.0031
Time Invested	1.733	0.541	4.667	0.687	0.0011
Effort to meet Expectation	0.3	0.210	0.57	0.175	0.3321

Table 5. Paired T-test results by Project Cycle

Variable	Treatement (Mean)	Control (Mean)	diff	St. Err	t-value	p-value
Project Cycle 1						
Attendance	1.3	1.1	0.2	0.447	0.45	0.657
Tutoring Others	1.5	0.55	0.95	0.726	1.3	0.201
Asking Questions	2.15	0.6	1.55	0.81	1.9	0.065
Number of HoTS	0.8	0.3	0.5	0.346	1.45	0.162
Practical Assignments	1.2	0.5	0.7	0.482	1.45	0.154
Time Invested	5.2	4.4	0.8	1.789	0.45	0.657
Efforts to meet Expectations	0.3	0.9	-0.6	0.64	-0.95	0.359
Project Cycle 2						
Attendance	0.75	0.2	0.55	0.246	2.2	0.032
Tutoring Others	0.85	0	0.85	0.365	2.3	0.031
Asking Questions	1.55	0	1.55	0.505	3.07	0.006
Number of HoTS	0.79	0	0.79	0.30	2.62	0.0175
Practical Assignments	1.2	0.3	0.9	0.395	2.28	0.03
Time Invested	3.82	0.8	3	1.23	2.43	0.022
Effort to meet Expectation	1.4	0	1.4	0.45	3.11	0.0057
Project Cycle 3						
Attendance	0.85	0	0.85	0.221	3.8	0.0011
Tutoring Others	1.3	0	1.3	0.503	2.58	0.0182
Asking Questions	0.85	0	0.85	0.28	3.0	0.0074
Number of HoTS	0.25	0	0.25	0.123	2.03	0.0563
Practical Assignments	0.4	0	0.4	0.184	2.18	0.154
Time Invested	5	0	5	1.33	3.77	0.0013
Effort to meet Expectation	-	-	-	-	-	-

In Project Cycle 1 there was no significant difference in the levels of engagement between the treatment and control groups measured at a significance level of $p<0.05$. This finding could be because at the onset of the project, participants in both the treatment and control group were running on their internal motivation and willing to fully engage and benefit from the training. In this event, we surmise that at the start of the project, the effect of the intrinsic motivation outweighed the effect of the incentives/monitoring tool put in place because participants perceived specific benefits they will derive like skills development, experiential learning, and networking opportunities.

Additionally, it appears from findings in the qualitative aspect of the study (as explained below) that the implementation of project cycle 1 occurred at a time in the semester when academic demands in the form of quizzes, practical work and assignments were less. This presents very useful feedback about the timing of incentives and monitoring activities. We observe that in Project Cycle two, across all engagement variables, there is a drop in the level of engagement for both the treatment and control group. However, we also observe a significant difference between engagement in the treatment group in comparison to the control group for Project cycle 2; contrary to what was observed for Project cycle 1 where there was generally no significant difference in levels of engagement of the two groups.

Specifically, there was a significant difference in attendance ($p = 0.032$) between the two groups, indicating that a significantly higher number of participants attended sessions in the treatment group than in the control group. This trend runs across all variables tested, and we infer that at this stage in the training programme, the phone calls placed, the internet data, and the lunch coupons provided significantly altered engagement across both groups. Although incentives

were not very effective at the start of the project, they were more effective as the training progressed. As the project advanced and external pressures from academic work increased, the internal motivation waned, and extrinsic motivation in the form of incentives and monitoring activities became effective. Similar patterns were observed in project cycle three; an observation of the means across the engagement variable in project cycle 3 showed that engagement from the control group dropped even further to a point where it could be described as non-existent.

We also find a mixed pattern in the level of engagement for the treatment group across the project cycles. While in project cycle 2, there was a clear drop in engagement across all variables for the treatment group, we observe that in the third project cycle, there were mixed patterns in levels of engagement when compared to project cycle 2. The mean values for attendance, tutoring and time invested increased when compared with the mean values for the same variables in project cycle 2. Thus, we infer that the use of incentives and monitoring mechanisms proved effective in sustaining and even improving engagement in the treatment group as the training progressed.

Qualitative Evidence

All the participants interviewed acknowledged facing some challenges in the course of the training. All participants faced challenges with timing. In most cases, the training time clashed with academic activities which sometimes involved courses that were considered very important by students to their academic progression; thus, leading to a decision to skip the training session. In one instance, a participant explained having to make intermittent trade-offs between the training and his maths class. He explains:

"Sometimes I had to sacrifice class for the training and the training for class."

Due to these clashes, some of the participants reached out to the training team to either ask for permission or request for rescheduling of training. For one respondent, the reason for his unavailability was personal as he engaged in other co-curricular activities. Another respondent also explained that it was difficult meeting the time needs of everyone due to programme specialization and academic level diversity. A few students who chose to miss sessions due to clashes with academic work tried to catch up through discussions with their peers.

Some participants also raised the issue of communication gaps. They were unable to participate because they did not read email communications. Further, monitoring mechanisms like phone calls were reported by one of the respondents to have been a trigger for re-engagement after a period of dormancy. Regarding incentives, findings from the study indicated that most participants appreciated the airtime and lunch incentives introduced in the second project cycle. Specifically, these participants expressed their concern about the long hours they spent at the training which caused them to skip lunch because they mostly had back-to-back lectures. One respondent explained:

"I mostly skipped lunch because I had to rush to the training venue from my last lecture for the day and didn't want to run late for the training."

Another respondent also appreciated that serving lunch at the training made her save money for some pressing needs. Respondents also purported that the provision of airtime for internet data bundles helped them get access to the internet at their convenience. The incentive that featured second was the cash prize for the best-performing team during the final presentation. Participants asserted that they put much effort into working on the last presentation because of the prize that was attached to winning. One respondent recalled:

"I enjoyed the last project because the cash prize boosted my efforts to push hard."

Another respondent exclaimed:

"The cash prize motivated me to work hard, and I wished my team won."

Lastly, the opportunity for the best-engaged participants to join the junior consultancy programme was considered the least appreciated incentive. Only one respondent mentioned that she *"put in much effort because she wanted to be associated with the junior consultancy programme."*

Regarding monitoring, it was evident from the study that participants considered WhatsApp monitoring to be the most preferred. Participants mentioned that information from the monitoring officer was swift as compared to the other monitoring mechanisms. One respondent emphasized:

"Information always came on time and there were no challenges receiving the information."

Participants established that on the WhatsApp platform, all the issues they brought up were addressed. Participants also indicated that they never missed information on the WhatsApp platform since it will always be there for their reference. Next on the monitoring mechanisms were the phone calls. Participants who appreciated phone calls asserted that the phone calls served as a wake-up call to attend the next training. Only one participant highlighted that the email reminders worked for him because he frequently checked his mail.

5. Discussion

Our findings show that incentivization enhanced student engagement with the course in line with findings observed in the literature (Collins et al., 2008; Angrist, 2009; Shaker et al., 2023). Nevertheless, the study observes higher levels of behavioural engagement in comparison to affective and cognitive engagement. Additionally, increased engagement as a result of incentives occurred mainly at the behavioural level rather than at cognitive and affective levels. We also identify the important role of timing in incentivization effectiveness. Like Pavetti and Stanley (2016), we found that stressful conditions in the form of pressure from academic work and timetable clashes that call for trade-offs between academic work and co-curricular activities significantly altered the effectiveness of our incentives.

The result of our study also shows that tangible incentives like cash, food, and airtime were more effective in comparison to the intangible reward of an internship opportunity in improving student engagement; thus, suggesting that students prefer tangible rewards and incentives over intangible ones (Xiao, 2023). Moreover, given the socio-economic background of the pool of applicants, we could argue that tangible incentives were more relevant to them. In this vein, Pavetti and Stanley (2016) emphasize the need for incentives to be right-sized for effectiveness.

Our findings contradict arguments made by Schrock et al. (2022) on the usefulness of email notifications for monitoring in virtual learning environments. This may be due to the limited use of email communication in the culture of the studied institution's culture and internet challenges. Therefore, we argue that it is important for management educators to understand the communication culture of students and their institution and use that to shape communication and monitoring mechanisms selected. On the other hand, the results of our study emphasized the important role of technology for monitoring as interviewed participants highlighted real-time benefits that made it easier to keep track of all activities and reminders.

6. Implications for Management Education

Based on the findings of our study, we argue that a training module might require higher or lower levels of behavioural, cognitive, or affective engagement depending on the intended outcomes. Therefore, considering the important role that cognitive and affective learning play in management education (Decker et al., 2015), management educators may benefit from tailoring incentives to specific engagement variables like cognitive and affective learning activities rather than tying them to programme level outcomes.

Additionally, the important role of timing identified in our results brings up the question of what activities to put where and when in the design of a management-relevant skills development course to be implemented in co-curricular settings. Based on our findings, we recommend that cognitive activities that require more effort may be better placed at the beginning of the course for our context when the demands on students from regular academic work are minimal. Alternatively, management educators could implement such training programmes around off-peak periods on

the academic calendar, although this might require intensive interactions over shorter periods to achieve the desired outcomes. Incentive duration could also be tied to periods when students face intense pressure from regular academic work (E.g. quiz writing, revision period and examination writing weeks).

Finally, the results of our study imply that management educators must consider the backgrounds of students in determining the mix of incentives to be used. It is important to note that these tangible incentives come at a cost. In the context of public universities in Ghana, where resources are limited, management educators need to consider their funding options.

7. Conclusion

In this study, we sought to understand how monitoring and incentive mechanisms shape student engagement in a co-curricular design thinking training program. Based on our findings, we conclude that co-curricular activities tend to compete with regular academic work; incentives and monitoring structures could be useful for encouraging engagement. However, the effectiveness of these mechanisms will depend on several other factors, such as timing, participants' backgrounds, and participants' communication culture. Additionally, educators should pay attention to the type of engagement required, i.e., whether behavioural, cognitive or affective and tie incentives intentionally to relevant activities for optimal outcomes.

8. Strengths and Limitations

While this study has many strengths, it is limited in terms of scope and methodology. First, the study focused only on students with a financial support need and an averagely strong cumulative grade point average in their regular academic work. The absence of these two factors could affect how tangible versus intangible incentives played out and the willingness to sacrifice time for co-curricular activities even in times when academic pressure is low; thus, necessitating future studies on students with other backgrounds. Regarding methodology, the use of experimentation allowed for useful comparisons, but controlling for other variables, such as the program studied, could also have been beneficial considering the different demands that different programs make on students.

8. Declarations

Ethics approval and consent to participate

The Internal Review Board of Ashesi University Ghana granted ethics approval for this study under protocol number 52022, All participants provided informed consent.

Consent for publication

Participants consented to the publication of any results arising from their participation in the research.

Availability of data and materials

All data are available in a password-protected file maintained by the researcher.

Conflict of interest statement

The manuscript's authors declare no conflicts of interest and confirm that all consulted literature is duly credited in the text and reference list.

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Authors' contribution

Both authors contributed equally to the designing of the study, data analysis and writing of the manuscript. The first author also took responsibility for data collection.

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