



UNIVERSITEIT VAN PRETORIA
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**ALTERNATIVE ENGAGEMENT AND ASSESSMENT IN ACCOUNTING
EDUCATION**

by

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Submitted in fulfilment of the requirements for the degree

PhD (ACCOUNTING SCIENCES)

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

at the

UNIVERSITY OF PRETORIA

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Date of submission:

13 December 2024

ACKNOWLEDGEMENTS

I would like to begin by expressing my gratitude to my supervisors, Prof Astrid Schmulian and Prof Stephen Coetzee whose guidance, expertise, and support have been instrumental in the completion of this thesis. Their insightful feedback and intellectual stimulation inspired me to push beyond my limits.

I am also immensely grateful to the staff at the University of Pretoria, in particular the Department of Accounting, whose contributions to my research and academic development have been invaluable. Special thanks to Dr Corlia Joynt for her assistance with the implementation of my project and who set an example of dedication and scholarly integrity that will remain a touchstone throughout my academic career.

A heartfelt thank you to my husband, Christiaan, whose constant love, patience, and encouragement carried me through the many challenges I encountered during this journey. His support not only provided the emotional strength I needed but also served as a powerful motivator to maintain focus and discipline in my work. His example of resilience and balance has taught me the importance of perseverance and self-care, which were essential for success. To my family and friends, some very special friends dear to my heart, thank you for your general interest and unwavering support.

This process, have taught me invaluable lessons regarding the human spirit, its' resilience, patience and immense strength, and I am grateful to my Creator for the grace that He granted me and the energy that He instilled in me.



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List of Abbreviations

CLP	=	Customer Loyalty Programme
HEI	=	Higher Education Institution
SDL	=	Self-directed Learning
SDT	=	Self Determination Theory
SLP	=	Student Loyalty Programme
SRL	=	Self-regulated Learning

ABSTRACT

This thesis introduces an innovative Student Loyalty Programme (SLP), inspired by commercial customer loyalty programmes, aimed at enhancing students' sustained commitment to their studies in accounting education. Grounded in Self-Determination Theory, which traditionally emphasises intrinsic motivation, this thesis explores the strategic use of extrinsic motivators to develop effective learning habits that ultimately support and enhance intrinsic motivation. Specifically, this thesis explores how gamification can align students' motivation with behaviours conducive to improved participation and active engagement. Habits, understood as automated responses to repeated behaviours, play a crucial role in maintaining student engagement, especially when intrinsic motivation varies. Drawing on marketing principles, this thesis details the design and implementation of the SLP, establishing parallels with customer loyalty programmes. The methodology employs a mixed-methods approach, analysing quantitative data on student participation and active engagement and a combination of quantitative and qualitative feedback on the students' experience of the SLP. Students reported general satisfaction with the usability of the system as well as improved motivation and active engagement with the SLP, highlighting the practical benefits of integrating gamification into an educational setting. This comprehensive approach not only enriches our understanding of student motivation and habit formation but also extends the application of gamification from the commercial to an education context. In conclusion, this thesis lays the foundation for structured gamified educational programmes that can foster enhanced students' motivation, effective learning habits, and improved academic outcomes.

Keywords: engagement; gamification; learning habits; loyalty programmes; motivation; participation.

1. CHAPTER 1: INTRODUCTION

This thesis reports on the design and implementation of a Student Loyalty Programme (SLP) aimed at motivating accounting students to participate in learning activities and supporting them in developing effective learning habits as an initial step towards becoming self-directed learners. The SLP may be especially valuable in large classes, where individual engagement and motivation can be challenging to foster and sustain. Inspired by Customer Loyalty Programmes (CLP) that reward customers for their continued engagement and loyalty, the SLP rewards students for their learning behaviours. Central to the SLP is the development of effective learning habits, which mirrors the way CLPs encourage repeat engagement to build customer loyalty, supporting accounting students in becoming self-directed learners.

1.1 Background

The purpose of the SLP is to motivate accounting students to participate in learning activities and to support them in the process of developing effective learning habits as an initial step towards becoming self-directed learners. Much like CLPs in a business context, which aim to create habitual engagement through rewards and incentives, the SLP focuses on motivating and rewarding participation to enable students to carry out key learning behaviours habitually within a self-regulated programme, thus reducing the initial effort associated with new or complex tasks, and allowing them to focus more on self-directed aspects of their learning. Habits refer to an individual's memory-based tendency to execute specific behaviours automatically due to familiarity from past experiences in similar contexts (Entwistle and Thompson, 1974). The unforced nature of habit formation makes it difficult for people to suppress habitual behaviours or to engage in alternative behaviours due to the increased efforts required to intentionally choose a less familiar path (Verplanken, 2006; Wood and Verplanken, 2006; Tobias, 2009).

In an educational context, the development of effective learning habits – such as maintaining regular study routines or actively participating in class – allows students to engage in well-established learning behaviours efficiently with minimal attentiveness, and enable the concurrent performance of other tasks (Henderson,

Beck and Palmatier, 2011). When students automate effective habits, they free resources (Carter, Bishop and Kravits, 2011), enhancing their capacity to manage the self-directed learning process effectively. The SLP is designed with this cognitive principle in mind, aiming to develop effective learning habits.

Self-directed learning (SDL) is defined as “a process in which individuals take the initiative, with or without the help of others, to diagnose their learning needs, formulate learning goals, identify human and material resources for learning, choose and implement the appropriate learning strategies, and then evaluate their learning outcome” (Knowles, 1975, p. 18). SDL is essential, as students must be able to direct their own learning in a rapidly evolving society (Behn *et al.*, 2012; Kereluik *et al.*, 2013). Unfortunately, many students are not self-directed learners (Kidane, Roebertsen and Van Der Vleuten, 2020; Butler *et al.*, 2021) and need feedback to enable them to become self-directed learners (Loyens, Magda and Rikers, 2008; Zimmerman, 2008; Cook and Artino, 2016).

Self-Determination Theory (SDT) serves as a foundational framework, supporting the principals of SDL. SDT posits that intrinsic motivation, arising from genuine interest and personal satisfaction in mastering a subject, is a crucial driver of learning (Ryan and Deci, 2000). Although students with intrinsic motivation typically achieve more effective learning (Bonk and Lee, 2017; Gandomkar and Sandars, 2018), their motivation may not consistently persist, across different subjects or tasks (Kidane, Roebertsen and Van Der Vleuten, 2020), particularly for novice students. These novice students require initial extrinsic motivation as part of their development as self-directed learners (Bonk and Lee, 2017). The autonomy in their actions affects their behaviours towards persistence in learning which aligns with the principles of SDT (Ryan and Vansteenkiste, 2023). Self-directed learners may need assistance, from instructors for example, in maintaining motivational levels as well as the choice and implementation of effective learning strategies (Knowles, 1975).

Gamification can play a crucial role in supporting the development of self-directed learners by offering structured motivational boosts and providing a framework for strategic learning (Zainuddin *et al.*, 2020). Such a strategic approach to learning is referred to as a self-regulated learning process (Barnard-Brak *et al.*, 2010; Becker, 2013; Ning and Downing, 2015; Zimmerman, 2008). Similar to customer loyalty programmes, which reward repeated customer engagement with points and incentives, educational gamification incorporates game elements such as points,

levels, and badges, to maintain motivation over time and to support the process of establishing effective learning habits (Deterding *et al.*, 2011; Subhash and Cudney, 2018).

The SLP, discussed in this thesis, uses gamification to motivate accounting students to participate in learning activities by linking students' motivation with actionable steps that encourage specific behaviours to develop the effective learning habits (Subhash and Cudney, 2018) essential for becoming a self-directed learner. Gamification elements, such as rewards, serve as feedback mechanisms that drive learning outcomes (Zainuddin *et al.*, 2020), enhance motivation, and promote the development of effective learning habits (Kapp, 2012; Villagrasa *et al.*, 2014; Kirillov, 2016; Barata *et al.*, 2017; Baydas and Cicek, 2019), all within a structured environment where students can gradually assume more responsibility for their learning, moving towards SDL.

1.2 Problem statement

Many novice students, entering higher education, are not self-directed learners and exhibit low motivation and poor engagement levels (Kyewski and Krämer, 2018), contributing to poor academic performance (Joynt, 2023). In addition to the, already lacking, student profile discussed, the demands from the accounting profession on higher education to produce “work ready” graduates (Herbert *et al.*, 2021) who exhibits a number of competencies and skills (SAICA, 2021) to address the growing demands on the profession, poses additional challenges. Therefore, these first-year students require support to change their behaviours and establish more effective learning habits to consistently enhance their academic performance throughout their academic career.

Instructors at higher education institutions (HEI) provide this support for students, and in accounting specifically, need to adopt a new role (Herbert *et al.*, 2021), from transferring volumes of technical knowledge to becoming facilitators in the development of competencies, as well as acting as mentors to students entering higher education on their self-regulated journey towards becoming self-directed learners. The pressures on these instructors are further intensified by large cohorts of

students, in accounting studies specifically (Ling, Li and Md Deni, 2019), as well as the continued massification of higher education in South Africa (Nyagope, 2024).

South African HEIs continue to face significant challenges in student retention and academic success, particularly within introductory accounting courses. Universities are becoming more efficient, with improved throughput rates from 2021 to 2024, yet less than one-third of first-time students complete degrees within three years (Khuluvhe, Netshifhefhe and Gwantshu, 2024), a figure that highlights the vulnerability of students during the transition into higher education. These figures underscore the structural and academic obstacles that persist across institutions, particularly for students from disadvantaged educational backgrounds.

Despite an average undergraduate course pass rate of 85% in 2021 (Khuluvhe, Netshifhefhe and Gwantshu, 2024), this metric alone obscures the deep-seated retention problems that disproportionately affect first-year accounting courses. Introductory financial accounting modules are often associated with lower pass rates, typically between 50% and 70%, due to factors such as insufficient prior academic preparation, language barriers, and the abstract nature of accounting content (Brook and Roberts, 2021). These challenges are aggravated by large classes and limited student support, resulting in a high number of withdrawals in the initial years of the degree.

HEIs today are facing extraordinary financial constraints that heighten the need to attract, retain, and deliver graduating students specifically for the rapidly evolving accounting profession. (Spiceland, Spiceland and Schaeffer, 2015). Addressing these outcomes is critical not only for academic success but also for ensuring financial sustainability in HEIs, as universities are increasingly compelled to retain and graduate students in order to secure funding and meet performance targets.

The problem statement addressed in this thesis: South African HEIs face high attrition and low pass rates in first-year accounting courses, due to underprepared students, limited support structures, and increasing professional demands for “work-ready” graduates necessitating effective, student-centred interventions to foster self-directed learning and academic success.

The development of the SLP, a programme that integrates student motivation, habit-building, and self-regulated learning processes towards self-directedness in a cohesive way is at the core of this study. The SLP’s design and functional elements are inspired by that of CLPs, incorporating gamification.

1.3 Ontology and epistemological stance

This thesis employs a dual ontological approach, blending elements of realism and constructivism, to explore the design and implementation of an SLP to motivate students to participate in learning activities and supporting them in the process of developing effective learning habits. In this context, realism, informed by operant conditioning theory, emphasises observable behaviours and the influence of external stimuli (Mcleod, 2015), while constructivism, framed by SDT, considers both measurable external factors and the intrinsic motivations underlying these behaviours (Ryan and Deci, 2002; Bouvier, Lavoué and Sehaba, 2014).

Behaviourism, a realist perspective, asserts that behaviours are not only observable but also quantifiable, offering a methodical approach to studying human actions (Skinner, 1974). Behaviourism, within the context of gamification, emphasises the role of external reinforcements, such as rewards, in shaping and modifying student behaviours (Skinner, 1963). These reinforcements are strategically applied through the SLP, to motivate students to participate in learning activities and to support them in the process of developing effective learning habits. Furthermore, SDT complements behaviourism by addressing the intrinsic psychosocial needs for autonomy, competence, and relatedness, essential for developing intrinsic motivation (Ryan and Deci, 2002).

SDT suggests that fulfilling intrinsic psychosocial needs is essential for encouraging intrinsic motivation, which is a critical driver of habit formation (Ryan and Deci, 2002). The SLP, grounded in SDT, endeavours to meet these needs by offering students autonomy in their learning through choices and challenges, competence through clear feedback and achievable tasks, and relatedness through the communal aspects of the learning environment. This holistic approach ensures that the SLP not only supports the external modification of behaviours but also nurtures an internal desire to learn, thereby promoting SDL (Zimmerman and Schunk, 2011).

The gamified design of the SLP is underpinned by operant conditioning's emphasis on behaviour modification through external rewards, while also incorporating the principles of SDT to address the internal motivators that drive self-regulation. This dual-theoretical approach is embedded within the SLP to create a learning environment that supports the process of habit formation and the development of self-directed learners.

Through the lens of constructivism, SDT is contextualised within a broader narrative where students are seen as active agents in cultivating their motivation and behaviour (Linley and Joseph, 2004). This perspective echoes the constructivist belief in the student's central role in co-creating their learning experiences (Fosnot and Perry, 1996), which inherently involves self-directedness (Zimmerman and Schunk, 2011). Bruner's concept of "scaffolding" aligns with this view, emphasizing adaptive instructional support to nurture the learner's growing independence (Anghileri, 2006; Abraham and Jones, 2016). In the context of this thesis, instructor support is provided through feedback within a gamified SLP, aligning with the dynamic process of scaffolding, and designed to foster SDL.

Instructors play a pivotal role in shaping how students perceive their independence, competence, and motivation. These perceptions are deeply influenced by students' interactions with their learning environment. Constructivists emphasize the importance of creating a supportive and student-centred educational environment (Krahenbuhl, 2016), which aligns with the principles of SDT. Such an environment encourages students to actively engage in constructing their learning path, fostering motivation and behaviour that align with their individual values and aspirations, thus promoting the development of self-directed learners (Knowles, 1975; Bonk and Lee, 2017).

After considering the above-mentioned educational environment in the design of the SLP, the student's motivation towards participation in learning activities and active engagement with the SLP is also explored. Just as marketing and business disciplines study consumer behaviour and motivation from a realist perspective to discern tangible measures of observable behaviours in the business domain, this thesis employs a similar approach in the education domain.

Drawing from Dewey's concept of "pluralistic realism", which advocates for connecting education to students' real-world experiences (Garrison, 1994; Prawat, 2002), this thesis exposes students to the commonalities between consumer motivation and their learning processes. Participation in an SLP, designed with educational outcomes in mind, allows students to experience first-hand the principles of consumer motivation from the real world, translated for application in an education context.

Constructivism suggests that student motivation and behaviour are also influenced by their perspectives and interactions with the educational environment. By

combining objective observations of student behaviour (rooted in realism), with subjective accounts from student surveys (reflecting constructivism) this thesis seeks to provide valuable insights into the students' experiences. This dual approach allows for a nuanced analysis of how the educational environment, instructors and individual psychosocial needs influence student motivation and behaviour.

Grounding this thesis in the intertwined ontologies of realism and constructivism provides a comprehensive framework for a pragmatic investigation. Pragmatism, as an epistemological stance, prioritizes the practicality and usefulness of ideas and theories, emphasizing their real-world effects (Dewey, 1916; James, 1975). This approach values the tangible outcomes of knowledge applied in real-life scenarios, aligning with Dewey's advocacy for experiential learning and the significance of participation in and active engagement with learning activities to shape behaviour. Dewey's emphasis on the integration of theory and practice (Dewey, 1910; Garrison, 1994) provides a foundation for the design and implementation of a gamified rewards programme, rooted in SDT. Pragmatism in studies of accounting as a multidimensional discipline is evident from the literature (Gallhofer and Haslam, 2019) and this orientation has shaped the formulation of the research objectives and questions of this thesis.

1.4 Research objective(s) and question(s)

The objective of this thesis is to report on the design and effective implementation of a SLP:

- That leverages gamification to enhance accounting students' motivation and participation in learning activities;
- Which impacts, by means of external reinforcements (e.g., rewards) within the SLP, on student participation in learning activities and active engagement with the SLP;
- Providing first-year accounting students with access to a structured, gamified programme that supports their development as self-directed learners, and enhances their academic performance; and
- To empower accounting instructors, particularly those without formal education training (Wolcott and Sargent, 2021) and limited time, to make informed decisions about adopting the SLP or similar gamified programmes in their teaching practices.

The design of the SLP was informed by the following design questions:

DQ1: Which learning behaviours should be rewarded?

DQ2: What types of rewards should the SLP offer to potentially influence the students' participation in learning activities?

DQ3: Which reward schedule(s) should be adopted to influence the students' participation in learning activities?

DQ4: How should rewards be weighted based on the significance of different learning activities?

Following the design and implementation of the SLP the students' experiences, as end users, were evaluated based on the following research questions:

RQ1: What was the level of student participation in the learning activities within the SLP?

RQ2: To what extent did students actively engage with the SLP?

Participation versus Engagement

Prior studies have been performed on student participation and engagement in the learning process, however, there is not a consensus on the exact definitions of these concepts (Da Rocha Seixas, Gomes and De Melo Filho, 2016). In an educational contexts, participation has been represented by attempts at the learning activities (Barba *et al.*, 2016; Scales *et al.*, 2016), while engagement displays an increased level of involvement that the students display toward the learning activities (Laine and Lindberg, 2020). For purposes of this thesis participation in the SLP activities was defined as students who at least attempted the learning activities, while engagement with the SLP required a level of performance for each learning activity to qualify for redemption of the reward (Bean).

Distinction between extrinsically motivated engagement and intrinsically motivated engagement is made during the design of gamified educational programmes (Laine and Lindberg, 2020). These engagements produce different results, especially when student perseverance in the specific behaviour towards habit formation is the aim of the SLP. Extrinsic engagement is characterised by rewards that originate from an external source, facilitating initial participation through incentives provided by the programme. This form of engagement is relatively straightforward to initiate, yet poses challenges in sustaining commitment. Conversely, intrinsically motivated engagement derives from design motivators (Laine and Lindberg, 2020) such as control, challenge, progression, novelty, usefulness and immediate feedback which was considered during the design and implementation of the SLP. Intrinsically motivated engagement can result in the fulfillment of psychological needs, in line with SDT (Ryan and Deci, 2002) which forms the foundation for the development of self-directed students.

During the design and implementation phase of the SLP (Table 3) the various learning activities that offered rewards resulted in different levels of motivation towards participation and engagement. It was observed that not all the students who participated in the learning activities, showed ample engagement to qualify for the reward (Beans) associated with them. Consequently, not all could redeem their Beans, leading to a discrepancy between participation and active engagement.

To explore the students' engagement with the SLP, participation and engagement indicators commonly used in CLPs, as outlined in the marketing literature, were adapted for an educational context. These indicators include

participation rates and active engagement rates (Bruneau *et al.*, 2018; Van Asperen *et al.*, 2018). Additionally, the repeat purchase rate for CLPs was adapted as repeat engagement rate for educational context (Chiu *et al.*, 2012).

Given the merging of educational and customer engagement concepts, in this thesis, 'engagement' encompasses two distinct yet interrelated dimensions within the SLP.

- Indirect engagement refers to the student's participation in learning activities that yield rewards.
- Direct engagement refers to the student's active engagement with the SLP through their qualification for and redemption of rewards earned.

This dual conceptualisation captures the full spectrum of student interaction with the SLP, from the motivation to participate in the linked learning activities to the tangible actions with the rewards system of the SLP.

Student engagement is a strong predictor of student achievement (Dotterer and Lowe, 2011; Finn, 2013) and has been correlated with higher academic achievement and securing future employment (Harbour *et al.*, 2015). Engaged students typically encounter more opportunities to deepen their knowledge and understanding of concepts (Brophy, 1986). Understanding whether the students' engagement with the SLP correlates with academic performance provides insight into the programme's effectiveness in supporting students (Van der Meer, Scott and Pratt, 2018, Giráldez *et al.*, 2022; Parody *et al.*, 2022). This gives rise to the following research question:

RQ3: Does a correlation exist between students' active engagement with the SLP and academic performance?

In addition to engagement, the marketing literature also considers customer satisfaction with a loyalty programme, as an indicator of a successful CLP (Zaki *et al.*, 2016; Fisher and Kordupleski, 2019). This consideration informs the next research question:

RQ4: How did the students experience the implementation of the SLP?

Focusing on the students' subjective experiences, this question seeks to understand their personal and emotional responses to the SLP, which is essential for fostering a motivating learning environment. Insights from this question will guide the optimisation of the SLP, ensuring that it not only engages but also meets the psychological and educational needs of students, promoting the development of

deeper and more effective learning habits, towards ultimately becoming self-directed learners.

1.5 Conceptual Framework

Due to the novel nature of a SLP this thesis initially constructed a tentative conceptual framework (Varpio *et al.*, 2020), recognising that it will likely need to be adjusted as findings transform the understanding of the phenomenon. The initial conceptual framework will briefly be discussed by providing the following:

- a summary of relevant theories and the relevant literature,
- an explanation of the relevance of the research in the selected context, and
- justification for the overall research methodology selected.

Summary of relevant theories

The conceptual framework for this thesis connects multiple theoretical perspectives to explain the relationships between concepts and variables within a study, in this case, a gamified SLP. Unlike a single-theory-driven theoretical framework, this approach is integrative and applied combining psychological, behavioural, and pedagogical theories that have been proven effective in both educational and commercial loyalty contexts. The central goal of the SLP is to foster student motivation, participation and habitual engagement, in learning activities through a gamified system. The design and expected outcomes of the SLP are informed by four major strands of theory, each of which has also been used to underpin habit-based CLP:

Operant Conditioning and Habitual behaviour

Skinner's operant conditioning (Skinner, 1965) emphasises how positive reinforcement, like rewards, strengthens desired behaviours. Similarly, Thorndike's Law of Effect (Thorndike, 1913) forms the basis of the habit loop, which includes: cue (stimulus/trigger), routine (behaviour) and reward (positive reinforcement).

This model is widely used in habit-based CLP, for instance, in online loyalty apps, daily check-ins (cue) prompt engagement (routine), which is rewarded by points or discounts (reward). Research in gamified loyalty systems confirms that this cue–routine–reward cycle is critical to habit formation and repetitive engagement. In an

educational context, weekly task notifications serve as cues, student participation in learning activities is the routine, and gamified incentives like badges, points and leader board visibility act as rewards, encouraging repeated behaviour which translates to active engagement and eventual habit formation.

Motivation through the lens of Self-Determination Theory (SDT)

SDT (Ryan and Deci, 2000) posits that intrinsic motivation is most effectively activated when three psychological needs are met: autonomy, as having control over one's choices; competence, implying to feel effective and capable; and relatedness or feeling connected to others. In customer loyalty programmes, these are often embedded via customisable reward paths (autonomy), visible progress indicators (competence), and social components like referrals or team-based challenges (relatedness). For example, gamified e-commerce platforms use leader boards and goal-setting features to satisfy these needs, which directly translate to the educational context as student-selected learning activities, rewards, and progress dashboards.

Self-Directed Learning (SDL)

SDL reflects a learner's ability to set learning goals, select strategies, monitor progress, and evaluate outcomes (Knowles, 1975). In customer contexts, this aligns with personalised loyalty journeys where users can choose tasks or challenges that reflect their preferences for example: fitness apps or reward tiers in platforms like Vitality and Starbucks rewards. In a gamified SLP, students can embark on a similar goal-driven, autonomous learning journey, choosing when and how to complete learning activities. This echoes how successful loyalty programmes allow customers to “own” their reward path, reinforcing engagement through personal agency.

Self-Regulated Learning (SRL)

SRL, as articulated by Zimmerman (2008), integrates metacognitive elements in on a procedural level as the following stages: forethought to include planning and goal-setting, performance which is self-monitored by the students and finally, self-reflection where students evaluating performance and adjusting their behaviour accordingly. this process is mirrored in adaptive commercial loyalty platforms that use behavioural analytics to help users reflect on progress (e.g., weekly activity summaries or streaks). Likewise, the SLP could use a gamified dashboard (incorporated in the Learning

Management System (LMS) to prompt reflection, goal revision, and self-monitoring encouraging deeper and sustained learning behaviours.

All four theories have been used extensively in gamified CLPs across industries where they provide theoretical lenses to explain why customers return, participate regularly, and stay loyal. This approach is now being translated into an education context to address the challenge of low student motivation and disengagement. By mirroring what works in habit-based customer loyalty, cue-driven routines, rewarding systems, autonomy-supportive environments, and reflective self-regulation, the SLP aimed to create meaningful and sustainable learning habits towards self-directed learning.

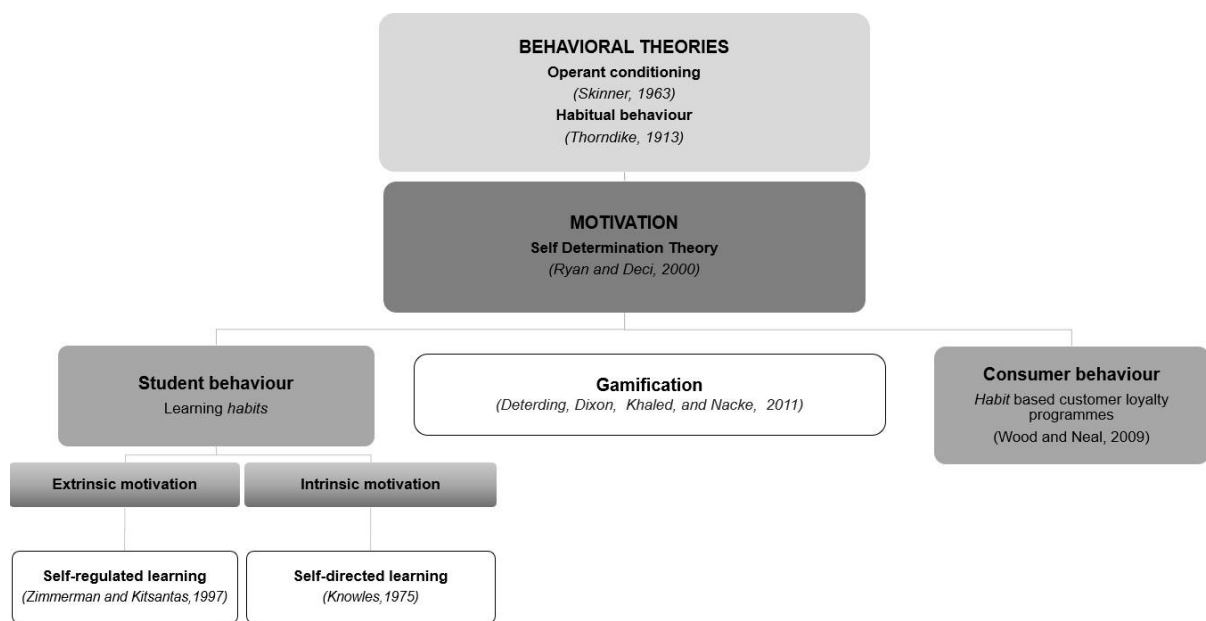


Figure 1 Initial conceptual framework

The relevance of the research in the Accounting Education context

Research into SLPs in the field of accounting education is timely, considering changes regarding technology application in accounting education and the changing demands on individuals entering the accounting profession. Research in this regard is also relevant, particularly when conceptualised through the lens of established customer loyalty frameworks. In a customer-focused contexts, loyalty programmes are strategically designed to drive repeat engagement by appealing to intrinsic and extrinsic motivational triggers, principles that are highly transferable to the educational setting.

Accounting students, like customers, make repeated decisions about participation, effort, and persistence in their behaviours, especially in contexts where the subject matter is perceived as challenging. By incorporating principles from gamified CLPs such as reward structures, habit loops, and personalised engagement, SLPs can be designed to encourage sustained academic effort, foster intrinsic motivation, and cultivate a sense of belonging within academic communities.

Both students and customers respond to similar motivational mechanisms, as explained by Self-Determination Theory (Deci and Ryan, 2000). This theory, frequently applied in both marketing and educational psychology, suggests that autonomy, competence, and relatedness are essential for maintaining intrinsic motivation. In CLPs, these needs are addressed through elements like personalised pathways, progressive reward tiers, and social recognition, features that can be mirrored in educational gamification to support learner autonomy and growth. Similarly, Operant Conditioning (Skinner, 1953) and the habit-formation model, including Thorndike's Law of Effect, explain how behaviour is shaped by consistent reinforcement, which in customer loyalty translates into habitual purchases, and in education could translate into regular study behaviour. Integrating these behavioural principles into SLPs may therefore enhance academic participation and active engagement, as well as retention in introductory accounting programmes.

Furthermore, the design and implementation of such a rewards programme for align with recent calls in accounting education for more student-centred and self-regulated learning environments. Just as CLPs are increasingly data-driven and responsive to individual behaviour, SLPs can leverage feedback loops and gamified analytics to support students in monitoring their own progress, setting academic goals, and engaging more actively with the curriculum towards self-directedness. The relevance of this research is underscored by the parallel shifts in both sectors towards digital transformation and personalisation. By understanding students through the same behavioural and motivational frameworks used to study consumer loyalty, facilitators can better design interventions that resonate with learners' psychological needs and habitual tendencies, ultimately contributing to improved academic outcomes and sustained engagement in accounting education.

Overview of relevant literature

In the literature review that follows this chapter a more extensive discussion on the relevant literature regarding the theoretical basis for the thesis is discussed and also includes relevant literature on rewards as a form of feedback and habitual behaviour in general. This is followed by literature on Customer Loyalty Programmes in general. Gamification of CLPs as well as the application of gamified strategies in an educational context is included as relevant literature to conclude with gaps identified.

Overall research methodology selected

To enable a more nuanced examination of the design and implementation of the SLP, as a novus programme in an education context, a mixed methods approach was employed to capture both the objective external dimensions of the SLP and the subjective experiences of students, thereby facilitating a more comprehensive understanding of the phenomenon under investigation. This integration of quantitative and qualitative methods, as described by Creswell (2014) enables a robust and comprehensive understanding of the data through methodological triangulation (Greene, Caracelli and Graham, 1989).

1.6 Research design and methods

This thesis employed a mixed method design, underpinned by the ontological beliefs and epistemological philosophy guiding the research. In integrating realism and constructivism as ontological frameworks, the mixed methods approach facilitates a more comprehensive understanding of the research topic by considering both objective external reality and students' subjective experiences. This synergistic integration (Creswell, 2014) of quantitative and qualitative methods was operationalised through a convergent design (Doyle and Brady, 2016). Combining these analyses facilitates a comprehensive, triangulated conclusion (Greene, Carcelli and Graham, 1989), allowing for a more nuanced exploration of the design and implementation of an SLP.

Initially, this thesis provides a detailed process description of the design and implementation of the SLP with a large and diverse cohort of first-year accounting students. A design-based research approach was followed to address the call for theory-based teaching interventions and to allow for the redesign of these

implemented practices after considering the various stakeholders, including students, instructors and management at HEIs (Dolmans, 2019). The SLP's design, incorporating gamification elements and motivational characteristics typical of CLPs (Hollebeek, Das and Shukla, 2021), aims to enable students develop effective learning habits that support their progress toward becoming self-directed learners.

Quantitatively, this thesis explores the student's participation in the learning activities with the SLP, their active engagement with the SLP and the possible correlation of this active engagement with measurable improvements in academic performance. In particular, the analysis employs indicators of success commonly used in the analysis of CLPs such as participation and active engagement rates (Bruneau, Swaen and Zidda, 2018; Van Asperen, De Rooij and Dijkmans, 2018). The quantitative investigation also considers relevant demographic characteristics and academic performance to explore student behaviour in relation to key concepts derived from CLPs, including the endowed progress effect (Drèze and Nunes, 2006), the goal gradient hypothesis (Kivetz, Urminsky, and Zheng, 2006; Feldman, 2016), and the varying engagement and extinction rates associated with different reinforcement schedules (Wiegand and Scott Geller, 2004; Nagle *et al.*, 2014). Further, this thesis explores the relationship between student participation and active engagement with the SLP, and their academic performance in the targeted module.

This thesis explored the students' experiences, offering richer insights into their experience with the SLP. A combination of quantitative and qualitative data was collected, and analysed, from the same student population to gain an understanding of the students' experiences, aiming to complete the targeted triangulation (Greene, Carcelli and Graham, 1989) of the research. The survey instrument used for data collection included items adapted from the Badge Impact Survey (BIS) (Biles, Plass and Homer, 2014), the System Usability Scale (SUS) (Kyewski and Krämer, 2018) and the 2018 Loyalty Program Member Engagement Survey (Müller, Hanfstingl and Andreitz, 2007), adjusted as necessary to fit the educational context of this thesis. Additionally, the survey included open-ended questions to obtain the sought-after qualitative element and to gain more in-depth insights from the students.

Employing both quantitative and qualitative methods aimed to capture a holistic view of the SLP's effectiveness in motivating students to participate in the relevant learning activities and actively engage with the SLP, thereby supporting the students in becoming self-directed learners. The combined insights from both quantitative data

and qualitative feedback are important for understanding the multifaceted impacts of the SLP, providing a balanced view that encapsulates both the measurable outcomes and the deeper experiential impacts on students.

1.7 Delineations and Limitations

This thesis encountered several limitations typical of empirical research. Firstly, its scope was confined to that of a single higher HEI. This may restrict the generalisability of its findings and it is, therefore, essential that the impact of any institutional-specific characteristics, such as its culture, policies, and student demographics, are considered when interpreting the results reported. While the findings provide valuable initial insights into the SLP's impact at this institution, caution should be exercised when attempting to extrapolate these results to other settings. Extending the study, in future, to include multiple institutions and diverse geographical contexts is encouraged.

Additionally, the reliance on self-reported data through surveys, despite the scientific validation of the instruments used, introduces a degree of subjectivity that could influence the interpretation of the results thereof. Future studies might benefit from incorporating alternative data collection methods.

The absence of longitudinal data limits the extent to which habit formation could be confirmed over a longer period. Future studies can extend the scope of their investigation to monitor student behaviours in subsequent years of study to gain additional insights on the influence of the design and implementation of similar SLPs on habit formation over the longer term.

Acknowledging these limitations is crucial for situating the study within the larger field of educational research and for delineating a clear path for future investigations to build upon its findings.

1.8 Summary of Findings

The SLP was designed and implemented to motivate accounting students to participate in learning activities and supporting them in developing effective learning habits as an initial step towards becoming self-directed learners. Through consistent

participation, the programme aims to enable the development of effective learning habits by identifying appropriate reward(s) (**DQ2**). Student feedback suggests that the rewards, specifically the 'Beans', effectively improved their engagement. For example, one student (n216) mentioned that the SLP "*helped [them] engage in activities [they] wouldn't have done on [their] own*". This sentiment is supported by the quantitative analysis which showed differential active engagement rates (**RQ2**) for the rewarded learning activities.

The programme's success underscores the critical role of consistent engagement in developing effective learning habits, as students need to regularly participate in carefully selected activities (Urh and Jereb, 2014). Establishing these behaviours as habits requires a stable and predictable environment where rewards can be reliably earned and redeemed (Wood and Neal, 2009). The appeal of such rewards was a significant motivator for students (**DQ2**), encouraging them to frequently engage in learning behaviours. This is illustrated by a respondent (n29) who commented, "*By earning Beans, it showed my progress. If it weren't for the Beans, I would not have done the e-tivity¹, which turned out to be beneficial towards my learning experience. As well as Beans for class attendance - had it not been for the Beans as motivation, I would probably have had missed more lectures as there would be nothing to show that I missed.*"

The effectiveness of the rewards extended beyond their inherent value to their presentation and timing (**DQ3**), significantly influencing the students' motivation (Wood and Neal, 2009). Immediate feedback, in the form of instant rewards, proved to be a particularly effective mechanism for influencing student behaviour. A student (n14) highlighted, "*I received immediate rewards for my work and effort,*" underscoring the impact of timely reinforcement. The specific reinforcement schedule for each learning activity contributed to an efficient, gamified programme for engagement. The design aligned closely with the three-phase self-regulation process of learning, ensuring strategic reward placement (Zimmerman and Kitsantas, 1997; Dabbagh and Kitsantas, 2012). Further, the system's user experience mirrored its pedagogical effectiveness; a majority of survey participants rated the usability of the system positively, emphasising the comprehensive efficacy of the SLP (**RQ4**).

¹ E-tivity is the term used for voluntary online learning activities per chapter which were rewarded with activity Beans.

A deeper exploration of the reward system focused on the nature of the rewards (**DQ2**) and their effectiveness in shaping student behaviours. Associating the redemption of rewards directly with academic marks resonated with students, who often view marks as a form of ‘currency’ (Dicheva *et al.*, 2015). This perspective aligns with the concept of ‘reinforcement value’ found in CLPs. Feldman, (2016), suggests that the desirability of rewards can influence behaviour, nudging it towards consistent habit development. Capturing this dynamic one respondent (n286) succinctly noted that *“Beans are a great way to motivate students to get their work done and above all else the conversion into marks is a brilliant idea”*.

The survey results indicate a positive reception of the SLP among students, with many reporting increased satisfaction and motivation to engage. The programme’s personalised approach appeared to heighten its motivational impact, appealing to both extrinsic and intrinsic motivation. One student (n95) reflected, *“Beans helped me stay up to date and forced [me] to study even when I was not writing a test. It motivated me by breaking down chapters and working through them at my own pace.”* Another (n55) praised its ability to encourage independent study: *“Beans motivate students, including me, to complete tasks and engage in the set work independently.”* These accounts underscore the SLP’s dual role in motivating students and cultivating sustainable, effective learning habits. Another finding from the study is the link between active engagement with the SLP and improved academic performance, as evidenced by a moderate positive correlation between SLP engagement and course outcomes (**RQ3**).

1.9 Contribution

This thesis contributes to the design, and implementation of structured, gamified programmes aimed at enhancing student motivation, such as the SLP. Specifically, this thesis aims to aid instructors by providing a deeper understanding of how gamified elements, commonly used in loyalty programmes, can influence student motivation, participation and active engagement towards the formation of effective learning habits (Hollebeek, Das and Shukla, 2021), self-regulation and ultimately self-directedness in accounting education.

Contribution to the literature

In accounting education specifically, numerous studies are either descriptive or merely exploratory, lacking a theoretical basis (Krath *et al.*, 2021). Researchers should conduct more extensive and diverse studies, and apply strong theoretical frameworks amongst the proposed frameworks to explain the motivational power of gamification is Self-Determination Theory and Problem-Based Learning (Anwar and Mulyadi, 2025).

Other limitations identified in previous studies include: an increase in sample size, increasing the number of games that are applied in the study, continuous application of gamification, not only for certain accounting topics, and investigating the influence of different variables like, age and gender when using gamified approaches accounting education (Almuntsr *et al.*, 2024). These limitations have been addressed to some extent with this thesis. The final sample size of 1395 students well exceeded any of the studies mentioned in the literature review. The SLP was an incorporated programme, not just an isolated game(s), which extended across all the accounting topics for the course reviewed. This thesis also included a number of independent variables, including gender and prior experience in accounting to enhance findings.

Current literature further recommends the use of a mix of quantitative and qualitative research method to further enhance the strength of findings is advised for research in this context (Go *et al.*, 2024), while gaps still remain in terms of gamification in financial accounting specifically related to empirical studies of the impact it has on academic achievements (Anwar and Mulyadi, 2025; Go *et al.*, 2024).

By grounding educational studies in theory, more clear guidance on best practices for implementation of gamification and how to overcome its limitations will become evident (Anwar and Mulyadi, 2025).

Pedagogical contribution

Recognising that motivation is crucial for student engagement and academic success (Pintrich and De Groot, 2003), this thesis highlights how gamified learning activities can assist instructors, particularly in accounting education, in adopting innovative instructional methods (Silva, Rodrigues and Leal, 2021) that foster sustained engagement and improved academic performance (Hollebeek, Das and Shukla, 2021).

Moreover, the thesis advances the conceptualisation of new pedagogical models by filling existing gaps in practical educational applications and enhancing scholarly understanding of student behaviour. It explores the transposition of gamified, habit-based CLP elements into educational contexts, positively influencing student behaviour and fostering the development of SDL habits. Resource restrictions, technical obstacles, and student diversity are concrete impairments to efficient implementation in accounting education and this thesis will aim to offer suggestions to implement or improve methodologies (Anwar and Mulyadi, 2025).

Additionally, the thesis provides a detailed process description that can serve as a blueprint for instructors. This blueprint guides the adaption of these design principles to develop and implement SLPs effectively. The integration of gamification in accounting courses can pose certain obstacles from the instructor's perspective. A number of recent studies examined the practical implications of gamified learning, and identified challenges to include limited time, technical issues, skewed curriculum alignment, and assessment integration (Anwar and Mulyadi, 2025). This thesis aims to address some of these challenges and to demonstrate how the successful implementation of a similar programme is particularly useful in managing large classes. The SLP leverages a gamified reinforcement system that does not require specialised programming skills and can be seamlessly integrated within existing learning management systems, which addresses a challenge encountered during the implementation of gamification in past studies - technology acceptance models for both students and educators alike (Go *et al.*, 2024). This practical approach offers an innovative yet accessible method for enhancing educational practices, making significant strides in educational research and application.

Furthermore, this thesis delineates how the implementation of gamification strategies, as demonstrated through the SLP, could inform broader educational policies and practices. By systematically analysing the efficacy of gamification in engaging students, this research provides empirical support for educational policymakers to consider gamified learning environments as a viable alternative to traditional methods. The findings suggest that structured gamification, when integrated thoughtfully into curricula, could reshape educational standards and teacher training programmes to incorporate engagement-driven pedagogical approaches. Additionally, the positive outcomes of such gamified strategies within the accounting education sector could serve as a model for curriculum development across various disciplines,

encouraging a shift towards more interactive and motivationally aligned education systems at institutional and regulatory levels.

1.10 Structure of thesis

This thesis is structured to comprehensively explore the intersections of operant conditioning, Self-Determination Theory (SDT), and gamification within both marketing and educational contexts. The foundational elements are outlined as follows:

- **Chapter 1: Introduction** - Provides an overview of the research aims and significance of the study.
- **Chapter 2: Literature Review** - Conducts a thorough review of the relevant literature across behavioural psychology, focusing on the application of gamification elements in habit-based CLPs and their influence on student motivation and engagement in education.
- **Chapter 3: Design and Implementation of the Student Loyalty Programme** - Details the design and implementation processes of the SLP, drawing on marketing principles to support students in developing learning habits necessary for becoming self-directed learners.
- **Chapter 4: Methodology** - Describes the mixed-method research design employed in this thesis, which combines quantitative and qualitative analyses to achieve a comprehensive, triangulated conclusion.
- **Chapter 5: Analysis of Student Experience, Participation and Active Engagement** - Explores students' experiences with the SLP through survey data, focusing on their perceptions and interactions with the programme; combined with an analysis of the participation and active engagement levels of students within the SLP to provide insights into student behaviour and academic performance, crucial for instructors' understanding.
- **Chapter 6: Discussion of Findings, Conclusion and Future Directions** - Reports on the findings from the analyses of student engagement and lived experiences, discussing the implications of these results. Synthesises the key results, discusses the implications for practice, and suggests directions for future research.

Each chapter is designed to incrementally build on the insights gained from the preceding sections, culminating in a comprehensive understanding of the factors that influence student motivation and engagement through gamified learning strategies.

2. CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Businesses attempt to influence customers' behaviours and consumption habits through Customer Loyalty Programmes (CLPs) (Drèze and Nunes, 2009; So, Danaher and Gupta, 2015; Feldman, 2016), using elements of gamification such as points, goals and rewards (Deterding *et al.*, 2011; Subhash and Cudney, 2018). Inspired by these programmes this thesis reports on the design and implementation of a Student Loyalty Programme (SLP) to motivate accounting students to participate in learning activities and support them in developing effective learning habits as an initial step towards becoming self-directed learners.

To inform the design and implementation of an SLP and to explore students' experience of using the SLP, this thesis adopted a dual ontological approach, combining elements of realism and constructivism. Consequently, this literature review begins with an exploration of the behavioural theory, operant conditioning, and the framework for understanding human motivation and psychological needs as defined by Self-Determination Theory (SDT). SDT's relation to self-regulation and self-directedness is also explored.

Realism, through operant conditioning theory, views education with a focus on observable behaviour and reliance on external stimuli (Mcleod, 2015), while SDT links realism and constructivism, recognising both measurable external factors and the self-motivated nature of behaviour (Ryan and Deci, 2002; Bouvier, Lavoué and Sehaba, 2014). These theories then form the foundation for the discussions of habitual behaviours, feedback and the elements of gamification that influence behaviours. Operant conditioning underpins the motivational impact of rewards and penalties in gamified systems, while SDT provides a framework for understanding how gamification can support students' intrinsic motivation through autonomy, competence, and relatedness.

Building on these foundations, this literature review then concludes by providing a discussion of customer and student behaviours. In particular, elements of gamification that influence customers' behaviours, as members of habit-based CLPs, and the transferability thereof to student behaviours in an SLP are discussed.

2.2 Theoretical basis

Behavioural theories

Behavioural theories have made significant contributions to teaching and learning, including the role of incentives and reward structures (Caton and Greenhill, 2014), the role of feedback (Bandura, 1991), and the introduction of behaviour management strategies (Woolfolk, 2011). Despite the rise of contemporary theoretical approaches, such as cognitivism (Ertmer and Newby, 2013), behaviourist approaches continue to influence teaching and learning environments. For example, in higher education, tools like response cards and other face-to-face class management tools remain prevalent (Maggin *et al.*, 2011). Consequently, these behaviourist tools impact on student's motivation, engagement and academic performance and, therefore, these perceptions of learning continue to be explored (Hunsu, Adesope and Bayly, 2016).

Operant conditioning

Operant conditioning, is a behavioural-based strategy using positive reinforcement to shape motivation and modify student behaviour (Bandura and Wood, 1989; Pintrich and De Groot, 2003; Ning and Downing, 2015, Mcleod, 2015; Skinner, 1963, 1965). This behavioural strategy posits that by carefully crafting the learning environment, instructors can shape desired learning behaviours (Schuell, 1986). Instructors, therefore, have an important role in designing teaching interventions that effectively control the learning environment to reinforce desired student behaviour (Schuell, 1986). The responsibility of students, in turn, is to respond appropriately to these cues and stimuli, thereby reaping the rewards from exhibiting the desired behaviour (Bandura and Wood, 1989; Boekaerts, Zeidner and Pintrich, 1999).

Ultimately, the onus lies with instructors to design and administer learning environments that not only challenge students but also provide robust support. This involves the adaptation of various reinforcement schedules to accommodate different learning needs, with the aim of eliciting varied levels of student participation and sustained engagement (Redish *et al.*, 2007; McLeod, 2015). This thesis explores an example of such a teaching intervention, the SLP, as a potential catalyst for participation in learning activities, active engagement with the SLP, and enhanced SDL and academic performance in accounting education.

Self-determination theory, self-directed learning and self-regulated learning

SDT helps us understand how motivation affects learning. It shows that personality traits and traditional, practical methods of motivation, such as rewarding students with praise or grades, work because they meet basic psychological needs like relatedness, competence, and autonomy (Ryan and Deci, 2000). The theory posits that transformative changes in student motivation and behaviours are required for these needs to be satisfied.

Relatedness refers to students feeling connected to others. Competence refers to students feeling capable and includes the student's belief in their ability to achieve a goal, which is essential for fostering intrinsic motivation (Zaman and Leuven, 2017; Deci and Ryan, 2008; Locke and Latham, 2002). Autonomy refers to students feeling in control and the freedom students have in choosing their learning activities, which strengthens their engagement and overall learning experience (Orsini, Evans and Jerez, 2015; De-Marcos, García-Cabot and García-López, 2017; Rutledge *et al.*, 2018).

SDL is closely related to SDT as it focuses on motivation, independence, and the processes involved in learning. SDL involves learners taking the initiative and responsibility for their learning (Knowles, 1975). This includes identifying their learning needs, setting goals, finding resources, and evaluating their progress. SDL aligns with the concept of autonomy in SDT. SDT posits that fulfilling the need for autonomy enhances motivation and engagement in learning. In SDL, learners exercise a high degree of autonomy, which can lead to more intrinsic motivation, improved engagement and better attainment of learning outcomes.

Self-directed individuals are those who are able to take control of their own lives and make their own decisions, while self-regulated individuals are those who are able to control their own behaviour and emotions. Both of these characteristics are closely tied to the need for autonomy, one of the three basic psychological needs identified by SDT.

SDL and SRL are distinct concepts, closely related and mutually reinforcing (Gandomkar and Sandars, 2018). Both involve individuals taking charge of their own learning process and achieving their learning goals more effectively, with overlapping but distinct characteristics. SDL refers to the ability of a student to take control of their approach to learning, including setting goals, planning and executing strategies, and evaluating their learning progress (Knowles, 1975). SRL, on the other hand, refers to

the students' ability to monitor, control, and regulate their own cognitive processes and behaviour during the learning process (Zimmerman and Schunk, 2011).

The main differences between self-direction and self-regulation stems from the fact that SDL describes a students' approach to learning (Knowles, 1975), while self-regulation focusses on the learning process (Zimmerman and Schunk, 2011). A self-directed student portrays a certain aptitude as a consistent ability of the individual, while a self-regulated student follows a specific process through learning activities within a specific context (Gandomkar and Sandars, 2018). Following this, investigations into self-directed students include aptitude measures, while event measures will be better suited when analysing self-regulation (Gandomkar and Sandars, 2018). Analysing the individualised learning of a self-regulated student through the three-phases: forethought, performance and reflection (Zimmerman and Schunk, 2011) can provide rich, contextualised data of the learning process, instead of temporal aptitude measures (Gandomkar and Sandars, 2018).

Another distinguishing factor between self-directed and self-regulated students is the source of motivation. Students have either intrinsic, extrinsic or no motivation to perform a learning behaviour (Cook and Artino, 2016; Shields and Chugh, 2017). Intrinsic motivation, the doing of an activity for its inherent satisfaction rather than for some separable consequence, is the most valuable of these motivations, as it leads to the most efficient and effective learning behaviours (Kubischta, 2014; Orsini, Evans and Jerez, 2015; Zimmerling *et al.*, 2019). Self-directed students are internally motivated and naturally take responsibility for the development, implementation and evaluation of their learning, including formulating learning goals (Knowles, 1975). A self-regulated student relies more on external motivation to strategically monitor learning and adjust learning behaviours, requiring external parties, like instructors, to assist with the learning process (Zimmerman and Schunk, 2011).

Self-directed learners are often self-regulated learners as well, as they need to monitor and regulate their own learning process in order to achieve their self-directed learning goals (Brydges *et al.*, 2012). However not all self-regulated learners are necessarily self-directed learners, as they may be following external goals or directives other than their personal directed goals (Gandomkar and Sandars, 2018).

Habitual behaviour

Unfortunately, motivation is unreliable and is often regarded as a fleeting emotion (Guthrie, Wigfi and You, 2012). Many students initially feel highly motivated, but over time, their motivation wanes, and they revert to their previous behaviours (Deci and Ryan, 2008; Seaborn and Fels, 2015). A viable solution to this challenge is to couple students' motivation with actionable steps towards participation and engagement that build lasting habits. As students engage in a learning behaviour more frequently and it becomes habitual, they become less reliant on variable motivation levels and more on routine to sustain their efforts (Verplanken, 2006).

Habits are essentially an individual's memory-based tendency to execute specific behaviour, based on familiarity from past experiences in similar contexts. These well-learned behaviours can be performed efficiently with minimal attentiveness, allowing for the concurrent performance of other behaviours (Henderson, Beck and Palmatier, 2011). Due to the natural selection of habitual behaviours, it is often challenging for individuals to suppress habits or engage in less familiar behaviours without significant effort (Tobias, 2009; Verplanken, 2006; Wood and Verplanken, 2006).

Learning habits encompass both conscious and unconscious methods of acquiring information which enables students to organise themselves to solve problems, develop skills, acquire knowledge and complete assignments (Carter, Bishop and Kravits, 2011). When faced with dilemmas or uncertainties, drawing on established behaviours can produce results that are of higher quality and greater significance than otherwise (Costa, 2004). Ultimately, developing good learning habits allows students to utilise well-established behavioural patterns unconsciously, freeing resources for alternative tasks necessary in current situations (Verplanken, 2006; Wood and Verplanken, 2006; Tobias, 2009).

The foundational principles of habit formation can be traced back to Thorndike's Law of Effect, which posits that behaviours followed by satisfying consequences are more likely to be repeated, while those followed by unpleasant outcomes are less likely to recur (Thorndike, 1913). This behavioural mechanism underpins the habit loop, comprising three core elements: a cue that triggers behaviour, the routine or action itself, and the reward that reinforces the behaviour. In educational settings, this loop can be strategically harnessed to promote learning habits by ensuring that desirable learning behaviours are consistently followed by meaningful and timely reinforcement.

Over time, these repeated experiences can condition students to associate certain cues, such as scheduled activities, deadlines, or digital prompts, with the extrinsic rewards that follow behaviour and ultimately intrinsic satisfaction. As a result, students begin to actively engage in learning activities with decreasing reliance on conscious motivation and increasing dependence on routine.

To foster greater student participation in forming learning habits, instructors must create learning opportunities that support the development of SDL (Guthrie, Wigfi and You, 2012). Addressing the individual needs of students within a large, diverse group poses significant challenges but can be effectively managed through gamification (Turner, Vance and John, 2006; Gibbs and Jenkins, 2013; Lane and Harris, 2015). Gamification leverages technology to motivate and engage students on a personalised level, thereby facilitating the development of learning habits conducive to increased engagement and improved academic performance (Dunn *et al.*, 2013; Lane and Harris, 2015; Roy and Clark, 2018). Central to the success of this loop is the reward component, which in educational contexts is closely tied to the provision of feedback. Feedback serves as both a reinforcement and a learning opportunity, playing a critical role in sustaining and refining the learning behaviours essential to academic success (James, Oates and Schonfeldt, 2024).

Feedback

Many students entering higher education are not naturally self-directed learners (Kidane, Roebertsen and Van Der Vleuten, 2020) and require feedback and support to become self-directed learners (Loyens, Magda and Rikers, 2008). Traditionally, instructors have played an important role to set learning goals and provide timely feedback to support the learning process. However, contemporary education literature emphasises placing the development of self-direction at the centre of the feedback process (Carless *et al.*, 2011). In higher education, students are increasingly positioned at the centre of this process (Winstone *et al.*, 2021), where feedback is defined as ‘processes where the learner makes sense of performance-relevant information to promote their learning’ (Ajjawi, Boud and Molloy, 2019, p. 17). Therefore, students require personalised, detailed feedback to make actionable improvements during their learning journey, while instructors focus on designing the quality mode, and timing of feedback (Dawson *et al.*, 2019).

Immediate, or at least timely, feedback is particularly useful in supporting students in regulating their learning process, providing them with optimal opportunities to act upon the feedback (Epstein *et al.*, 2002; Gibbs, 2006). An innovative form of immediate feedback is through rewards (Subhash and Cudney, 2018), which can help students develop the skills to determine effective steps in their learning process (Boud, 2000), thereby increasing motivation towards engagement (Kearney *et al.*, 2012) and improving academic performance (Becker, 2013; Ning and Downing, 2015).

Providing timely feedback, particularly in large student groups, poses significant challenges (Dunn *et al.*, 2013; Schmulian and Coetzee, 2018). Technology, particularly through the use of gamification, offers a viable solution to help instructors overcome these challenges by enabling the provision of feedback at scale (Rashid and Asghar, 2016).

Gamification

Gamification involves the application of game elements within non-game contexts to enhance engagement and learning outcomes (Zainuddin *et al.*, 2020). Common elements include levels, points, avatars and leaderboards, which are used to stimulate participation and enhance student engagement with content (Barata *et al.*, 2017; Ding, 2019). Specifically, rewards, as a form of feedback in gamified systems, assist students in understanding the 'what' and 'how' to learn (Boud, 2000). These elements not only promote desired behaviours but also drive improvements in learning outcomes motivating students and enhancing their overall academic performance (Kapp, 2012; Villagrasa *et al.*, 2014; Barata *et al.*, 2017; Baydas and Cicek, 2019, Zainuddin *et al.*, 2020). Furthermore, gamification can facilitate the development of new learning habits (Kirillov, 2016).

SDT provides a robust framework for understanding the motivational effects of gamification on learning behaviour (Ryan and Deci, 2000; Deci and Ryan, 2008). In contexts where intrinsic motivation is lacking, gamification strategies can transform extrinsic motivation into intrinsic motivation, enhancing student engagement and persistence (Kyewski and Krämer, 2018; Rutledge *et al.*, 2018). SDT categorises extrinsically motivated behaviours from externally regulated to integrated regulation, where behaviours once motivated by external rewards become internally valued (Ryan and Deci, 2000; Zainuddin *et al.*, 2020).

This integration occurs as students evaluate and align external regulations with their values and needs, leading to increased self-regulation and a move towards SDL (Ryan and Deci, 2000). Gamified learning environments, that offer a variety of goals and rewards, allow students to select objectives that resonate with their interests and needs, further supporting the fulfilment of their psychological needs for competence and autonomy. When these needs are met, students are more likely to internalise their motivation, enhancing their capacity to achieve specific learning outcomes (Orvis, Fisher and Wasserman, 2009, Cook and Artino, 2016).

2.3 Theoretical similarities in customer loyalty programmes

Similar to student behaviours, customer behaviour may be modified through positive reinforcement, as seen in CLPs (Drèze and Nunes, 2009; Feldman, 2016; So *et al.*, 2015). These programmes, are defined as systems designed to influence consumers' behaviours (Hwang and Mattila, 2018; Kim, Steinhoff and Palmatier, 2021), aim to foster loyalty over time (Sharp and Sharp, 1997) by leveraging three psychological constructs: status, habit, and relations (Henderson, Beck and Palmatier, 2011). These constructs ensure that the programme is perceived as 'rewarding', by granting status that encourages favourable comparisons with others, forming habits that enhance beneficial memory processes, and developing relationships that result in preferential treatment (Henderson *et al.*, 2011).

Over time, through consistent positive reinforcement (Henderson *et al.*, 2011; Hwang and Mattila, 2018), CLPs attempt to form customer habits that encourage repeat business (Henderson *et al.*, 2011; Wood and Neal, 2009). Although repetition is a necessity for habit formation, other aspects such as automaticity and mental efficiency (Verplanken, 2006) also play significant roles in solidifying these patterns of behaviours.

The formation of customer habits within loyalty programmes depends on three primary factors: intention, repetition, and context stability (Wood and Neal, 2009). Initially, there must be a clear intention to adopt a new behaviour (Ajzen, 2002). This intention is then translated into action through repeated behaviour (Judah *et al.*, 2018), which is reinforced by the rewards associated with the programme (Wood and Neal, 2009). Where these behaviours are consistently rewarded in a stable context – defined

by specific times, places, and situations – the associated features of the context become tightly linked to the mental representation of the behaviour, thereby strengthening habit formation (Verplanken, 2006; Henderson, Beck and Palmatier, 2011).

2.4 Gamification application in loyalty programmes and in an educational context

Gamification in customer loyalty programmes

The marketing literature has extensively explored the use of gamification in CLPs as a strategic tool to modify customer behaviours and encourage habit formation (Henderson *et al.*, 2011; Zichermann and Cunningham, 2011). Although gamification is increasingly being adopted to support learning, the underlying research in an educational context is an emerging trend (Dicheva *et al.*, 2015) and highly fragmented (Terras and Boyle, 2019), and in business education particularly (Fisher, Beedle and Rouse, 2014) demands more attention, with a focus on well-structured gamified educational programmes (Manzano-León *et al.*, 2021; Oliveira *et al.*, 2023).

The interplay between gamification and the customer experience, specifically digital engagement with customer loyalty programmes have been the topic of recent research. Gamification of CLPs can influence customer behaviour throughout the customer journey through careful design. Customer engagement with the specific brand can improve with gamified design at the pre-service stage by activating customer motivation. It can also be applied during the core and post-service stages to enhance customer participation as well as active engagement with the brand when there is a conceptual integration between gamification and the different stages of the customer journey (Silva *et al.*, 2023).

Gamification does not only play an essential role in marketing, and customer relationship management (Hwang and Choi, 2020), but entities implement gamified CLPs to encourage value-creating behaviours such as increased consumption or greater loyalty (Hofacker *et al.*, 2020). Gamified CLPs improve customers' intention to participate beyond members' engagement with conventional loyalty programmes (Hwang and Choi, 2020), also referred to as non-gamified CLPs (Hollebeek, Das and Shukla, 2021). Gamified CLPs enhance, not only extrinsic motivation towards specific

engagement, but also, the more experiential intrinsic motivation (Hollebeek, Das and Shukla, 2021).

Across diverse sectors, including e-commerce (Sundjaja *et al.*, 2022), fashion retail (Goldberg, 2024), sports (Habachi *et al.*, 2024), mobility (Schmäh and Leon Ritz, 2021), and tourism (Abou-Shouk and Soliman, 2021), gamification is consistently shown to be an effective mechanism for enhancing participation, engagement, behavioural intentions and customer loyalty in general. Common across recent studies is the emphasis on intrinsic motivation, emotional bonding, and user-centered design features such as rewards, challenges, and playful interactions. Whether through mediated pathways like customer satisfaction (Rachmadanty *et al.*, 2025) or customer brand engagement (Abou-Shouk and Soliman, 2021), or moderating effects including self-image congruity (Habachi *et al.*, 2024), gamification strengthens the psychological connection between users and brands, fostering repeat use, brand recall, and positive word-of-mouth. In tourism specifically, the adoption of gamification by travel agencies is driven by its capacity to boost customer engagement and elevate destination brand loyalty, as revealed through the ‘unified theory of acceptance and use of technology’ (Abou-Shouk and Soliman, 2021).

Each study also contributes unique insights to the growing body of gamification research on CLPs. The South African retail study sheds light on emotional engagement and habitual behaviour in a highly competitive local market (Goldberg, 2024). Within a sports context self-image congruity is introduced as a moderating variable that influences long-term usage and brand interaction (Habachi *et al.*, 2024). The Indonesian e-commerce research offers empirical validation of gamification as a moderating factor in loyalty program effectiveness, while recommending iterative design improvements (Sundjaja *et al.*, 2022). A process-based framework for reverse-engineering gamified strategies applied recently demonstrates the value of cross-industry adaptability (Schmäh and Leon Ritz, 2021). From an organisational perspective, gamification is not only user-driven but also influenced by managerial adoption intentions and technological acceptance frameworks (Abou-Shouk and Soliman, 2021).

Academia and practitioners progressively identify the impacts of gamification on customer experience, but the role it plays in influencing customer behaviours remains undeveloped (Silva *et al.*, 2023). Collectively, these studies provide both theoretical and practical frameworks that can guide the development of gamified

systems in education, supporting more engaging, motivating, and loyalty-driven learning experiences. Similarly, to CLPs, gamified learning programmes can influence students' extrinsic and intrinsic motivation towards engagement.

Gamification in education

In the rapidly transforming technological age, digital applications like games, smartphone applications and simulations are already integrated into the educational curriculums under the collective term “interactive virtual environment in digital education” (Vlachopoulos and Makri, 2017; Tavares *et al.*, 2023), or game-based learning (Prensky, 2001; Squire, 2003; Krath *et al.*, 2021). One example of such an application in education is serious games, which are played for training or rehabilitation purposes rather than for enjoyment (Nagle *et al.*, 2014). In accounting higher education specifically, the implementation of such serious games as part of game-based learning, has been investigated (Moncada and Moncada, 2014; Silva, Rodrigues and Leal, 2021), with positive results in terms of the influence on student motivation and attitude.

To increase motivation, participant and engagement and to influence the probability of certain player behaviours to be repeated, various forms of positive reinforcement are incorporated in games, for example, experience points, unlocking instruments and high score tables (Nagle *et al.*, 2014). The impact of gamification on student participation and engagement, as well as extrinsic and intrinsic motivation, interest, enjoyment and general satisfaction remains topics of interest in education research (Nurtanto *et al.*, 2021). Gamification in an educational context, applying game-like mechanisms to influence student behaviours, reached traction in 2010 (Subhash and Cudney, 2018). Gamification has gained momentum in education in the 21st century, by utilising technology with game elements support instructors and students alike in reaching learning outcomes, with results mainly indicating a positive impact of gamification on student behaviour, including affective, cognitive, behavioural, and performance variables investigated (Nurtanto *et al.*, 2021).

Instructors have experimented with award and penalty systems (Caton and Greenhill, 2014; Villagrasa *et al.*, 2014), leader boards (Leaning, 2015), and rewards in the form of points or digital badges (Strmečki, Bernik and Radošević, 2015; Dias,

2017), to influence student motivation, participation and engagement, with mixed degrees of success (Roy and Clark, 2018).

Another aspect of positive reinforcement included during the gamification of educational courses is the application of different reinforcement schedules (Alsawaier, 2018). Student responses differ on alternative reinforcement schedules and this can influence the speed of adoption of required behaviours as identified by instructors, as well as the extinction rate of such behaviours (Redish *et al.*, 2007; Bradshaw and Reed, 2012). Personal preference of the type of reinforcement, combined with carefully considered scheduling of rewards, can improve, not only enjoyment of the required behaviour but also motivation towards improved participation and engagement (Nagle *et al.*, 2014).

Increased motivation towards participation and engagement, applying the gamification mechanism, is not limited to behavioural improvements but can also result in improved cognitive engagement (Hew *et al.*, 2016). A student experiencing competence satisfaction in such a gamified environment shows an improved attitude towards academic activities (De-Marcos *et al.*, 2014) as well as increased academic performance (Strmečki, Bernik and Radošević, 2015; Sánchez-Martín, Cañada-Cañada and Dávila-Acedo, 2017; Yildirim, 2017).

Gamification in accounting education was initiated by the introduction of “The Landlord’s Game”, a portent of the well-known home game, “Monopoly®”, which was developed by Elizabeth Magie in 1904 (Whitehill, 1999). This was the first serious game that made its’ way into higher education, including established schools of economics like Columbia University (Moncada and Moncada, 2014). Here-after, the use of games as learning tools in business and management schools in higher education only saw a revival during the 20th century, when the American Management Association, supported by the capabilities of a mainframe computer, introduced the “Top Management Decision Simulation” (Cohen and Rhenman, 1961).

Following the implementation of serious games, and the technological advances towards home computers, the Accounting Education Change Commission (AECC) proposed a more active teaching strategy to instructors of university accounting, including the integration of technology in the accounting curriculum (Fratto, 2011). This resulted in hard copy variations of board games like “Monopoly®” and “Jeopardy®” gaining popularity in accounting education practices (Albrecht, 1995; Rosli, Saat and Khairudin, 2017) before using adaptations of these games while

employing software like Microsoft Office Word and Excel (Buchory, Homan and Willy, 2021). Microsoft PowerPoint was also harnessed to adapt games like “Connect Four®” and “Hollywood Squares®” for implementation in accounting education (Moncada and Moncada, 2014), remaining mindful of qualities considered important for successful gamification of learning. Instructors then started to develop other unique games like ‘AccountinGame’ (Silva, Rodrigues and Leal, 2021) and ‘Accounting on the Block’ (Jamaluddin *et al.*, 2020).

Research in gamification applied in an educational context has significantly increased over the last five years, reporting positive effects on student motivation and learning outcomes (Go *et al.*, 2024). However, studies performed on gamification of accounting education specifically remains limited, slightly increasing up to 2022 before reaching the peak in 2023. According to a literature review by Go, Riantono and Cassandra (2024) these accounting education studies include game-based learning and serious games applied in higher education from the perspectives of teaching and learning.

Game-based learning does not only refer to serious games though, but also includes gamification, which stretches further to include other didactic strategies that incorporate game-like features within an educational context. Studies on gamification in accounting and management education specifically, include distance learning Moodle courses, where “Kahoot” was applied as an engagement enhancing and immediate feedback tool (Gomes and Monroy, 2018), reward and student leader boards (De-Marcos *et al.*, 2014; Fisher, Beedle and Rouse, 2014; Villagrasa *et al.*, 2014; Leaning, 2015), as well as a gamified learning intervention that includes multiple gamification elements like content unlocking and different achievement levels (Buckley and Doyle, 2017).

Recent studies on gamification in education consistently demonstrate its positive impact on student participation, engagement and learning outcomes, particularly within accounting courses. For example, Ramesh *et al.* (2025) investigated gamification effects in a principles of accounting course with 131 first-year business students, comparing traditional teaching methods against gamified instruction for different learning outcomes. Using structured questionnaires, they found that gamified learning notably enhanced student participation engagement, especially among female students and individuals aiming for higher academic performance. Similarly, Sercemeli and Baydas Onlu (2023) employed a mixed-methods approach with 40

undergraduate students using the Kahoot platform as a gamified learning environment. Their correlational and comparative analyses revealed that higher engagement predicted better perceived learning and academic achievement, while students valued the gamified approach as practical and enjoyable despite some limitations related to technological interface and timing.

Other studies have expanded the scope by examining gamification's influence on study habits and motivational factors across diverse student groups. 90 management accounting students from five different groups were surveyed and, using quantitative methods, this study explore how gender, study type, level, and prior gaming experience affect engagement in gamified accounting education (Gmińska and Sokołowska, 2025). Findings suggest that gamification helps maintain continuity in course material and improves time management, although they caution about the subjectivity inherent in self-reported engagement measures. A recent South African study gathered data from 113 second-year accounting students to assess the development of competencies through game-based learning (Malan and van Dyk, 2021). They found that implementing different games, such as Monopoly and the 60 Seconds game, fostered strategic thinking, teamwork, and communication, emphasizing the role of collaborative, low-resource games as effective learning aids.

Innovative gamified platforms and mobile learning environments have also been explored for their pedagogical benefits. One example is the implementation of an accounting mobile game integrated with the TronClass system (Kao *et al.*, 2023). During this study a quasi-experimental design was applied involving 81 university students, divided into experimental and control groups. The mixed-methods analysis demonstrated that game-based mobile learning enhanced teaching effectiveness, with information and service quality positively influencing usage intention, which in turn increased learning engagement. Chukwuani (2024) reviewed several gamification tools, including MonsoonSIM, Kahoot!, Accounting Bissim, and AccountingPod, highlighting their success in creating interactive and motivating learning experiences. This study also pointed toward the future integration of virtual and augmented reality to further immerse learners (Chukwuani, 2024).

Recent empirical research on how gamification can improve student motivation, participation and engagement, and, in some cases, learning results are still limited (Anwar and Mulyadi, 2025). Although most studies indicate favorable effects on academic performance, problem-solving abilities, and general enjoyment, the

presence of conflicting results demands careful gamified design and the alignment with learning objectives (Anwar and Mulyadi, 2025).

Collectively, these recent studies underscore the versatile applications and growing implementation opportunities of gamification as a dynamic educational strategy in accounting and related fields.

Comparative Analysis of Gamification Frameworks

To further understand the applicability of gamification in education, it is essential to contrast the frameworks that have been employed in both CLPs and educational settings. The use of gamification frameworks in CLPs differs significantly from similar applications in educational contexts due to the principal goals and motivations of the target audiences.

CLPs have traditionally used gamification frameworks that emphasise reward mechanisms, such as points, which are straightforward and highly quantifiable (Huotari and Hamari, 2013). The simplicity of these systems is their strength, providing clear pathways for customers to follow towards rewards. However, this straightforwardness can also be a limitation, as it may not always encourage deep engagement or long-term loyalty beyond the incentives provided.

In contrast, educational gamification programmes often require a more nuanced approach to cater to the diverse motivations and learning needs of students (Laine and Lindberg, 2020). Studies in higher education have proposed different design frameworks (Mora *et al.*, 2017) and phases of design (Avila-Pesántez, Rivera and Alban, 2017) to follow for effective programme design and development, resulting in design principals that align with motivators towards engagement (Laine and Lindberg, 2020). Motivation, and its relationship with games in general, has resulted in the identification of intrinsic motivators for learning evident in well-designed educational games (Malone, T.W. and Lepper, 2021).

Frameworks like the Octalysis model (Chou, 2019), developed by Yu-kai Chou, which categorises motivational drivers into eight core drives, offer a sophisticated approach that can more effectively foster intrinsic motivation and participation in learners, in line with SDT's psychological needs. These educational frameworks frequently incorporate motivators such as control, challenge, progression, novelty,

usefulness and immediate feedback, which are tailored to enhance the learning behaviours and support educational goals.

Moreover, the Balance Framework attempts to match the challenge level with the player's skill to maintain a state of flow (Nicholson, 2015), an essential aspect of both engaging games and effective learning experiences. Its application in education has been more robustly explored (Nicholson, 2015), focusing on creating an optimal learning environment where students are neither overwhelmed nor under-challenged. In the context of achieving a state of flow within an optimal, gamified, learning environment (Chan *et al.*, 2016), SDT can be applied to the self-regulated pre-process, process, and post-process stages to enhance intrinsic motivation by satisfying the needs for autonomy, competence, and relatedness (Ryan and Deci, 2000). During the pre-process, learners' motivation is influenced by how well the gamified environment supports their autonomy, by providing a choice of challenges for example, and competence through achievable goals. The process phase focuses on maintaining engagement through continuous feedback and opportunities for social interaction, promoting a sense of competence and relatedness (Ryan and Deci, 2020). Finally, the post-process stage involves reflecting on achievements and receiving recognition, reinforcing their intrinsic motivation and satisfaction (Niemic and Ryan, 2009). Similar to the self-regulated learning process, Silva *et al.* (2023) identified different stages of the customer journey as members of a CLP as pre-, core- and post-service engagement. The main factors that influence this journey were identified as design-related, customer- technology- and context-related factors (Silva *et al.*, 2023).

The comparative analysis highlights the different emphases of gamification in customer loyalty and within educational contexts. Thus, while both applications use gamification to drive engagement, the underlying motivational strategies and outcomes pursued differ noticeably between commercial and educational settings. CLPs focus on immediate, tangible rewards to drive customer behaviour, while educational gamification seeks to build deeper, more intrinsic motivation and engagement through challenges and achievements that resonate with students' learning objectives. This contrast underlines the need for a tailored approach in educational gamification, one that balances motivation, participation, and engagement with educational outcomes.

The convergence of these findings reinforces the potential for gamification strategies to be adapted beyond commercial purposes to educational environments,

where student participation, engagement, and sustained academic commitment are similarly critical. To create effective gamified systems in educational settings, it is crucial to harness the strengths of each framework and mitigate their limitations. This involves designing gamified learning experiences that not only extrinsically motivate students but also ensure participation and engagement that align with educational standards and learning outcomes to ultimately result in intrinsic motivation (Laine and Lindberg, 2020). By adapting the best practices from both the commercial and educational uses of gamification, this thesis aims to develop and implement a gamified learning strategy programme, the SLP, that supports student participation and engagement and fosters good learning habits within a self-regulated environment towards self-directed learning, and ultimately, improved academic performance.

2.5 Conclusion

It is clear from previous research that serious games have been part of educational methods in accounting and management courses. Yet, there remains a notable gap in the application of diverse gamification elements beyond serious games.

This thesis aims to address the gaps by:

- Many studies on gamification, in education literature in general, lack a robust theoretical underpinning or fail to test theory-driven hypotheses (Krath *et al.*, 2021). Incorporating a range of behavioural theories (Gomes and Monroy, 2018) in the design and implementation of a gamified programme, moving beyond adapting an existing game to an educational context.
- Utilising a substantially larger sample size of SLP participants than those in past studies (Jamaluddin *et al.*, 2020), focusing on undergraduate accounting students at a higher education institution (Silva, Rodrigues and Leal, 2021).
- Interpreting empirical evidence (Moncada and Moncada, 2014; Gomes and Monroy, 2018) from various sources, going beyond relying on self-reported student experiences during interviews (Rosli, Saat and Khairudin, 2017) or survey responses (Jamaluddin *et al.*, 2020; Silva, Rodrigues and Leal, 2021).

Design and implementation elements from CLP can be incorporated to influence student behaviours similarly to the effects that gamified habit-based CLPs

have on customers. This review of research on student behaviour, especially in terms of motivation and engagement towards habit formation, combined with principles of gamification found in CLPs, validates the need for this investigation. There is a gap in the educational literature concerning the design and implementation of a comprehensive digital programme that strategically uses differentiated rewards to promote SDL. Such a programme can be grounded in the complex design features of multidimensional CLPs and aimed at effecting behavioural change. By leveraging external motivators, initially through positive reinforcement, and by designing systems that fulfil students' psychological needs for autonomy, relatedness, and competence, this research suggests that intrinsic motivation and self-directedness in students can be developed. Drawing from the mechanisms of habit formation utilised in customer loyalty programmes, this thesis examines the rollout of an SLP.

The principles of gamification explored in this thesis carry the potential for wide-reaching impact across various educational disciplines, beyond the initial design and implementation in accounting education. The versatility of gamified techniques - rooted in behavioural psychology and motivational theories - suggests their application could be tailored to diverse subject areas. By fostering engagement through well-designed reward systems, these principles could be adapted to disciplines where student motivation and habit formation are critical to learning success. Future research could explore the scalability of these approaches, possibly leading to cross-curricular innovations in educational design and contributing to a pedagogical paradigm shift across the educational spectrum.

Furthermore, the implications of this research extend into the domain of educational policy. The successful application of gamification strategies evident in CLPs to promote student engagement in an education context signals a potential shift in pedagogical practices. This thesis underlines the potential for engagement-driven pedagogy to become a focal point in educational reform. It suggests that policymakers might harness the study's outcomes to endorse instructional redesigns, prioritising motivated engagement as a cornerstone of curriculum development. In an era where engaging the digitally native learner is a widespread challenge, the proposed gamified learning environments could offer a dynamic addition to the educational landscape. Hence, the findings of this thesis could act as a catalyst for policies encouraging broader adoption of such innovative learning strategies in various educational sectors.

While the benefits of gamification in educational contexts are clear, there are practical challenges to its implementation, such as budget constraints, resource limitations, and the need to balance gamification with theoretical rigor that must be acknowledged. (Chukwuani, 2024). Institutional readiness, resource allocation, and instructor training are critical hurdles that can impede the successful integration of gamification strategies. This thesis acknowledges such challenges and proposes strategies to overcome them, drawing on the analysis of successful gamified programmes in both educational and business settings. Solutions may include professional development programmes for instructors to enhance their understanding of gamification, administrative support for gamified curriculum design, and evidence-based recommendations for resource deployment. The goal is to provide actionable insights that can assist HEIs in navigating the complexities of adopting these innovative educational practices.

3. CHAPTER 3: THE DESIGN AND IMPLEMENTATION OF A STUDENT LOYALTY PROGRAMME

3.1 Introduction

This chapter provides a process description (Livshits and Sandler, 1998; Chabeli and Muller, 2004) of the design and implementation of a Student Loyalty Programme (SLP). Due to the fact that no single solution works optimally under all conditions design and implementation of the SLP followed a design-based research approach which “combines redesigning theory-based teaching practices with investigating these practices in close collaboration with various stakeholders” (Dolmans, 2019). The stakeholders considered includes, but is not limited to the students, teaching assistants, instructors and higher education institution. Design-based research ultimately aims to inform, and improve practice within a formal educational context (Anderson and Shattuck, 2012).

The design of the SLP is inspired by the principles of habit-based Customer Loyalty Programmes (CLPs) that incorporate gamification elements aimed at motivating customers, by positively reinforcing behaviours, through rewards, promoting repeat engagement, towards enabling habit formation (Henderson, Beck and Palmatier, 2011).

CLPs typically rely on three primary contributors to enable habit formation (Wood and Neal, 2009), which were adapted for implementation in the SLP to:

- influence students' *intent* to participate in appropriate learning activities;
- encourage them to *repeat* participation in these learning behaviours through a reward system; and
- provide a *stable context* within a university course.

In developing the SLP, key factors that contribute towards habitual behaviour (Wood and Neal, 2009) were considered, in combination with other influential behavioural drivers from CLPs such as reinforcement scheduling, reinforcement value, and expectancy value. To replicate the successful impact of CLPs on customer motivation and engagement (participation in learning activities) in the educational setting of the SLP, various design elements from CLPs were carefully analysed and subsequently integrated into the design of the SLP. Similarly, to CLPs influence on

customers' behaviours, the SLP aims to motivate students, by positively and repeatedly reinforcing participation in select learning activities within a gamified programme, towards enabling learning habit formation, supporting accounting students in becoming self-directed learners.

Many students are not intrinsically motivated, self-directed learners (Kidane, Roebertsen and Van Der Vleuten, 2020; Butler *et al.*, 2021) and initially require extrinsic motivation, within a self-regulated programme, before progressing into becoming intrinsically motivated self-directed learners who take responsibility for their learning (Bonk and Lee, 2017). Instructors are often responsible for providing students with this extrinsic motivation. Should instructors be able to motivate students to repeatedly participate with a particular learning activity, this may enable these behaviours to become habitual. Once the behaviours have become habitual, students may then be less reliant on extrinsic motivation or variable intrinsic motivation levels and more on routine to sustain their efforts (Verplanken, 2006). Consequently, in the SLP's design, a gamified approach was adopted, focusing on positive reinforcement, to assist instructors in motivating accounting students to participate in learning activities and support them in developing effective learning habits as an initial step towards becoming self-directed learners.

Gamification design frameworks, which consider game motivators and effective design principles for commercial applications (De Vette *et al.*, 2015) and educational games (Avila-Pesántez, Rivera and Alban, 2017), to influence user engagement have been explored, but inadequately applied within educational contexts (Laine and Lindberg, 2020). To maintain motivated participation over some time, a range of motivators can be implemented by following effective design principles.

Designing a gamified SLP that accomplishes the potential of extrinsic, as well as intrinsic motivation towards participation is challenging but can be aided by educational game design principles, supported by scholarly experience and research. A well-designed gamified programme does not necessarily apply all the design principles and motivators (Laine and Lindberg, 2020), but rather focuses on some relevant principles to ensure a state of flow to ensure an optimal learning environment (Nicholson, 2015). During the design process of the SLP motivators such as control, challenge, progression, novelty, usefulness and immediate feedback were identified as focal principals of design.

Key to the design of an SLP was identifying which learning activities should be rewarded and how should these be rewarded to promote motivation, and participation towards habit formation and ultimately self-directed learning. This gave rise to the following Design Questions:

DQ1: Which learning behaviours should be rewarded?

DQ2: What types of rewards should the SLP offer to potentially influence the students' participation in learning activities?

DQ3: Which reward schedule(s) should be adopted to influence the students' participation in learning activities?

DQ4: How should rewards be weighted based on the significance of different learning activities?

3.2 Programme design

The SLP was designed for a first-year accounting course, serving as a support course across several undergraduate degree programmes, at a residential university in South Africa. The course is not taken by students majoring in accounting but is a compulsory component for all business and management degree students, also serving as an elective for various degrees, including consumer sciences, agriculture, education and information systems. This broad applicability resulted in an enrolment exceeding one thousand five hundred (1 500) students.

The author and one other lecturer were pivotal to the SLP's execution, functioning both as instructors and administrators of the SLP. The accounting course adopts a hybrid teaching and learning model. This model encompasses on-campus lectures, practical contact sessions, tutor sessions and access to digital content and learning activities facilitated through the LMS (University of Pretoria, 2019). Following its design to mirror gamified CLP models, the SLP was integrated into the LMS at the onset of the first semester of an academic year.

One of the gamification design elements used in the SLP was the use of distinct icons to add recognition to rewards. This enhances situational interest and makes the learning experience more engaging for, especially, first-year students.



In the context of accounting education, the SLP's rewards were creatively designed around accountants stereotypically being referred to as "Bean counters" (Martin, 2019). Each reward was represented by a unique bean image and collectively referred to as "Beans". This playful approach aimed to make the learning experience more relatable and engaging for accounting students specifically.

3.2.1 *Rewarded learning activities*

The initial step in developing the SLP involved identifying key learning activities to reinforce (**DQ1**). For an introductory accounting course, it is submitted that the key learning activities to be reinforced should be those that are foundational to developing self-directed learners who take responsibility for their learning (Knowles, 1975). To structure the learning process effectively, the instructors aligned the key learning activities with the three stages of self-regulated learning, forethought, performance, and reflection (Zimmerman and Kitsantas, 1997; Dabbagh and Kitsantas, 2012; Guthrie, Wigfield, and You, 2012), —to guide student engagement across each phase. Each stage informed the development of specific reward-based 'Beans' aimed at reinforcing self-directed learning behaviours.

The forethought or pre-engagement phase includes behaviours, such as pre-reading and subsequent participation in preparatory online assessments (pre-tests). Students were rewarded for passing (50% and more) each of the online pre-tests as this learning activity was the first contact that students had with the content of the applicable five chapters. The first, and last chapters were not included in the pre-engagement phase of rewards, as well as three other consolidating chapters.

Regular class attendance and active engagement in continuous online learning activities exemplified the performance, or process phase. Class attendance Beans were awarded purely as a binary mark (1 for attendance and 0 for non-attendance) which was monitored by facilitators, either by scanning QR codes during the lectures, or collecting and capturing written class activities. The activity Bean rewarded different levels of achievement for eight different online learning activities enabling students to practise challenging concepts on different topics. Financial calculations, like profit mark-up and finance cost calculations, as well as the application of different

measurement basis as per the Conceptual Framework for Financial Reporting were included as activity Bean learning activities.

Involvement in post-engagement benchmarking assessments and participation in the online community space represented the reflection or post-engagement phase. Although passing the three high stakes assessments serves as motivation to most students, only the best two out of a possible three assessments were considered to contribute towards each individual students' module mark calculation. A mark of 70% or higher was required to earn a Bean, for each high stakes assessment, to serve as motivation towards habitual behaviour.

This structured approach helped in designing the SLP to encourage a state of flow within the learning environment, and the careful placement of the learning activities was intended to support the development of effective learning habits among students (refer to Table 1 for a detailed breakdown).

While SRL provides the organisational framework, the theoretical basis for motivation and autonomy is grounded in Self-Determination Theory (SDT). Each SRL stage aligns with the cyclical phases of pre-engagement, engagement, and post-engagement found in SDT applications within gamified reward systems (Zimmerman and Tsikalas, 2005), supporting intrinsic motivation through the satisfaction of autonomy, competence, and relatedness.



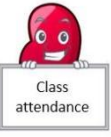


Forethought or pre-engagement phase	
Pre-test Bean	
	A Bean was awarded for passing (50% and more) each of the course's low-stakes online assessments after some pre-reading, which was designed to prepare students for an upcoming topic.
Performance or process phase	
Activity Bean	
	This Bean rewarded participation in specific online learning activities throughout the course. These activities included online quizzes, videos and other learning activities per topic.
Class attendance Bean	
	This Bean was randomly awarded for class attendance throughout the course. Students could attend four lectures per week at three different timeslots.
Reflective or post-engagement phase	
High Stakes Bean	
	A Bean was awarded for exceptional performance (70% and more) in each of the course's high-stakes online assessments which combined a number of topics.
Surprise Bean	
	This Bean was offered twice to the students; once for engagement with reflective videos on challenging aspects of a summative assessment, and once for participation in the online community space.

Table 1 Learning activities to be rewarded during the three different phases of self-regulated learning in a gamified programme of reward

In this thesis, the instructors carefully assessed each identified learning activity to ensure its attainability by the majority of the student cohort. This evaluation process was guided by considerations of the students' expectations and their self-efficacy, aligning with principles of Self-Determination Theory (SDT) as described by Deci and

Ryan (2008). A key aspect of this evaluation was recognising that different learning activities require distinct performance benchmarks to challenge the students.

For instance, as students of a residential university, class attendance merely required a participation indicator to qualify as a rewarded learning activity. In contrast, the formative assessments demanded a specific attainment threshold of 50% for goal completion and subsequent rewards. The educational objectives associated with these learning activities were deemed to be attainable by a majority of the student cohort, contingent upon their diligent effort.

3.2.2 *Nature of rewards offered to influence learning behaviours*

Rewards play a crucial role in influencing member behaviour and habit formation in CLPs, and their effectiveness is determined by their reinforcement and expectancy-value (Pintrich and De Groot, 1990; Deci and Ryan, 2008; Hwang and Mattila, 2018). The desirability of a reward, or its reinforcement value, is key to its impact (Kivetz, Urminsky and Zheng, 2006; Deci and Ryan, 2008; Kearney *et al.*, 2012; So, Danaher and Gupta, 2015; Feldman, 2016) and links closely to the gamified design motivator, usefulness. This understanding led to the next design question (**DQ2**) in the SLP: what nature of rewards would effectively influence the students' behaviour (Deci and Ryan, 2008).

Considering that students value marks as their 'currency' (Maggin *et al.*, 2011; Dicheva *et al.*, 2015), the SLP rewarded students with Beans that could be converted into marks. These Beans earned across five learning categories (Table 1) could each be converted into one mark, contributing up to 5% of the course grade before the final examination. The remaining 95 marks were based on the student's performance in the low and high-stakes formative assessments and two high-stakes summative assessments (for which no Beans were awarded). The course grade before the final examination together with the final examination counted equally towards students' final course grade. This implied that these rewards contained the power to distinguish between a pass or a fail mark, as well as passing with or without distinction, and was 'marketed' to the students as the "Power of the Bean" as the rewards were characterised as "Beans".

3.2.3 Reward schedule(s) adopted to influence the students' participation in learning activities

In CLPs, effective habit formation among members is achieved by strategically scheduling rewards. This approach not only targets a change in the individual's *intention* to act in a specific manner but also cultivates a culture of *repetition* within a *contextually stable* environment (Henderson, Beck and Palmatier, 2011). Similarly, in an educational context, while *initial* student engagement and performance may often be unsatisfactory, *repeated* practice and reinforcement can modify their behaviour (Nagle *et al.*, 2014). This gradual change ensures that activities are executed correctly within the *stable context* of a university course (Ertmer and Newby, 2013).

In response to design question 3 (DQ3), the SLP adopted differing reinforcement schedules tailored to each specific learning activity. A reinforcement schedule in this context refers to a different pattern of rewards, each influencing behaviour in unique ways (Hrastinski, Cleveland-Innes and Stenbom, 2018).

Different reward schedules in a learning context may impact student motivation towards participation in learning activities. Two key behavioural concepts from the customer loyalty programme literature are particularly relevant – response rate and extinction rate. Response rate refers to the frequency at which a behaviour is performed following reward (Rotter, 1960; Skinner, 1963b; House, Hanley and Magid, 1979; Mcleod, 2015). In a learning context, it indicates how quickly and often students participate in a particular activity after receiving a reward. Extinction rate refers to the rate at which participation decreases when reinforcement is no longer provided. In education, it reflects how long students continue participating in learning activities once rewards are removed (Rotter, 1960; Skinner, 1963b; House, Hanley and Magid, 1979; Mcleod, 2015).

A continuous reinforcement schedule, for example rewards students each time they exhibit a specific behaviour. While effective, this approach may lead to a slower response rate and quicker extinction rate (Wiegand and Scott Geller, 2004; Downing, Keating and Bennett, 2005; Nagle *et al.*, 2014). In contrast, a fixed-ratio schedule rewards a behaviour only after it occurs a specified number of times. For example, a student might receive a reward after every five instances of targeted behaviour. A variable-ratio schedule reinforces a random number of occurrences, which may be followed, adding an element of surprise and potentially increasing engagement. Both these reinforcement schedules may yield a faster rate of response and slower

extinction rate than continuous reinforcement (Skinner, 1963; Henderson, Beck and Palmatier, 2011; Mcleod, 2015). This means that students are likely to engage more quickly and maintain their behaviour for longer periods before requiring additional reinforcement. These insights were instrumental in shaping the reinforcement strategies used in the SLP, to optimise student engagement and the longevity of desired learning behaviours.

Given the prevailing uncertainty in customer loyalty literature as to the optimal design characteristics and mechanisms for targeting habit formation (Judah *et al.*, 2018), this aspect was particularly challenging in the design of the SLP. It is not clear which schedule, or pattern, of rewards most effectively changes intention and supports the repetition of actions in a specific context. This uncertainty is mirrored in education where the exploration of reinforcement scheduling has been limited (Nagle *et al.*, 2014). To address this, the instructors on the course considered various options for reward scheduling for each learning activity. They separately assigned a reinforcement schedule to each activity. Subsequently, as a team, they compared their proposed reinforcement schedules, discussing and resolving differences to reach a mutual consensus.

In the design of the SLP, various reinforcement schedules were carefully considered and applied (Table 2), each with its unique impact on student response rate and extinction rate, to address the gamified design motivator, progress. The following discussion explores these different schedules, providing examples and explaining the rationale for their selection in the context of the SLP.

Continuous reinforcement schedule

A continuous reinforcement schedule implies that the participant is rewarded every time a specific behaviour occurs. Three of the rewards were awarded for each required behaviour of students with the specific learning activity: pre-test Beans, activity Beans and high-stakes Beans. Due to this schedule yielding the least favourable results in terms of the speed and longevity of the required behaviour, another schedule was introduced to the same rewards during the design of the SLP, namely a fixed ratio schedule to mitigate response and extinction rates.

Fixed ratio reinforcement schedule

In the case of a fixed ratio schedule, which yields a fast rate of response and medium extinction rate, behaviour is reinforced only after occurring a specified number of times (Henderson, Beck and Palmatier, 2011; Nagle *et al.*, 2014). The importance of forming a habit regarding specific learning behaviours was considered to assign ratios of rewards needed to qualify for conversion into one mark as per Table 2.

Variable interval reinforcement schedule

Another type of reward in the SLP was awarded for class attendance. During this course, which is presented at a residential university with an assumption of compulsory class attendance, students had four lectures per week of fifty minutes each. The reward was available during randomly assigned contact sessions for ten of the fourteen weeks. Adjusting behaviour under the variable interval schedule occurs at a fast pace and takes a longer time towards extinction due to the unpredictability of the timing of rewards (Mcleod, 2015).

Variable ratio reinforcement schedule

Finally, the SLP included a reward that was based on unpredictability which is called a variable ratio reinforcement schedule. This is a powerful form of reinforcement because of the fast response rate and slow extinction rate (Mcleod, 2015). The surprise Bean was rewarded twice during the course of the academic weeks – once for watching videos and answering questions as part of post-test reflection of one of the summative assessments, and the second reward was awarded for participation in a scholarly community activity regarding values of the accounting department. CLP literature suggests that the variability and surprise of ‘random’ rewards heighten consumers’ cognitive-emotional responses (e.g., gratitude) (Palmatier *et al.*, 2009; Valenzuela, Mellers and Strebel, 2010) but may fail to provide the contextual stability necessary for automatic processing and habits to take over (Ji and Wood, 2007; Tobias, 2009).

Behavioural potential, endowed progress effect and goal gradient effect

In consumer loyalty programme (CLP) literature, expectancy value refers to an individual's belief in their ability to achieve a desired outcome and the expectation that their efforts will lead to a reward. When applied to a learning context, expectancy value refers to a student's belief in their ability to achieve a set goal and their expectation that their actions will lead to a reward.

To manage the behavioural potential of participation in and engagement with the SLP, marks were added to the individual student's course grade before the final examination. Appendix D outlines the rationale and process for establishing the initial 5% contribution. This percentage was chosen based on a preliminary analysis to balance the motivational impact of the rewards (Beans) with the proportional effort required, ensuring alignment with the time commitment for the remaining 95% of the assessed coursework. The decision was informed by principles from customer loyalty programmes, where small but meaningful incentives effectively drive engagement without overwhelming participants, though no specific programme directly dictated the percentage.




This expectancy can be enhanced by creating the perception of progress towards a goal. For example, in the SLP, this was achieved by offering a reward for participation in a no-stakes orientation quiz during the first week of the course (Drèze and Nunes, 2009). This strategy is based on the concept of endowed progress from CLPs (Drèze and Nunes, 2006; Chen, Mandler and Meyer-Waarden, 2021), where a sense of initial advancement towards a goal is known to increase motivation to reach that goal.

In customer loyalty programme (CLP) literature, the goal gradient effect suggests that as participants get closer to a reward goal, their frequency of engagement increases (Kivetz, Urminsky and Zheng, 2006; Drèze and Nunes, 2009a; Feldman, 2016). In a CLP, this goal typically involves accumulating enough rewards to redeem a benefit. In the SLP, however, while the rewards themselves serve as motivational milestones, the end-of-semester exam or final assessment provides an additional, overarching goal. This effect was leveraged to boost student *intent* and *repeated* action by strategically scheduling reward-based learning activities at intervals aligning with periods of higher student participation, such as near deadlines for summative assessments.

This scheduling was designed to capitalise on the natural increase in student effort as these critical deadlines approached. Additionally, the SLP encouraged habit formation, not just through isolated activities but by rewarding a variety of targeted learning activities consistently over time. This approach aimed to foster a pattern of *repeated* actions, supporting the development of effective learning habits in students. The goal was to create a dynamic learning environment where students were continually motivated to engage more as they progressed closer to their academic goals.

3.2.4 Weighting of rewards

In addition to the type and scheduling of the rewards, the instructors also considered the weighting of the rewards for each learning activity in terms of their conversion into marks (Table 2), i.e., how many Beans would be required to earn each learning activity's one mark (**DQ4**)? The instructors individually assigned several Beans to obtain one mark, for each learning activity, based on the perceived educational value of that activity in contributing to the student's learning. As a team, the instructors compared their proposed mark allocations and resolved any differences through discussion before reaching a mutual consensus.

Forethought or pre-engagement phase	
Pre-test Bean	(Continuous, fixed-ratio reinforcement schedule)
	5 Beans were available, which were awarded for engagement with each pre-test and reaching the performance threshold of 50%. A minimum of three Beans is required for one mark.
Performance or process phase	
Activity Bean	(Continuous, fixed-ratio reinforcement schedule)
	8 Beans were available, and students were rewarded at different performance thresholds. A minimum of five Beans is required for one mark.
Class attendance Bean	(Variable interval reinforcement schedule)
	10 Beans were available, which were randomly awarded as a participation reward for class attendance. A minimum of five Beans is required for one mark.



Reflective or post-engagement phase	
High Stakes Bean	(Continuous, fixed-ratio reinforcement schedule)
	3 Beans were available, and students were rewarded for engagement at a performance threshold of 70%. A minimum of two Beans is required for one mark.
Surprise Bean	(Variable-ratio reinforcement schedule)
	2 Beans were available as rewards for participation only, with no performance thresholds. A minimum of one Bean is required for one mark.

Table 2 Reward scheduling and the weighting of rewards in the student loyalty programme

The pre-test Bean was awarded for satisfactory performance (50% or more) with the pre-test content, as per a continuous reinforcement schedule. Three, out of the possible five Beans were convertible into one mark to incorporate a fixed-ratio element and pro-long the extinction rate. Pre-test learning activities were evenly scheduled over the course, therefore setting the conversion threshold at more than half of the total available Beans ensured a fair weighting for mark conversion.

Similarly, activity Beans were awarded based on a continuous fixed-ratio reinforcement schedule, with learning activities planned at regular intervals during the course. However, students were rewarded at different performance benchmarks according to the deemed educational value of each activity. For example, the financial calculations activity required a 50% score due to the computational nature, while preparing a comparative list of transactions for different inventory systems required completion only. This immediate feedback to students' progress aligns with the gamified design motivators applied while designing the SLP.

The class attendance Bean was the only reward based on a variable interval reinforcement schedule, which aimed to achieve a fast response rate with a longer extinction rate due to the unpredictable nature of the reward. The 10 Beans available were matched with the 10 chapters covered in the course, of which students had to earn at least five Beans for conversion into one mark. This weighting encouraged consistent attendance, given the four weekly lectures over the 14-week course and the random distribution of rewards.

High stakes Beans were the most challenging rewards to earn, available for each of the three high stakes online revision assessments. These Beans required students to meet a higher-performance criteria than other rewards. As implied by “high stakes” the aim was to motivate students to not only participate in these learning activities, but to engage on a higher level. A fixed-ratio schedule was used, where two out of the three Beans were needed for conversion into one mark, reflecting the higher demands associated with these assessments.

Finally, a variable-ratio reinforcement schedule was applied for the surprise Bean to enhance the motivational power of a fast response rate and slow extinction rate. As only two Beans of this nature were available, the weighting of one out of the possible two rewards necessary for redemption is fair when considering students’ psychological need for competence, and autonomy. By making the reward achievable yet unpredictable, students experienced a sense of competence as they succeeded in earning the Surprise Bean, while the element of surprise maintained their engagement and autonomy in choosing when and how to participate in these activities.

3.2.5 Practical example of the design of the student loyalty programme design compared to a customer loyalty programme

The SLP was structured to utilise the motivational impact of concepts applied in CLPs to shape customer behaviour within an educational context. The following illustrates this approach by tracking a hypothetical student, Mr. Bean, participating in the learning activities and actively engaging in the SLP, alongside Mr. Bean’s engagement in the Discovery Vitality Active Rewards programme. This comparison highlights the SLP’s design principles, with the Discovery Vitality Rewards serving as a suitable real-world counterpart. The Discovery Vitality Rewards programme is: “a science-based behaviour change programme that helps you keep track of your progress towards a healthier you and rewards you for making better choices with a premium range of health, lifestyle and leisure benefits.”(Discovery, 2024).

In this example, Mr. Bean’s learning experience within the SLP focuses on the Activity Bean rewards. The eight Activity Beans available were released at different dates and aligned with specific content over the 14 academic weeks of the introductory accounting course (Table 3). For each activity Bean, details such as the relevant chapter, release date, and topic are provided. These activities were designed to give

students practice with challenging concepts. Mr Bean's performance in each learning activity is portrayed in a separate column. Different activities had different qualifying thresholds for students to earn the particular reward which is also indicated per item. Only active engagement therefore meeting the threshold, is rewarded, which is indicated with the 'Bean' reward icon.

In comparison, Mr Bean's engagement with the Discovery Vitality Active Rewards programme is also portrayed in Table 3. One of the categories of the Vitality Active Rewards is Exercise activities which are, similarly to Activity Bean activities, released at certain intervals (weekly), with qualifying thresholds, stated as Vitality Points. The goals set per Exercise activity differs from week to week depending on the desired behaviour for which a reward can be earned, which is mimicked by the challenging concepts included in the SLP Activity Bean learning activities.

Mr Bean, as fictitious member of the SLP, earned five of the possible eight Activity Beans available for reward (Table 3). However, to benefit from this rewarded behaviour Mr Bean qualified to redeem these Beans for one mark towards his term mark (Refer to Table 2 for redemption criteria specific to the Activity Bean) as described in the online redemption process for the SLP. Similarly, as a member of Discovery Vitality Active Rewards programme, Mr Bean would only reap the benefit of his changed behaviour by redeeming his Vitality Active Rewards. This redemption is facilitated on the website or mobile application as either instant rewards in the form of benefits from partnering service providers, or conversion into Discovery Miles, which represents a virtual currency for members to apply, similarly to marks representing a currency for students as members of the SLP.






Participation and active engagement

The following depiction of participation and active engagement by the fictitious student, Mr Bean, can facilitate a better understanding of these concepts. To crystallise the difference between the participation and active engagement rates the Activity Bean information from Table 3 was applied as follows:

Mr Bean, our fictitious student participated in most of the Activity Bean learning activities, except for the Chapter 4, perpetual versus periodic inventory system activity (indicated with a '0'). His participation rate for this specific learning activity would have

been high at 88% (He *attempted* seven out of the possible eight learning activities in this category).

In accordance with the qualifying thresholds for each learning activity, Mr Bean qualified for rewards for five out of the eight Activity Bean learning activities. He used more than one attempt for the chapter 5 and chapter 6 learning activities to earn the Bean, which translated into active engagement with the content. The reward, earning the Beans, for active engagement motivated him to pursue earning five out of the eight Beans which resulted in him qualifying for the redemption of his rewards into marks. His active engagement rate for the Activity Bean learning activities was 63% (He *qualified for redemption* for five out of the eight Activity Beans).

Student Loyalty Programme			
Learning activity	Qualifying threshold	Mr Bean's performance	Reward (Bean)
Study guide Released: Pre-course Topic: Introduction	Binary	1	
Chapter 1 Released: 04-02 Topic: Elements' measurement	50%	60%	
Chapter 3 Released: 22-02 Topic: Spot the difference	50%	70%	
Chapter 4 Released: 01-03 Topic: Math Madness	70%	65%	
Chapter 4 Released: 08-03 Topic: Perpetual vs Periodic	Binary	0	
Chapter 5 Released: 08-04 Topic: VAT	50%	60%	
Chapter 6 Released: 29-04 Topic: Internal control	70%	70%	
Chapter 7 Released: 18-05 Topic: Year-end adjustments	50%	49%	







Discovery Vitality Active Rewards ²			
Exercise activities	Qualifying threshold	Mr Bean's performance	Reward
Exercise events Released: Week 1 Goal: 4 Fitness days	450 Vitality points	460 Vitality points	
Exercise events Released: Week 2 Goal: 4 Fitness days	450 Vitality points	350 Vitality points	
Exercise events Released: Week 3 Goal: 10 000 steps	500 Vitality points	500 Vitality points	
Exercise events Released: Week 4 Goal: 10 000 steps	500 Vitality points	520 Vitality points	
Exercise events Released: Week 5 Goal: 5 Fitness days	450 Vitality points	475 Vitality points	
Exercise events Released: Week 6 Goal: 5 Fitness days	450 Vitality points	430 Vitality points	
Exercise events Released: Week 7 Goal: 12 000 steps	600 Vitality points	630 Vitality points	
Exercise events Released: Week 8 Goal: 12 000 steps	600 Vitality points	620 Vitality points	

Table 3 Practical example of the student loyalty programme compared to real life customer loyalty programme

² The Vitality points table is a completely fictitious example for comparative purposes.

3.3 Implementation of the Student Loyalty Programme

The digital LMS played a crucial role in the SLP, particularly in monitoring students' timing of participation, active engagement, and performance in learning activities eligible for Bean rewards. This monitoring enabled the instructors, who served as SLP administrators, to access real-time data easily. This data availability was instrumental in providing early warnings and allowing timely interventions, whether addressing specific accounting topics or offering targeted support to individual students.

It is worth noting that the instructors administering the SLP did not require any specialised information technology skills. The LMS was equipped with built-in functionality that allowed for seamless release and tracking of participation and performance data related to the scheduled activities that qualified for Bean rewards (Refer to Appendix B for a screenshot of the instructor view of Beans awarded). This feature was pivotal in ensuring that students received immediate, or at least timely, feedback on their participation and performance (Boud and Molloy, 2013). Such prompt feedback is a critical gamification design motivator in learning environments, as it helps maintain student engagement and fosters a sense of progress and achievement.

In the SLP, immediate feedback on student progress through earned rewards was just one facet of the communication between instructors and students. Another key aspect, mirroring successful elements of CLPs, involved the dissemination of programme-related information such as updates and administrative reminders (Hollebeek, Das and Shukla, 2021). This form of communication played a significant role in member engagement and was effectively adapted in the context of the introductory accounting course.

By regularly providing updates and reminders, the instructors could manage the pragmatic challenges of handling large groups of students more efficiently. This strategy not only kept students informed and engaged but also supported their development of self-directed learning skills (Refer to Appendix A for initial information sheet released to students via the LMS). By receiving timely information and reminders, students were indirectly guided to adhere to the required learning processes. This approach proved beneficial in fostering habitual behaviour within the

stable context of the course, helping students stay on track with their learning objectives while reducing the administrative burden on instructors.

In the SLP, the process of reward-redemption was closely linked to active engagement, a connection well-established in CLP literature (Eighty20, 2018; Hollebeek, Das and Shukla, 2021). Therefore, only those students who qualified for reward redemption, and chose to redeem their rewards at the end of the academic semester benefited in terms of marks. This redemption process was intentionally designed to be student-driven and reliant on self-reporting, thereby fostering the development of a student's self-regulated learning skills.

To ensure high engagement in the redemption process, it was kept straightforward, in line with the understanding that complex processes can deter engagement (Smith and Sparks, 2009). The process was communicated to all the students through official communication channels. Students completed a simple Google Form (accessible at: <https://bit.ly/3NAK0AJ>) (Refer to Appendix C) at the end of the semester, just before the examination period, to redeem their rewards. Each submission was verified by the instructors against data summaries from the LMS. This verification was crucial to ensure the accuracy and integrity of the reward system before translating Beans into marks, thereby maintaining fairness and transparency in the evaluation process.

3.4 Subsequent design and implementation of the Student Loyalty Programme

As mentioned initially in this chapter, design-based research involves redesigning theory-based teaching pedagogies after investigating these practices from different perspectives. This thesis includes a report on such an investigation of the initial design and implementation of the SLP, but included find a brief description on subsequent iterations of the SLP as well as the adoption of similar reward programmes in other accounting courses at the particular HEI.

The Student Loyalty Programme after adjustments

This thesis is based on data collected during the 2019 academic year and although the SLP were implemented in the preceding academic years as well, the data could

not be included for comparative reasons. The worldwide COVID-19 pandemic during 2020, resulted in the format of learning activities changing significantly (Tharapos, 2022). Instructors were required to adapt their pedagogical approaches, while student participation and engagement also experienced a significant transformation in response to the radically altered learning environment. (Tettamanzi *et al.*, 2023).

The SLP were continuously implemented during the academic years to follow, not only during the first academic semester in the introductory accounting course on the business accounting stream, but also in the second semester for the financial accounting course which allows business accounting students to continue with their accounting studies in their second year of studies. A number of notable changes were implemented:

- The contribution of the SLP towards the module mark increased from 5% to 10%, as bonus marks, beyond the 100% for other formative and summative assessments.
- Redemption was automated at the end of every semester with information from the Learning Management System. Students did not have to submit their earned Beans as a report, or complete the Google form.
- Rewards were introduced for exemplary behaviour in lectures. Examples include: reporting lost property, assisting differently abled fellow students (wheelchair bound student) and whistle blowing on unethical behaviour during low stakes online assessments.

A project to introduce peer awarded Beans for a team assignment to address the social aspect of SDT, relatedness, is in an exploratory phase (Ryan and Deci, 2020). Students are rewarded by their peers for displaying certain teamwork competencies, and these rewards can be converted into marks contributing towards their final individual assignment marks.

Reward programmes adopted in other academic courses

After the successful design and implementation of the SLP for five consecutive academic years on the first-year introductory accounting course (FRK111), similar programmes were also implemented for another subject, facilitating business acumen, on a first-(BUS100), second- (BUS200) and third year (BUS300) of accounting. The rewards programme is based on tested concepts from the SLP, but on a much more

elementary level, due to the novelty of the intervention for the facilitators and students alike. The following information was provided to the first-year students in their study guide as an introduction:

“BUS Miles³ Rewards program

The key to passing this module is to work continuously. We require students to prepare for lectures, attend and actively participate during lectures, and complete homework. To motivate and reward students for continuous work, we have continuous assessments in the form of pre-tests, classwork and homework. Combined, these assessments contribute a maximum of 12% of which 2% forms a bonus mark component. That means the maximum mark for this module is 100% and not 102%.” (BUS100 Study guide, 2025)

Students who have completed the continuous learning activities: class work, homework and pre-tests, they are rewarded with “BUS miles”. During in-contact lectures students can also earn “BUS tickets” for participation, at the discretion of the facilitators, which can then be converted into “BUS miles”.

The implementation of the third-year level programme occurred for the first time during the 2025 academic year with the following notable features:

- Students are awarded 2 initial BUS tickets and these can be forfeited in the case of misconduct detected during self- and peer assessment marking. This concept aligns with the endowed progress concept from CLPs which was also implemented in the original SLP.
- The remainder of the BUS tickets are awarded as follows: 2 tickets for reaching a 90% class attendance at the end of the academic year. Class attendance is continuously monitored by means of QR codes. This is referred to as a fixed ratio reinforcement schedule when behaviour is reinforced only after occurring a specified number of times or at a specific level and yields an expected fast rate of response and medium extinction rate. (Henderson, Beck and Palmatier, 2011; Nagle *et al.*, 2014).
- Rewards can also be earned for participation in voluntary learning opportunities, for example: student participation in a JSE trading game or the Everest simulation. Students who complete the digital acumen homework (completed in

³ BUS tickets or BUS miles are similar in nature to the BEANS applied in the SLP, and creates situational interest as the code for these courses is BUS100, BUS200 and BUS300, referring to Business Acumen as the scope for content inclusion.

Excel) and attendance of off-campus social events such as the Ernest and Young or South African Brewery sponsored events. Rewards of this type is awarded according to a variable ratio reinforcement schedule (variable interval and ratio). These are powerful forms of reinforcement due to the fast response rate and slow extinction rate (Mcleod, 2015), as noted in the initial implementation of the SLP.

The redemption process was kept as simple, and user friendly as possible with students having to complete a google form together with handing in the physical BUS tickets earned into the BUS box that was available during each in-contact lecture attended by the students. The redemption process has been assigned to teaching assistants and the processes they have put in place can easily be copied in the future.

These programmes are currently in progress and student feedback will only be collected at the end of the course. In the interim, instructors' views on the influence of implementing aspects of a SLP on student motivation, participation and active engagement in general was expressed as (i1): *“Compared to last year (when there was no similar programme in place), I agree that there is a greater sense of participation and active engagement. It is interesting that students feel more rewarded by earning the BUS ticket, than merely receiving the marks for online participation. I think this can be attributed to the gamification it brings to the pedagogy. I would strongly recommend that more modules introduce a strategy similar to this.”* The following comment was made by an instructor (i2) who facilitates more than one course, and the reward programme was only implemented in one of the courses: *“Overall I feel this has increased participation in class a lot, specifically when I compare it to lecturing on an equally technical FDM module for the same group.”*

3.5 Conclusion

The comprehensive account of the design and implementation of the SLP presented here offers a valuable roadmap for instructors aiming to boost student motivation, participation and engagement, thereby nurturing effective learning habits as a manifestation of self-regulation. To facilitate the replication of the SLP in other education settings, the process to implement the SLP, over a six-month academic semester, was documented. This documentation aims to assist other facilitators in

motivating their students towards enhanced participation and active engagement. This detailed guide can serve as an instrumental resource for educators seeking to implement similar strategies in various learning environments.

However, to fully realise the SLP's potential in cultivating self-directed learning among students, it becomes imperative to delve deeper through pragmatic research. This research should focus on identifying the distinctive characteristics and behavioural patterns of highly engaged students within the SLP framework. Such an investigation is crucial to refine and tailor the SLP's approach, ensuring it effectively meets the diverse psychological needs and learning styles of students. By doing so, we can better understand and enhance the impact of the SLP on student learning outcomes, making it an even more effective tool in the arsenal of educational methodologies.

In this thesis, engagement within the SLP is two-fold. It encompasses both indirect involvements, where students earn rewards by participating in the underlying learning activities, and direct interaction, marked by the qualification for redemption of rewards. This distinction is crucial as it allows for a comprehensive evaluation of the SLP's efficacy. Specifically, focussing on the extent and nature of students' participation and their active engagement with the SLP is significant in assessing how well the programme fosters effective learning habits.

Moreover, measuring student engagement levels is vital for the ongoing refinement of the SLP. It provides insights into how the programme can be adjusted and improved in future iterations to better meet the evolving needs of students. Such evaluations are key to ensuring that the SLP remains an effective tool in enhancing the learning experience and academic outcomes of students.

4. CHAPTER 4: METHOD

This thesis reports on the design and implementation of a Student Loyalty Programme (SLP) aimed at motivating accounting students towards improved participation in targeted learning activities and supporting them in developing effective learning habits as an initial step towards becoming self-directed learners. Following the design and implementation of the SLP, the students' participation in the learning activities and their active engagement with the SLP was explored using a mixed methods design. A mixed method design combining qualitative and quantitative methods aligns with the principles of triangulation, which involves using multiple data sources to increase the reliability of findings (Greene, Carcelli and Graham, 1989), and expansion, which seeks to enrich understanding by examining different aspects of a phenomenon (Bryman, 2006).

This exploration focused on four research questions:

RQ1: What was the level of student participation in the learning activities within the SLP?

RQ2: To what extent did students actively engage with the SLP?

RQ3: Does a correlation exist between students' engagement with the SLP and academic performance?

RQ4: How did the students experience the implementation of the SLP?

4.1 Research design

Creswell (2014) describes mixed-method research design as an approach that not only combines but also integrates results from both quantitative and qualitative methods. This integration provides a deeper understanding than analysing the data in isolation (Creswell, 2014). In this thesis, the quantitative exploration of student participation with the targeted learning activities (**RQ1**) and active engagement with the SLP (**RQ2**), was complemented by a regression analysis to examine a possible correlation between active engagement with the SLP and academic performance (**RQ3**). Additionally, a survey-based investigation of students' experience as members of the SLP (**RQ4**) was performed, in order to obtain corroborating quantitative and

qualitative evidence from a different perspective. This approach aimed to ‘illuminate the quantitative findings’ (Doyle and Brady, 2016, p. 625).

A convergent design was followed, wherein quantitative and qualitative data were collected simultaneously but kept separate to maintain the independence of each phase’s findings and ensure equal emphasis on different data sources (Creswell and Clark, 2011). Such a convergent design is particularly effective for triangulation, as it involves the same population for the different data sources, facilitating the efficient merging of findings during the final interpretation leading towards a conclusion (Doyle and Brady, 2016).

Mixed method design is particularly well suited for behavioural studies (Doyle and Brady, 2016) across various disciplines, including education (Bryman, 2006; Almendingen *et al.*, 2021), and more specifically accounting education research (Gittings, Taplin and Kerr, 2020; Awadallah and Elgharbawy, 2021)

4.2 Methods

In the education context, student engagement is characterised to the degree of attention, curiosity, interest, optimism, and passion that students exhibit during learning or teaching activities. This engagement reflects their motivation and intent to learn and progress in their education (Gervais, 2016). According to Self-Determination Theory (SDT), the sense of competence and autonomy that students experience as they make progress can influence their intrinsic motivation and lead to the repeat engagement (Niemic and Ryan, 2009; Ryan and Deci, 2020). When students’ intent to engage is combined with repetitive behaviour, within a stable context, it creates the perfect opportunity for habit formation and ultimately performance enhancement (Wood and Neal, 2009).

In this thesis, ‘engagement’ is conceptualised as having two interrelated dimensions within the SLP:

- Indirect engagement, which refers to students’ participation in learning activities that yield rewards.
- Direct engagement, which refers to students’ active involvement with the SLP through qualifying for and redeeming rewards earned.

This dual conceptualisation captures the full spectrum of student interaction with the SLP, encompassing both the motivation to participate in linked learning activities and the tangible actions taken within the rewards system. This conceptualisation informs the following research questions:

RQ1: What was the level of student participation in the learning activities within the SLP?

RQ2: To what extent did students actively engage with the SLP?

Data collection

In response to research question 1 (**RQ1**) and research question 2 (**RQ 2**), data was collected, after obtaining ethical approval from the institutional review board. Data, reflecting the students' engagement with the SLP, was sourced from the learning management system (LMS) and the university's administrative system. This dataset included the type of learning activity for each student, their participation or performance in each activity, the date of participation, the number of Beans awarded for each activity and the final redemption of Beans for marks. In addition, demographic information for each student were obtained from the student administration system, to explore possible links between student behaviour and customer behaviour within loyalty programmes.

Target population

The target population for this thesis included all students enrolled for a first-year introductory accounting course ($n = 1518$). Students repeating the course ($n = 108$) were excluded from the analysis as prior experience in the course, might influence student engagement and learning habits. Students who remained registered for the duration of the course, but who did not participate in any of the course activities or assessments ($n = 15$), were also excluded. The final sample size for the collection of data was 1395 students.

Number of students		1395
Average APS		33
Language	n	%
English	628	45
Afrikaans	279	20
Other Indigenous SA languages	474	34
Other languages	14	1
Gender		
Female	753	54
Male	642	46
Future registration		
Option to continue with accounting in future	823	59
Terminating accounting studies	446	32
Not known	126	9

Table 4 Descriptive statistics of demographic characteristics of the total sample

The descriptive statistics of the student sample demographics provide insights into the composition and diversity of the participants, necessary for interpreting the results of the exploration of the students' engagement with the SLP. The average Admission Point Score (APS), reflecting their high school, or secondary school, academic achievements when entering the university, of the students is 33 (the highest APS that can be achieved is 42, and the minimum APS for admission is 30).

The language diversity of the student sample is broad, with 45% of students reporting English as their primary language, 20% Afrikaans, and 34% other indigenous South African languages. The challenge of language proficiency in higher education (Seow, Shan Chi Pan and Siok Wan Tay, 2014), is particularly pronounced in South Africa given the country's eleven official languages (Alexander, 2018). This linguistic diversity is a factor for consideration in designing and delivering effective educational programmes that accommodate different students' needs. The language of instruction at the university where the SLP was implemented is English, which is also the primary language for the highest proportion of the sample (45%). Students studying this course also met a minimum admission requirement of 5 (60-69%) for English in the national senior certificate examination, therefore the language applied in the SLP should not have a significant influence on student engagement.

The gender distribution of the student sample is relatively balanced, with females comprising 54% and males 46%. This balance is important as gender dynamics can affect learning engagement (Jones, Antonenko, and Greenwood, 2012;

Grover, Jackiw, and Lundh, 2019, Byrne and Flood, 2008; Massoudi *et al.*, 2017). Additionally, gender differences are also pertinent when exploring Customer Loyalty Programmes (CLP's) (Hofacker *et al.*, 2020; Hwang and Choi, 2020), where gender may influence engagement patterns and programme preferences. This influence may also extend to a student loyalty programme.

Regarding future academic intentions, 59% of students indicated a desire to continue with accounting, 32% planned to terminate their accounting studies, and for 9%, the future was undecided. Jones and Wright (2011) suggest that the intention to pursue accounting as a subject can significantly impact student motivation and their engagement with the subject content. Using the students' future registration intentions to interpret varying levels of motivation can provide insights into different participation and engagement levels in the student sample.

4.1.1 *Student Participation and Engagement Analysis*

To explore the students' participation with selected learning activities and engagement with the SLP, indicators thereof in customer loyalty programmes, were adapted for the education context. These indicators were the participation and active engagement rates (Bruneau, Swaen and Zidda, 2018; Van Asperen, De Rooij and Dijkmans, 2018), the repeat purchase rate (Chiu *et al.*, 2012), adapted to a repeat active engagement rate, and sales per customer, adapted to the academic performance of the students. The participation rate, for the SLP, was calculated as the percentage of the total students who participated in the various learning activities, regardless of their eligibility to redeem the Beans for these activities. The active engagement rate was calculated as the percentage of the total students eligible to convert the Beans they earned by participating in the various learning activities into marks.

To deepen the understanding of how student participation in learning activities and active engagement with the SLP vary by academic performance, the analysis included a breakdown by specific learning activities and academic performance levels. Recognising that engagement might differ among students with varying academic achievements, the student sample was stratified into four distinct performance groups. These groups were defined based on their final course marks: 'at risk' students, who scored below 30% (n = 63); 'low performance' students with scores, from 30% to 49%

(n = 227); 'average performance' scoring between 49% and 74% (n = 760), and 'high performing' students who achieved above 74% (n = 345).

The indicators of successful CLPs, at different academic performance levels, were analysed for the SLP per activity as intended through the three cyclical phases of self-regulated learning. This activity level investigation revealed additional behavioural parallels with customer loyalty programmes in student behaviour. These included the endowed progress concept (Drèze and Nunes, 2006), the goal gradient effect (Kivetz, Urminsky and Zheng, 2006; Feldman, 2016) and the varying engagement and extinction rates associated with different reinforcement schedules (Wiegand and Scott Geller, 2004; Nagle *et al.*, 2014).

4.1.2 *Correlation between student engagement with the Student Loyalty*

Programme and academic performance

Student participation serves as a strong predictor of academic performance (Dotterer and Lowe, 2011; Gunuc, 2014); with students who participate more generally experiencing greater academic success and better employment outcomes (Harbour *et al.*, 2015). Increased engagement in academic instruction, affords students more opportunities to deepen their knowledge and understanding of various concepts (Brophy, 1986).

It is important to acknowledge that students with an inherent academic aptitude might be more inclined to participate in the learning activities and engage in the SLP. Moreover, as habit formation is a gradual process, the full impact of the SLP on academic performance may not be immediately evident and could require a more extended period to become noticeable. Despite these considerations, this thesis aimed to explore whether participation in the selected learning activities and actively engage with the SLP had any noticeable effect on academic performance. The absence of a control group, a choice made due to ethical reservations about excluding some students from the SLP, means that the precise influence of the SLP on student active engagement and academic results is preliminary and needs further exploration.

The thesis explored the correlations between the total quantity of Beans earned, representing participation, and earning a quantity of Beans that qualified for redemption, representing active engagement, against students' examination grades (**RQ3**). Initially, to assess the impact of student participation versus non-participation

in the SLP on academic performance, an independent T-test was employed (Krasodomska and Godawska, 2021). This test investigated the differences in means between two groups, as a control group was not in place, and revealed statistically insignificant differences in mean scores for academic performance between the participating and non-participating students. Therefore, a Pearson correlation coefficient was applied to further examine the relationship between student participation and active engagement with the SLP, and academic performance in the targeted module. A Pearson correlation coefficient tests the association between variables and is used as indicative of significantly correlated variables in education literature (Byrne and Flood, 2008). The correlation between engagement with the SLP and academic performance was investigated.

Academic performance, in accounting education is affected by a variety of other factors as well (Eskew and Faley, 1988; Tho, 1994; Lane and Porch, 2002; Seow, Shan Chi Pan and Siok Wan Tay, 2014), and similarly, engagement in loyalty programmes is influenced by comparable variables (Bruneau, Swaen and Zidda, 2018; Hollebeek, Das and Shukla, 2021). To enrich the analysis of the impact of active engagement with the SLP on academic performance, an exploratory regression model was applied to include additional variables. These included past academic experience, both in general and subject-specific, and student's motivation to successfully complete the course. Furthermore, the general motivation levels of customers and the gender of the participants are recognised as influencing factors on engagement and performance, drawing from literature in both accounting education and marketing.

Exploratory multiple regression

The divergent active engagement rates of students, combined with the fact that multiple other factors impact academic performance, in introductory accounting courses in particular (Eskew and Faley, 1988; Byrne and Flood, 2008; Coetzee, 2016; Joynt, 2023), warranted additional investigation through an exploratory multiple regression model.

The following multiple regression model was applied:

$$AP = \beta_0 + \beta_1ENG1 + \beta_2GEN2 + \beta_3REG3 + \beta_4APS4 + \beta_5PACC5 + \varepsilon$$

The model was employed to explore the effects of various independent variables (as listed in Table 5) on the dependent variable (AP representing academic performance measured as the % score in the final examination, excluding any Beans). In particular, the variable of interest was engagement with the SLP, while controlling for gender, past academic experience and alternative intrinsic motivation.

Independent variables included:

Independent Variable	Description	Type
ENG	Engagement with the SLP	Scale from 0 – 5 (0 no engagement to 5 highest engagement)
GEN	Gender	Male and female
REG	Future registration for accounting	FRK 121 - Option to continue with accounting FRK 122 – Terminating accounting studies at the end of academic year 1 Unknown – Registration not reported
APS	Academic Performance Score	A score between 16 and 42 to assess students' qualification for admission to higher education
PACC	Past academic performance in accounting	Percentage obtained for accounting in grade 12 of high school

Table 5 Description of independent variables included in the multiple regression

Variable of interest

The positive correlation identified between active engagement rates with the SLP and academic performance with the interpretation of Pearson's correlation coefficient, gave rise to additional exploration of the variable of interest, engagement in the SLP (ENG) as represented on a scale from 1 to 5, with 1 representing a low level of engagement and 5 the highest level of engagement. Customer engagement in CLPs influences outcomes prioritised by businesses, like increased or at least repeat purchases (Hwang and Choi, 2020). This investigation aims to explore a possible similar effect within an educational context, where student engagement with an SLP influences academic outcomes. Increased motivation and engagement have been identified as variables of interest in studying academic performance (Byrne and Flood, 2008; Rashid and Asghar, 2016; Alsawaier, 2018; Joynt, 2023), but to date, student engagement in a gamified programme of motivation, the SLP, has not been explored.

It is vital to understand that student engagement and academic performance can be influenced by numerous factors, with the SLP being just one among them, therefore a number of control variables were also included in the exploratory multiple regression model.

Control variables

The academic performance of accounting students varies according to gender, with contradictory findings in the literature (Joynt, 2023). One school of thought found females to outperform their male counterparts (Mei Tan and Laswad, 2008), the males outperformed females (Koh and Koh, 1999; Seow, Shan Chi Pan and Siok Wan Tay, 2014), while the last group of studies found this variable insignificant in performance (Eskew and Faley, 1988; Tickell and Smyrnios, 2005; Byrne and Flood, 2008). Although female students do not necessarily outperform males, they do show more effort in engagement with content and activities (Fogarty and Goldwater, 2010). Considering that marketing literature identified significant differences in engagement with CLP between male and female members (Olsen *et al.*, 2013; So, Danaher and Gupta, 2015; Eighty20, 2018, 2023), it was also anticipated that gender would be a variable of interest in similar gamified environments (Maggin *et al.*, 2011; Koivisto and Hamari, 2014). Academic performance, in a gamified system of rewards, developed

and implemented in a first-year accounting course, is expected to differ by gender (GEN: female (1) and male (0)).

Intent influences student behaviour and studies in accounting education resulted in significant differences between the academic performance of students who intend to include accounting as a major subject and chose to major in non-accounting subjects (Tan and Laswad, 2009). In this thesis, students can be distinguished into these two groups by their registration in the second semester resulting in REG as a control variable with FRK121 registrations having the option to study accounting after the first year, and FRK122 terminating their accounting studies after the first year. Academic studies have suggested a significant relationship between prior academic performance and initial higher education academic performance (Johnson, 2008; Grace and Black, 2011). In South Africa specifically, the Admission Point Score (APS) as indicative of prior academic performance, across six 20-credit recognised high school subjects, has been confirmed as a statistically significant variable when investigating academic performance in an accounting course in particular (Coetzee, 2016; Joynt, 2023). Academic experience in the same discipline in the year preceding their first academic year at a HEI has been identified as one of the strongest relators to academic success (Tickell and Smyrnios, 2005; Mei Tan and Laswad, 2008), hence the inclusion of previous accounting experience (PACC) as a control variable in the regression model.

Marketing literature also considers customer satisfaction, and the likelihood of customers promoting active engagement with the programme, as an indicator of a successful customer loyalty programme (Zaki *et al.*, 2016; Fisher and Kordupleski, 2019). This understanding leads to the formulation of the next research question (RQ4):

RQ4: How did the students experience the implementation of the SLP?

4.1.3 *Student experiences*

A voluntary, self-administered, anonymous post-programme survey was conducted among the student cohort to gather further insights into their experiences with the SLP. A survey approach, using a consistent visual layout for the survey instrument (Dillman, Smyth and Christian, 2014), was adopted as it enabled the collection of data from as many participants as possible in a large student cohort

(Schmulian and Coetzee, 2019). Following approval from the institutional review board (EMS090/19), the survey instrument was made available through the learning management system for two weeks, at the end of the course. To mitigate non-response bias, several strategies were implemented. Firstly, automated reminders were sent to students from the LMS to encourage participation in the survey. Secondly, students who did not complete the survey received an email to their designated email address as a reminder. Following these measures, a final response rate of 34% was achieved (516 out of 1518). While this is a substantial response given the cohort size, it is acknowledged that non-respondents might hold different views or have had different experiences with the SLP compared to respondents.

Survey instrument

The survey instrument was developed based on statements extracted from the Badge Impact Survey (BIS) (Biles, Plass and Homer, 2014), the System Usability Scale (SUS) (Kyewski and Krämer, 2018) and the 2018 Loyalty Program Member Engagement Survey (LPMES) (Müller, Hanfstingl and Andreitz, 2007). BIS contributed statements regarding rewards (badges) and their effect on motivation and engagement (Biles, Plass and Homer, 2014). SUS is a questionnaire by Lohmann and Schäffer (2013) adapted from an academic self-regulation questionnaire (SRQ-A) by Müller, Hanfstingl, and Andreitz (2007), and was considered to include statements on system usability in an academic context. Items from the Loyalty Programme Member Engagement Survey linked some of the statements to customer loyalty programmes. Where necessary, items were adjusted to refer to the particular context of this thesis, the SLP.

Table 6 contains a list of the survey items posed to the students, to explore:

- the meaning of the rewards offered for students;
- student satisfaction and motivation; as well as
- system usability.

The items included in the survey were adjusted, where necessary, to fit the specific educational context of the SLP. For example: the term 'badge' was replaced with 'Bean' as this was the term that the students were accustomed to in the context of the SLP. References to the original source of the items, as well the format in which each item was presented is provided:

No	Survey item	Source	Format
1	Please type your student number (excluding the s or u):		
2	Did you actively participate ⁴ in the Beans programme throughout the course?		Y/N
3	What are the main reasons you did not participate or stopped participating actively in the Beans programme?		OE
4	What does getting a Bean mean? (Select ALL that apply)	BIS	List
5	Which ONE of these different meanings for Beans is the most important to you? (Select only ONE)	BIS	List
6	I liked earning Beans.	BIS	*
7	Earning Beans was important to me.	BIS	*
8	It is important to me that the Beans programme allowed me to convert Beans into marks.	LPMES	*
9	The total marks that can potentially be earned from converting the Beans are satisfactory.	LPMES	*
10	The number of Beans needed to earn a mark is satisfactory.	LPMES	*
11	Do you compare how many Beans you have earned with your friends or fellow students?	BIS	#
12	Do your friends or fellow students like to compare how many Beans they have earned with you?	BIS	#
13	When Beans are available to earn, do you try to get all the possible Beans?	BIS	#
14	In general, do Beans make you want to engage in an activity or intervention?	BIS	#
15	Before you engage in an activity or intervention do you look at what Beans are available to be earned?	BIS	#
16	Have you ever chosen an activity or intervention based on the Beans you could earn?	BIS	#
17	In general, would you do things differently (or do something you wouldn't normally do) based on whether or not you would earn Beans?	BIS	#
18	Earning Beans motivated me.	BIS	*
19	Provide reasons in support of your response above.	BIS	OE

⁴ In this chapter there will be no distinction between participation and active engagement as defined in the previous chapter in order for the survey to remain user-friendly and understandable to students.

No	Survey item	Source	Format
20	I find the concept of earning Beans interesting.	BIS	*
21	The Beans are useless.	BIS	*
22	I would like to use the Beans programme frequently.	SUS	*
23	The Beans programme was unnecessarily complex.	SUS	*
24	The Beans programme was easy to understand.	SUS	*
25	I needed support to be able to participate in the Beans programme.	SUS	*
26	If you needed support, what support did you require?	SUS	OE
27	There was too much inconsistency in the Beans programme.	SUS	*
28	If you found the Beans programme inconsistent, please describe in what way?	SUS	OE
29	Most students quickly learned how the Beans programme works.	SUS	*
30	Would you like the Beans programme to be adopted in your other courses?	SUS	Y/N
31	Provide reasons in support of your response above.	SUS	OE
32	Is there anything we should have asked you about in your reflection, but haven't?		OE
33	Is there anything further that comes to mind in your reflection that you would like to add?		OE
	# Likert scale: Never (1) - all of the time (5) * Likert scale: Strongly disagree (1) - strongly agree (5) Y/N refers to binary Yes or No questions OE were open-ended questions, mostly seeking more information from the preceding question.		

Table 6 Survey items with relevant source and format

Following initial item development, two accounting education experts were invited to participate in a content validation of the survey instrument (Sallis *et al.*, 1999). These experts were asked to consider the extent to which each statement addressed the construct of interest (i.e., the student's experience of an SLP). Additionally, they were asked to suggest additions and/or subtractions from the list of draft statements and to recommend changes for any statements they felt were unclear. The updated survey was then completed by the nine subject tutors of the targeted

course, who were second or third-year undergraduate students to assess the user-friendliness of the survey and to test for survey fatigue. Given the use of existing survey instruments, minimal changes were made as a result of the content validation. References to a badge in the BIS survey items were replaced with the word “Bean”, as this was the identifier for a reward in the SLP. Refer to Table 6 for a detailed layout of the survey items.

The respondent students ($n = 516$) were mostly required to indicate their response to the various statements on one of two 5-point Likert scale items, namely: 1 - Strongly disagree to 5 - Strongly agree, or 1 - Never to 5 - All of the time. Each response option in the instrument had an appropriate verbal label (e.g. strongly agree or agree) to help each option seem equally viable and ensure that the meaning of each option is clear (Krosnick, 1999). The visual balance of the response scale was congruent to avoid any confusion on the part of the respondents (Tourangeau, Couper and Conrad, 2004). A Cronbach’s alpha was determined for each section of the collected data to confirm the internal consistency of the scale (Field, 2009). The subscales consisted of the following number of items each: student satisfaction and motivation, 18 items, and system usability, 6 items, with Cronbach’s alphas of .817 and .785 respectively. This is indicative of an acceptable level of internal consistency for the Likert scale items under each subscale (Geroge and Mallery, 2003).

The quantitative data from the Likert scale items were analysed using SPSS 26.0 (IBM Corp, Armonk, N.Y., USA). Three negative statements were included in the survey to reduce acquiescent and extreme response bias (Sauro, 2011). These three statements were recoded for data analysis. Descriptive statistics, including the median, and range, were calculated for each item under the two subscales. The medians and ranges are better indicators of the distance between responses, than the means and standard deviation, when considering e.g. the distance from “All of the time” to “Often”, may differ from that between “Never” and “Rarely” (Cohen, Manion and Morrison, 2017). The median, as the measure of central tendency for Likert scale item data, also mitigates for a false neutral from the mean, if responses are grouped around both extremities (Sullivan and Artino, 2013).

Qualitative Data analysis

The Likert scale statements were supplemented by dropdown lists or open-ended questions, in certain cases, to gain deeper insights into the students' experiences, for example: if a student answered that they would recommend the use of a similar programme in another subject, the follow-up question would then prompt them to provide a reason why. These open-ended questions were analysed through a content analysis (Frizon and Eugénio, 2022) using Nvivo 12 Plus. Specific aspects of content analysis of collected survey data which formed the basis for its application in this investigation were the capacity to make sense of extensive qualitative data by identifying fundamental consistencies and implied meanings (Zhang and Wildemuth, 2005), as well as the subjective clarification of text data through a methodical process to identify patterns (Hsieh and Shannon, 2005). Due to the inductive nature of the analyses of responses to the open-ended questions, content analysis and the systematic coding and pattern quantifying or frequency identification of words, phrases, or concepts in text data were used. This method is suitable for summarising large volumes of textual responses instead of thematic, template or framework analysis which are more deductive in nature.

Basic themes were initially developed and coded using *NVivo 12*. General themes of this thesis, such as motivation, participation and engagement were matched with identified patterns from the responses provided by the students. After iterative code-merging a codebook of four super-ordinate themes were identified: motivation/rewards, participation, engagement and learning-reflection. The coded responses were scrutinised at a later point in time and any inconsistencies between the initial and subsequent analysis were resolved through peer-debrief resolution before reporting the results.

Sensitive demographic items such as gender were placed at the end of the form to avoid respondents responding differently on subsequent items if their gender is made salient, as a by-product of stereotype threat (Aronson and Steele, 1995). A comparison of the demographic characteristics of the survey respondents with the target population was performed to investigate the representativeness of the respondent group. Descriptive statistics were used to compare students who completed the survey with those who engaged with the SLP, and the total sample (after excluding repeating students, and non-participants in any learning activities), based on gender, prior experience in accounting studies at the high school level

(results for the grade 12 accounting examination) and registration options in the second semester, indicating the intention to continue with the subject in future academic years.

	Survey completed	SLP Engagement	Total population
Number of students	516	1023	1395
Gender	%	%	%
Female	63	60	54
Male	37	40	46
Registration in the second semester of the first-year indicative of intent/motivation	%	%	%
Option to continue with accounting	67	63	59
Accounting studies terminate after the first year	30	32	32
Not available	4	5	9
Prior experience in accounting⁵	%	%	%
Grade 12 accounting final examination	55	54	53
No grade 12 accounting final examination	45	46	47

Table 7 Descriptive statistics of participants in the survey, total number of students who engaged with the student loyalty programme and total population

From the percentages in Table 7, it was evident that the sample of students who completed the survey was representative of the students who participated in the learning activities and actively engaged with SLP, as well as the total population. However, a discrepancy emerged regarding gender representation: the respondent group contained a higher proportion of female participants (63%; $n = 341$) compared to the overall cohort. This skew might be due to women's higher inclination to engage with loyalty programmes than men (Eighty20, 2018). Given this gender disparity, caution is advised when generalising the findings, keeping the potential for non-response bias in mind.

⁵ Accounting is not a required subject in grade 12 (final year) of high school, therefore students can elect to enroll for accounting in their first year of study.

4.3 Delineations and Limitations

While the interdisciplinary nature of this thesis promises theoretical and practical contributions in an educational context, certain practical constraints and general limitations have been noted. The uniqueness of the SLP meant that the development and implementation of the SLP were confined to a single institution. Moreover, although the current study spanned one academic semester of six months, it is acknowledged that this research does not extend to a longitudinal study of these effects. The decision to focus on immediate and medium-term impacts was driven by the practical constraints, including but not limited to time constraints, resource limitations and the desire to promptly evaluate the effectiveness of gamified elements in educational settings. The novelty of a SLP demanded focus on a comprehensive initial implementation. This approach ensures that the study remains feasible and relevant to current educational practices, allowing for immediate application and iterative development based on the findings. Future research could further this study by examining the long-term impacts of gamification, thereby offering a broader perspective on its effectiveness and sustainability in educational environments and enhancing the generalisability of the findings.

4.4 Ethical considerations

The basic protocol for ethical research at the HEI was followed. The necessary declarations were included in the thesis and data was collected after ethical approval from the institutional review board (EMS090/19).

To address the potential conflict of interest arising from the researcher's dual role as both course instructor and investigator, several measures were implemented to ensure independence and protect participants. Survey data was collected only after the conclusion of the course to minimise perceived pressure and ensure voluntary participation. All communication and student responses were online through the LMS to reduce instructor influence on responses and interpretation. Ethical approval was obtained, and all participants completed an online consent form that outlined the purpose of the study, affirmed the voluntary nature of participation, and assured them

that their responses would remain anonymous and would not impact their academic outcomes.

To enhance the rigor of the qualitative analysis and mitigate potential researcher bias, several strategies were employed. Triangulation was applied by using multiple data sources to cross-validate emerging themes. Verbal peer debriefing sessions were conducted with an experienced researcher who reviewed the interpretation of findings. An audit trail was maintained throughout the study. NVivo 12 Plus software was utilised to manage and code the survey response data, offering a transparent and systematic platform that supported consistent coding practices and facilitated traceability of analytic procedures.

4.5 Conclusion

The results from the quantitative and qualitative analysis follow which documents the development and implementation of a SLP, to support students in developing the learning habits necessary to support them in becoming self-directed learners. In addition, the students' participation in the selected learning activities and active engagement in the programme was investigated to gain an understanding of student behaviour for instructors. Finally, the survey results on students' experience of the programme are documented.

5. CHAPTER 5: STUDENT EXPERIENCE, PARTICIPATION AND ACTIVE ENGAGEMENT

5.1 Introduction

This chapter reports on the students' experience, participation, and active engagement with the Student Loyalty Programme (SLP). While the thesis, as a whole, addresses the design and implementation of the SLP, this chapter specifically focuses on how students interacted with and perceived the SLP (**RQ4**), their participation with the targeted learning activities (**RQ1**) and active engagement with the SLP (**RQ2**).

The students' experiences with the SLP (**RQ4**) were explored by using quantitative survey response data, as well as qualitative data from responses to open-ended questions. Where appropriate, these insights are integrated with the quantitative findings to provide a richer understanding of the students' participation (**RQ1**), and their active engagement (**RQ2**). Students' active engagement has been identified as an influencing factor of academic performance. Understanding whether the students' active engagement with the SLP correlates with academic performance can provide additional insight into the programme's effectiveness (**RQ3**). This approach enriches the overall understanding of the SLP's impact and students' perceptions, aimed at the intended triangulation of the research. This mixed-methods approach ensures triangulation and enhances the depth of the analysis. The methodology chapter details the techniques for collecting and analysing the qualitative data, and the quantitative analysis of participation and engagement.

5.2 Student experience

To gain initial insights into the implementation of the SLP, this section explores students' user satisfaction and their experience of the system usability. These insights provide context for their participation in the targeted learning activities and their active engagement with the SLP.

Of the 516 survey respondents, 95% (n = 490) reported actively engaging with the SLP. This high level of active engagement suggests that the SLP's incentives may

have been effective in motivating students. However, the remaining 5% (n = 26) who did not participate, cited barriers, such as time constraints related to a demanding first-year curriculum and personal challenges. Comments in this regard include: *“Too much work in various modules,” “There was not enough time to participate all the time, however, I try to whenever I can,”* and *“Due to personal issues”* or *“Stubborn and lazy.”* Addressing these barriers may require strategies that go beyond adjustments to the SLP’s design or execution, potentially involving broader support for students navigating heavy workloads and personal struggles.

Students expressed high satisfaction with the rewards system and the usability of the SLP as evident from item results included in Table 8. Students gave positive ratings to statements regarding the structure of the rewards (Mdn = 4.00, IQR = 4); their willingness to use the Beans programme frequently (Mdn = 4.00, IQR = 4), and the technical execution and user-friendliness of the SLP (Mdn = 4.00, IQR = 4).

While the students agreed that they needed some support to participate in the SLP (Mdn = 4.00, IQR = 4), they noted that most students quickly understood how the SLP worked (Mdn = 4.00, IQR = 4). One student highlighted the SLP’s intuitive design: *“The programme is not complicated, and we always know when you earned a Bean.”*

No	Survey item	Median (Mdn)	Range (IQR)
10.	The number of Beans needed to earn a mark is satisfactory.	4.00	4
20.	I find the concept of earning Beans interesting.	4.00	4
22.	I would like to use the Beans programme frequently.	4.00	4
24.	The Beans programme was easy to understand.	4.00	4
25.	I needed support to be able to participate in the Beans programme.	4.00	4
29.	Most students quickly learned how the Beans programme works.	4.00	4

Likert scale: Strongly disagree (1) - strongly agree (5)

Table 8 Survey items related to the students’ experience

Students strongly disagreed with the statement, “The Beans are useless” (Mdn = 1.00, IQR = 4), but rather “found the concept of earning Beans interesting” (Mdn = 4.00, IQR = 4), emphasizing the SLP’s value (Table 9). One student remarked: *“I find the SLP a good way of one to reflect on their understanding about a certain chapter*

because if you don't earn a reward for an activity, you know that you did something wrong ... so that one can be aware of their progress." This feedback demonstrates how the SLP not only motivated active engagement but also helped students monitor and evaluate their learning journey.

Students also generally agreed that the SLP was implemented consistently. Most students disagreed with the statement that, "There was too much inconsistency in the Beans programme" (Mdn = 2.00, IQR = 4), reinforcing the SLP's reliability.

No	Survey item	Median (Mdn)	Range (IQR)
21.	The Beans are useless.	1.00	4
27.	There was too much inconsistency in the Beans programme.	2.00	4

Likert scale: Strongly disagree (1) - strongly agree (5)

Table 9 Negative survey items related to students' experiences

A majority 79% (n = 409) of the students expressed interest in seeing similar programmes adopted in other subjects. Students highlighted several reasons for this, including the programme's ability to *"encourage self-study and innovative thinking"* and its effectiveness in helping students *"monitor your progress as a student"*.

Open-ended questions further emphasised this enthusiasm: *"I strongly believe that the earning of Beans should also be implemented to other modules... having Beans is really effective,"* and, *"Add Beans to every other module"*.

5.2.1 General discussion of qualitative data

The content analysis approach employed to analyse responses to open-ended survey questions facilitated a systematic coding and categorisation of qualitative data. NVivo 12 Plus software was used. Initially, the general sentiment in the responses to the open-ended questions was determined. A positive sentiment was detected. Thereafter, an inductive coding process was followed, whereby initial codes were developed based on repeated readings of the data. These codes were then refined into broader categories and themes through an iterative process. NVivo enabled the management of data efficiently, track coding frequencies, and ensure consistency in the application of codes across the dataset. Figure 2 contains a Nvivo world-cloud of the 50 highest-frequency lemmas from the open-ended question responses.

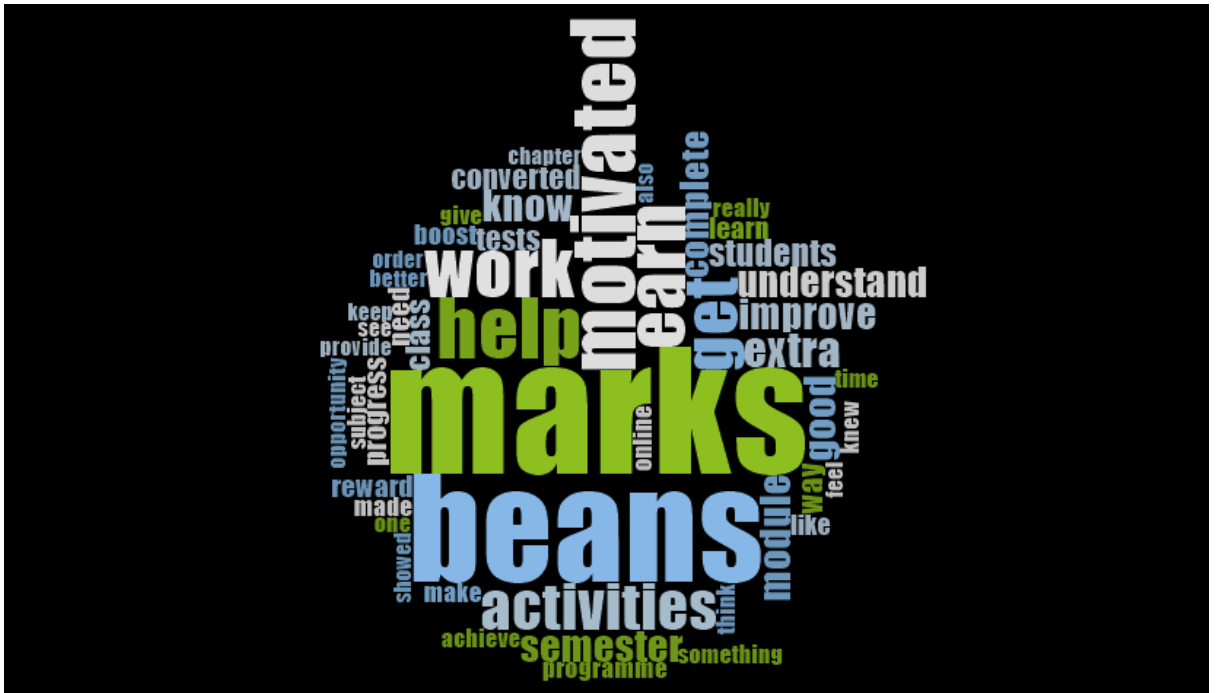


Figure 2 Nvivo word-cloud

Due to the nature of the open-ended questions and the placement of these questions, at the end of the survey instrument, no unexpected themes were identified. These final questions were:

“31. Is there anything we should have asked you about in your reflection, but haven’t?”

“32. Is there anything further that comes to mind in your reflection that you would like to add?”

The other prompting questions that provided more comprehensive answers, which were also later included as qualitative data and quoted to enrich the results were:

“30. Provide reasons in support of your response above.” Which followed on:

“29. Would you like the Beans programme to be adopted in your other courses?”

“18. Provide reasons in support of your response above.” In response to:

“17. Earning Beans motivated me.”

In addition, features such as text search, word frequency queries and auto-coded themes were used to identify recurring concepts, which enhanced the reliability of the thematic findings, and enabled the identification of relevant student responses to include as quotes representing their experiences. Rewards, marks, participation and

engagement remained the most prominent themes. Table 10 provides a summary of the codebook with a percentage frequency matrix of the themes.

Code/theme	Number of responses	Percentage (%)
Marks	300	49%
Rewards	134	22%
Engagement	121	19%
Participation	59	10%

Table 10 Nvivo codebook themes frequency matrix

The following statement echoes the themes: rewards, motivation, participation and engagement, as reported by one respondent (n3): *“Earning beans motivated me in many ways. The concept initially “obliges” one, in a good way, to make an effort to complete tasks due to the fact that there is a reward in doing so. The beans are also a means of seeing how much you are actually doing throughout the semester and gives an indication of what effort you put into the subject. I was highly motivated to get as many beans as possible due to the fact that it provides a student with a possibility of bettering your mark which makes a significant difference if you are in need of a few percentages to either get entrance or pass and you never know if you will be in need of those percentages so it’s a no brainer.”*

5.3 Participation rates

In response to research question 1 (RQ1), “What was the students’ participation in the targeted learning activities?”, an overall participation rate of 69% is reported (included with participation across the various learning activities in Table 12). The SLP used Beans as rewards across various activities to encourage consistent participation and foster learning habits. Survey responses in this regard (Table 11) indicate that students generally enjoyed earning Beans (Mdn = 5.00; IQR = 4) and found the process important (Mdn = 4.00; IQR = 4).

When asked, 'What does getting a Bean mean?' (via a dropdown menu with predefined options), most students associated Beans with *completion* (91%) and

progress (63%). These findings suggest that students primarily valued Beans as markers of personal development and achievement, which aligns with many students indicating that the Beans motivated them to participate in activities (Mdn = 4.00; IQR = 4). These findings link closely with intended reinforcement and expectancy-value of the Beans as addressed during the design phase of the SLP (**DQ2**) (Pintrich and De Groot, 1990; Deci and Ryan, 2008; Hwang and Mattila, 2018). Open-ended responses to further illustrate the motivational impact of Beans, with students sharing that Beans *'gave me confidence and increased my need for achievement' and 'motivated me because, at times when it was hard for me to attend classes, it was the driving force... as I knew my presence wouldn't just add onto my knowledge but my rewards as well.'* These responses suggest that the Beans served as an external motivator for many students, particularly at the start of the programme.

However, responses were more varied when students were asked if they aimed to earn all available Beans (Mdn = 3.00; IQR = 3), if they chose activities based on Bean availability (Mdn = 3.00; IQR = 4), or altered behaviours to earn Beans (Mdn = 3.00; IQR = 4). The neutral responses to these questions suggest that not all students were highly driven to maximise Bean earnings or alter their activity choices solely based on Bean rewards. This variability may explain the observed decline in participation for some activities over time, especially among lower-performing students who may have needed stronger or more consistent motivators to participate.

No	Survey item	Median (Mdn)	Range (IQR)
6.	I liked earning Beans.	5.00	4
7.	Earning Beans was important to me.	4.00	4
13.	When Beans are available to earn, do you try to get all the possible Beans?	5.00	3
15.	Before you engage in an activity or intervention do you look at what Beans are available to be earned?	3.00	4
16.	Have you ever chosen an activity or intervention based on the Beans you could earn?	3.00	4
17.	In general, would you do things differently (or do something you wouldn't normally do) based on whether or not you would earn Beans?	3.00	4
18.	Earning Beans motivated me.	4.00	4

Likert scale: Strongly disagree (1) - strongly agree (5)

Table 11 Survey items related to student participation in SLP activities

Repeat participation and Behavioural Trends

Customer Loyalty Programmes (CLPs) are designed to foster a long-term relationship between a business and its customers, encouraging increased and repeated behaviours, which leads to purchases (Alshurideh, 2019). Similarly, repetitive behaviour is instrumental in developing relevant learning habits (Carter, Bishop and Kravits, 2011) towards self-directedness, a key objective in the implementation of the SLP.

To assess repeat participation, participation rates was assessed at various levels throughout the semester. An initial participation rate of 90% was achieved. A participation rate of 58% was observed at the programme's midpoint, subsequently a higher repeat participation rate of 73% was noted for the last activity before the reward redemption phase of the SLP. This uptake in repetitive participation over time is indicative of the goal gradient effect observed CLPs, where anticipation of rewards participants near the achievement of their goals (Kivetz, Urminsky and Zheng, 2006; Feldman, 2016). Figure 3 graphically represents student participation from the release date of the learning activity, and corresponding reward from the SLP to the redemption

date of rewards. This highlights student behaviour over the period when students could qualify for the redemption of their rewards.

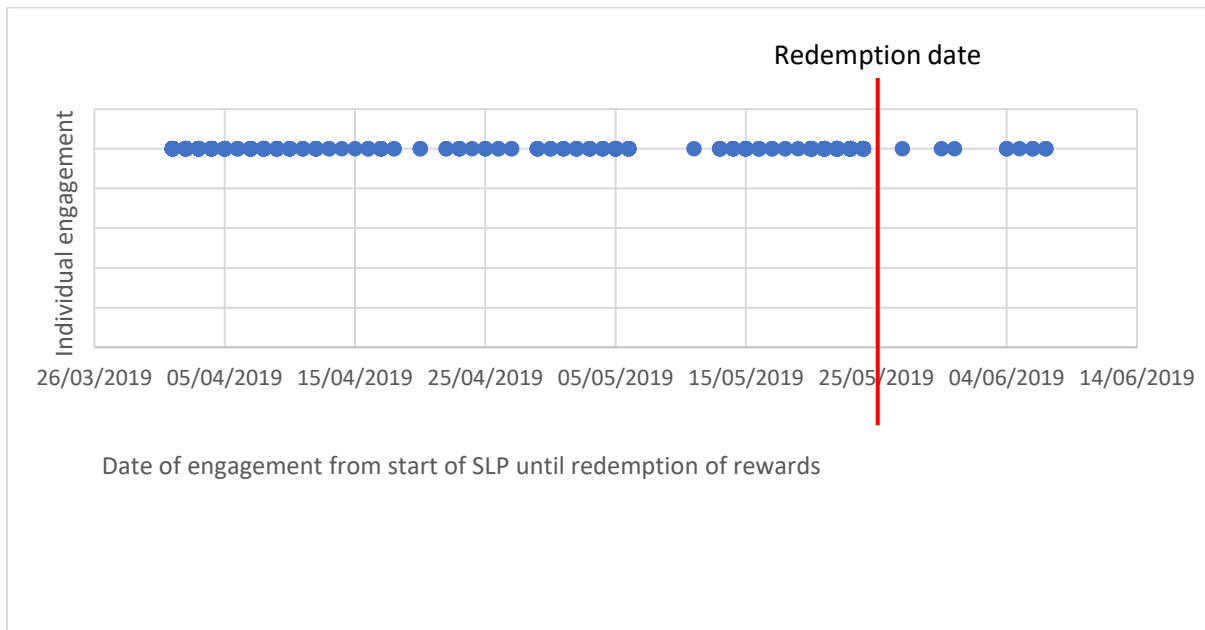


Figure 3 Goal gradient effect for Activity Bean learning activities

5.3.1 Participation rate by learning activity

Each learning activity within the SLP was designed with a unique combination of timing, placement and reinforcement schedules (Table 2). Consequently, different Beans were introduced to highlight the uniqueness and significance of each activity. Therefore, participation across the various learning activities (Table 12) warrants separate investigation to gain a more detailed understanding of the participation rates for each learning activity.

	Orientation Quiz	Pre-test Bean	Activity Bean	Class attendance Bean	High Stakes Bean	Surprise Bean	Total
Participation rate	90%	82%	62%	76%	74%	50%	69%

Table 12 Participation rates per category of learning activity

Orientation Quiz (as initial Activity Bean learning activity)

In the SLP, endowed progress, or a sense of initial advancement towards a goal to increase motivation to reach that goal (Drèze and Nunes, 2006; Chen, Mandler, and Meyer-Waarden, 2021), was attained by offering a reward for participation in a no-

stakes orientation quiz during the first week of the course. The high participation rate of 90% in this initial learning activity provides some evidence of the effectiveness of endowed progress in motivating students. Similar to consumer behaviour, where early rewards create a perception of progress toward a goal, this approach may have encouraged students to continue engaging with the SLP. By establishing a foundation of success early on, the programme leveraged the psychology of endowed progress to drive repeat participation and build momentum for participation in subsequent activities.

Pre-tests

Pre-tests were designed as initial low-stakes learning activities, with specific deadlines. Though only marginally affecting students' grades, pre-tests provide crucial feedback that helps students assess their understanding and identify areas for improvement in preparation for the high stakes assessments. The Pre-test learning activities registered the one of the highest total participation rate of 82%. The participation rates remained relatively constant for four of the five pre-tests, however a significant decline in participation for pre-test 3 was evident (Figure 4). This may be due to the scheduling of this pre-test during a mid-term assessment period where students take high-stakes assessments in all their subjects.

High-performing students consistently showed the highest participation rates, with only a slight dip in Pre-test 3. Average-performing students also maintained strong participation but saw a more noticeable drop in Pre-test 3. Low-performing students started with stable participation but experienced a sharper decline in Pre-test 3 before gradually recovering. At-risk students had the lowest participation rates overall and were the most affected by Pre-test 3, though their participation slightly improved in the subsequent pre-tests.

Survey responses suggest that while many students found earning Beans motivating (Mdn = 4.00; IQR = 4) and valued the sense of achievement they provided, some students may have strategically prioritised pre-tests to manage their workload. For example, students cited time constraints and academic demands as barriers to full participation, mentioning "too much work in various modules" and "not enough time to participate all the time." This strategic approach aligns with the SLP's design, which required students to earn a minimum of three Beans out of five available pre-tests to

receive one mark. With each pre-test awarding a Bean for achieving a 50% performance threshold, students likely considered workload demands and chose to focus on other assessments during Pre-test 3, knowing they could still meet the three-Bean minimum required for a mark.

To encourage consistent participation across all pre-tests, especially for Pre-test 3, a more strategic placement of Beans may be beneficial. For instance, assigning a higher Bean value for key pre-tests or offering milestone incentives for completing a sequence without skips could make these activities more appealing. Adjusting the timing or providing flexibility around high-stakes periods could further help students balance their participation without feeling overloaded. These strategies align with the SLP's goal of promoting steady, consistent learning habits rather than selective participation.

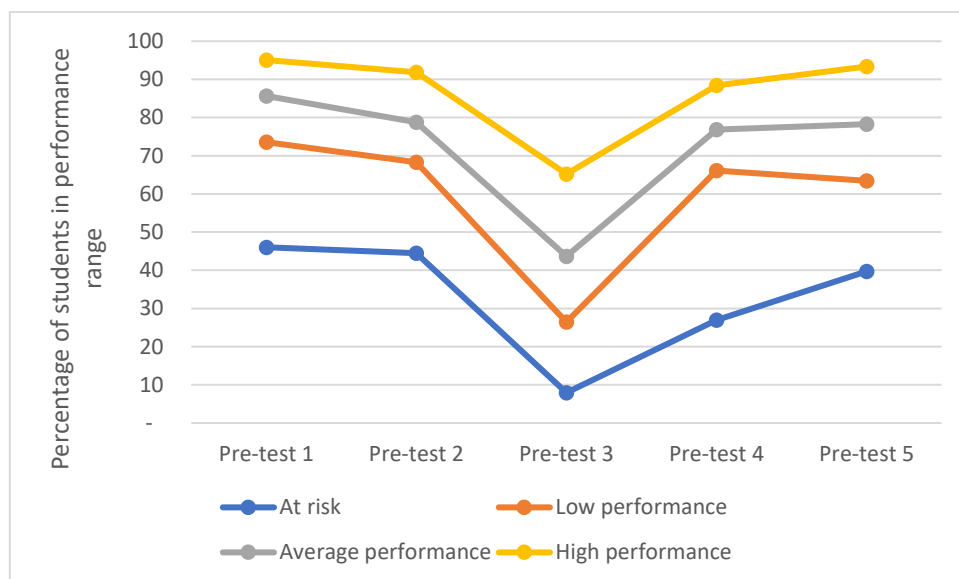


Figure 4 Participation in Pre-test learning activities considering performance levels

Activity Bean learning activities

Activity Beans were awarded for participation in eight online activities. These activities were designed to help students review key or challenging concepts from specific chapters (Table 3). Students could participate in these activities at any time following their release up until the point of redemption. A participation rate of 62% was achieved for these activities. Given that eight Activity Beans were available and a minimum of five Beans was required to earn one mark, the observed participation patterns reflect varying strategies among different performance groups (Figure 5).

Survey responses suggest that many students found Beans motivating (Mdn = 4.00; IQR = 4), with comments like “Beans gave me confidence and increased my need for achievement” indicating that the reward structure may have contributed to sustained participation for high-performing students. Given their consistent participation, high-performing students may have been motivated both by Beans and by an inherent commitment to mastering course material. This group’s strong academic habits likely influenced their participation rates alongside the SLP incentives.

In contrast, at-risk and low-performing students primarily participated in just two activities, potentially finding the five-Bean threshold challenging to reach. Survey responses indicate that some students faced barriers such as “too much work in various modules”, which may have influenced their ability to participate in multiple activities. Neutral responses to questions about choosing activities based on Bean availability (Mdn = 3.00; IQR = 4) suggest that for some lower-performing students, the incentive of Beans alone may not have been enough to overcome these challenges, particularly if they felt the mark requirement was out of reach. This suggests that the SLP's structure may not have equally motivated students across all performance levels, with lower-performing students potentially perceiving the requirements as too high or unattainable.

To support more consistent participation, especially among lower-performing students, adjustments could be considered in future iterations of the SLP. Options such as awarding partial marks for fewer Beans or offering targeted support may encourage these students to participate more regularly, enhancing their learning experience. In addition, *progress* was the most significant meaning of Beans for students (37%), suggesting that future adjustments could emphasize activities showcasing cumulative progress. For example, milestone rewards or progress tracking that reinforces a sense of achievement might help sustain motivation, particularly among lower-performing or at-risk students.

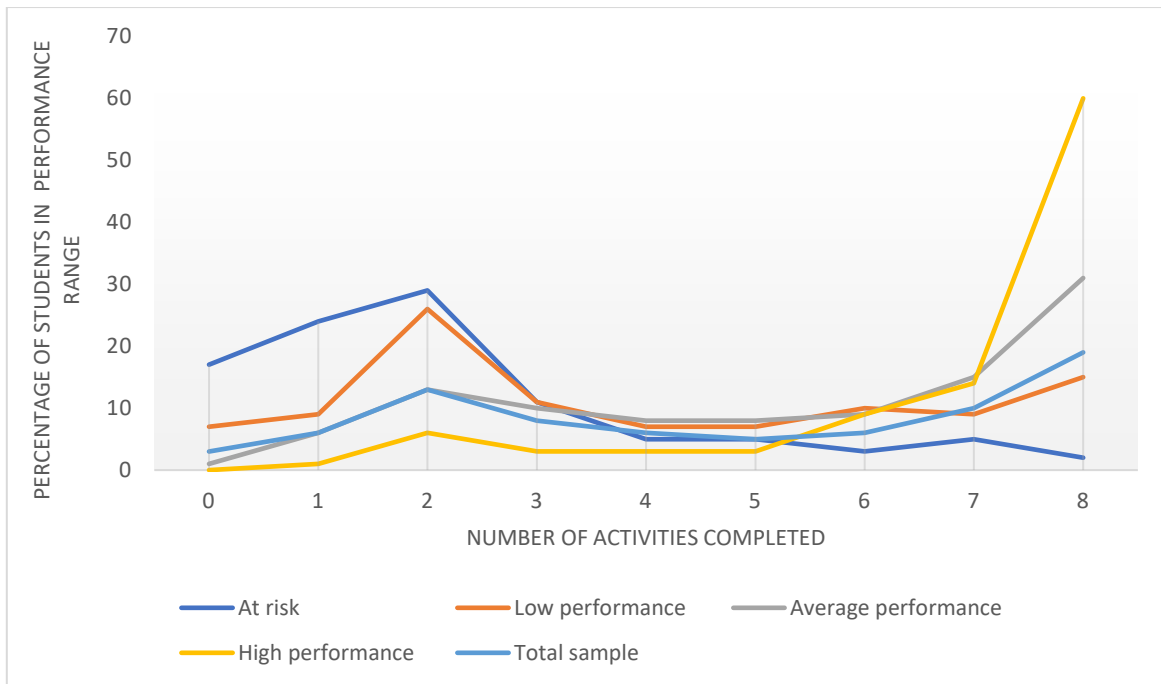


Figure 5 Participation in Activity Bean learning activities considering performance levels

Class attendance

Class attendance was randomly rewarded through a variable-ratio reinforcement schedule, which is known to produce fast response rates and slow extinction rates. Such a schedule typically encourages consistent participation. An overall participation rate of 76% was achieved for class attendance (Table 12), however a decline in attendance over the semester is evident, particularly amongst students not categorised as high performers (Figure 6).

This pattern suggests that while the variable-ratio reinforcement schedule may have coincided with higher initial attendance rates, it appears insufficient on its own to sustain consistent participation among lower-performing students over the entire semester. The observed decline in attendance among the performance level groups could reflect typical student behavior over the course of a term, where attendance often drops as the semester progresses (Caton and Greenhill, 2014; Villagrasa *et al.*, 2014). Survey responses cited time constraints from a demanding first-year curriculum and personal reasons as key barriers to participation. Comments such as “too much work in various modules,” “not enough time to participate all the time,” and “due to personal issues” suggest that many students faced external challenges that hindered consistent attendance. Additionally, neutral responses to checking available Beans

before participating in activities (Mdn = 3.00; IQR = 4) and choosing activities based on Bean availability (Mdn = 3.00; IQR = 4) further indicate that the Bean reward itself may not have been a strong enough motivator to drive consistent attendance among these students.

Although the SLP's reinforcement schedule may have played a role in supporting attendance early on, this effect alone may not be robust enough to counter the gradual decline, especially among students who may lack intrinsic motivation or confidence. To address this decline in attendance, future iterations of the SLP could be adjusted to more effectively support sustained attendance. For instance, increasing the frequency or perceived value of rewards as the semester advances could help counteract the natural decline in motivation. Additionally, incorporating alternative motivators, such as social recognition, team-based attendance challenges, or personalised incentives for at-risk students, might foster a stronger sense of commitment across all performance levels.

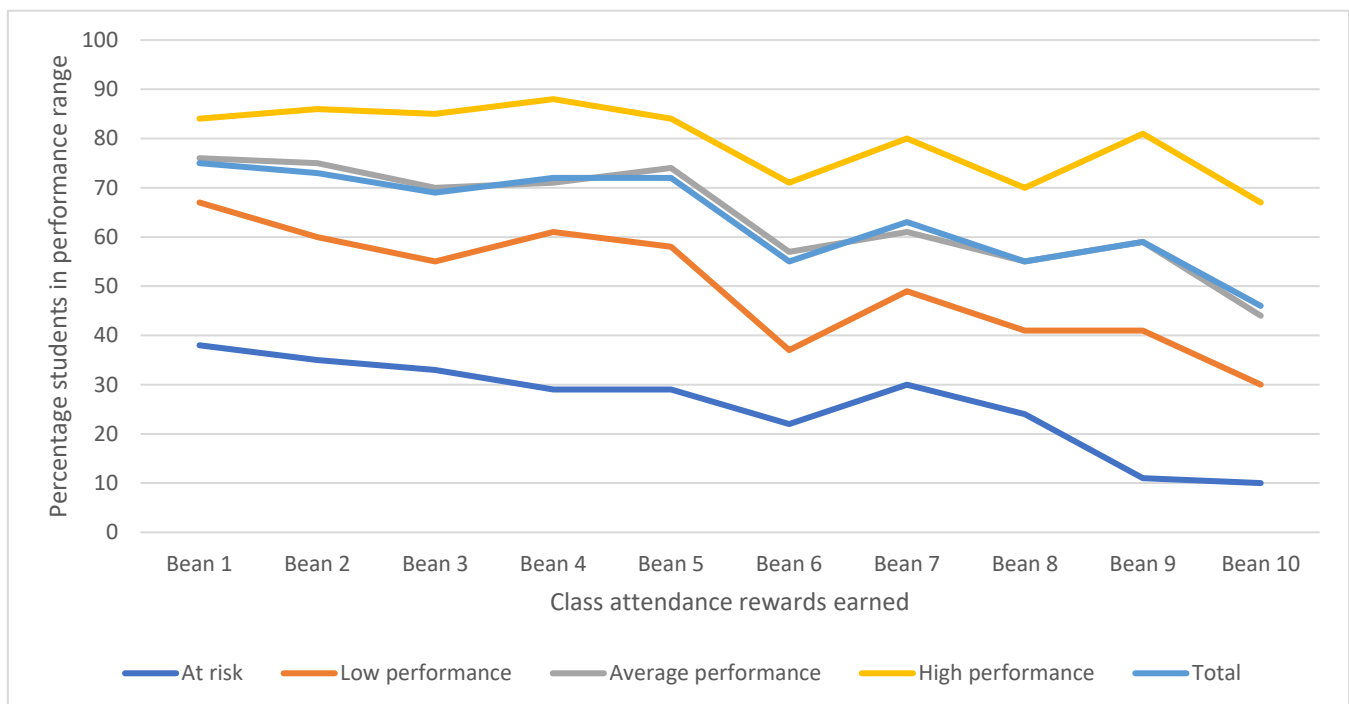


Figure 6 Participation in Class Attendance Beans considering performance levels

High stakes learning activities

High Stakes learning activities registered a participation rate of 74%. The High Stakes learning activities followed a continuous fixed-ratio reward schedule like the pre-test activities, but with fewer opportunities for reward than the pre-test activities

due to the inherent motivation of the grades from these high stakes assessments. Survey responses suggest that many students found earning Beans motivating, with several indicating that Beans boosted their confidence and motivation levels (Question 18, Mdn = 4.00; IQR = 4). However, for high-stakes activities where grades were also a motivator, the added value of Beans may have been less impactful for students who were primarily motivated by the potential to earn marks toward their final grade. Additionally, neutral responses to selecting activities based on Bean availability (Question 16, Mdn = 3.00; IQR = 4) indicate that some students may not have viewed Beans as the primary incentive for these high-stakes activities, focusing more on their academic outcomes. This dual motivational structure could explain the relatively high but not complete participation in these activities, with students balancing their participation based on both the importance of grades and their interest in earning Beans.

Surprise learning activities

The Surprise Bean, awarded for participating in viewing reflective videos on challenging topics related to summative assessments and for participation in the online community space had a participation rate of 50%. The lower participation rate may be due to the scheduling of these rewards close to the end of the semester a period when students are often managing heavier workloads and preparing for final assessments. Survey feedback regarding time constraints and competing demands (Question 3) aligns with this trend, as students cited "too much work in various modules" and "not enough time to participate all the time" as reasons for limited participation. Additionally, neutral responses to whether students engaged in activities based on available Beans (Question 15, Mdn = 3.00; IQR = 4) suggest that for some students, the surprise Bean may not have been a strong enough motivator to prioritize these end-of-semester activities amidst other obligations. Enhancing these activities with additional incentives or integrating them earlier in the semester could help encourage greater participation by reducing the pressure of competing end-of-semester demands.

5.4 Active engagement rates

In response to the second research question (RQ2), “To what extent did students actively engage with the SLP?” an overall active engagement rate of 60% was achieved⁶, representing students who qualified for, and redeemed their rewards. Although not all students who participated qualified for the rewards (Beans), those that did qualify did redeem them. Consequently, a lower active engagement rate than the participation rate was observed. Similar to participation rates, active engagement rates differed across the different learning activities.

	Pre-test Bean	Activity Bean	Class attendance Bean	High Stakes Bean	Surprise Bean	Total
Active engagement rate	66%	58%	64%	60%	49%	60%

Table 13 Differences in participation and active engagement rates per learning activity

Similar to participation rates for assessment related learning activities, the Pre-test (66%, n = 920) and High Stakes (60%, n = 842) learning activities yielded high active engagement rates in comparison to the other learning activities. The class attendance activity also registered a relatively high active engagement rate of 64% (n = 897). The Activity and Surprise learning activities yielded the lowest active engagement rates.

The smaller range in active engagement (17%) compared to participation (32%) may reflect a consistent level of commitment from a core group of students who are committed to their studies across various activities and the SLP. This core group appears to demonstrate steady involvement regardless of the activity type, which suggests intrinsic motivation or a strong sense of responsibility toward their learning. Survey data supports this observation, as students rated the ability to convert Beans

⁶ Longitudinal comparisons for participation and active engagement rates to periods preceding the SLP were not conducted. This is due to the absence of data for many of these activities in previous academic years, making it impracticable to draw meaningful comparisons.

into marks as highly important (Mdn = 5.00; IQR = 4) and expressed general satisfaction with the achievable marks (Mdn = 4.00; IQR = 4).

The lack of significant social comparison dynamics (Mdn = 2.00; IQR = 4) further highlights that the programme fostered intrinsic motivation rather than competitive or social incentives, suggesting that students were primarily driven by personal goals rather than peer influences. In contrast, broader participation rates are likely influenced by students who engage more selectively, possibly in response to external factors like deadlines, perceived importance, or convenience. These selective participants may only engage in activities that align with their immediate needs or interests, leading to greater fluctuations in participation rates.

No	Survey item	Median (Mdn)	Range (IQR)
8.	It is important to me that the Beans programme allowed me to convert Beans into marks.	5.00	4
9.	The total marks that can potentially be earned from converting the Beans are satisfactory.	4.00	4
11.	Do you compare how many Beans you have earned with your friends or fellow students?	2.00	4
12.	Do your friends or fellow students like to compare how many Beans they have earned with you?	2.00	4

Table 14 Survey items related to active engagement

To deepen the analysis of the students' active engagement, their engagement was analysed by different levels as determined by the number of marks received from converting Beans into marks. Descriptive statistics were calculated across five levels of active engagement to explore potential demographic differences, including language, gender, and future registration intent (Table 15). Students were classified into five different levels based on the marks obtained from their converted rewards, with rewards being convertible at various weightings (see Table 2). The level ranged from 1 to 5, where 1 indicates very poor active engagement, 2 signifies below average active engagement, 3 represents average active engagement, 4 denotes above average active engagement, and 5 signifies excellent active engagement. For the

conversion of Beans into marks to be considered successful, students were required to complete a redemption form. To evaluate if there were statistically significant differences between the five engagement level⁷ groups and the total sample in terms of engagement levels, a Chi-square test were performed for each demographic characteristic (APS, language, gender, future registration) with a significance level of 0.05.

⁷ Refer to Appendix D for an example of the determination of the 5 different engagement levels.

	Total Sample	No engagement	Active Engagement levels				
			E1	E2	E3	E4	E5
Number of students	1395	372	27	70	171	304	451
% of students actively engaging at different levels			3%	7%	17%	30%	44%
Average APS⁸	33	33	32	33	33	34	34
Language							
English	45%	49%	44%	46%	47%	40%	45%
Other Languages	55%	51%	56%	54%	53%	60%	55%
	100%	100%	100%	100%	100%	100%	100%
Gender							
Female	54%	37%*	52%*	51%*	49%*	57%*	68%*
Male	46%	63%*	48%*	49%*	51%*	43%*	32%*
	100%	100%	100%	100%	100%	100%	100%
Future registration (intent)							
Option to continue with accounting in future	59%	47%*	37%*	53%*	56%*	64%*	69%*
Terminating accounting studies	32%	31%*	30%*	39%*	35%*	32%*	30%*
Not known	9%	22%*	33%*	9%	10%*	4%*	1%*
	100%	100%	100%	100%	100%	100%	100%

Table 15 Descriptive statistics on demographic characteristics at different levels of engagement with the student loyalty programme

* Statistically significant differences in distribution across the engagement groups compared to the total sample

Admission Point Score (APS), is indicative of the high school academic achievements of students entering a university in South Africa.

Admission Point Score

The APS, a metric used for admission, reflects a candidate's performance in their final-year of secondary school. The inclusion of APS in the engagement analysis aimed to assess the impact of students' prior academic performance. No statistically significant differences were observed in the Admission Point Score (APS) between students who did not engage and those across various levels of engagement within the participating group of students, based on the differences in means. Similarly, from the statistical significance tests, the standardised coefficient revealed a low variation in academic performance ($\beta = .087$) from APS as an independent variable. APS did not significantly affect the levels of student engagement compared to the averages observed across different engagement levels. However, as is evident in Table 15, a trend is visible where the APS is higher among the more engaged groups, suggesting a potential link between prior academic performance and engagement, albeit not statistically significant.

Language

The analysis of the demographic characteristics of language yielded a Chi-square statistic of 10.81, $p = 0.902$, indicating no statistically significant difference in the distribution of languages across the five engagement level groups, and the total sample. More than 40% of students in all groups and at all levels of engagement are native English speakers. Language was evaluated as a potential factor influencing engagement, given that the course and all communications related to SLP were conducted exclusively in English.

Gender

The gender distribution within the total student cohort was relatively balanced, with females comprising 54% and males 46%. The Chi-square statistic of 20.76, combined with the p-value ($p = 0.002$), suggests a statistically significant differences in gender distribution across the engagement groups compared to the total sample (Table 15).

Specifically, as active engagement increases, there is a noticeable shift in the gender balance, with more females actively engaging at higher levels (E4 and E5), while males are more likely to be in the "No engagement" or lower engagement

groups. At the highest level of engagement, 68% (n = 306) of participants were female, in contrast to just 37% (n = 139) in the no-engagement group. Despite these differences in participation and active engagement levels within the SLP, Zainuddin et al. (2020) found no significant gender differences in perceptions of gamification's influence on learning when the gamification was not embedded within a loyalty programme context. This suggests that the context of a loyalty programme may influence gender-based engagement patterns.

Intent as indicated by future registration

The analysis of demographic data incorporated students' intention to continue studying accounting beyond this course as it can impact student motivation and their engagement with the subject content (Jones and Wright, 2011). Significant differences are found in all engagement groups (E1 to E5) compared to the total sample (Refer to Table 15).

The Chi-square statistic of 73.90 ($p < 0.05$) suggest highly significant differences between the future registration intentions of students across the engagement groups. This implies that students who engage at higher levels (E4 and E5) are significantly more likely to intend to continue with accounting studies, a proportion of 69% (n = 310) among those at the highest level of engagement, while those with no or low engagement (No engagement, E1), 47% (n = 175), are more likely to terminate their accounting studies or are undecided. This suggests a strong association between the level of engagement and the likelihood of continuing with accounting as a field of study.

5.5 Active engagement and academic performance

One of the overall objectives of this thesis was to support accounting students, entering Higher Education Institutions (HEIs), in their evolution into self-directed learners thereby enhancing their academic success potential. An investigation into the correlation between active engagement with the SLP and academic performance, as indicated by the final examination mark of each student, was performed to address the third research question (**RQ3**): "Does a correlation exist between students' active engagement with the SLP and academic performance?"

An independent T-test revealed no statistically significant difference in the final examination performance between the students who participated in the SLP (n = 1021) and students who did not (n = 336), $t(1355) = 9.884$, $p = >.05$. This suggests that simply participating in the selected learning activities does not automatically lead to improved academic results in the short term. However, a significant positive correlation was found between students' active engagement with the SLP and academic performance, with a correlation coefficient (r) of 0.37 (n = 1357, $p = <.05$) suggesting a moderate positive relationship. This means that students who were not just participants in learning activities but also actively engaged with the SLP – demonstrated by earning and redeeming Beans - tended to perform better academically. Although this correlation suggests that active engagement with the SLP could enhance academic success, it is critical to remember that correlation does not establish causality.

Exploratory multiple regression

The divergent active engagement rates of students, combined with the fact that multiple other factors impact academic performance, in introductory accounting courses in particular (Eskew and Faley, 1988; Byrne and Flood, 2008; Coetzee, 2016; Joynt, 2023), warranted additional investigation through an exploratory multiple regression model. This model was employed to explore the effects of various independent variables (as listed below) on the dependent variable (AP representing academic performance measured as the % score in the final examination). In particular, the variable of interest was active engagement with the SLP, while controlling for gender, past academic experience and alternative intrinsic motivation. The following multiple regression model was applied: $EXAM\% = \beta_0 + \beta_1ENG1 + \beta_2GEN2 + \beta_3REG3 + \beta_4APS4 + \beta_5PACC5 + \epsilon$

Independent variables included:

Independent Variable	Description	Type
ENG	Active engagement with the SLP	Scale from 0 – 5 (0 no engagement to 5 highest engagement)
GEN	Gender	Male and female
REG	Future registration for accounting	FRK 121 - Option to continue with accounting FRK 122 – Terminating accounting studies at the end of academic year 1 Unknown – Registration not reported
APS	Academic Performance Score	Score between 16 and 42 to assess students' qualification for admission to higher education
PACC	Past academic performance in accounting	Percentage obtained for accounting in grade 12 of high school

Table 16 Description of independent variables included in the multiple regression

Variable of interest

The positive correlation identified between active engagement rates with the SLP and academic performance gave rise to additional exploration of the variable of interest, active engagement in the SLP (ENG) as represented on a scale from 1 to 5, with 1 representing a low level of engagement and 5 the highest level of engagement (Refer to Appendix D for an example of the calculation of the engagement levels). Customer active engagement in CLPs influences outcomes prioritised by businesses, like increased or at least repeat purchases (Hwang and Choi, 2020). This investigation aims to explore a possible similar effect within an educational context, where student active engagement with an SLP influences academic outcomes. Increased motivation and active engagement have been identified as variables of interest in studying academic performance (Byrne and Flood, 2008; Rashid and Asghar, 2016; Alsawaier, 2018; Joynt, 2023), but to date, student active engagement in a gamified programme of motivation, the SLP, has not been explored.

It is vital to understand that student active engagement and academic performance can be influenced by numerous factors, with the SLP being just one among them, therefore a number of control variables were also included in the exploratory multiple regression model.

Control variables

The following control variables were included in the regression model, as informed by prior research on academic performance in accounting.

Gender was included as a binary variable (GEN: female = 1; male = 0). The literature presents mixed findings regarding gender differences in academic performance. Some studies suggest that female students outperform males (Mei Tan and Laswad, 2008), while others find the opposite (Seow, Pan and Tay, 2014), or no significant difference at all (Byrne and Flood, 2008). Although findings are inconsistent, female students have been observed to engage more actively with course content and activities (Fogarty and Goldwater, 2010). Additionally, studies in marketing and gamification environments have reported gender-based differences in engagement with CLP (Eighty20, 2023), suggesting that gender may influence outcomes in gamified academic contexts as well.

Intent to major in accounting as represented by student registration in the second semester and coded as a binary variable (REG), was considered as control variable. Students registered for financial accounting (FRK121) will have the option to continue with accounting studies in their second academic year, while those registered for financial accounting and financial literacy (FRK122) would not pursue accounting studies beyond the first year. Prior research indicates that students' intent to major in accounting is associated with higher levels of motivation and academic performance (Jones and Wright, 2011).

Prior academic performance, measured using the APS, a standardised South African score based on results in six 20-credit high school subjects, was included amongst the control variables. APS has been validated as a predictor of first-year academic success in accounting (Joynt, 2023). Similarly, *previous accounting experience* (PACC) was included as a control variable based on findings that prior exposure to accounting as a subject before university is positively associated with academic performance (Mei Tan and Laswad, 2008).

Results

To analyse the data using multiple regression, the following assumptions were considered to verify the appropriateness of this analysis: the one dependent variable (academic performance as expressed by the final examination mark) is measured on a continuous scale; the five independent variables (and composite) are linearly related to the dependent variable; the assumption of independence of errors (residuals) is valid (as confirmed by the Durban-Watson statistic); there is homoscedasticity of residuals (equality of error variances); there is no multicollinearity; and no significant outliers were present in the data (Lund and Lund, 2024).

After verifying the necessary assumptions to ensure the appropriateness of the multiple regression analysis, the results were as follows:

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594a	.353	.350	13.485

a. Predictors: (Constant), PACC, APS, ENG, REG, GEN

b. Dependent Variable: EXAM%

Table 17 Multiple Regression Model Summary

The coefficient of determination (R-squared) value of 0.353 indicates that approximately 35.3% of the variance in the dependent variable (EXAM%) can be attributed to the variance in the predictor variables (PACC, APS, ENG, REG, GEN). This is further substantiated by an adjusted R-squared of 0.350, affirming a good model fit to the data. Additionally, the standard error of the estimates is considered acceptable given the range of the dependent variable (10% - 99%).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133940.100	5	26788.020	147.307	<.001b
	Residual	245681.407	1351	181.852		
	Total	379621.508	1356			

a. Dependent Variable: EXAM%

b. Predictors: (Constant), PACC, APS, ENG, REG, GEN

Table 18 ANOVA - Statistical significance test

The independent variables were found to be statistically significant in their effect on the dependent variable, as indicated by the statistical analysis $F(5, 1351) = 147.30, p < .05$.

Following this, the statistical significance of each independent variable was examined separately to understand their specific contributions to the dependent variable.

Model	Unstandardised Coefficients		Standardised Coefficients Beta	t	Sig. (p)	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	33.462	1.941		17.240	<.001	29.655	37.270					
ENG	2.715	.191	.321	14.226	<.001	2.340	3.089	.373	.361	.311	.942	1.062
GEN	1.810	.761	.054	2.379	.018	.317	3.302	.174	.065	.052	.933	1.072
REG	2.539	.649	.087	3.913	<.001	1.266	3.811	.040	.106	.086	.959	1.042
APS	.203	.052	.087	3.910	<.001	.101	.305	.133	.106	.086	.979	1.022
PACC	15.082	.750	.450	20.100	<.001	13.610	16.554	.464	.480	.440	.957	1.045

a. Dependent Variable: EXAM%

Table 19 Coefficients - significance test of independent variables

The analysis of the standardised coefficients revealed that the greatest variation in academic performance (EXAM%) is primarily influenced by prior academic performance in accounting (PACC) ($\beta_5 = .450$). This is followed by active engagement with the SLP (ENG) ($\beta_1 = .321$), indicating its substantial impact when other independent variables are held constant. All coefficients are statistically significant ($p < .05$). Furthermore, the Variance Inflation Factor (VIF) values are well below the threshold of 5, and the Tolerance values exceed 0.2, suggesting that multicollinearity may not be a significant issue in this model.

In conclusion, a multiple regression analysis was conducted to explore academic performance (examination %) association with active engagement with the SLP as the variable of interest, controlling for gender, motivation to major in accounting, APT score and grade 12 accounting experience. These variables collectively and significantly affected academic performance, $F(5, 1351) = 147.30$, $p < .05$, $R^2 = .353$. All independent variables contributed statistically significantly to the model, $p < .05$.

The findings from this analysis offer insights into the potential impact of the SLP on student active engagement and academic performance. Although the SLP's introduction was correlated with considerable active engagement, its direct impact on academic performance—when marks earned from redeeming Beans are excluded—appears to be non-significant. This emphasises the primary value of the SLP lies more in motivating students towards improved participation in learning activities and active engagement with content, rather than directly improving academic performance. Longitudinal comparisons for participation and active engagement rates before the SLP and academic performance were not done due to the lack of historical data, making meaningful comparisons impractical. A comprehensive, long-term investigation is warranted when considering the habitual nature of student behaviours implied in active engagement with the SLP.

The positive correlation between active engagement with the SLP and academic performance suggests a more nuanced relationship. It indicates that while mere participation in the learning activities underlying the SLP may not assure academic improvement, a deeper and more consistent active engagement with the SLP is likely associated with positive academic behaviours, such as beneficial study habits and greater immersion in the course. Thus, the key to harnessing the SLP's full

potential might lie in encouraging not just participation but sustained and active engagement.

5.6 Conclusion

The SLP was designed to motivate students to participate in learning activities and support the development of self-directed learning by influencing student behaviour to improve participation (**RQ1**). Findings from quantitative and qualitative data, suggest that the SLP did more than incentivise participation in learning activities. Innovative teaching approaches should not only encourage student participation, but students should also be encouraged to autonomously seek knowledge towards problem solving (James *et al.*, 2024). Autonomy, as an element of self-regulation (Sierens *et al.*, 2009), enhances a students' ability to choose the 'What' and 'How' to engage with learning content (Boud, 2000) from an array of carefully selected learning activities (**DQ1**) within a gamified programme, for example, the SLP. The SLP potentially resonated with deeper motivational drivers within students, encouraging active engagement (**RQ2**) by addressing their psychological needs for competence and autonomy.

For instance, the need for competence was reflected in feelings of achievement and mastery, expressed as: *"I have completed something"* and *"I have mastered something."* Similarly, the need for autonomy emerged through statements like: *"I am making progress."* One student (n153) summarised this impact, saying: *"They motivated me in wanting to do more of Accounting. For someone who did not do Accounting in Matric, it was very helpful and showed me that I can do almost anything that I set my mind to do and actually achieve something afterwards (Beans)."*

To expand the investigation into student competency their active engagement with the SLP was examined for possible correlation with academic performance (**RQ3**). A positive correlation between active engagement with the SLP and academic performance suggests that while mere participation in the SLP may not assure academic improvement, a more consistent engagement, fostering beneficial learning habits, is likely associated with improved academic performance.

The nature of the reward(s) offered (**DQ2**), that could potentially influence the students' learning behaviours, was an important consideration during the design of the SLP. Students who did participate, as members of the SLP were swayed by the

reinforcement value of the rewards, which represents the desirability or significance the rewards hold for them, towards more active engagement. Student feedback (**RQ4**) indicated that the Beans' reinforcement value effectively boosted active engagement, with one student (n298) stating the SLP “*helped me engage in the content*”. Beans also spurred repetition of these behaviours, as another respondent (n3) noted, “*The bean programme forces you to complete more online work and small assignments which benefits you in gaining much more knowledge than you think. It subconsciously makes the student practice more which betters his knowledge.*”

Based on the reported results, the SLP appears to have successfully motivated participation by leveraging principles from self-regulated learning and customer loyalty programmes. Reward structures, combining continuous and fixed-ratio reinforcement schedules, encouraged consistent engagement and habit formation. Weighted rewards based on the educational value (**DQ4**) of activities further enhanced motivation, and the ability to convert rewards into marks was viewed as particularly impactful, anecdotally described by one student as “*The Power of the Bean.*”

The SLP addressed challenges in large-class environments by promoting participation and enabling timely feedback. Real-time data allowed instructors to identify struggling students and challenging concepts early. The programme’s user-friendly design and gamified elements were appreciated by students, with a majority actively engaging and finding it intuitive.

Reward scheduling (**DQ3**), targeted patterns of behaviour for students, similar to the repetitive behaviour of customers as members of CLPs. Behavioral patterns observed during implementation, such as repeat participation and the goal gradient effect, mirrored those found in CLPs. These patterns highlight how consumer loyalty principles may be able to influence student learning behaviour.

Recommendations

To foster more consistent participation across performance levels, future SLP implementations could consider adjustments that increase the perceived value of Beans or offer tailored incentives based on students’ motivational needs. For example, allowing students to earn partial rewards for fewer Beans, offering social recognition for participation, or creating milestone incentives could help reinforce ongoing participation and create a more inclusive, supportive environment for all students.

While the SLP demonstrated its potential to influence student behaviour and support the development of self-directed learning, limitations such as the lack of a control group and the influence of intrinsic motivators complicate attributing trends solely to the SLP. External factors also likely played a role in participation and engagement. Nonetheless, these findings provide valuable insights into the application of loyalty programme principles in education to promote habitual learning behaviours and self-directed learning.

6. CHAPTER 6: DISCUSSION OF FINDINGS, CONCLUSION AND FUTURE DIRECTIONS

This thesis explored adapting strategies from habit-based Customer Loyalty Programmes (CLPs) within an educational context, to motivate accounting students to participate consistently in learning activities and to support them in developing effective learning habits towards becoming self-directed learners. Drawing on the insights gleaned from the use of intention, repetition, and context stability in habit-forming customer loyalty programmes, this thesis applied these principles in the design and development of a novel Student Loyalty Programme (SLP).

The SLP is defined as a gamified reward system linked to learning outcomes, designed to influence student participation in learning activities, to support the development of effective learning habits and to promote self-directed learning. Inspired by CLPs, which encourage repeat engagement by offering rewards to loyal customers, the SLP incentivised students to participate in their learning. The more consistently students participated in the learning activities, the greater the rewards they earned. Over time, this externally motivated participation could foster the development of learning habits and enhanced self-directedness, potentially improving academic performance.

Building on the design and implementation of the SLP, this thesis evaluated its effectiveness by focusing on student participation, active engagement, and their perceptions of and experiences with the programme. Gauging these elements is vital not only for assessing the programme's success in supporting the development of effective learning habits towards students becoming self-directed learners, but also for refining future iterations. However, it is important to acknowledge that the levels of students' participation, active engagement and academic performance can be influenced by a myriad of factors, with the SLP being just one among them. To provide a more holistic understanding of the programme's effectiveness and impact, direct feedback from students was incorporated alongside statistical analyses, offering valuable insights into the perceived value and influence of the SLP.

The design and implementation of innovative educational programmes such as the SLP are highly dependent on the theoretical frameworks underpinning them (Schmitz and Hanke, 2023). This thesis's unique integration of behavioural and motivational theories, drawn from the domains of marketing and higher education,

highlights its theoretical contribution. By bridging these fields, the research advances understanding of how gamified systems can influence student behaviours, laying the groundwork for future interdisciplinary applications in education.

6.1 Theoretical contribution of this thesis

This thesis extends the theoretical framework of gamification in higher education by exploring how gamification elements, traditionally used in CLPs, can be adapted to educational settings to support students in developing effective learning habits towards becoming self-directed learners. The interaction of the theoretical concepts discussed in this thesis (Figure 7), centres around motivation and its influence on human behaviour in two domains: marketing, in the form of customer behaviours, and education, students' behaviours, as perceived through the lens of Behavioural Theory and Self-Determination Theory (SDT).

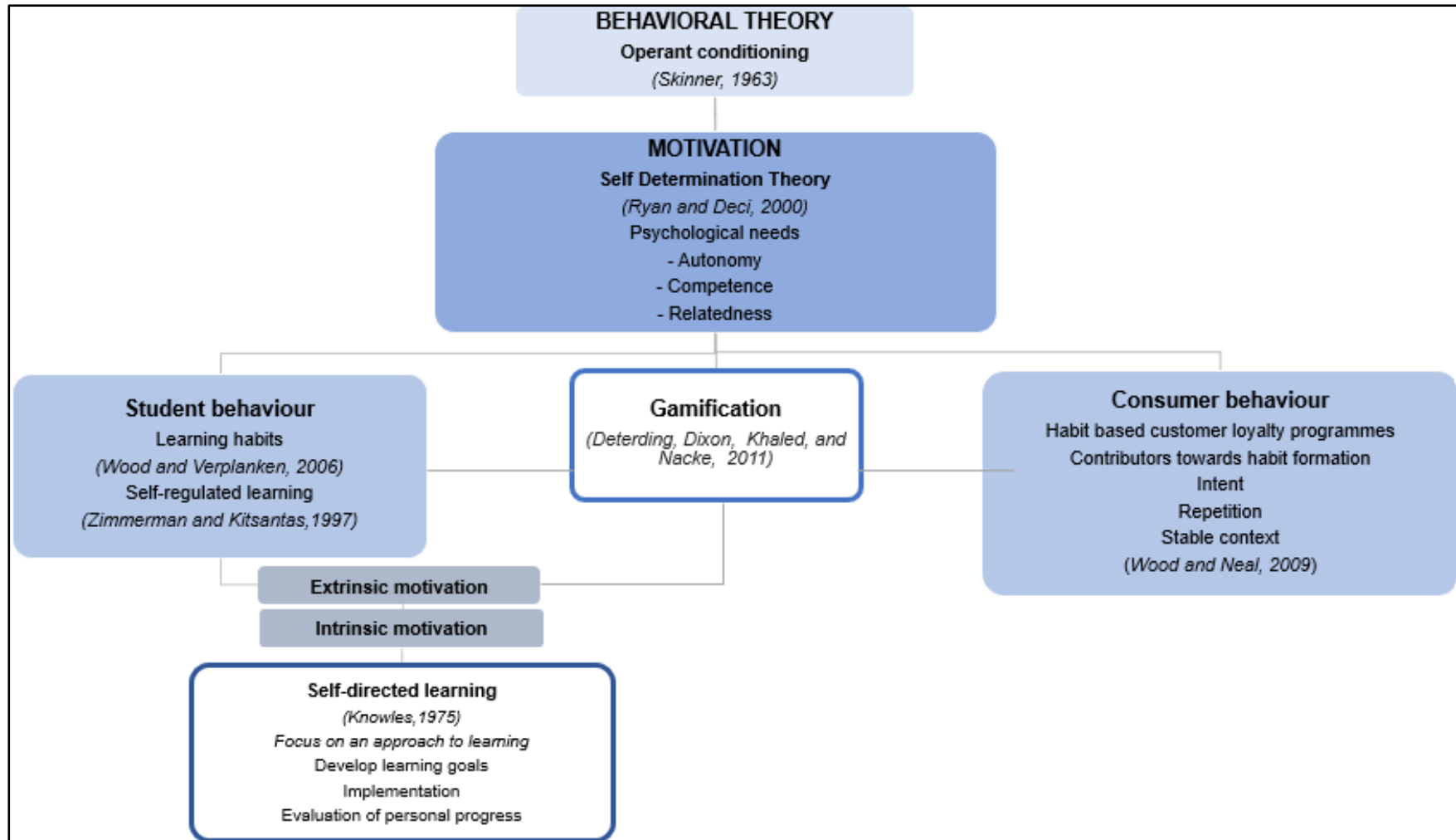


Figure 7 Schematic illustration of theoretical interaction in this thesis

Behavioural theory, and operant conditioning in particular, explains how individuals, consumers or students, learn from the consequences of their behaviours – primarily through extrinsic motivation (Skinner, 1965). Operant conditioning, which relies on reinforcement to shape behaviour, has been widely used to explain how positive reinforcements can modify actions (Hedley, 1994; Wiegand and Scott Geller, 2004; Nagle *et al.*, 2014; Ladouceur, Schlund and Segreti, 2018). In education, this is evident in gamified elements such as points, badges, and leaderboards, which shape initial participation and engagement by appealing to external rewards. By incorporating these gamified elements, this thesis explores the principles of operant conditioning in a novel educational framework, offering a new perspective on its applicability and effectiveness in fostering participation in learning activities.

In marketing, the application of SDT and gamification is evident in habit-based customer loyalty programmes, which leverage components of habit formation such as intent, repetition, and stable context (Wood and Neal, 2009) to drive consumer behaviour. These programmes aim to create habitual behaviour where customers are motivated to repeatedly engage with a brand, driven by the rewards and satisfaction derived from their interactions. In education, the focus shifts to creating learning habits that contribute to the development of consistent learning behaviours.

However, as participation deepens, gamified systems can evolve beyond extrinsic motivators. Drawing on SDT, as proposed by Ryan and Deci (2000), the structured and engaging environments created by gamification can support the fulfilment of three basic psychological needs—autonomy, competence, and relatedness. This interplay between extrinsic rewards and intrinsic needs encourages the development of intrinsic motivation. In this way gamification acts as a catalyst, bridging extrinsic and intrinsic motivation by providing structured, engaging environments that encourage sustained behavioural change and learning habits.

Implementing such extrinsic factors to shape behaviour is closely linked to self-regulated learning (Zimmerman and Kitsantas, 1997), where learners follow a strategic process, self-monitor their progress, and rely heavily on timely feedback to remain motivated and achieve their learning goals. On the other hand, intrinsic motivation is essential for self-directed learning (Knowles, 1975), where individuals take initiative in diagnosing their learning needs, setting goals, implementing learning strategies, and evaluating their progress. This form of motivation aligns well with the principles of SDT, as it supports autonomy and personal development.

This thesis, therefore, offers a unique contribution by merging theories from the domains of marketing and education to extend the theoretical framework of gamification in higher education. By adapting gamification elements traditionally used in Customer Loyalty Programmes (CLPs) to educational settings, it bridges Behavioural Theory and Self-Determination Theory (SDT). This interdisciplinary approach demonstrates the value of integrating concepts across domains to address complex challenges in education.

6.2 Contribution to theory-based design principals

This thesis contributes to the advancement of design principals for pedagogical models and addressing current gaps in the literature to apply design-based research methods within educational contexts. Programmes to influence student motivation, participation and engagement have been implemented and investigated, but often lacking a strong theoretical foundation, leading to inconsistent outcomes and superficial engagement (Krath *et al.*, 2021). By integrating behavioural theories into the design of a gamified SLP, this study provides a theoretically grounded model that demonstrates how gamification can be purposefully aligned with educational goals. In doing so, the thesis offers a novel approach that transcends the mere adaptation of existing game mechanics for education, instead presenting a framework rooted in evidence-based instructional design (Gomes and Monroy, 2018).

A further contribution towards improved design lies in the application of habit-based CLP concepts to the design of the SLP. Drawing on commercial strategies that reinforce customer behaviour through structured rewards (Henderson, Beck and Palmatier, 2011), the results illustrate how similar mechanisms can be effectively applied in educational settings to promote learning habits and sustained engagement. Through the design and implementation of targeted reward structures, the SLP not only fosters extrinsic motivation but also lays the groundwork for the development of intrinsic motivation over time (Laine and Lindberg, 2020). The integration of gamification with habit formation within a self-regulated programme thus enhances the strategic use of motivation in learning environments, offering educators a replicable model for encouraging continued academic engagement towards self-directed learning.

The SLP is further distinguished by its systematic response to key design questions that have previously been underexplored. These include identifying which learning

behaviours merit reinforcement (**DQ1**), determining the types (**DQ2**) and schedules of rewards (**DQ3**) most likely to influence participation, and establishing weighting mechanisms for different learning activities (**DQ4**) to manage participation and active engagement. By explicitly addressing these questions in the SLP design, the thesis delivers clear, actionable guidance for instructors seeking to implement similar interventions with intentionality and rigour. This contribution enhances both the theoretical and practical understanding of pedagogical programme design in education and aligns with the broader call for research that not only theorises but also tests and refines the implementation of innovative learning approaches (Anwar and Mulyadi, 2025).

6.3 Summary of Findings

As part of a triangulated, pragmatic approach this thesis initially provided a detailed process description of the design and implementation of a SLP. Grounded in SDT, the SLP was designed with a focus on students' psychosocial needs, reward schedules, and the impact of rewards on behaviour. The design questions included in this thesis served as a foundation for the evidence-based design of the SLP, addressing the need for theory-driven research on effective gamified programmes. These questions guided the integration of key principles to promote the learning of technical accounting materials and emphasized the importance of incorporating design elements that enable students to experience a sense of flow, thereby enhancing engagement and learning outcomes (Chan *et al.*, 2016). Gamification elements, combined with multiple opportunities for participation allows students to develop patterns of behaviour, which facilitates sustained, participation (Zainuddin *et al.*, 2020). The intent with the implementation of the SLP was to, not only motivate student participation, but also active engagement with the SLP to cultivate effective learning habits to support their development as self-directed learners.

The SLP's rewards appeared to derive their effectiveness not only from their motivational value, but also in their strategic timing and placement, influencing students' motivation towards targeted participation (Wood and Neal, 2009). Furthermore, the immediate feedback provided through the rewards appears to have assisted in influencing students' autonomous behaviour. A student (n467) described this impact, saying, "*To earn a bean for online assignments is quick and easy, whereas in other modules it can take a lot longer to complete an online assignment for less utility.*" This immediate reinforcement,

combined with tailored reinforcement scheduling for different learning behaviours, resulted in an effective, gamified programme that fostered self-regulated engagement and supported the progression toward becoming self-developed learners.

The SLP design focused on the rewards' nature and effectiveness in influencing student behaviour. It linked reward redemption directly to earning academic marks, which students perceived as a 'currency' (Dicheva *et al.*, 2015), similar to customer loyalty programmes 'reinforcement value' (Feldman, 2016). A key factor was selecting rewards that guide students toward desired behaviours.

The exploratory analysis of participation and active engagement with the SLP suggests that the SLP has potential to influence student behaviour and learning habits, towards developing as self-directed learners. The detailed investigation into overall participation at different academic performance levels and active engagement with the SLP suggested behaviour parallels with those observed in CLPs. These include, but were not limited to, the effect of endowed progress on motivation; the influence of the goal gradient effect on repeat participation and engagement; and the varying engagement and extinction rates associated with different reinforcement schedules. When analysing the different types of rewards, concepts like endowed progress and the goal gradient effect were identified as similar behavioural influencers in an educational context as with CLP.

The positive correlation between active engagement with the SLP and academic performance suggests that while participation in the SLP may not assure academic improvement, a deeper and more consistent engagement with the SLP is likely associated with positive academic behaviours, such as beneficial study habits and greater immersion in the course. Thus, harnessing the SLP's full potential might lie in encouraging not just participation but sustained and active engagement with the SLP.

The survey results showed strong student satisfaction and motivation with the SLP, effectively engaging both extrinsic and intrinsic motivation. Students appreciated how the Beans structured their learning habits. One (n95) commented, "*Beans helped me stay up to date and forced [me] to study even when I was not writing a test. It motivated me by breaking down chapters and working through them at my own pace.*" Another (n2) highlighted its role in promoting independent study: "*Beans motivate students, including me, to complete tasks and engage in the set work independently.*" These comments underscore the SLP's effectiveness in motivating students and fostering sustainable learning habits.

6.4 Conclusion

Students entering higher education can benefit from exposure to a structured, gamified programme that supports their development as self-directed learners, thereby enhancing their academic success potential. A combination of extrinsically motivating factors, like strategically scheduled rewards, with self-regulatory elements including student involvement in personalising their learning habits and receiving immediate feedback from the reward system, can culminate into intrinsic motivation. Intrinsic motivation is a more robust influencer of sustained engagement towards habit formation and ultimately improved academic performance.

Academic success is not only prioritised by students but also Higher Education Institutions (HEIs), however, these institutions face growing challenges in terms of resource constraints. The potential benefits of the practices studied here in mitigating resource constraints associated with large student cohorts, together with improved motivation, engagement, and academic performance of this type of approach in their courses, can alleviate some of the pressure from HEIs.

The process description of programme design and implementation in this thesis can assist instructors in identifying and establishing innovative pedagogical strategies that foster the development of effective learning habits, promoting self-regulation and ultimately self-directedness among students. In particular, accounting instructors, without formal education training have lacking skills and often restricted time for developing new teaching methods, and can make informed decisions about integrating similar gamified programmes within their existing learning management systems.

In conclusion, the design and implementation of an SLP offers an innovative approach for instructors to assist large student cohorts to motivation students to participate in learning activities and develop effective learning habits towards self-directed learning. SLPs hold the potential to become as prevalent in education as customer loyalty programmes are in commerce.

6.5 Summary of Contributions

In higher education, and the field of accounting education specifically, this thesis provides insights into how an SLP can be used to enhance student motivation, participation, and active engagement. It also demonstrates the potential of gamification to influence not only extrinsic but also intrinsic motivation among students. Current accounting education literature identified a gap in empirical research in this regard.

This thesis bridges this gap by offering a comprehensive exploration of the theoretical and practical dimensions of gamified learning environments, as summarized below:

- It investigates the dynamic interplay between extrinsic and intrinsic motivation within gamified educational settings, demonstrating how external rewards (e.g., marks) can act as catalysts for fostering intrinsic outcomes.
- The interdisciplinary nature of this investigation into student behaviour applying marketing concepts, customers' behaviour as members of CLPs in particular, advances both the accounting education, and marketing fields.
- The novel integration of marketing concepts into educational practice demonstrates how analogies from consumer behaviour can inform and improve student participation and active engagement strategies. Although rooted in accounting education, the implementation of CLP principles and gamification in education offers a transferable framework for other disciplines.
- This thesis contributes to an evidence base for pedagogical innovation in accounting education, showing how gamification can be both theoretically grounded and practically impactful.
- The findings underscore the relevance of SDT, in particular the need for autonomy and competence among students, in higher education. The gamified SLP not only incentivises participation but also cultivates a sense of ownership and mastery among students who actively engages, enhancing their intrinsic motivation. This combination of theory and application strengthens the relevance of the SLP to both academic researchers and practitioners.

The thesis's contribution extends beyond pedagogy to address the practical challenges posed by large-classes, as well as other related resource constraints, commonly associated with accounting education.

- In resource-constrained educational environments, where one-on-one interactions are limited, a gamified SLP offers a scalable solution. This is particularly relevant in accounting education, where students often struggle with abstract and technical material, but can be extended to similarly constrained domains in Higher Education.
- The study contributes by highlighting the potential advantages of implementing the proposed practices in introductory courses at HEIs as a solution to resource limitations commonly encountered with large student cohorts, not limited to accounting education.

The thesis also aims to provide insights into implications for instructors at HEIs when applying key drivers of CLPs within an educational context:

- Similar implementations and related investigations can enable them to gain a better understanding of the influence on student motivation, the formation of effective learning habits and ultimately self-directedness.
- Given that motivation is the key to student engagement, in the pursuit of academic success (Pintrich and De Groot, 2003), gamified learning activities can assist instructors, specifically in accounting education, to adopt innovative instructional methods (Silva, Rodrigues and Leal, 2021).
- The proposed didactic method is innovative yet practical, as it does not demand specialised programming skills and can be easily integrated into existing learning management system.

A well-designed and effectively implemented SLP can provide a structured, gamified programme to students, entering HEIs, that supports them in meeting the basic psychosocial needs for autonomy and competence as prescribed by (Alioon and Delialioğlu, 2019) reinforcing the dual impact of gamification on extrinsic and intrinsic motivation.

- The findings emphasise the positive effects of an SLP on student motivation, participation, active engagement, and academic performance resulting from the adoption of such approaches within curriculums.
- The structured reinforcement of an SLP does not only support academic goals but also motivate students towards autonomous behaviours which can advance their development into self-directed learners.
- By instilling good learning habits and self-directed behaviours in introductory courses at HEIs, SLPs could have lasting benefits for students' academic careers. This early

intervention might contribute to reduced dropout rates and improved retention, addressing broader institutional goals.

An SLP, as an evidence-based pedagogical innovation can potentially transform education practices at HEIs. By fostering autonomy and competence in first-year students, this approach not only addresses immediate challenges in higher education but also lays the foundation for lifelong learning and professional success.

6.6 Recommendations for implementation

General recommendations for similar programmes

Due to the pragmatic approach to this investigation a number of practical implications for the design and implementation of similar programmes at other HEIs, in different introductory courses and even in different disciplines have been identified. Recommendations on similar implementations with associated benefits include:

- Ground the design of a similar SLP in educational theory, such as SDT, to align the eventual objectives of the programme with the desired outcomes envisaged by HEIs, instructors and students. Replicability across different subjects and academic years is one of the benefits of a strong theoretical foundation for similar innovative programmes.
- Build on present resources and use the experience to identify desired learning behaviours to reward in an SLP. Make use of existing material (formative assessments or similar low-stakes learning activities) and practises (attendance monitoring) but structure the programme using a self-regulation process matched with different reinforcement schedules. This approach can be beneficial to the already overburdened instructors of large classes.
- Use the abundant examples of gamification elements in CLPs, as well as educational curricula, and apply appropriate concepts to the subject and academic level of the students. Instructors without formal training in pedagogy can also implement innovative teaching practices to the benefit of their students.
- Keep the SLP simple and user-friendly. Students who feel that they meet their need for competence and autonomy will act from a deeper level of intrinsic motivation, benefitting not only the students but instructors and HEIs alike.

- Automated, computer-recorded system usage data was used to determine student engagement as suggested by limitations of prior studies in accounting education (Chan *et al.*, 2016).

Recommendation specific to the Student Loyalty Programme

Based on the findings and inferences made from the results in this thesis some recommendations to improve the design and implementation of the SLP or similar programmes in the future include, but are not limited to:

- Careful consideration of the perceived value of Beans to address the reinforcement value, or the desirability of a reward, is key to the impact on behavioural changes (So *et al*, 2015; Feldman, 2016). This can possibly be achieved by adjusting the marginal contribution of the SLP, from 5% to 10% or even more.
- More individually tailored incentives based on students' motivational needs like allowing struggling students to earn partial rewards for fewer Beans, which can motivate students towards active engagement and ultimate qualification for redemption of these rewards. This can create a more inclusive, supportive environment for all students.
- The inclusion of a social element to address the psychological need for relatedness included in SDT. Social recognition for participation, active engagement, and reaching specified milestone incentives could help reinforce self-regulated behaviours towards habit formation.
- The matching of different reward schedules in a learning context with certain learning activities can influence two key behavioural concepts from the customer loyalty programme literature: response rate and extinction rate. From this investigation it was evident that a variable interval reinforcement schedule extends the extinction rate, while a continuous, fixed-ratio reinforcement schedule produces a higher initial response rate.

6.7 Suggestions for future research

This single-site study's limited generalisability doesn't detract from the encouraging findings in a large, diverse student cohort. A longitudinal study is proposed to confirm the effect of SLPs on the habitual behaviour of students. The SLP's development and implementation provide a replicable model for instructors to design similar loyalty programmes.

Research on future iterations of SLPs could focus on:

- Analysing the effect of specific reinforcement schedules in altering student behaviour.
- Exploring correlations between different reward types and academic performance.
- Examining mediating factors on student motivation towards participation and engagement with gamified loyalty programmes;

Finally, future research can explore the implementation of a similar SLP within a social construct, where students become active agents in the reward process, providing peer feedback in the form of rewards, to address the third psychosocial need in SDT, relatedness.

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APPENDIX A

FRK 111 STUDENT LOYALTY PROGRAM

Welcome, as a member of the FRK 111 Bean Community, to our student loyalty program! Here you can manage your learning experience in a responsible manner and earn rewards throughout the course that can ultimately be converted into marks.



1. How do you earn BEANS and what do they mean?

During the first semester you will have to participate in a number of learning activities and interventions in a hybrid teaching and learning environment. This implies that there will be contact sessions (lectures) as well as a number of online activities to facilitate your mastery of the basic accounting concepts.

As a diligent and dedicated student, you can earn your rewards, which we call BEANS, by successfully completing certain activities or taking part in interventions on a weekly basis. At the end of the semester, your BEANS will be convertible into marks which can make a valuable contribution towards your Module Mark before entering the final examination. The process of conversion will be communicated via ClickUP at a later stage.



2. Where can you view and monitor your BEANS?

Log on to your FRK 111 ClickUP page

In need of support?

Financial News

Lecturer and Tutor Contact Details

Library page

Map to find Accounting Dept. One Stop

Technical support

Bean places and rewards

Bean community

My Grades

My Beans ←

Off-campus

My Achievements

M (Madelyn) Cloete_PreviewUser

You have 0 new achievement(s)

All Achievements

Earned Achievements

Unearned Achievements

E-tivity Chapter 1

This Bean can be earned by ...




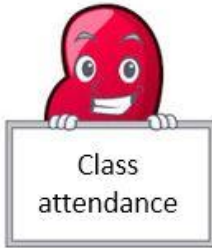
Orientation test


This "Bean" is awarded for st...

Post test 1









You will earn this Bean if you ...

3. The different types of BEANS

	How to earn this BEAN	Marks represented
Activity Bean		
	<p>This BEAN rewards participation in online activities, including the orientation activity and E-tivities, which will be available under Subject Content for each chapter.</p>	<p>FIVE of these BEANS can be converted into ONE mark.</p>
Online test Bean		
	<p>On your FRK 111 ClickUP page you will have to do a number of online assessments, including pre-tests per chapter. This BEAN rewards you for passing online tests.</p>	<p>THREE online test BEANS can be converted to ONE mark.</p>
Post-test Bean		
	<p>At regular intervals your accounting knowledge will be tested in an online post-test. You will receive this BEAN only if you achieve a mark above 50%.</p>	<p>TWO of these BEANS is convertible into ONE mark.</p>
Class attendance Bean		
	<p>In FRK 111 your class attendance will be monitored in a number of ways. This BEAN will be awarded for weekly class attendance. Remember – you have four classes per week.</p>	<p>FIVE of these BEANS can be converted into ONE mark.</p>

Surprise Bean		
	Some FRK 111 interventions might cross your path that you are not aware of yet. That is what we reserve this BEAN for.	Mark allocation will be communicated as part of the surprise.

APPENDIX B

	Class attendance - Week 5  Custom	Recipients(997)
	Pre-test Chapter 2  Milestone This BEAN is awarded for pre-engagement with the content of Chapter 2.	Recipients(1143)
	Post test 3  Milestone This BEAN is awarded for the successful completion (50% and higher) of Post test 3.	Recipients(1028)
	Class attendance - Week 10  Milestone This BEAN is awarded for class attendance in week 10 of lectures.	Recipients(905)

APPENDIX C

BEAN conversion into marks

madelyn.cloete@up.ac.za [Switch accounts](#)



Not shared

My student number is:

Your answer _____

I have earned the following number of online activity BEANS:



Your answer _____

I have earned the following number of Online test beans:



Your answer _____

The number of BEANS that I have collected for Post tests are:



Your answer _____

I would like to claim the following number of Class attendance BEANS:



Your answer _____

I have earned the surprise BEANS for:



- Values under the BEAN Community
- Watching the reflection videos for Module test 2

Submit

Clear form

APPENDIX D

Student	Pre-test BEANS	Activity BEANS	Class attendance BEANS	Post-test BEANS	Surprise BEAN	Pre-test Redemption	Activity Redemption	Class attendance Redemption	Post-test Redemption	Surprise Redemption	SLP Engagement Level
Example 1	4	8	10	3	1	1	1	1	1	1	5
Example 2	1	4	5	2	0	0	0	1	1	0	2

The BEAN columns (first 5) represent student participation, and the Redemption columns (Columns 6-10), active engagement. Refer to Table 2 for the individual weighting of rewards for redemption.

Explanation of Student Loyalty Programme Engagement Level

Example 1: This student earned 4 Pre-test BEANS, which made him qualify for the redemption of these BEANS to 1 mark in the Pre-test redemption column. The 8 Activity BEANS also qualified for Activity redemption to 1 mark. The student continued to earn all the Class attendance BEANS, as well as all the Post-test BEANS, therefore qualifying for redemption into marks as well. Finally, this student also earned the Surprise BEAN which allowed redemption of the final mark. In the last column this student has the highest SLP engagement level, of 5, which is clearly representative of his participation and active engagement with the SLP.

Example 2: This student earned 1 Pre-test BEAN, 4 Activity BEANS, 5 Class attendance BEANS and 2 Post-test BEANS. In accordance with the poor participation, the student only qualified for redemption in two instances: Class attendance and Post-test, qualified as active engagement. Therefore, the SLP Engagement Level of this student is low at a level 2 as indicated in the last column.