

Fostering quantity surveying student success through academic engagement: an interactive qualitative analysis

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ABSTRACT

This research paper delves into the multifaceted aspects influencing student engagement in higher education, specifically focusing on Bachelor of Science (Quantity Surveying) Honours (QS) students at Nelson Mandela University, South Africa. This study aims to develop a group systems influence diagram (SID) for factors influencing student engagement according to QS students since it enhances student success and persistence. The objectives are to identify the key factors that drive student engagement and understand their interrelationships. This study used an interpretivist paradigm, which emphasises participants' subjective experiences, to navigate this complex landscape. Methodologically, a blend of inductive and deductive approaches was employed for theory building. The interactive qualitative analysis (IQA) strategy anchored this multi-method qualitative design. Central to this approach was creating a student SID, a visual tool designed to map out and represent the myriad factors influencing student engagement. Data collection was a two-pronged process, encompassing focus group discussions and subsequent individual interviews with students. This strategy ensured a rich tapestry of insights, capturing both collective sentiments and individual narratives. In response to the question, "Tell me about what influences your academic engagement at Nelson Mandela University?" the QS students produced 41 items in the focus group through inductive coding. These items were grouped into seven themes by means of axial coding: physical environment, external realities, lecturer attributes, subject matter, teaching methods, personal factors, and student interaction. Subsequently, a composite SID identified the physical environment and external realities themes as the primary drivers, while the lecturer attributes and subject matter themes were secondary drivers. During phase two, the themes were verified through individual semi-structured interviews. It was established that these interviews substantiated the focus group findings. The findings underscore the need for educational institutions to consider a holistic approach to student engagement, which includes creating conducive physical learning environments, understanding and addressing external challenges students face, and ensuring that teaching methods are engaging and adaptable. Additionally, the study highlights the importance of lecturer attributes in shaping student engagement, suggesting targeted professional development and support for educators. By tackling the drivers of student engagement, the Department of Quantity Surveying at Nelson Mandela University can foster an environment where students are more attentive, motivated, and actively involved in their learning experiences, ultimately leading to improved academic success.

Keywords: Student engagement, Higher education, Interactive qualitative analysis, Systemic interactive diagram, Teaching methods, Physical environment

1. INTRODUCTION

In the early days of democracy, the main failing of South Africa's higher education sector was a lack of participation by previously disadvantaged students (Calitz et al., 2016). Recent trends, as observed by Khuluvhe et al. (2021), show an encouraging increase in participation rates of these students; however, their journey is fraught with obstacles in achieving success, throughput, and retention, a narrative supported by Boughey and McKenna (2021). The 'revolving door syndrome', as identified by the Council on Higher Education (CHE, 2016), with its high enrolment but low completion rates, casts a long shadow on students, society, and the economy.

The imperative of addressing this challenge brings us to the concept of student engagement, a term that has been a focal point in educational discourse since Ralph Tyler's seminal work in the 1930s. This notion, further refined in Robert Pace's longitudinal studies, stresses the criticality of time and effort in academic tasks (Strydom et al., 2017). The theoretical landscape of student engagement was revolutionised by Tinto (1986), who highlighted the importance of academic and social integration. This framework was expanded by Chickering and Gamson (1987) and further advanced by Kuh et al. (2005), culminating in frameworks adapted to the South African context by Strydom et al. (2010). However, as Zepke (2013) points out, challenges persist in implementing these frameworks, especially in diverse student populations.

This research acknowledges the complexities of student engagement, echoing concerns raised by Kahn (2014) and Zepke (2018) about the depth and robustness of existing theories. The dominance of quantitative methods in studying student retention and engagement as critiqued by Bond et al. (2020) points to a significant gap in our understanding. This study therefore employs an interactive qualitative analysis (IQA) methodology, as described by Northcutt and McCoy (2004), to delve deeper into the nuances of student engagement, aiming to uncover insights that quantitative methods may overlook.

This study aims to develop a group systemic interactive diagram (SID) for factors influencing student engagement among BSc (Quantity Surveying) Honours students at Nelson Mandela University's Department of Quantity Surveying. To achieve this, the study is guided by two objectives:

- To identify the factors influencing student engagement as perceived by quantity surveying students; and
- To explore the relationships among these identified factors.

By understanding what drives engagement among quantity surveying (QS) students, this research will create a more conducive learning environment within the Nelson Mandela University Department of Quantity Surveying, ultimately fostering greater academic success.

Following this introduction, the paper will critically review the literature on student engagement, providing a foundation for the subsequent discussion. A rationale for adopting the IQA methodology in this study will follow this. The final sections will present the findings and discuss the development of an SID, offering new insights into the dynamics of student engagement in higher education.

2. LITERATURE REVIEW

This literature review investigates the concept of student engagement, emphasising its critical role in shaping educational outcomes and experiences. It establishes student engagement as a central theme in contemporary educational discourse, emphasising its link to various positive educational outcomes such as improved academic achievement, cognitive advancement, increased self-esteem, and overall student satisfaction. The review investigates the role of institutional strategies in fostering student engagement, recognising that changing individual characteristics such as academic preparedness and intrinsic

motivation necessitate broad systemic changes. This review also delves into the various behaviours that constitute student engagement, such as academic challenge, peer interaction, faculty engagement, and the impact of the campus environment. It also examines the roles of institutional mission, educational philosophy, and the creation of supportive learning environments in promoting student engagement. This in-depth investigation aims to provide a thorough understanding of the multifaceted nature of student engagement and its implications in the educational sphere.

2.1 Defining student engagement

In recent years, student engagement has emerged as a central theme in educational discourse, garnering significant interest from educators and researchers alike due to its critical impact on various facets of student development. Empirical studies have consistently highlighted a strong correlation between heightened levels of student engagement and a spectrum of positive outcomes, including enhanced academic performance, cognitive growth, self-esteem, psychosocial development, and overall student satisfaction (Carini et al., 2006; Appleton et al., 2008; Kuh et al., 2008; Schindler et al., 2017). Factors such as academic preparedness and intrinsic motivation are recognised as key indicators of a student's likelihood of graduating (Pascarella and Terenzini, 2005). However, these attributes are difficult to modify without imposing more stringent admission criteria, a strategy that may conflict with the global trend of diversifying student populations to meet the dynamic requirements of the knowledge economy.

As a result, the discourse has shifted to emphasise a third critical factor: student engagement. Research indicates that, even after accounting for diverse student backgrounds, the degree to which students invest time in educationally purposeful activities is a crucial determinant of their satisfaction and success in higher education (Kuh et al., 2007; Pascarella and Terenzini, 2005).

Despite the growing emphasis on student engagement, a unified definition remains elusive (Axelson and Flick, 2011; Payne, 2019). In some contexts, the term is narrowly construed to denote mere attendance or task completion (Trowler and Trowler, 2010; Zepke, 2015). However, the definition posited by Kuh (2009) is widely acknowledged and offers a comprehensive understanding (Bond et al., 2020). According to Kuh (2009), student engagement encompasses two primary elements, the first being the amount of time and effort students dedicate to academic and co-curricular activities that contribute to successful outcomes, and the second concerning the manner in which institutions deploy resources and structure learning opportunities to motivate and support student participation in these activities. More succinctly, student engagement can be defined by two key components: firstly, what students do, and secondly, what institutions do. This dual focus on student behaviours and institutional frameworks forms the bedrock of student engagement and will be explored in greater detail in the subsequent sections.

2.2 Student success and engagement in South Africa

The concept of student success, as defined by Vincent and Idahosa (2014), encompasses the capability of students to pass their courses and complete academic programmes within the stipulated time. Extensive research over several decades has consistently indicated that student engagement is a critical predictor of student success, even after accounting for background characteristics of students (Denovan et al., 2019; Kahu, 2013; Korhonen et al., 2019; Kuh et al., 2005; Mayhew et al., 2012; Trowler and Trowler, 2010; Zhao and Kuh, 2004).

A pivotal contribution to understanding this link is Kuh's et al. (2007) development of a student engagement framework, which comprehensively outlines the factors crucial to student success. This framework, adapted for the South African context by Strydom and

Mentz (2010), is exemplified in Figure 1 and underscores the central role of student engagement.

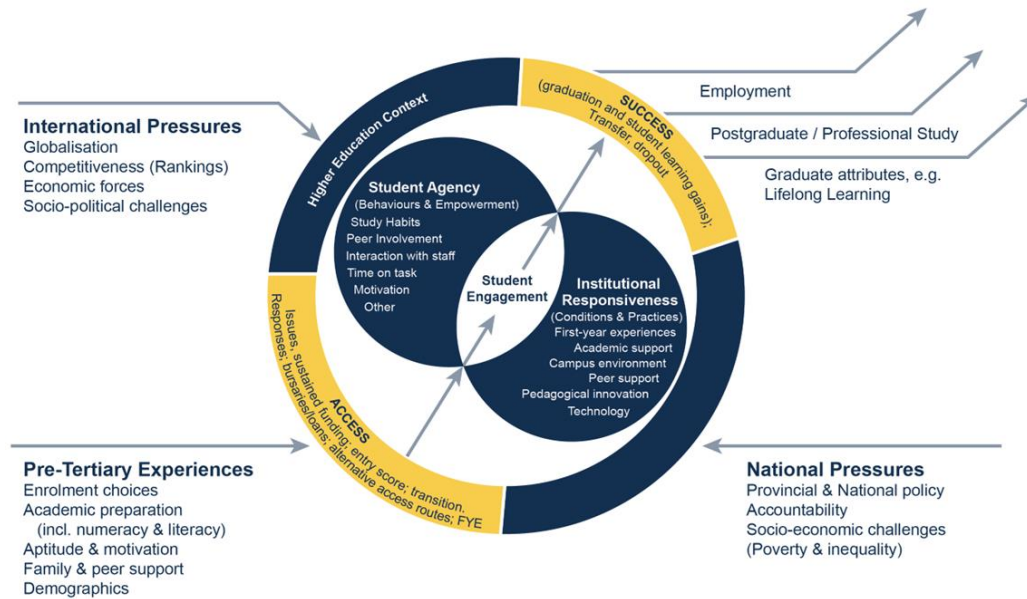


Figure 1. Strydom and Mentz’s student success framework
 Source: Strydom and Mentz (2010: 5)

In Figure 1, Strydom and Mentz (2010) highlight the importance of recognising students' diverse experiences and backgrounds in higher education, including family background, academic preparation, readiness perceptions, and willingness to learn. In South Africa, there is a need to address gaps in language and mathematics skills among high school graduates, leading to innovative educational approaches such as flexible curriculum designs and potentially extending degree programmes. Financial constraints and entry requirements are barriers to accessing higher education; however, initiatives such as bursaries, loans, and alternative pathways have been implemented to diversify and facilitate university admissions. Student engagement is crucial for university success as it influences students' journey through university and contributes to employable graduates, academic pursuits, and leadership qualities.

2.3 Student behaviours constituting student engagement

A comprehensive analysis of student behaviours is essential in the scholarly examination of student engagement. These behaviours encompass a variety of dimensions, including academic challenge, learning with peers, experiences with staff, and the overall campus environment (Ginting, 2021; Jia et al., 2021; Strydom, 2017). Each of these aspects, while individually significant, collectively contributes to the broader understanding of student engagement in higher education.

The notion of academic challenge is central to student engagement, underscoring the importance of intellectual rigour and creativity in academic tasks. This dimension is crucial for enhancing the quality of learning, as evidenced by the work of Strydom and Foxcroft (2017). Engagement in this domain is measured through various indicators, such as higher-order learning, reflective and integrative learning, learning strategies, and quantitative reasoning, providing a comprehensive evaluation of the intellectual challenges encountered by students.

Parallel to this is the concept of learning with peers, which is based on the principle that deeper involvement in education and reflective practices enhances learning outcomes (Ginting, 2021; Jia et al., 2021; Strydom, 2017). Collaborative learning and discussions with diverse peers are the key indicators in this regard (Strydom and Foxcroft, 2017). These interactions enrich the academic experience and foster communal learning and shared understanding.

Experiences with staff also play a pivotal role in student engagement. Interactions with staff members, both in and out of the classroom, allow students to learn from experts and solve real-world problems (Ginting, 2021; Jia et al., 2021; Strydom, 2017). Student-staff interaction and effective teaching practices are the primary indicators used to evaluate this aspect of engagement, as Strydom and Foxcroft (2017) noted, emphasising the importance of quality interactions in the learning process.

Lastly, the campus environment behaviour involves supplementary learning opportunities within and beyond the classroom that augment academic programmes (Ginting, 2021; Jia et al., 2021; Strydom, 2017). The quality of interactions and the presence of a supportive environment are key indicators in assessing this behaviour (Strydom and Foxcroft, 2017). This dimension reflects the ability of the institution to create an engaging and conducive atmosphere for learning.

It is crucial to understand that these distinct behaviours are not isolated. They are interconnected and synergistic, with experiences in one area often enhancing engagement in others. As highlighted by Kuh et al. (2005), this interdependency underscores the need for a holistic approach to student engagement that acknowledges and leverages the complementary nature of these diverse yet interrelated student behaviours.

2.4 Institutional conditions contributing to student engagement

In the landscape of higher education, six institutional characteristics and conditions emerge as essential for fostering student engagement, a multifaceted concept that has garnered significant attention in recent academic discourse (Kuh, 2009).

At the heart of an institution's effectiveness in student engagement lies its 'living' mission and 'lived' educational philosophy. As Taiwo et al. (2016) elucidate, the mission encapsulates an institution's overarching goals, identity, and aspirations. It is not merely a statement but a guiding light for the behaviour of staff and students, offering insights into the institution's direction (Strydom et al., 2017). Barnett (1997) and Craft (2018) highlight that every institution operates on two levels of mission: the espoused mission and the actual mission - what the institution genuinely does and whom it serves. According to Kuh et al. (2005), engaged institutions exhibit a smaller gap between these two missions, ensuring that their actions align closely with their declared objectives.

Complementing the mission is the institution's philosophy, a tapestry of unspoken yet deeply held values and beliefs about what is essential to the institution and its constituents (Taiwo et al., 2016). This philosophy permeates through all aspects of the institution, subtly guiding its approach and priorities.

An unwavering focus on student learning is another hallmark of engaged institutions (Kuh et al., 2005). In such environments, as Strydom et al. (2017) assert, student learning becomes the rationale for the daily activities of everyone involved - faculty, administrators, staff, and students alike. This focus is characterised by valuing undergraduate learning, experimenting with engaging pedagogies, demonstrating a passion for talent development, and dedicating time to students (Collaço, 2017; Kuh et al., 2005).

Creating learning environments that promote educational enrichment is also pivotal. Boys and Hazlett (2014) and Licite and Janmere (2018) underscore the importance of physical and psychological environments in supporting learning and reinforcing the institution's educational mission and values. Engaged institutions adapt their surroundings creatively

and educationally, transcending the physical setting to imbue a deeper emotional significance to the 'place' of learning (Kuh et al., 2005).

Clarifying pathways that maximise student success is a strategic focus of engaged institutions (Kuh et al., 2005; Trowler et al., 2019; Xerri et al., 2018). These institutions guide students through a blend of required activities and social support, excelling in acculturation - teaching students about institutional values and resource utilisation - and alignment, ensuring the availability of what students need when needed.

Furthermore, facilitating an improvement-oriented institutional culture and ethos is crucial (Kuh et al., 2005). This approach, reminiscent of the firms studied by Collins (2001), involves a relentless commitment to student success, directing resources towards mission-aligned initiatives that promote this goal, even in the face of budget constraints.

Finally, ensuring that everyone in the institution owns the quality of learning and student success is critical (Strydom and Mentz, 2010). This requires a concerted effort from the university council, management at all levels, academic staff, and support staff, creating an institutional network that influences success and throughput rates.

While these institutional characteristics and conditions are discussed separately, they are not independent or mutually exclusive. Instead, they interweave to shape the institution's effectiveness in fostering student engagement (Kuh et al., 2005). Each element, in its own way, contributes to creating an environment where student engagement is not just a goal but a living, breathing reality.

3. RESEARCH METHODOLOGY

The research philosophy underpinning this study was grounded in interpretivism, an approach that emphasises the interaction between the researcher and the subject of research (epistemology), acknowledges the subjective and multiple realities as perceived by participants (ontology), and recognises that research is inherently value-laden (axiology). The methodology influenced by systems theory was IQA, as Northcutt and McCoy (2004) outlined.

In this study, IQA was employed within a focus group setting, enabling the identification of system factors, referred to as affinities, and the exploration of relationships among these factors as articulated by participants, the constituencies, who possess direct experience with the phenomenon under study. This approach fostered the generation of data through an interactive, collaborative process, ultimately leading to the creation of a visual representation, the SID, delineating the affinities and their interrelationships within a system of influence.

The research commenced with an inductive data collection phase involving a focus group session with five QS students. This session began with a guided imagery clarification exercise, followed by participants individually and silently generating key thoughts in response to the issue statement, "What influences your academic engagement at Nelson Mandela University?", with each idea recorded on a separate card.

Progressing from the key thought generation phase, the focus group engaged in inductive and axial coding processes. Participants collaboratively categorised the key thoughts into affinities (inductive coding) and assigned labels to these affinities (axial coding). Utilising a pro-forma affinity relationship table (ART), individual participants engaged in theoretical coding to examine the relationships among the affinities, offering a pairwise assessment of the perceived influences relative to each other.

The culmination of the focus group data was the creation of individual participants' SIDs. These were then amalgamated using a Pareto table to form group composite SIDs, reflecting the issues' relationship and enabling comparisons at the group and individual levels. This article presents only the composite SID derived from the focus group.

The second phase of the IQA process involved conducting individual semi-structured interviews with the same five students who had participated in the focus group. The interviews, guided by the affinities identified in the focus group, were face-to-face and averaged 34 minutes in length. The aim was to delve deeper into the affinities generated in the focus group and gain further insights into the factors influencing student engagement. The interviews were recorded, transcribed, and, after member checking, analysed using the IQA protocol (Northcutt and McCoy, 2004).

Ethical considerations were rigorously adhered to, with approvals obtained from both Stellenbosch University (Ethics approval number: 24252) and Nelson Mandela University (Ethics approval number: H22-ENG-CMA-EAP-001), reflecting the academic integrity of the study. Participation in the focus group and interviews was entirely voluntary, with all students enrolled in the BSc QS Honours programme for 2022 invited to participate. Informed consent forms were duly signed by all participants, ensuring compliance with ethical standards and the protection of participant rights throughout the research process.

4. FINDINGS

4.1 Objective one

Objective 1 identified the factors influencing student engagement among BSc QS Hons students. The participants were asked to generate key thoughts (one key thought per sticky note) about the issue statement “What influences your academic engagement at Nelson Mandela University?” individually and silently. Inductive coding produced forty-one key thoughts (sticky notes) taped to a wall. The facilitator read the sticky notes aloud, and the group agreed on the meaning of each card. The facilitator then instructed the participants to silently organise (inductively code) the cards into affinity groups and name the affinities. Table 1 below indicates the seven affinity groups and the names given to the affinities by the students.

Table 1: Affinities identified in the student focus group

Affinities Names	Student Group Key Thought Groupings
External realities	Busy (many are employed); Time of day.
Lecturer attributes	Fairness of lecturer; How enthusiastic lecturers are; Lecturer attitude; Lecturer being unapproachable; Lecturer showing disinterest; Lecturer wanting to "catch students out"; Lecturer's approach; Passionate lecturer; Politeness of lecturer; Safety of environment; The lecturers.
Personal factors	Confusion; My level of understanding; Passionate student; Social anxiety; Tiredness; Willingness to learn.
Physical environment	The class environment; The environment; The venue.
Student interaction	Class engagement (involvement); No of students in class; Others' engagement (participation); The mood within the class (happy, excited).
Subject matter	Amount of work; Breaking complex words down; Complexity of the module; Overwhelmed by new content and new environment; Overwhelming scope of work; Passed module experience; The scope of work; Type of content (Numbers vs. theory).
Teaching methods	How the lecture is structured; Method of teaching; Real-world examples; Speed of lecturer; The method of being taught (lecture method); The method of learning (online vs. mask-to-mask); Topic presentation is interesting.

The grouping was followed by naming and defining the themes (axial coding). The themes and their definitions are shown in Table 2 below.

Table 2: Affinities and their definitions as identified by the student focus group

Affinities Names	Student Group Definitions of the Affinities
External realities	"The factors that students cannot control that have a bearing on their level of engagement."
Lecturer attributes	"The lecturers' attitude towards teaching and the students."
Personal factors	"The emotions of a student before and during a lecture."
Physical environment	"An environment that is conducive to learning."
Student interaction	"The level of and factors that affect the willingness of a student to participate."
Subject matter	"The nature of the content of the module."
Teaching methods	"The method in which the lecturer delivers the content."

4.2 Objective two

Objective 2 established the relationships among the factors BSc QS Hons students identified. The focus group was asked to analyse the nature of the relationships between each theme after the themes had been clearly defined (theoretical coding). They were given specific rules regarding the potential relationships and asked to record their responses on an ART. All the data from the previous individual ARTs were used in the interrelationship diagram (IRD), representing all the themes' relationships. The Pareto protocol was used to compile the IRD from the focus group. The Pareto protocol is a statistical method that states that roughly 20% of the variables in a system account for 80% of the variation in the outcome (Northcutt and McCoy, 2004) Table 3 shows the IRD of the focus groups in descending order of delta (Δ).

Table 3: Focus group IRD sorted in descending order of delta (Δ)

Student Group Tabular IRD											
	External realities (1)	Lecturer attributes (2)	Personal factors (3)	Physical environment (4)	Student interaction (5)	Subject matter (6)	Teaching methods (7)	OUT	IN	Δ	
Physical environment (4)		↑	↑		↑			3	0	3	Primary Driver
External realities (1)			↑		↑			2	0	2	Primary Driver (No outs Rule)
Lecturer attributes (2)			↑	←	↑	↑	↑	4	1	3	Secondary Driver
Subject matter (6)		←	↑		↑		↑	2	1	1	Secondary Driver
Teaching methods (7)		←	↑		↑	←		2	2	0	Pivot
Personal factors (3)	←	←		←	↑	←	←	1	5	-4	Secondary Outcome
Student interaction (5)	←	←	←	←		←	←	0	6	-6	Primary Outcome

The delta value serves as an indicator for the relative placement of an affinity within a system. Affinities showcasing positive deltas function as relative drivers or causes, whereas those with negative deltas act as relative outcomes or effects. A distinctively high positive delta, resulting from numerous Outs but devoid of Ins, tags an affinity as a Primary Driver — a prominent cause that influences other affinities without being influenced in return. According to the No Ins Rule, any affinity without Ins is invariably a Primary Driver.

A Secondary Driver is discerned when both Outs and Ins are present, but Outs outnumber the Ins. It acts as a relative influencer in the system. Sometimes, affinities display equal counts of Ins and Outs, positioning them centrally within the system. Such affinities, often likened to "circulators" or "pivots," denote an equilibrium point in the system's representation.

The Secondary Outcome represents a Relative Effect and is pinpointed when both Ins and Outs exist, but Ins prevail. A notably high negative delta, resulting from abundant Ins but no Outs, designates an affinity as a Primary Outcome — a profound effect influenced by numerous affinities without influencing any in return. The No Outs Rule asserts that any affinity devoid of Outs is undeniably a Primary Outcome.

An IRD may display all Ins or Outs with non-zero values in certain cases. This does not negate the existence of a primary driver or outcome but rather underscores the strength of that affinity's relative influence. In such contexts, it is fitting to label these affinities as primary.

When pinpointing tentative SID assignments, the In and Out columns were prioritised. The delta sort depicts the gap between Outs and Ins. The finalised sorted IRD adheres to a descending delta order, with two exceptions:

- Affinities without "Ins" will consistently top the list, irrespective of their delta.
- Similarly, affinities without "Outs" will perennially occupy the list's bottom, independent of their delta.

The "Physical environment" was identified as a Primary Driver, indicating its significant role in influencing other factors within the system without being heavily influenced by them. Similarly, "External realities" stood out as another Primary Driver. What is noteworthy about this particular affinity is that it adhered to the "No Outs Rule," meaning it influenced several other affinities without any being able to impact it in return.

Then we have the "Lecturer attributes" and "Subject matter." Both of these affinities were categorised as Secondary Drivers. This implies that while they significantly influenced other elements in the system, they were also, in turn, influenced by some.

Interestingly, "Teaching methods" was central to the system, functioning as a Pivot. This means that it held a balanced position, being influenced by certain factors while also exerting its own influence on others.

Delving deeper into the outcomes, "Personal factors" emerged as a Secondary Outcome, indicating its role as a result of the influences of other affinities. Meanwhile, "Student interaction" was a notable force in the system, recognised as a Primary Outcome. This suggests that while many affinities influenced it, "Student interaction" did not significantly influence others in return.

4.3 System influence diagram

Objectives 1 and 2 assisted in achieving the main aim of the research, which was to develop a group SID for factors influencing BSc QS Hons students' engagement. Figure 1 shows a visual representation of how the student group perceived student engagement during their studies and how they perceived the factors related to one another.

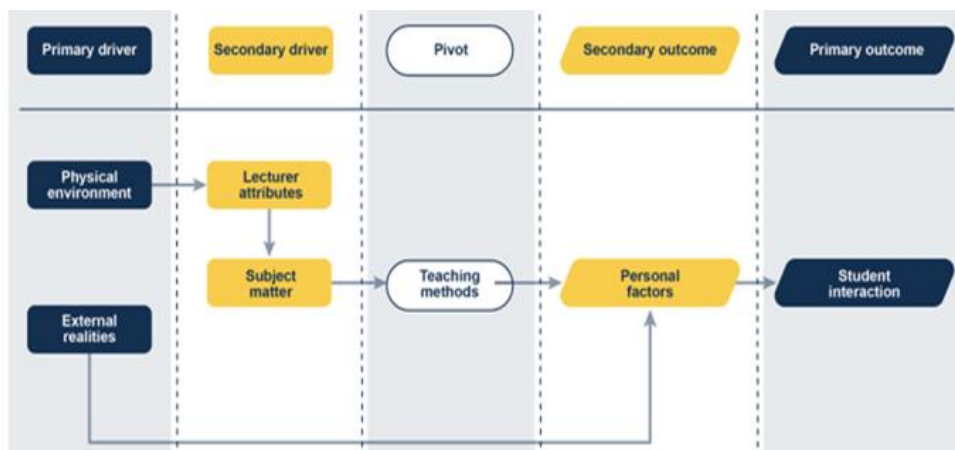


Figure 1. Uncluttered focus group systems influence diagram

4.4 Affinity descriptions (affinity write-up)

What follows is the insight gained into affinities that influence student engagement. This paper will discuss only the primary and secondary drivers since they affect the pivot, primary and secondary outcomes identified by the focus group. During the individual interviews, the participants were asked what the themes of external realities, physical environment, lecturer attributes, subject matter, and teaching methods mean and how they influence student engagement. This section presents the affinities using participants' own words, drawing upon distinct instances of discourse that highlight or suggest a particular affinity.

The results were presented as suggested by Northcutt and McCoy (2004: 314), which commences with an opening statement by the researcher highlighting his understanding and indicating the most important features of the affinity. The researcher then presents the evidence for the claims made in the opening statement. The evidence is organised and presented according to a specific protocol called the "Rules of Evidence". During the presentation of the evidence in the research, specific Structural Rules were diligently followed. The opening sentence was crafted to reflect the researcher's perspective, offering another layer of interpretation (*Italics*). Concluding the paragraph, selected examples were incorporated, distinguished by quotation marks, all meticulously chosen by the researcher to support the narrative (enclosed in quotes).

4.4.1 Physical environment (primary driver)

The "Physical environment" affinity directly pertains to the tangible aspects of the learning space in a higher education setting. From temperature and ventilation, lighting, acoustics, to room size, students emphasise that the physical attributes of the lecture venue profoundly influence their ability to engage and concentrate during lectures.

An overly hot or cold classroom, or one with poor ventilation, can quickly fatigue students and make concentrating challenging.

"To me, the physical environment refers to the actual lecture venue. Factors such as insufficient ventilation and being overly hot or cold, play a role in classroom engagement. For instance, poor ventilation can make one feel fatigued quickly." - Student 1

"I recall an instance in one class where there were a lot of us in a relatively small room. It became unbearably hot. With the room being crowded and overheated, students began having side conversations. This made it quite challenging to concentrate and fully engage with the lecture. The discomfort disrupted the overall effectiveness of the session." - Student 3

Being able to hear the lecturer clearly without disturbances from echoes or external sounds is essential.

"For me, the physical environment refers to, say, being in Building 123 and sitting in the middle of the lecture hall. I can clearly hear the lecturer because the room's acoustics are excellent." - Student 2

"Physical environment relates to conditions like the acoustics of a room—echo, for instance—and the quality of lighting." - Student 4

Effective lighting and functional equipment, such as projectors, directly impact students' ability to see and understand the material presented hindering engagement.

"Lighting is another concern. We've faced significant issues with inadequate lighting or malfunctioning data projectors. These are what I associate with the physical environment." - Student 1

"Physical environment relates to conditions like the acoustics of a room and the quality of lighting." - Student 4

The final theme focuses on the immediate and palpable effects of suboptimal physical conditions. Issues such as overcrowding can lead to distractions, discomfort, and hinder the educational experience, further highlighting the importance of a conducive learning environment.

"I recall an instance in one class where there were a lot of us in a relatively small room. It became unbearably hot. With the room being crowded and overheated, students began having side conversations. This made it quite challenging to concentrate and fully engage with the lecture. The discomfort disrupted the overall effectiveness of the session." - Student 3

The "Physical environment" affinity underscores the importance of the tangible aspects of a classroom setting in influencing student engagement. Attention to these elements is crucial for effective learning as they form the foundational backdrop against which lectures and classroom interactions occur. Institutions must prioritise creating conducive learning environments to optimise student engagement and overall academic experiences.

4.4.2 External realities (primary driver)

As interpreted by the students, the concept of "External realities" affinity relates to the external factors and circumstances that impede a student's full engagement in academic classes. These realities, whether they are employment-related, logistical challenges, or personal responsibilities, influence the attention, focus, and energy a student can dedicate to their educational pursuits.

The first theme arising from the students' feedback emphasises that an overwhelming academic workload or stress can detract from one's ability to remain engaged in the classroom.

"If you, as a student, are struggling with other modules or are burdened with too much work, your engagement in class might decline. This could be because you're stressed about the workload or trying to manage your day, causing you to focus on other things instead of the ongoing class." - Student 1

The second theme points to the unpredictability and demands of employment roles that many students juggle alongside their academic commitments, which can unexpectedly conflict with their studies.

"For instance, if you're someone who's working while also focusing on academics, unexpected events can occur in that work environment. You might not have anticipated these events, and they can influence how you approach your academic commitments." - Student 2

"Take someone who works in the morning and then, after their job, comes directly to school to attend a lecture. They'd be exhausted from work, which could dampen their enthusiasm to participate in class." - Student 4

The third theme highlights the logistical challenges faced by students, such as managing tight schedules and physical demands between classes, which might hinder their optimal engagement.

"I think for me, an example would be walking from a lecture on South Campus to a lecture on North. I have 10 minutes to do that, and obviously, I'm going to get to the class and I'm tired, I'm probably hungry, so I'm not going to focus, then I'm not going to engage." - Student 5

"External realities", as perceived by the students, revolve around the plethora of challenges outside the immediate academic sphere that influence their capacity and inclination to engage in higher education settings. These external factors, whether related to additional workloads, employment commitments, fatigue, or unexpected events, play a decisive role in shaping the student experience and level of involvement in their studies. Institutions might need to consider these realities when designing academic programmes, offering flexibility, and providing supportive mechanisms.

4.4.3 Lecturer attributes (secondary driver)

"Lecturer attributes" affinity, as conveyed by students, encompasses the specific traits, demeanour, and approach of a lecturer that significantly influence a student's engagement within higher education. A lecturer's enthusiasm, empathy, approachability, and genuine interest are pivotal attributes that either foster student participation or create barriers to engagement.

One primary theme stresses that a lecturer's genuine enthusiasm and keenness to assist students are crucial in motivating students to actively engage in the learning process.

"For me, lecturer attributes, as I mentioned earlier, revolve around the lecturer's enthusiasm, their willingness to assist, and their genuine interest in the module. When these attributes are present, it naturally drives students to engage more and seek assistance." - Student 1

"We could say when a lecturer comes in and they're vibrant and you can just feel the energy and they're asking questions and answering students and it's just like, yes, that." - Student 3

The second theme highlights the importance of a lecturer's personality traits, including their demeanour, level of empathy, and sociability, which profoundly affect students' perception of their accessibility and approachability.

"The lecturer attributes, to me, refer to key personality traits that a lecturer exhibits while presenting the lecture. It's about their demeanour, their level of empathy, their sociability, and how distant or approachable they appear. Those are the lecturer attributes for me." - Student 2

"The lecturer's demeanour, whether they're relaxed or more formal, truly influences our engagement. If they present themselves as approachable, students are more likely to want to participate and become interested even before the lecture begins. On the other hand, an unapproachable demeanour can hinder engagement." - Student 4

The "Lecturer attributes" affinity emphasises lecturers' critical role in shaping the classroom experience through their personality traits, behaviours, and demeanour. Their enthusiasm, approachability, and willingness to assist are pivotal attributes that determine the level of student engagement. Institutions should be cognisant of these attributes when training and evaluating educators, as they directly influence students' learning environment and overall educational experience.

4.4.4 Subject matter (secondary driver)

"Subject matter" in higher education plays a paramount role in determining the level and intensity of student engagement. It is evident from the students' perspectives that the content, its complexity, and personal affinities toward the subject play a pivotal role in shaping the students' connection and depth of interaction with a given module.

The sentiment of personal inclinations resonates strongly with the idea that personal preferences and predispositions can greatly impact one's relationship with the subject. While it might seem intuitive, the depth of student engagement often reflects their connection or lack thereof with the material.

"I believe subject matter relates closely to personal inclinations. For instance, if you struggle with subjects like math or find it challenging to study theory, you might not have a genuine hatred, but certainly a disliking for the module." - Student 1

The emphasis of this theme is on the holistic nature of 'subject matter', stressing the importance of the content's scope, intricacies, and demands. A module's comprehensive nature, including its vastness and depth, shapes the student's perception and engagement.

"For me, the subject matter essentially encompasses all the factors of the actual content: its size, complexity, and everything that the module entails. By subject matter, I mean the actual gravity of the module itself, the scope of its complexity, and what it requires of me." - Student 2

A recurrent theme suggests that when students perceive a gap in their foundational knowledge, it can hinder their ability to engage fully. The seamless flow of content, ensuring a progressive buildup from foundational concepts to advanced topics, is essential for consistent student engagement.

"Reflecting on my past experiences with modules I found challenging, I often felt lost because it seemed like we were missing foundational knowledge. It felt as though we had skipped essential content and suddenly reached a more advanced stage without knowing the basics." - Student 3

"To me, subject matter refers to the content of the module. Regarding my engagement, I recall in my first year how I struggled with "XXX". I sought help from "XXX" and regularly consulted with him because the content was challenging. He would simplify things for me." - Student 5

In summary, the "Subject matter" affinity suggests that the nature of the content, its inherent complexity, and the manner in which it is delivered play crucial roles in shaping student engagement. Educators and institutions should be mindful of these dynamics and ensure a holistic approach that offers clarity builds foundational knowledge, and provides necessary support to students.

5. DISCUSSION

Below, the research attempts to discuss, interpret and relate the affinities to the reviewed literature.

Exploring "External Realities" affinity in relation to student engagement highlights the multifaceted challenges students face beyond academics, resonating with discussions in the literature on student engagement and the role of educational environments (Ball, 2016; Raposa et al., 2021). The literature emphasises the transformative role of mentoring and pedagogical strategies in managing academic workload and enhancing student engagement (Liu and Mcgrath-Champ, 2014; Tebabal and Kahssay, 2011).

In the "Lecturer Attributes" affinity, the influence of a lecturer's enthusiasm and commitment on student engagement is echoed in the students' narratives, aligning with literature that identifies these traits as central to quality undergraduate teaching (Bain, 2004; Kuh et al., 2005). The study reveals the importance of a lecturer's demeanour, empathy, and

sociability in creating a welcoming and participatory learning environment (Chickering and Gamson, 1987).

The "Personal Factors" affinity discusses the impact of mental health and personal challenges on academic participation, aligning with the literature's recognition of engagement's behavioural, emotional, and cognitive dimensions (Kahu, 2013; Trowler and Trowler, 2010). The study reflects on the 'tyranny of participation' and the importance of accommodating diverse student experiences (Gourlay, 2015).

Regarding the "Physical Environment," affinity students' feedback on ambient conditions, acoustics, and classroom arrangement aligns with the literature on the significance of physical infrastructure in engaged institutions (Kuh et al., 2005; Strydom and Mentz, 2010).

In the "Student Interaction" affinity, the study explores the dynamics of student participation, resonating with Kahu's (2013) broad definition of student engagement and highlighting the potential issues of overemphasising active participation (Gourlay, 2015). The study also discusses the importance of a supportive and inclusive learning environment, echoing Trowler and Trowler's (2010) critique of an overreliance on behavioural markers.

The "Subject Matter" affinity reveals the influence of subject matter resonance on student engagement, supporting the literature's emphasis on mentor-mentee relationships and diverse teaching methodologies (Ball, 2016; Raposa et al., 2021; Strydom and Mentz, 2010). The study highlights the importance of content flow and the role of external support systems in student engagement.

Finally, the "Teaching Methods" affinity emphasises the impact of instructional strategies on student engagement, aligning with the literature's focus on the effectiveness of face-to-face interactions and online instruction (Gayathridevi and Pushpa, 2019; Kuh et al., 2005). The study highlights the importance of lecturer-student interactions and diverse instructional techniques (Bain, 2004; Chickering and Gamson, 1987; Gourlay, 2015).

These findings validate the significance of a comprehensive and nuanced approach to understanding and fostering student engagement in higher education, drawing parallels and contrasts with the extensive body of existing literature.

6. CONCLUSIONS AND RECOMMENDATION

The research focusing on the theme of the physical environment, identified as a primary driver, underscores the critical role of a conducive lecture hall environment in higher education. Institutions are called upon to enhance aspects such as ventilation, lighting, acoustics, venue size, and equipment. These improvements, rooted in thoughtful building design and effective facilities management, are key to fostering student attentiveness, focus, and engagement, thereby elevating educational outcomes.

In addressing the theme of external realities, also recognised as a primary driver, the study reveals a connection between students' employment in the construction industry, fatigue, and diminished academic engagement. This necessitates a collaborative approach where higher education institutions and employers consider implementing flexible work schedules and counselling support, among other interventions, to enhance students' well-being and academic experiences.

The research also highlights the significant influence of lecturer attributes on student engagement, categorised under the secondary driver theme. The presence of a welcoming, kind, and empathic educator can create an environment where students feel comfortable and motivated to learn. Conversely, negative attributes such as fear or distance can hinder student engagement and learning. Higher education institutions must support lecturers in developing positive, supportive teaching methods that foster student participation and a conducive learning environment. Lecturers are encouraged to engage in self-reflection,

considering how their physical and emotional traits might impact student engagement, and to incorporate these reflections in their teaching portfolios.

Another secondary driver theme emphasises the link between student interest, the perceived complexity of the subject matter, and academic engagement. Educators are advised to make subject matter more engaging, relevant, and relatable to students' interests and real-life experiences. Providing support and guidance to navigate the challenges of subject complexity can significantly enhance students' motivation and engagement in learning.

The pivot theme of the research calls for adopting creative teaching methods to augment academic engagement. While online lectures offer benefits such as content review, they may lack the engagement factor of face-to-face interactions. Educators are encouraged to employ interactive tools, discussion forums, and other digital methods to maintain student engagement in online settings. Additionally, in-person teaching methods encouraging active student participation can greatly enhance academic engagement in traditional classroom settings.

The overarching message of the research is a call to action for higher education transformation – a transformation aimed at sparking a revolution in student engagement. By comprehensively understanding the drivers of student engagement and advocating for further research, institutions can cultivate an environment that engages students and motivates and empowers them to take charge of their educational journey.

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