

**The relationship of intrinsic motivation on the intention to adopt emerging
technologies in an emerging market's university of technology**

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A research proposal submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Philosophy in International Business

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ABSTRACT

This quantitative research study analysed the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology. The mounting evolution of emerging technologies continues to impact social interactions, business engagements and country adaptations, forcing organisations and legislatures to introduce and adopt to technological advancement. In the higher education industry, the adoption and integration of emerging technologies continue to lack common and unified practices that can enable the integration of such technologies into teaching and learning. Through the lens of the Theory of Planned Behaviour, 207 self-administered questionnaires were analysed to investigate the constructs relationships. The structural equation modelling analysis revealed that; (i) whilst attitude and perceived behavioural control did not have a statistically significant relationship with the intention, the relationship was observed with subjective norm, (ii) intrinsic motivation did not moderate the relationships between both subjective norm and perceived behavioural control with intention, however it negatively moderated the relationship between attitude and intention, and (iii) there was a statistically significant relationship between intrinsic motivation and the intention to adopt emerging technologies. The study modestly contributes to the developing understanding within emerging markets of the adoption behaviour of emerging technologies in higher education. Further avenues are therefore opened for future research on emerging technologies adoption behaviour with the higher education industry in emerging markets.

KEY WORDS

Emerging technologies, Higher education industry, Intrinsic motivation, Technology adoption, Theory of planned behaviour

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Philosophy in International Business at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Chapter 1: Introduction

1.1 Introduction

The first chapter of this research study provides a comprehensive overview of the background to the research problem, the business and theoretical rationales for the study, the research problem, aim, and the research questions on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). This elevates the growing importance in business and literature of the continued paradigm shifts of delivery of teaching and learning solutions, and working environments within the higher education industry (HEI) precipitated by emerging technologies. The chapter concludes with the research contribution and scope of the study that was set within an emerging market of South Africa in an effort to enhance technology adoption within the HEI.

1.2 Background to the research problem

The mounting evolution of technology continues to impact social interactions, business engagements and country adaptations forcing organisations and legislatures to introduce and adopt new technologies (Barra et al., 2024). Almost six years later since the novel coronavirus, profound technological implications continue to shift the ways of work and working in organisations globally in efforts to remain competitive (Karima et al., 2025).

Technology adoption thus continues, despite strained global market conditions in 2023, with more organisations realising that full adoption and scaling of cutting-edge technologies is indeed a long-term endeavour (McKinsey, 2024). There is also evidence that organisations which are nimble in catching up with technology advances are better positioned to evolve in workplace dynamics and trends (Ali et al., 2024). Such adoption has enabled organisations to update and transform business models thus gain industry competitive advantage, provide novel functions and significantly improve performance (Wei et al., 2022).

The increase in the piloting to deployment of technologies in organisations (Figure 1); i.e., technology adoption rate (TAR), is also gaining momentum with an increase of 10% in 2025 (Gartner, 2025). These deployments are across mundane to strategic tasks and simplified to difficult technical activities, thus penetrating every aspect and field at a country and global level (Ali et al., 2024). It can then be deduced therefore that technology adoption capabilities in organisations; meaning the ability to identify, allocate and deploy technology alongside human and material resources required to ensure organisational success, will become a critical organisational capability in the future (Wei et al., 2022; Ajigini & Chinamasa, 2023).

Distribution of technologies by adoption stage
Percentage of technologies

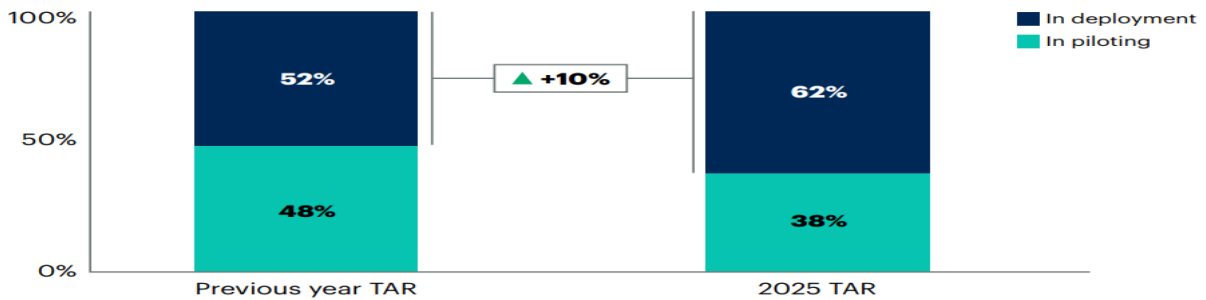


Figure 1: 2025 Technology Piloting & Deployment (Gartner, 2025)

The adoption rates of technology in Africa however remain low with a number of challenges towards digital development; i.e., “underdeveloped digital infrastructure, lack of accessible and affordable connectivity, a stubborn digital gender gap, limited skills for digitally enabled industries, and inadequate regulatory and policy environments” (World Bank, 2024). PwC (2023) reports as per Figure 2, post a survey conducted with 282 sub-Saharan CEOs, that digitisation’s impact on business performance remains important as these leaders aim to leverage digital tools to improve productivity. The top technology adoption focus areas for the CEOs into 2024 were noted as 1) upskilling of organisational workforce, 2) automation of processes and systems and 3) deployment of technology.

Which of the following investments, if any, is your company making in the next 12 months?

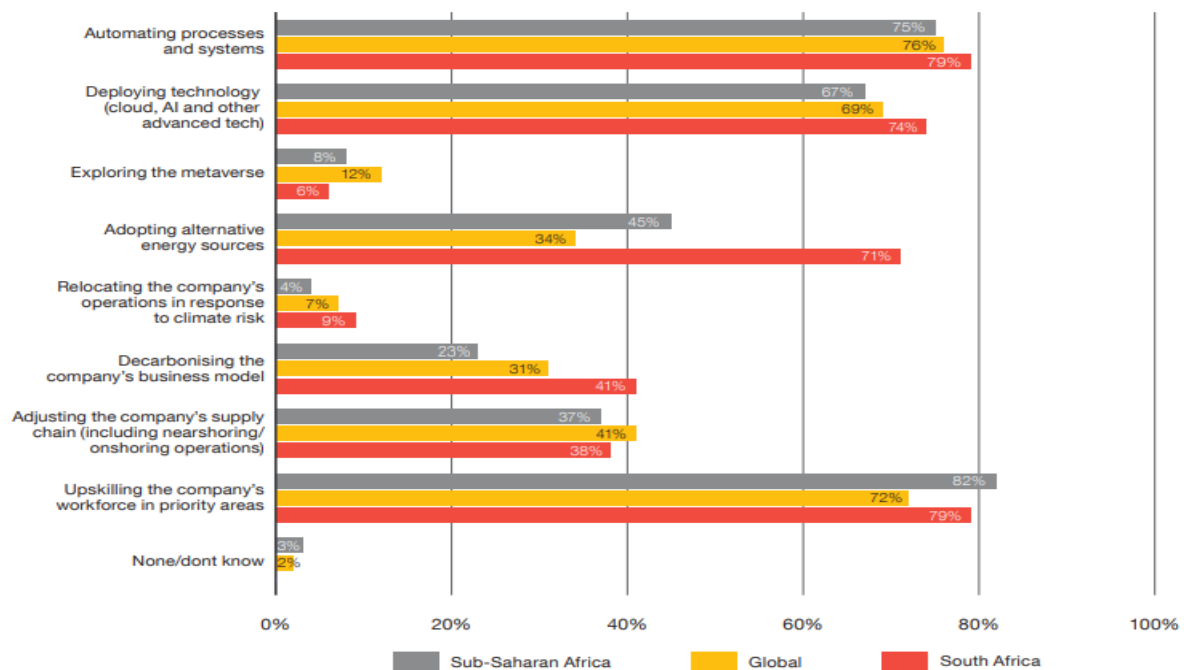


Figure 2: PwC’s 26th Global CEO Survey Results (PwC, 2023)

Technology adoption in South Africa also remains challenged with literature citing factors driving such challenged adoption, just like in other developing countries, remaining nascent and anecdotal (Avenyo et al., 2024). The country however is leading in Africa on the digital economy “due to its advanced digital infrastructure, vibrant start-up ecosystem, and proactive government committed to fostering digital growth” (International Trade Administration, 2024). The economic structural challenges and weak economic growth rate remain major challenges fuelled by inequality (World Bank 2025) with three major factors fuelling the country’s digital divide (Mbala, 2021):

- Access to hardware,
- Understanding digital means of communication, and
- Internet affordability.

Consequently, the exact adoption or uptake of technology in the country is most likely mixed, identified by uneven levels of existing technology infrastructure and organisational capabilities, with little baseline drivers and insights in the country’s organisations (Avenyo et al., 2024). The understanding of such adoption in the HEI, which has not been spared in the emerging technology developments forcing an adaptation on teaching and learning (Karima et al., 2025), leaves a gap that can aid higher education institutions to be competitive.

1.3 Business rationale

Technology adoption in higher education continues to receive the required attention in academic studies (Uzorka et al., 2023) since technology adoption can aid the industry and its organisations to provide affordable and adaptive teaching and learning solution (Sayaf et al., 2021). An increasing number of institutions, particularly universities, are also noting the increase ease of use of emerging technologies even expanding such ease to curriculum creation and development (Baihaqi Siddik & Anita, 2024). Future growth strategies therefore in the HEI is are largely going to depend on how emerging technologies are adopted (Baihaqi Siddik & Anita, 2024).

Such growth strategies, whilst adopted at an institutional level, need to be understood within the multifaceted nature of a higher education institution since success of adoption is influenced by technological advancements and the behaviours of employees in those institutions (Burim, 2025). Research continues to show the important role employee beliefs and perspectives have on successful adoption and integration of emerging technologies in higher education (Maria Magdalena et al., 2025).

Zooming particularly into the HEI in South Africa, adoption and integration of emerging technologies lacks common and unified practices that can enable the integration of such technologies into teaching and learning (Yu & Dlamini, 2025). The success of the future integration of emerging technologies in this context and industry also depends on realistic and localised research notwithstanding the scant emerging technologies adoption at national levels (Yu & Dlamini, 2025).

In filling these gaps on technology adoption and integration in the HEI, this study plans to contribute to the business imperative idea of ensuring that South African universities are at the forefront of dealing with complexities of adopting emerging technologies. The richness of the study may provide value to key stakeholders in the industry and policy makers, therefore informing and influencing decision-making processes towards emerging technologies adoption.

1.4 Theoretical rationale

The purpose of this research study was to advance on the research gaps concerning the influential or non-influential relationship intrinsic motivation has on the intention to adopt emerging technology. Prior research has for example noted that; intrinsic motivation did not directly influence behavioural intention on students in language learning (Sun & Gao, 2020), on gamification to enhance students' engagement, intrinsic motivation did positively influence the technology adoption (Li et al., 2025), and there was also a positive role of intrinsic motivation in mediating the student's adoption of ChatGPT for translation services (Brashi, 2025). The specific theoretical rationale then for this study was:

- **Specific linkages:** Intention to engage is the best predictor of future behaviour; however there is limited research that advances, since behaviour is conscious, on the variables that best predict intention (Borragán et al., 2024),
- **Contextual factors:** Whilst most of the studies presented elaborated on technology intention behaviour, the unique context of an emerging market UoT like South Africa warranted empirical evidence. The digital divide in the market, particularly at a socioeconomic level, requires adapted and unique approaches (Burim, 2025),
- **Implementation challenges:** With implementation of emerging technologies in the HEI still in early stages (Fernández-Batanero et al., 2024), this study adds more towards the theoretical underpinnings of intrinsic motivation on proactive emerging technology implementation that leads to improved and sustained competitiveness, and

- Consequences for lack of technology adoption: Organisations that do not proactively implement emerging technologies risk their capabilities to forecast, plan and react sustainably (Belletier et al., 2019) and to then innovate (Ko et al., 2022).

This theoretical rationale further builds on the business rationale with identified empirical grounds for enhancing emerging technologies adoption within the HEI. This study was centred on the growing emerging markets' and from their students' demands for improved teaching and learning solutions and to limit the rejection and failure costs and rates on emerging technologies adoption (Santini et al., 2025).

1.5 Research problem, aim of the study, & research questions

1.5.1 Research problem

Adoption of technology has been proven to motivate people and alter attitudes yet there remains evidence that organisations do not pay enough attention to the employee technology adoption process (Behl et al., 2024). Conducting empirical research on the factors that influence employees' attitudes towards emerging technology adoption can help mitigate the future risks of technology adoption failure (Gong et al., 2025).

Motivation on the other spectrum, which is concerned about "what makes people to act, think and develop," (Deci & Ryan, 2008, p.14) has been theorised and widely applied to explain human behaviour (Qin & Tao, 2021). Categorized into two types, intrinsic motivation relates to an individual's "desire to achieve or attain a goal" and extrinsic motivation relies more on non-inherent motives such as pressures, punishment, or rewards (Deci & Ryan, 2020; Qin & Tao, 2021).

The convergence of the intention to adopt technology behaviour with intrinsic motivation provides a spectrum to understand the interplay between these elements. Since employee attitudes play an important role in emerging technology adoption (Lichtenthaler, 2020), the research problem is formulated around the provision of empirical knowledge on intrinsic motivation; and whether it is a driver or enabler of the intention to adopt emerging technologies. This answer to this problem as provided in this study can further enable line managers and leaders stay abreast with the changing technological advancement and the changing business environment (Budhwar et al., 2022) at an employee level.

1.5.2 Aim of the study

The aim of the study is to quantitatively analyse the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. The examining of this relationship has the potential to provide significant contributions towards the forecasting, planning, reacting and innovating emerging technologies adoption within South African universities to improve competitiveness.

1.5.3 Research questions

1. How does intrinsic motivation influence the relationship between attitude and the intention to adopt emerging technologies?
2. How does intrinsic motivation influence the relationship between subjective norm and the intention to adopt emerging technologies?
3. How does intrinsic motivation influence the relationship between perceived behavioural control and the intention to adopt emerging technologies?
4. How does intrinsic motivation influence the intention to adopt emerging technologies?

1.6 Research contribution

This research contributed to the growing literature on technology adoption behaviour by studying the relationship intrinsic motivation has on the intention to adopt emerging technologies. Whilst there is indeed a lot of literature on technology adoption, growing the nuances of the interplay with intrinsic motivation enables the strategic role that employees have on the success or failure of technology adoption. By focusing also on a UoT in South Africa, the contributions towards similar institutions are invaluable within this socio-economically dynamic emerging market.

1.7 Research scope

This quantitative study was conducted with a self-administered questionnaire by employees of a specific UoT in South Africa to examine the relationship of intrinsic motivation on the intention to adopt emerging technologies. The study employed a positivist philosophical framework to assess the relationship within the defined context and setting for empirical observation and analysis.

The study used a survey method focussing on attitudes, subjective norm and perceived behavioural control to predict intention to adopt emerging technologies behaviour. Intrinsic motivation was assessed to understand its influence on such adoption behaviour. The cross-

sectional nature and design of the study thus provided results at a particular time, at a particular institution.

The questionnaire data was collected from the UoT, chosen for their nature as institutions at the forefront of technology use and adoption. A non-probability; i.e., convenience, sampling method was used in an absence of a sampling frame. There were 207 respondents who responded to a call to participate through an email shared by the institution's research innovation and engagement department.

Data collection was concluded in a six-weeks period using Google Forms and the results were based on the outcomes of the specified sample for further comprehension within the higher education context and setting. The study's focus was therefore limited to a UoT in South Africa, which may impact its generalisations to other higher education institutions in South Africa or regions.

1.8 Outline of the research report

This research report has seven chapters. The first, second and third chapters present the 'what' of the research. The first chapter provides the background to the research problem, the business and theoretical rationales for the study, the research problem, aim and the research questions. Additionally, the chapter sets out the research contribution and scope of the study. The second chapter is the literature review addressing the theoretical and empirical foundation for the research study; identifying the gaps in the current knowledge; and then positioning the study within the broader research engagements. The study's conceptual framework and the research gap, as outcomes of the synthesis of the literature, conclude the chapter to justify the study's contributions to this field of research. The third chapter articulates the formulated hypotheses for the study as derived from the first three chapters.

Chapter four comprises the 'how' of the research; i.e., the research methodology. The chapter discusses the study's research paradigm, the design of the survey, the research setting of the study, the population and the sample; together with the instrumentation details used to test the hypotheses. The chapter concludes with details of the data analysis, limitations and ethical considerations.

Chapters five, six and seven detail comprehensive details about the outcomes of the study. Chapter five presents the descriptive and inferential results of the study setting the foundation for the interpretation of the study's outcomes. The sixth chapter discusses the

findings of the results as related to the literature review in Chapter 2 with the conceptual framework and hypotheses guide the findings. Chapter seven concludes the report with theoretical conclusions, the study's research contributions, recommendations for identified stakeholders; with additional commentary on limitations of the study and future research suggestions. A list of references and appendices are provided at the end.

1.9 Conclusion

This chapter introduced the research study with a comprehensive overview of the background to the research problem, the business and theoretical rationales for the study, the research problem, aim and the research questions, the research contribution and the research scope. The next chapter, further expanding on the 'what,' discusses the literature review for the research study.

Chapter 2: Literature Review

2.1 Introduction

The previous chapter of this research project detailed the introduction of the research study on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). The chapter further provided the business and theoretical need of understanding this relationship in the public higher education industry (HEI). This chapter explores the relevant research gap in the academic literature to intrinsic motivation on adopting emerging technologies in an emerging market's UoT. The main aim of the literature review is to present the theoretical and empirical foundation for the research study; to identify gaps in the current knowledge; and then to position the study within broader research engagements. The chapter advances the academic argument for the research study in the following structure; first, a discussion on emerging technologies on their definition, their characteristics and their impact on public HEIs. Then, a presentation on the HEI in South Africa is provided together with a high-level overview of the UoTs in South Africa. This sets the contextual relevance of the study against emerging technologies.

This is followed by a discussion on the theoretical framework to ground the research study against other theories that are cited in various literature to guide technology adoption. This is further followed by key findings on empirical studies on intrinsic motivation on emerging technology adoption. The gap on intrinsic motivation on emerging technology adoption is highlighted especially within the context of the study. The study's conceptual framework and research gap, as outcomes of the synthesis of the literature, conclude the chapter to justify the study's contributions to this field of research.

Literature Review Roadmap				
Headings & Sub-headings	2.1 Introduction <ul style="list-style-type: none"> Overview literature review roadmap 	2.2 Emerging Technologies	2.3 HEI in South Africa <ul style="list-style-type: none"> Overview of UoTs in South Africa 	2.4 Theoretical Framework
	2.5 Intrinsic Motivation	2.6 Conceptual Framework	2.7 Conclusion	

Table 1: Literature Review Roadmap (Author's own)

2.2 Emerging technologies

The history of emerging technologies can be traced back to the Wharton School of the United States from a published paper titled “Wharton on Managing Emerging Technologies” in 1994 (Xue et al., 2024). Since then, a number of researchers have defined emerging technologies as follows:

- scientific- or application-based innovations that can lead to the creation of industries or the transformation of existing ones (Day & Schoemaker, 2004),
- novel technology, riddled with uncertainty at point of contact, with potential significant impact on socioeconomic domains (Rotolo et al., 2015), and
- novel and rapidly evolving tools and systems that can lead to industry transformation (Bayaga, 2024).

Whilst some other authors argue that defining emerging technologies may be dependent on the context of the definition (Campbell & Frawley, 2023), two conceptual contributions are notable in the term; i.e., emergence or emergent and technology (Rotolo et al., 2015). There are five attributes, as per Figure 3, that qualify a technology as emerging; radical novelty, relatively fast growing, coherence, prominent impact, and uncertainty & ambiguity.

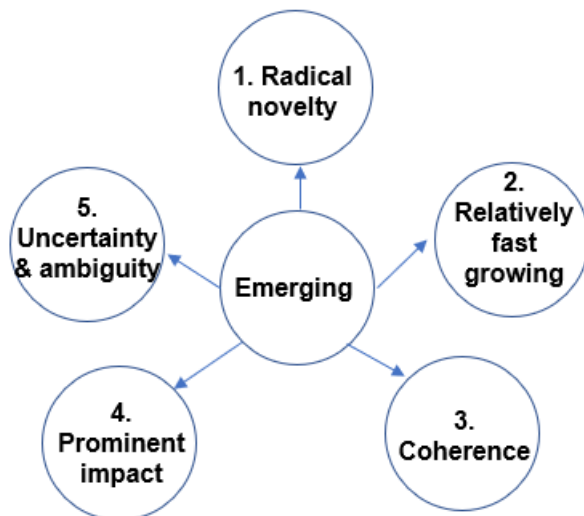


Figure 3: Five Emergences or Emergents of Technology (Rotolo et al., 2015)

Specifically, an emerging technology is “a radically novel and relatively fast-growing technology characterised by a certain degree of coherence persisting over time and with the potential to exert a considerable impact on the socio-economic domain(s) which is observed in terms of the composition of actors, institutions and patterns of interactions among those, along with the associated knowledge production processes. Its most prominent impact,

however, lies in the future and so in the emergence phase is still somewhat uncertain and ambiguous” (Rotolo et al., 2015, p. 1828).

In the context of education, emerging technologies are defined as “tools, concepts, innovations, and advancements utilised in diverse educational settings (including distance, face-to-face, and hybrid forms of education) to serve varied education-related purposes (e.g., instructional, social, and organisational goals)” (Veletsianos, 2010; p. 22). The characteristics of these emerging technologies in this context are as follows (Sembey et al., 2024; p. 1);

- “they may or may not be new technologies;
- they change rapidly so are always in a state of ‘coming into being’;
- they go through cycles of hyped expectations;
- they are in a continuous state of being understood and researched; and
- they have potential for transforming social practices.”

Emerging technologies in education indeed have been novel, ever-evolving tools and system, at a rapid pace, with the potential to transform the sector (Bayaga, 2024). Some authors even posit that defining them is context and study specific (Campbell & Frawley, 2023). Figure 4 presents these technologies that are impacting teaching and learning requiring new teaching methods and practices to improve educational goals and objectives (Bayaga, 2024). The use of these technologies is on the increase with little research on their use and effectiveness (Sembey et al., 2024).

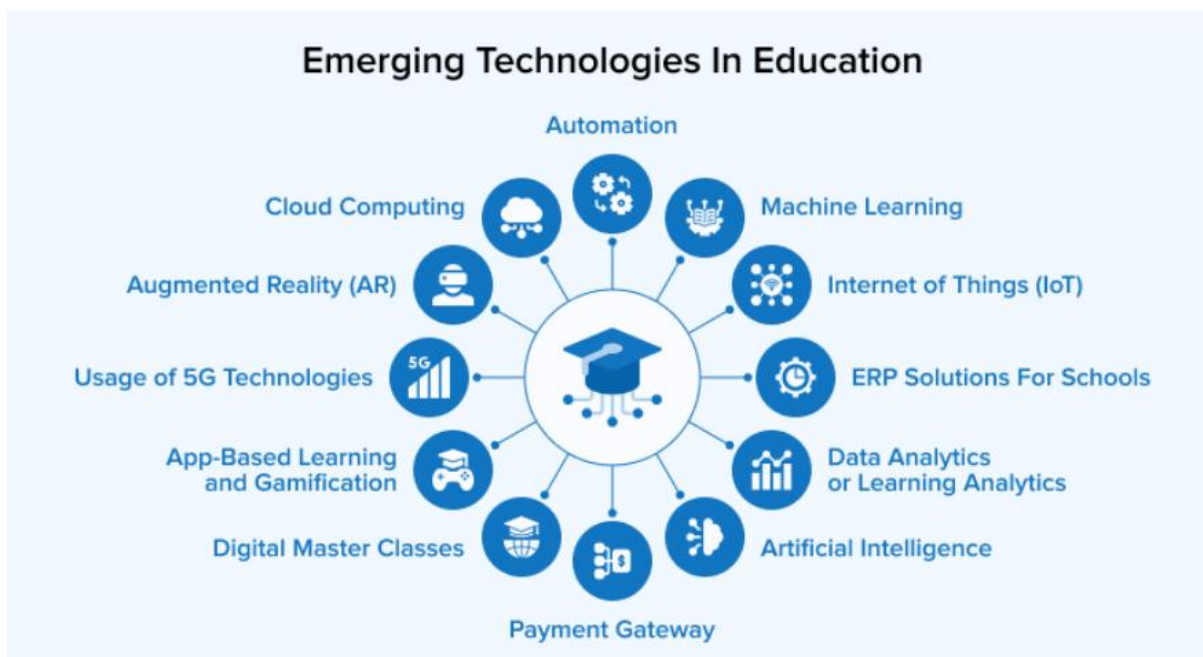


Figure 4: Emerging Technologies in Education (TatvaSoft, n. d.)

The profound transformation driven by the growing number of emerging technologies being adopted in higher education is going to accelerate since these technologies can also bridge not only the digital divide, but provide tailored learning solutions for a diverse set of students (Moriña & Perera, 2025). Some authors argue that it is concerning that despite the notable benefits of emerging technologies in education, low utilisation continues to dampen such transformation (Matarirano et al., 2021), whilst others posit that there is an increase in the adoption of emerging technologies (Uzorka et al., 2023).

These differing views about adoption, growth, penetration and utilisation of emerging technologies in the sector may be due to the adoption of emerging technologies happening within the contexts of learning development strategy (Baihaqi Siddik & Anita, 2024), such as assessment (Lazar et al., 2020), digital education (Anthony et al., 2022; Marks & Thomas, 2021; Abeer, 2021) and educator or teacher professional development (Liu et al., 2020).

In further effort to understand the challenges of technology adoption in the HEI, research does align that there is a focus on researching the specific teaching and learning technologies by faculty members; a) Web 2.0 technologies, b) e-learning environments and systems, c) online synchronous technologies, d) mobile technologies and e) aggregated varying technologies (Campbell & Frawley, 2023). The lack of focus on researching the intentions to adopt and use emerging technologies by faculty members (and broader university employees) is a glaring gap in the industry (Campbell & Frawley, 2023). This focus is necessary within the sector as, by implication, the work and the workforce in the industry will be transformed. Many of the current roles will be made redundant and they will be replaced or altered signalling a new demand of appropriate knowledge and skills (Leavy et al., 2023). Future employees in the industry will be required to have a good understanding of emerging technologies with additional skills such as data literacy, big data flow management, and traversal skills (Leavy et al., 2023).

Thus on the one hand, as the global HEI continues to adopt emerging technologies, the understanding on the effectiveness and impact of these technologies is crucial (Chugh et al., 2023). Termed educational technology in educational settings, various studies have been conducted on their efficacy with staff and students (Kaliisa & Picard, 2017; Jantjies et al., 2018; Al-Samarraie, 2019; Bond & Bedenlier, 2019; Chugh & Ruhi, 2019; Neumann et al., 2021; Turnbull et al., 2022; Chugh et al., 2023) expanding their impact on educational aids and tools with glaring gaps on “stakeholder acceptance, implementation challenges and theoretical foundations underpinning technology use” (Chugh et al., 2023, p. 16404).

On the other hand, factors that influence such adoption require research that provides empirical and scientific inquiries regarding their implementation; i.e., acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, coverage, and sustainability; across four pillars; a) people, b) processes, c) data; and d) things (Chugh et al., 2023; Fernández et al., 2023).

There is no argument therefore on the trajectory of emerging technologies within higher education as presented in the literature. The great changes will not be with just the adoption of emerging technologies, but from the strategic transformation that will impact employees, information, processes and technologies (Fernández et al., 2023) and sustainability will be achieved by those institutions that not only adopt by also create value for its stakeholders (Fernández et al., 2023).

2.3 HEI in South Africa

In 1873, South Africa established its first university, the University of the Cape of Good Hope which did not operate as a university, but rather as an exam and standards authority (Jansen, 2023). 121 years later at the dawn of the country’s democracy, the country had 21 universities and 15 technikons which were built along racial identities (Jansen, 2023). Following a merger of the industry as driven by the government, South Africa now has 26 public HEIs (Jansen, 2023) of which six of the are UoTs.

There has also been a rise in the number of private HEIs in the country, as per Figure 5, surpassing the number of public institutions as at the end of 2023 (DHET, 2023). The industry also has over 1,3 million students, with over a million of these in public HEIs. A 38.1% increase in the number of student enrolments has been observed from 2020 – 2023 with public HEIs increasing by 20% in the same period (DHET, 2023).

	HEIs		
	Public	Private	Total
Number of institutions	26	138	164
Number of students enrolled	1 071 715	286 454	1 358 169

Figure 5: Overview of HEIs 2023 Student Enrolment (DHET, 2023)

The public HEIs employed almost 66 000 permanent employees at the end of 2023 with 50.5% them employed in administrative roles, 31.8% employed in instruction and research role and 17.7% employed in service roles (DHET, 2023). They are funded directly by the government

based on a number of criteria, with student enrolment planning forming part of the process (DHET, 2023). The funding is in a form of block and earmarked grants aimed to fund teaching and learning operational and address the educational priorities as set by the government (DHET, 2023). The government provided R44.63 billion in funding to public HEIs as at the end of 2023, a decrease by 3.7% compared to 2022 (DHET, 2023).

Even though the government has passed laws to address the racial injustices of the past in the country, the pace of transformation in higher education remains slow (Breetzke et al., 2022). The government launched the national students financial aid scheme to further redress the educational levels of previously disadvantaged students. This scheme covers actual tuition and learning support costs with 504 569 students receiving financial aid in 2023 (compared to 217 219 students in 2011) at a cost of over R37 billion (R4.8 billion in 2011) (DHET, 2023).

The industry was shaken, as haunted and precipitated by the country's racial past, leading to a 'Fees Must Fall' student uprising campaign in 2015 at the back of political origins enabled by a severely divided society (Matolino, 2020). The uprising was characterised by violent demonstrations by students aimed at challenging the institutional cultures within public HEIs and to seek structural reforms for rapid and sustained transformation (Price, 2023).

Whilst in the process of repurposing the industry following the student uprising, the HEI was impacted by COVID-19 pandemic in 2020 and there was an immediate shift required for the delivery of teaching and learning to online and all academic, administration and support employees had to be on an accelerated skills journey (Breetzke et al., 2020). The pandemic, whilst devastating, provided universities opportunities to fortify themselves to become adaptive learning organisations (Olawale et al., 2022).

Digital transformation became a critical necessity for the industry to operate efficiently and to provide quality education however the adoption rate within HEI is slower (Mateko et al., 2025). Whilst infrastructure development and expertise to develop and adopt technology within universities contributes to low technology adoption, the digital inequality within the country and sustained academic excellence are going create digital transformation tension for the industry (Mateko et al., 2025). The growing popularity of theoretical and empirical research in technology adoption in the industry remains (Baihaqi Siddik & Anita, 2024) in the global context of understanding the use emerging technologies (Richard et al., 2025).

2.3.1 Overview of UoTs in South Africa

Historically, the higher education system in the country was characterised by two types of institutions; historically advantaged and historically disadvantaged (Matarirano et al., 2021). The historically disadvantaged institutions are mostly in under-development and financial distress states impacting their ability to achieve their missions, visions and objectives and vibrant academic excellence (Matarirano et al., 2021). Following the merger in the country that wanted to eliminate the divide between technikons and universities, UoTs were created to provide vocationally focussed qualifications, traditional universities to provide formative and professional qualifications and comprehensive universities to provide both (Markus & Govender, 2023).

Institution	Contact					Distance				
	Science, Engineering and Technology	Business and Management	Education	All Other Humanities and Social Sciences	Total	Science, Engineering and Technology	Business and Management	Education	All Other Humanities and Social Sciences	Total
1. Cape Peninsula University of Technology	12 455	7 009	3 428	4 435	27 328	13	170	0	34	218
2. University of Cape Town	9 392	4 315	403	6 322	20 432	32	0	0	170	202
3. Central University of Technology, Free State	6 596	2 909	4 550	1 598	15 654	0	0	0	0	0
4. Durban University of Technology	10 266	9 675	2 759	4 335	27 036	0	0	0	0	0
5. University of Fort Hare	3 243	1 949	2 732	6 038	13 962	0	0	0	0	0
6. University of the Free State	7 536	4 676	6 003	12 551	30 766	0	519	208	106	833
7. University of Johannesburg	13 150	13 432	2 925	10 383	39 890	184	228	363	7	782
8. University of KwaZulu-Natal	11 422	4 097	7 052	11 103	33 675	0	0	0	0	0
9. University of Limpopo	7 718	2 422	2 356	5 853	18 349	0	0	0	0	0
10. Mangosuthu University of Technology	4 691	2 906	3	1 885	9 485	0	0	0	0	0
11. University of Mpumalanga	2 934	1 922	1 036	1 680	7 572	0	0	0	0	0
12. Nelson Mandela University	8 160	7 915	1 802	6 392	24 270	2	0	0	0	2
13. North West University	9 914	8 145	6 962	14 239	39 261	211	299	5 088	700	6 298
14. University of Pretoria	17 190	6 876	4 665	10 616	39 347	677	3	1 008	233	1 921
15. Rhodes University	1 840	775	717	3 000	6 331	0	67	0	14	81
16. Sefako Makgatho Health Science University	5 287	0	0	285	5 571	0	0	0	0	0
17. Sol Plaatje University, Northern Cape	1 060	555	1 371	1 189	4 175	0	0	0	0	0
18. University of South Africa	0	0	0	0	0	30 232	53 388	44 970	93 350	221 940
19. University of Stellenbosch	12 309	5 250	1 716	6 680	25 956	0	0	0	0	0
20. Tshwane University of Technology	16 652	14 519	3 407	9 996	44 573	63	12	0	108	183
21. University of Venda	4 550	1 726	1 269	4 493	12 038	0	0	0	0	0
22. Vaal University of Technology	6 013	4 316	761	3 797	14 888	0	0	0	0	0
23. Walter Sisulu University	6 881	4 390	7 430	5 096	23 797	0	0	0	0	0
24. University of Western Cape	5 894	2 131	2 374	8 299	18 698	0	0	0	0	0
25. University of Witwatersrand	13 959	5 099	2 438	7 627	29 123	79	445	0	89	613
26. University of Zululand	4 604	3 105	3 687	3 993	15 389	0	0	0	0	0
Total	203 719	120 115	71 847	151 886	547 567	31 492	55 131	51 637	94 812	233 071
Percentage	37.2%	21.9%	13.1%	27.7%	100.0%	13.5%	23.7%	22.2%	40.7%	100.0%

Figure 6: 2023 Full Time Equivalent Student Enrolments by Public HEIs (DHET, 2023)

Across the nine province of South Africa, the UoTs are only located in four provinces (Jansen, 2023):

- Gauteng province: Tshwane University of Technology and Vaal University of Technology,
- Free State province: Central University of Technology,
- KwaZulu-Natal province: Durban University of Technology and Mangosuthu University of Technology, and
- Western Cape province: Cape Peninsula University of Technology.

These six UoTs had, as per Figure 6, 139 275 full time equivalent students at the end of 2023, accounting for 17,8% of the overall student population (DHET, 2023). The key mode of delivery of teaching and learning at these institutions is in contact classes with only two UoTs that have started to provide distance teaching and learning solutions to its students; however, these solutions are yet to mature across all universities in the country. This happens within the want of a concerned government for improved quality of education (Chatterjee & Bhattacharjee, 2020).

These UoTs, even with a historically disadvantaged past, are able to contribute to the transformation required in the country through, among others, positive impact on local communities within which they operate and build a strong culture of social responsibility among its employees and students (Markus & Govender, 2023). They remain part of the sweeping global industry movement to produce more research and attract additional funding (Masinde & Coetzee, 2021) and their strength should be in their differentiation, domain of knowledge and specialisation (Ntshoe & Malebo, 2021). Scholars however argue that their historical disadvantages limit their full transformation requiring radical approaches (Anwana, 2022).

Whilst these university-types evolve and transform, just like all other public HEIs, they remain critical as well in the educational process of preparing and transforming graduates, and to achieve this by answering the call to respond to advance technological advancement (Al-Riyami et al., 2023). However, with a growing body of literature on public HEIs and their fragmented insights on adopting emerging technologies, comprehensive research remains absent or missing (Abeysekera & Sharma, 2023).

The natural context of UoTs in South Africa then, as shown in the preceding paragraphs, shows a pressing transformation call for continued relevance within limited resources. Expanding this observation, such transformation can be achieved through the adoption of emerging technologies so to expand the growing popularity of theoretical and empirical

research in technology adoption in the industry, but that is nuanced enough to be relevant to the context.

2.4 Theoretical framework

The nature and function of a theoretical framework is to enable the researcher with the research problem's or question's identification and thus provide the roadmap towards solving the problem or feasibly answering the question (Lederman & Lederman, 2015). This research study adopted the Theory of Planned Behaviour as the roadmap towards the intention to adopt emerging technologies.

2.4.1 Theory of planned behaviour (TPB)

Researchers have proposed several theoretical models, for more than half a century (Granic, 2023), for adoption of technology (Shant Priya et al., 2023). These include the technology acceptance model (TAM) (Davis, 1989), the technology organisation environment (TOE) (Tornatzky & Fleischer, 1990), the theory of planned behaviour (TPB) (Ajzen, 1991), the diffusion of innovation (DOI) (Rogers, 1995), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). These models have been used in technology adoption studies individually or combined (Shang et al., 2021). However, within the context of individual behaviour, a model that posits the intention to adopt emerging technologies at an individual level fitted well with the research. Even more essential, a theory that is able to predict intentional behaviour. The chosen theory for the research study was the TPB.

The TPB, aimed at explaining human behaviour, has evolved and changed its name over time, from the theory of reasoned action that primarily focused on attitudes and subjective norms to the TPB that introduced the concept of perceived behavioural control (Chowdhury et al., 2025). Some authors have also further extended the theory by introducing various constructs to studies perhaps validating the flexibility of the theory (Gao & Tang, 2023). The introduction of perceived behavioural control highlighted limited control over individual action and the impact on behavioural intention (Chowdhury et al., 2025). Its predictive power, particularly the intention to engage in a particular behaviour, is thus based on attitudes, subjective norm and perceived behavioural control (Ataei et al., 2021; Chowdhury et al., 2025).

The theory "notes that intention to act is based on attitude towards the action, which was modelled from psychological processes that mediate behaviour towards observed relationships" (Kruger & Steyn, 2024). Ajzen, (1991) reasoned that the central factor in the theory is a person's intention to perform a certain behaviour; meaning that the stronger the

intention to behave the more likely the behaviour to be performed. Further postulated by research stating that reasoned decisions are driven by intention that translates into actual behaviour (Agyei et al., 2025).

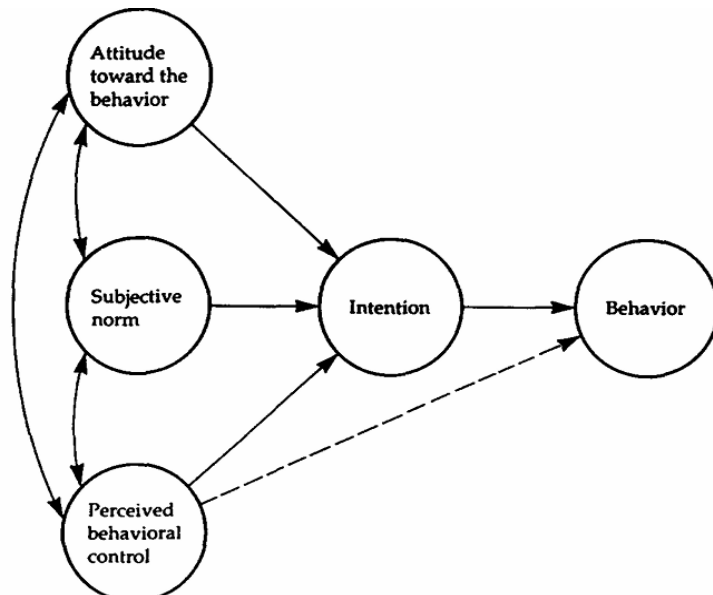


Figure 7: Theory of Planned Behaviour (Ajzen, 1991)

The theory, as per Figure 7, “postulates three conceptually independent determinants of intention” (Ajzen, 1991, p. 188); i.e.:

- **Attitude** is referring to the degree to which an individual has a favourable or unfavourable position on a certain behaviour, it incorporates the beliefs than an individual has about the intended behaviour (Ajzen, 1991) and such beliefs contribute to an expected behavioural outcome (Ajzen, 2020). The favourable or unfavourable position and beliefs are key links because of their direct impact on planned behaviour (Ajzen, 1991; Al Breiki et al., 2023),
- **Subjective norm** is a societal factor relating to the social pressure to favour or not favour performing a certain behaviour that highlights the consideration for individuals as part of a greater society; e.g., organisational employee who already belongs to some community or group (Ajzen, 1991; Shirahada & Zhang, 2022), and
- **Perceived behavioural control** is the perceived ease or difficulty for an individual to perform a certain behaviour (Ajzen, 1991) consisting of two components, i.e.; self-efficacy and controllability (Ajzen, 2002). This determinant is theorised to influence intention (Black et al., 2021) and it further acts as a moderator in the theory (Peng & Min, 2020).

The theory further presents that performance of a behaviour is a joint outcome or function of intention and perceived behavioural control. Primarily this relates to; firstly, that intention and perceived control must be assessed against the desired certain behaviour with the context remaining the same. This means, for example, if the intention is to study employee behaviour towards the adoption of technology, this should be the behaviour studied (Ajzen, 1991; Ajzen, 2020). The key notable distinction between behavioural intention and actual behaviour is the former refers to the possibility that certain behaviour will take place in the future whereas the latter refers to the immediate action or past action that has already occurred (Yee et al., 2021).

Secondly, the study of the certain behavioural intention and perceived behavioural control must remain constant during the times of assessment and observation (Ajzen, 1991; Ajzen, 2020). Any introduction of events that may impact the measurement during the assessment will distort the study. Lastly, the understanding of perceptive and actual control predictions should improve for the predictive validity of the observed behaviour (Ajzen, 1991; Ajzen, 2020). The employees during the study must fully appreciate that their understanding of perceived control does translate to actual control.

To understand and interpret the theory; the focus must be on intention – which is ideal to predictor or explain human behaviour in a specific context (Ukil et al., 2025; Soria-Barreto & Novoa-Hernández, 2025). It “serves to attract motivational factors that influence behaviour, indicating the individual’s level of readiness for action and the planned efforts to engage in that behaviour” (Boucif et al., 2025; p. 3). Specifically, for the purpose of this study, this means that the principle of compatibility must be at a level of generality; i.e., targeted behaviour (defined as intention to adopt emerging technologies), context (at work), and time frame (in the present time) Ajzen, 2020).

The general view therefore is that, at the core for organisational line managers in implementing interventions, all the constructs of the theory need to be studied and investigated. It is at the level of attitude, subjective norm, perceived behavioural control, and intention that behaviour can be prompted or that a person may choose to take a different course of action (Ajzen, 1991; Ajzen, 2020) and when an individual has control over a behavioural performance, studies have confirmed that the testing of intention is sufficient to predict an individual’s future possible actions (Yee et al., 2021).

The theme of many TPB studies has been on socially desirable behaviour (Shirahada & Zhang, 2022), hence the theory has gained popularity, and it has been used successfully in predicting intentional behaviours at an individual level in a few situations (Shih et al., 2022;

Nickell & Hinsz, 2023). Authors have also disproven the argument relating to its overemphasis of cognitive behaviour over emotions (Ajzen & Sheikh, 2013). This was important for the research study since it aimed to explain intentional behaviour towards technology adoption (Bevan-Dye & Synodinos, 2025).

2.4.2 Empirical insights on TPB

As highlighted in the previous section, this psychological theory has been observed that it explains human behaviour, specifically the intention to engage in a certain action as influenced by three types of beliefs: behavioural, normative and control beliefs (Ataei et al., 2021; Chowdhury et al., 2025). These findings align with Fauzi et al. (2024) who also encourage scholars and researchers to use the TPB to study individual behavioural traits. However, the theory in these studies is tested on various subjects; i.e., farmers in different country contexts and in a bibliometric study. It is however encouraging to appreciate the multifaceted approach of the theory in research studies and the constructs in explaining human behaviour.

The theory's constructs stability has also been studied with several auxiliary hypotheses and the research knowledge has been advanced on the correlation of intentional behaviour and associated processes over a period of time (Hagger & Hamilton, 2024). The constructs' predictive ability were positively used to determine the research participants' intention to use generative artificial intelligence (GenAI) tools (Ivanov et al., 2024). Construct stability however was not pronounced in other studies (Găianu et al., 2024; Wollast et al., 2025) highlighting the contrast of stability depending on the behaviour being observed.

On employee intention behaviour, this has also been observed using the TPB's constructs: attitude towards the production of safe food behaviour, subjective norm, perceived behavioural control, and intention play important role in understanding and predicting the behaviour studied (Nickell & Hinsz, 2023), understanding the training behaviour from intention to support future training as underpinned by positive attitudes (Sandri et al., 2024), and financial behaviour mediated by such intention as influenced by financial attitude which has a significant and positive effect on financial knowledge and subjective norm (Shih et al., 2022). These findings provide for future construct testing opportunities with the theory in predicting intention in various contexts.

The strength of the theory in studying behavioural intention is evident in recent studies (Fauzi et al., 2024; Hagger & Hamilton, 2025). This strength however is presented in studies that adopted a bibliometric approach and a systematic search respectively. Other researchers have reflected that narrow measurement range and sample size can impact subjective norm

and perceived behavioural control (Ma et al., 2023) The advancing of the theory at an individual level is identified on behavioural traits (Fauzi et al.) and intentional behaviour over time (Hagger & Hamilton) are further identified as potential research gaps in the theory. Thus again, the theory is recommended in empirical literature to be extended to observe individual behavioural traits.

The weaknesses of the theory in literature include its “exclusion of other important predictors of behaviour like emotions, habits, past behaviour, anticipated regret or normal norms” (Magwegwe & Shaik, 2024; p. 28871) and these weaknesses need to be further explored and tested at an individual level within an organisation. Even with such weaknesses, the adoption of training and financial knowledge individual behaviours have been studied, and the theory’s predictive ability was affirmed (Sandri et al., 2024; Shih et al., 2023).

2.4.3 TPB on technology adoption

On technology adoption intention in quantitative studies, Ivanov et al. (2024) studied the structural relationship of the theory’s three variables with GenAI and the relationship was found to be positive. Nickell & Heinsz (2023) found that background individual factors are important in interpreting the theory. McArthur et al., (2024) however noted that whilst attitude and subjective norm significantly predicted intention, perceived behavioural control did not. The varying results of these studies highlight the evolution of theory’s variables depending on the intention of the study. Also, the supplementing of the theory with additional variables or factors, which has been conducted successfully (Arifin et al., 2022), provides grounds for future research on individual factors’ influencing role on the theory.

Additionally, on studies that have been conducted using the TPB to understand technology adoption behaviour; a) the relationship between behavioural intention and pro-environmental personal norms was confirmed using the TPB in a study with tourists on automated vehicles powered by artificial intelligence in China (Khan et al., 2025), b) in India, a qualitative study with a sample of grocery retailers was conducted on the role of the dominant beliefs in technology adoption (Aithal et al., 2023), c) in rural Italy, a study of agricultural entrepreneurs highlighted the additional factors that influence the adoption of technologies using the theory (Passarelli et al., 2023), and d) in Cambodia, a quantitative study of farmers used the theory to study farmer technology adoption as impacted by climate change, risk aversion and crop type (Brown, 2025).

These studies, conducted in various methods and locations. validate the theory’s strength to predict technology adoption intention which translates into technology adoption behaviour.

The theory has been tested on tourists, retailers, entrepreneurs and farmers allowing for greater opportunity to be tested on various subjects of research within emerging markets. The broadness of the scale of its usability creates an opportunity to close a research gap through a study at an individual level in a higher education in South Africa. The weakness of the theory on excluding important predictors of human behaviour, e.g., psychological safety and organisational trust (Noriega Del Valle et al., 2024), is another research gap; thus, the consideration of intrinsic motivation in this research study.

2.4.4 Technology adoption in HEI

Digital revolution continues to impact various sectors impacting how individuals engage, live and work and the HEI has not been exempted (Burim, 2025). The institutions of higher learning have been forced into a paradigm shift that requires the integration of digital technologies into academic practices of both teaching and learning, leading to new possibilities for university across the world (Burim, 2025).

The success of the new academic digital practices is dependent on both students and educators adopting technology aimed at revolutionising digital learning, appreciating the benefits of adopting such technology to create sustainable HEIs, and the leaders in HEIs incorporating compatible and competitive strategies (v et al., 2024). By extension, learning knowledge is increased with notable benefits on learning time and effort, student engagement and student-educator relations(v et al., 2024).

A number of challenging factors have been researched that negatively impact the acceptance and adoption of digital and online learning solutions within higher education; i.e., economic, environment and social factors to funding and slow development of sustainable programs and self-efficacy in the use of such technology (Ahmad et al., 2023). Even in an interconnected world, HEIs need to integrate people, processes, data and things to revolutionise education, research and higher education management activities (Fernández-Batanero et al., 2024).

In a number of research studies that have been conducted to understand factors that influence students' adoption of technologies in the HEI (VanDerSchaaf et al., 2023; Peiris et al., 2024; Santini et al., 2025), significant insights on the theoretical technology-based strategies have been provided on enhancing student engagement, on student technology acceptance behaviour, and on the key determinants for such technology adoption. The studies also reviewed or adopted various technology adoption models. Whilst these studies build on the theory, their focus has been on students' adoption; and not on the employees of the higher education institutions.

In a mixed-method study comparing the students' and faculty's experience on adopting digital tools in higher education, there were notable differences in experiences: students citing experiences on access to digital tools as a strong foundation for use of technology in education whilst faculty citing ongoing development being necessary to adopt digital tools (Burim, 2025). This study results details the contrast in technology adoption in university students and faculty in Kosovo which may be criticised in application and explanation of adoption experiences in South Africa.

Whilst the literature elevates the importance of adoption of technologies in HEI globally, research has had some limitations since it has been conducted in limited countries (v et al., 2024) and the limited number of articles having implications for representativeness and generalisability of results thus a research gap on adoption of technology and the continued transformation of the sector (Fernández-Batanero et al., 2024).

2.4.5 Emerging technologies adoption intention

In research studies that have adopted the TPB, the intended behaviour being observed has been explicitly pronounced; e.g., entrepreneurial intention (Zhao, 2022; Liu & Yao-Ping Peng, 2025), environmental technology adoption intention (Adu-Gyamfi et al., 2022), and emerging technologies adoption intention (Campbell & Frawley, 2023; Caitlin & Laurie, 2025). This is backed by the theory's base of understanding and pronouncing on the intended behaviour being studied.

In emerging technologies adoption intention, latest research continues to focus on the intention to adopt types of technology, rather than on the adoption of emerging technologies as tools of technological advancement; e.g., emerging tools in higher education (Campbell & Frawley, 2023), digital currencies in an emerging economy (Jimenez et al., 2024), artificial intelligence (Bayaga, 2024). These studies, whilst they provide overwhelming critical insights on the benefits of emerging technologies adoption, they are more nuanced on the specific type of such technology. The studies also elevate the importance of comprehending intention on the types of emerging technology adoption, development of strategies to foster innovation and adoption, as well as leaving room for future research on the overall emerging technologies adoption intention regardless of the type of technology.

Building on from the study by Caitlin & Laurie (2025), the research expansion on the intention to adopt emerging technologies irrespective of old' or latest technology is emerging; even though the study was conducted in the United States and focused on teachers; and not the entire education institution. Further calls for such research have been made by Budhwar et

al., (2022); i.e., understanding the drivers and consequences of adoption intention within contexts to improve with the dynamic changing environments, and by (Jaiswal et al., 2022); i.e., understanding & testing even the future skills that will be required to support adoption intention. This study therefore aimed to elevate the growing calls for emerging technologies adoption intention to not focus on a type of technology, but rather on the entire concept of novel and rapidly evolving tools and systems.

2.5 Intrinsic motivation

The concept of intrinsic motivation in literature was developed and is centred in psychology in critique of human behaviour (Remic, 2022) towards understanding the motivation to perform an activity itself, as opposed to being rewarded for the performance of an activity (Deci, 1971). Authors note that, on intrinsic motivation, human performance generates positive feelings for the individual from the activity itself (Deci & Ryan, 2008).

There are then, invariably, a number of definitions that have been provided over the years by scholars; i.e., “activities done ‘for their own sake,’ or for their inherent interest and enjoyment” (Ryan & Deci, 2020; p. 2), “an interest, and enjoyment of, an activity that cannot be attributed to external factors” (Zheng et al., 2022; p. 29), “involves wanting to engage in a task because it is inherently satisfying” (Hubley et al., 2024; p. 26), and “the tendency for intelligent creatures to be motivated to act even in the absence of externally specified goals or learned reward contingencies” (Kiefer, 2025; p. 1).

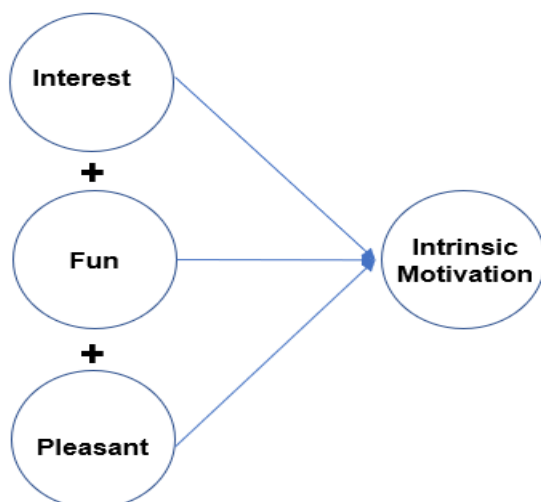


Figure 8: Diagrammatic Representation of Intrinsic Motivation (Author's own)

The literature is concrete on intrinsic motivation that it is about understanding human behaviour's drive towards performance of a task. The definitions are solid on the connectedness of an individual's internal drive to perform without any form of external influence or reward. Figure 9 provides a deduced graphic representation of intrinsic motivation's three core characteristics; i.e., interest, fun and pleasant.

Intrinsic motivation has often been extended or preferred to extrinsic motivation with clear benefits in many contexts of research studies that had a focus on performance as an outcome or a deliverable (Hubley et al., 2024). This is further supported by additional research noting that granting individuals decision task autonomy on outcome or deliverable selection improves performance on the task (Freyer et al., 2025). Some authors have also extended context of intrinsic motivation; i.e., Gao et al. (2023) have shown that this motivation-type can be based on pleasure and responsibility.

In an organisational setting, intrinsic motivation has been linked to positive employee emotional experience, positive employee and task engagement and decreased work-related boredom and deviant behaviours (Wu & Wang, 2025). In contrast, some studies have found intrinsically motivated employees are more likely to experience unfair treatment (Kim et al., 2020) and become mentally fatigued over time (Herlambang et al., 2021). These research outcome present intrinsic motivation as a 'double-edged' sword within an organisational setting, further creating an avenue for future research in organisations in an emerging market like South Africa.

Intrinsic motivation has been assessed and observed as a mediator and a moderator of performance of a task. On student engagement in the United Kingdom, this motivation type was associated with improved academic performance, especially compared with extrinsic motivation (Kotera et al., 2023). It was also found to mediate a burnout, high pressure and stress environment with a combination of other variables within a Chinese accounting firm (Yang et al., 2025), and it also mediated the relationship between professional-related support and subjective well-being in a Chinese university (Ye & Wang, 2023). These elevated assessments and observation show the dynamism that the variable has on performance of task in different contexts.

Some research has however argued that such inconsistency in the results of impact of employee intrinsic motivation and employee well-being is because of the lack of focus on understanding the dynamic nature intrinsic motivation (Wu & Wang, 2025). As a key observation though, individual intrinsic motivation can vary significantly from day to day or as

driven by task variations, and it can even be influenced by specific outcomes or goals of the work tasks (Wu & Wang, 2025).

Notwithstanding the differing effects of intrinsic motivation on employees, motivation remains the most powerful variable enabling attainment of goals and objectives by employees in an organisation (Khan et al., 2025) and organisations continue to measure performance as an employee output (Delpechitre et al., 2020). An employee's performance improves when he/she is motivated to achieve goals and objectives (Chen et al., 2020) and this powerful variable continues to encourage employees to achieve and deliver goals and objectives (Khan et al., 2025). Recent studies have also shown that motivated employees are more responsible towards their goals and objectives compared to those less motivated (Khan et al., 2025). As organisations become more dynamic and competitive, mere completion of tasks by employees is not going to sustain organisational paradigm shifts; but more expanded roles and a proactive pursuit of tasks is recommended (Kim et al., 2023). Organisations are going to require employees who voluntarily take charge of work and work goals and outcomes as facilitated by, among others, positive employees (Kim et al., 2023). The testing of intrinsic motivation then on these dynamic and competitive is another ground for future research in investigating whether the concept still remains valid.

Such future dynamisms and competitiveness will be brought into the workplace by emerging technologies (Xu et al., 2021). Whilst technology adoption may not be a specified job description activity within organisations, future employees will be expected to be proactive and initiate the behaviour themselves; further emerging from such adoption increasing complexity in organisations and increased uncertainty in the work environments (Zhang & Liu, 2022).

Improved work outcomes in experimental studies across education and psychology have been recorded from individuals who are intrinsically motivated, instead from those extrinsically motivated (McNaughton & Fu, 2023). This is because of researchers often adopting a multidimensional conceptualisation of motivation since it has been demonstrated that intrinsic motivation has unique and predictive powers (Giurge & Woolley, 2022). This motivation type is then important in studying to understand its impact on technology adoption to initiative proactive intention and drive proactive behaviour and to improve work outcomes.

2.5.1 Intrinsic motivation on technology adoption

The significance and interplay of intrinsic motivation on digital transformation and technology adoption has been gaining prominence in a number of research studies. In a quantitative study on foreign language student's behavioural intention to adopt mobile-assisted language

learning, whilst intrinsic motivation did not directly influence the behavioural intention, it did have a positive influence with perceived usefulness and task technology fit as intervening variables (Sun & Gao, 2020). The study limited focus on a less diverse population in China is a limitation however useful in elevating the role of intrinsic motivation. Ateş & Gündüzalp (2025) broadened the scope of motivational constructs to understand influence on adoption intentions and found that motivation does drive intention to adopt technology. This study however focused as well on science teachers in Turkey but highlights the need for deeper understanding of motivation in cultural, institutional and technological settings.

Intrinsic motivation also proved to have a positive influence on the acceptance and the intention to use chatbots in a German enterprise context, with personal attitude being a more important factor than external influences (Brachten et al., 2021). The study further recommends the focus on intrinsic motivation in the context of digital transformation and technology adoption within a workplace (Brachten et al., 2021).

In medium and large organisations in Malaysia, factors influencing employees' intention to adopt and use a metaverse platform were studied and the results revealed that digital competence does not significantly moderate the relationship between employee attitudes and behavioural intention (Wong & Tajudeen, 2025). Yet, the importance of addressing human factors was elevated in order to increase employee engagement and acceptance of a digital work environment, i.e., exploring employees' intrinsic motivation and motivational factors (Wong & Tajudeen, 2025).

Kandoth & Shekhar (2025) also highlighted the importance of exploring employees' motivational factors in an Indian information technology study and reported that there is a relationship between ambidextrous organisational culture and innovative behaviour a mediated by employee intrinsic motivation. The critical role of intrinsic motivation is elevated and its role on driving innovation (Kandoth & Shekhar, 2025).

Lastly, Brashi (2025) investigated the adoption of ChatGPT by Saudi university students in translating legal texts and the study highlighted the significant role of intrinsic motivation in the use of the technology. Whilst the study was in a university setting with a different cultural context, organisations need to focus on employee internal factors, i.e., intrinsic motivation, that underpin the adoption of technology (Brashi, 2025).

2.6 Conceptual framework

The theoretical constructs of the research study are presented in this section. Figure 9 illustrates these constructs providing the abstract idea or concept which was applied to explain phenomenon or behaviour (Dorobantu et al., 2024). This conceptual framework conceptualises the hypotheses on intrinsic motivation into TPB for both theoretical expansion and practical insights.

The TPB's framework grounded the conceptual framework arguing that attitude, subjective norm, and perceived behavioural control; are moderated by intrinsic motivation. Further, that this motivational construct has a significant relationship with the intention to adopt emerging technologies within an emerging market's higher education institution. Each of the four hypotheses are discussed in the following sections aimed at investigating and testing the underlying limitation of the TPB; that is the under-specification of affective and motivational constructs (Ajzen, 1991; Ryan & Deci, 2020).

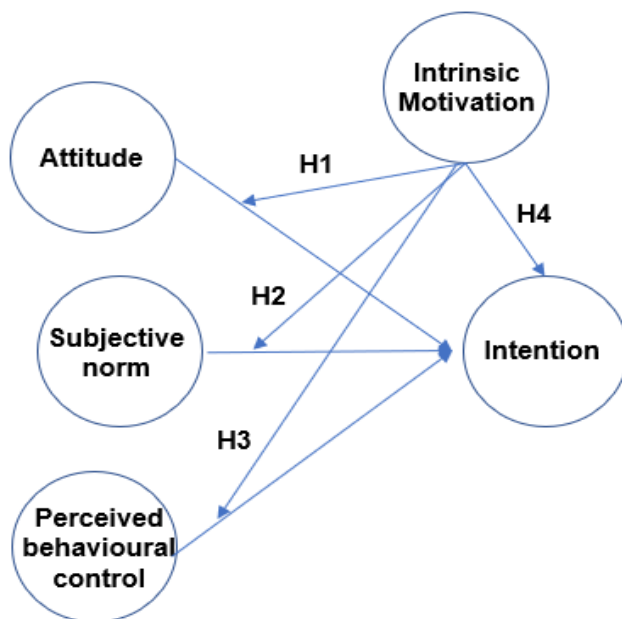


Figure 9: Research Study Conceptual Framework (Author's own)

2.6.1 Intrinsic motivation and attitude

Hypothesis (H1): Intrinsic motivation has a moderating effect on the relationship between attitude and intention to adopt emerging technologies.

As discussed, attitude towards a behaviour refers to the degree with which a person finds a particular behaviour favourable or unfavourable (Ajzen, 1991). Attitude is noted to be the major

consideration towards behavioural intention to use a particular technology (Al Breiki et al., 2023) and research has also shown that individuals are and will be more prone to implement or perform a certain behaviour if there is a positive attitude towards that behaviour (Tiwari et al., 2024).

Since the theory is behavioural and it follows a causal procedure that is focused on rational reasoning (Gong et al., 2025), some research has found that it lacks other essential factors including motivations thus the proposed hypothesis to investigate the identified research gap (Gong et al., 2025) testing for the moderating effect of intrinsic motivation on the relationship between attitude and intention to adopt emerging technologies.

2.6.2 Intrinsic motivation and subjective norm

Hypothesis (H2): Intrinsic motivation has a moderating effect on the relationship between subjective norm and intention to adopt emerging technologies.

The perceived societal pressure to act or not to act in a certain way defines subjective norm (Ajzen, 1991). This societal pressure is an influencer of an individual to engage or not engage in a certain conduct (Akhter et al., 2024) enabled by approval of societal pressure over a behaviour (Gong et al., 2025). Scholars have also linked it to values and attributes attributed to people close to an individual (Gong et al., 2025).

Since subjective norms are societal in nature that are based on external sources of information of an individual (Tiwari et al., 2024) judgements are formed by external influence and intrinsic motivation needs to be tested to evaluate its moderating relationship on the perceived societal pressure and whether this approval (or non-approval) can be influenced by an individual's internal interest or enjoyment of the behaviour (Zheng et al., 2022).

2.6.3 Intrinsic motivation and perceived behavioural control

Hypothesis (H3): Intrinsic motivation has a moderating effect on the relationship between perceived behavioural control and intention to adopt emerging technologies.

Perceived behavioural control relates to an individual's perceptions regarding the ease or difficulty of performing a behaviour (Ajzen, 1991) with research further noting the importance of capability (related to perceived behavioural control), motivation plus opportunity to perform a behaviour (McCarrick et al., 2024). Authors have also elevated the theory's assertion that an individual's belief of control includes the necessary resources and opportunities to perform the behaviour (Park & Kim, 2025).

Since a person's viewpoint of the convenience and/or the challenge of performing the task impacts their attempt in actually undertaking the task (Gong et al., 2025), intrinsic motivation needs to be studied to assess its relationship to moderate the perceived control. The tendency to remain motivated to perform a task even with perceived ease or difficulty is the focal point of this hypothesis.

2.6.4 Intrinsic motivation and intention

Hypothesis (H4): Intrinsic motivation has a statistically significant relationship with the intention towards behaviour to adopt emerging technologies.

Whilst attitudes are personal in nature and are about individual reasoning and cognitive assessment of behaviour, subjective norms being the perceived social influence and pressure, perceived behavioural control being about perceptions of ability to perform the behaviour, intention is the affecting and mediating effect of other factors on performing the behaviour (Oliveira et al., 2022; Nayak et al., 2025).

Intention is a measure of the motivation on the willingness an individual to exert effort to perform a certain behaviour and testing it is noted in research as sufficient in understanding future individual possible action (Yee et al., 2021). This hypothesis aims to test the relationship between intrinsic motivation on an individual's intention to adopt emerging market behaviour: the impact on the mediating effect on the intention to perform a behaviour.

2.7 Conclusion

2.7.1 Summary of reviewed literature

This exploratory exercise of the literature has provided evidence towards the need to conduct research on the relationship of intrinsic motivation on adopting emerging technologies in an emerging market UoT. The review resumed with a focus on emerging technologies, challenges on their adoption, the HEI in South Africa with an elevated focus on the UoT. The constantly transforming nature of the technologies require a systematic approach towards their adoption.

The seminal TPB by Ajzen (1991) presented as the grounding framework for the research study has provided the roadmap towards the development of the research hypotheses and towards guiding the study's research methodology. The moderation linking of intrinsic

motivation as a variable is highlighted in the research that calls for additional personal employee factors towards technology adoption.

Previous studies also cited in the literature detail the infancy nature of research on technology adoption in South Africa, in public HEIs and other industries. The speed of development of emerging technologies is not congruent with the adoption, assessment and results that have been cited in various countries and industries in the country. Studying this adoption with employee intrinsic motivation has a potential to bring an original idea to the field and the context of the study.

Finally, a theoretically robust foundation has been set for the study. The scholarly contributions already made in the literature position the evidence for the research gap to further support the public HEIs in emerging markets to further build on the outcomes and adopt the outcomes to their contexts. The academic contributions are also evident in growing the literature on emerging technologies adoption.

2.7.2 Contextual relevance

HEIs are tasked with socially transforming the societies to provide university students with the required level economic participation, demolish the socioeconomic challenges that continue to characterise the country, contribute to future academic and scholarly excellence (Clark & Costandius, 2020). The South African context is unique and applying research outcomes from environments that are different to the country is extremely limiting. The contextual relevance is aimed at contributing to the necessary transformation of the industry and the country.

2.7.3 Chosen theoretical framework

Five theoretical frameworks were considered for this study; i.e., TAM, TOE, TPB, DOI and UTAUT, and the TPB was found most relevant for the study because:

- theory has evolved over time from understanding reasoned action to planned behaviour at an individual level,
- study of intention as the best predictor of behaviour,
- it has been found tested to understand socially desirable behaviour and its predictive validity tested across many different industries and contexts,
- provides a balance on cognitive behaviour over emotions,
- it has been used to study technology adoption behaviour – also across many different industries and contexts, and
- it can be adapted with additional variables already studied in research to measure intention.

2.7.4 Identified gaps and challenges

There following are the identified gaps and challenges:

- assessing the moderating effect of intrinsic motivation on attitude, subjective norm and perceived behavioural control on intended behaviour to adopt emerging technologies,
- assess this moderating effect within the study's context and environment for further scrutiny and adoption by the public HEI, and
- closing the academic gap on emerging technologies adoption within emerging technologies within emerging markets.

2.7.5 Direction for the study

The need to deepen the success and failures of emerging technology adoption in an emerging market's UoT is grounded in the literature presented. The direction of the study is to go beyond the understanding but to provide invaluable insights for university leadership, stakeholders, researchers of emerging technologies adoption and academics/scholars so make transforming judgements from the findings of the industry.

The next chapter discusses the research hypotheses and the guiding research roadmap for this study. The moderation relationship of intrinsic motivation on adopting emerging technologies within an emerging market UoT is brought forward to enable line leaders and managers within a public HEI to appreciate the impact emerging technology is having within the context of the study.

Chapter 3: Hypotheses

3.1 Introduction

The previous chapter of this research project detailed the literature analysis and review for the study. Now, the articulation of the formulated hypotheses is provided as derived from literature on the Theory of Planned Behaviour (TPB) and intrinsic motivation. A hypothesis is a testable and measurable statement (Cambré et al., 2023) and with each of the statements listed below are seeking to examine the relationship of intrinsic motivation on the TPB variables; i.e., attitude, subjective norm, perceived behavioural control and intention toward the behaviour to adopt emerging market technologies in an emerging market university of technology (UoT).

3.2 Explanation of the study's hypotheses

H1: Intrinsic motivation has a moderating effect on the relationship between attitude and intention to adopt emerging technology.

The primary antecedent of the TPB is a favourable or unfavourable individual's evaluation to perform a behaviour (Ajzen, 1991) with studies in different countries and contexts providing evidence that attitude is a stronger antecedent in individualistic cultures with personal norms having a direct influence on the behaviour (Li et al., 2025). Since it is a personal belief variable with inherent enjoyment driving intrinsic motivation (Teppo et al., 2025), the relationship between the two variables grounded this hypothesis. Individuals that are intrinsically motivated display higher quality consequences (Urighuen Aguirre & Avolio Alecchi, 2023) and the evaluation of the relationship with attitude and intention contributes towards understanding adoption behaviour.

H2: Intrinsic motivation has a moderating effect on the relationship between subjective norm and intention to adopt emerging technology.

The agreement of personal action or behaviour from those important to an individual characterises subjective norm and it can be relayed in different ways; e.g., conformity, leadership, peer pressure and socialisation (Qin & Tao, 2021). Since technology adoption links to individual use of innovation; societal norms and beliefs can share the perceptions and dispositions (Abu-Shanab & Maduku, 2022). This hypothesis aimed to study social norms, social pressures, cultural norms or group beliefs (Razali et al., 2020) and their propensity to

be influenced by intrinsic motivation within an organisation that is intending to adopt emerging technologies.

H3: Intrinsic motivation has a moderating effect on the relationship between perceived behavioural control and intention to adopt emerging technology.

A key variable relating to an individual's perceptions on the internal confidence and ability to perform a certain or specific behaviour defines perceived behavioural control (Li et al., 2025). The variable has been tested to provide and to understand the probability to not only directly affect behavioural intention, but to further influences the behaviour (Li et al., 2025). Some research has shown that whilst personal attitude and societal pressure may not necessarily lead to intended behaviour (Ma et al., 2025), this hypothesis aimed at a comprehensive understanding the relationship intrinsic motivation has on an individual's internal confidence and ability to perform a behaviour.

H4: Intrinsic motivation has a statistically significant relationship with the intention towards behaviour to adopt emerging technologies.

A number of studies have validated the influential or non-influential relationship of intrinsic motivation on behavioural intention within a technology context; e.g., intrinsic motivation did not directly influence behavioural intention on students in language learning (Sun & Gao, 2020), on gamification to enhance students' engagement, intrinsic motivation did positively influence the technology adoption (Li et al., 2025), and there was also a positive role of intrinsic motivation in mediating the students' adoption of ChatGPT for translation services (Brashi, 2025). This hypothesis aims to measure the interplay between intrinsic motivation and the intention towards the behaviour to adopt emerging technologies.

3.3 Conclusion

These hypotheses provided testable and measurable statements guiding the direction of the quantitative study on the effect and relationship of intrinsic motivation on the TPB variables; i.e., attitude, subjective norm, perceived behavioural control and intention toward the behaviour to adopt emerging market technologies in an emerging market UoT. The next chapter; i.e., Chapter 4, details the employed research study's methodology. This is a discussion on the research design, data collection methods and analysis and data analysis of the research study.

Chapter 4: Research methodology

4.1 Introduction

The previous chapter of this research project detailed the testable and measurable statements that provided the direction for this study. The purpose of this chapter is to provide the research methodology, the how, adopted to study the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). Table a provides the research methodology roadmap for ease of reference that enabled the achievement of research objectives and hypotheses (Matthee, 2025).

Research Methodology Roadmap			
Headings & Sub-headings	4.1 Introduction	4.2 Method <ul style="list-style-type: none"> • Research paradigm • Research design • Research setting • Population • Sample 	4.3 Instrumentation <ul style="list-style-type: none"> • Pilot survey • Survey sections • Data gathering
	4.4 Analysis <ul style="list-style-type: none"> • Preliminary analysis • Descriptive analysis • Data validation • Structural equation modelling 	4.5 Limitations <ul style="list-style-type: none"> • Method • Instrumentation • Analysis • Single-setting 	4.6 Ethical Considerations & 4.7 Conclusion

Table 2: Research Methodology Roadmap (Author's own)

The chapter firstly commences with an overall method section that discusses the study's research paradigm that was appropriate for the study. The details of the design of the survey are then provided. The information of the research setting of the study, that is a UoT within an emerging market of South Africa are shared. The population details to provide research relevance follow, with further information on the sample used in order to draw conclusions.

Secondly, the instrumentation details adopted to test and measure the relationship of intrinsic motivation are shared. In this section, the details of the pilot survey to improve the measurement instrument are provided, with the four main sections of the survey detailed. This section concludes with further information on the survey process adopted to gather the data from the sample.

Finally, the multi-pronged data analysis approach and limitations are discussed. In the data analysis, the preliminary analysis discusses the data preparation, coding and screening whilst the descriptive analysis discusses the data used in the study. This section concludes with the approach followed to validate the data and test the hypotheses, i.e., data validation and structural equation modelling. The approach used to interpret the data forms part of the conclusion. On the limitations, acknowledgement is made towards the method, instrumentation and analysis.

4.2 Method

4.2.1 Research paradigm

Research paradigms are key in shaping research landscape and they provide a framework for conducting and understanding research (ontology), conceptualising the studies (epistemology), gather and analyse data (methodology), and interpret research findings (etiology) (Omodan, 2025). This research study adopted a positivism philosophical stance as the aim was to work with “an observable social reality” of the relationship of intrinsic motivation the intention to adopt emerging technologies in an emerging market UoT so to “produce law-like generalisations” (Saunders et al., 2023, p. 145).

The study’s ontological stance was realist since the aim of the study was to discover and uncover objective truths using methods that can lead to external validity and generalisability (Omodan, 2025). The research intended to study the nature of reality or state of being (Laasch et al., 2022), conducting and understanding the “real, external and independent” (Saunders et al., 2023, p. 146) state of constructs.

Epistemology refers to the “assumptions about knowledge” and the construction of “acceptable, valid and legitimate knowledge” (Saunders et al., 2023, p. 134). Aligned to this research study philosophical stance, the study was rooted in the belief to researching “objective facts” aimed at offering ‘the best scientific evidence’ that is to provide acceptable, valid and legitimate knowledge (Saunders et al., 2023, p. 134).

Methodology guides the systematic approach and the principles within a research paradigm (Omodan, 2025). In the study's paradigm, a quantitative research method was employed aligned with other researchers in this paradigm that employed correlation study design, surveys and the analysis of statistics to collect numerical data and to test for hypotheses (Park et al., 2020; Urban & Maphumulo, 2022).

Lastly, on etiology in interpreting the research findings, the study aimed to test the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. This was conducted by testing the hypothesised relationships presented in Chapters 2 and 3. The conceptual model formed the basis for the interpretation of the constructs/variables relationship results.

4.2.2 Research design

There were a number of methodological designs that were considered for this study to ensure objective and empirically relevant results within a positivist stance (Omodan, 2025). The study finally incorporated the correlational, survey and cross-sectional designs. Firstly, correlational design, compared to descriptive, experimental or quasi-experimental designs, is a study that examines relationships between two or more variables, extending to an understanding of whether systematic changes on one variable do lead the same changes on the other (Schindler, 2022; Alfugaha et al., 2023).

Consistent with several studies on technology adoption behaviour cited in Chapter 2, e.g., Shih et al. (2022), Nickell & Hinsz (2023), and Sandri et al. (2024), this study also employed survey design through a structured framework of data collection in a questionnaire with a standard set of questions or statements (Omodan, 2025). This design was also preferred since it was rather authoritative with easy comprehension by participants (Saunders et al., 2023).

Since different research participants were to provide data at a single point in time in studying relationships between variables, a cross-sectional design was also employed (Omodan, 2025). As opposed to a longitudinal study that studies change and development with potential control over the variables (Saunders et al., 2023), the time constraints of the study were ideal for snap identification of patterns and statistical associations (Omodan, 2025) for a particular population (Etse et al., 2021).

4.2.3 Research setting

The primary setting for this study was an emerging market due to continued interest by international business scholars (Zhou, 2024). As international investors continue to scout for real growth in these markets, this research setting was ideal towards contributing to, a) the competitiveness of the market, b) limit the costs of doing business in the chosen market, and c) decrease the market's level of imperfection (Zhou, 2024). This research was conducted in the emerging market of South Africa.

The secondary setting was higher education; which continues to face paradigm shifts across a wide range of technological advances as enabled emerging technologies; e.g., learning platforms, immersive and virtual technologies, and transformed teaching and learning practices (Burim, 2025). This setting needs to continue to be competitive in order to meet the learning demands precipitated by a steady growth in learning technologies (Santini et al., 2025). The Central University of Technology, Free State (CUT) was the emerging market UoT used for this study; located in Bloemfontein and Welkom, in the Free State province.

4.2.4 Population

Saunders et al. (2023, p. 835) define a target population as “the complete set of cases or group members that is the actual focus of the research inquiry.” The study intended to research the relationship of intrinsic motivation on the intention to adopt emerging technologies hence the complete set of case members was the entire employee population of the UoT. Figure 10 displays the total number of the employee population for the emerging market university.



Figure 10: CUT Employee Population: 30 June 2025 (T. Motingoe, personal communication, August 20, 2025)

The choice of the entire population of the university was important since the study aimed to make statistical inferences to the population element of the institution being the employees (Schindler, 2022). Population boundaries, as guided by Cambre et al. (2023), were defined as

the total number of 2078 employees; whether full-time, part-time of student appointments, based across both campuses of the institution; Bloemfontein or Welkom allowing for sampling for the study.

4.2.5 Sampling

The population of the study, i.e., all the employees of the university, was rather large and therefore and it would not have been feasible to engage the complete set of cases. Stratton (2021) suggests that a sampling technique must be adopted to gather data representative of the target population. Four factors influenced the sampling technique in this study (Schindler, 2022); a) lower cost, b) accuracy of the results, c) speed of data collection and, d) availability of the university employees. A non-probability convenience sampling was adopted for the research study (Cambre et al., 2023).

A sampling frame, referring to the list of elements taken from the sample (Schindler, 2022), was the complete list of the employees at the university. The research, seeking to make statistical inferences to the entire population, aimed to statistically match the actual sample against the following demographic variables of the sample frame; a) age, b) gender, c) location, d) level, e) tenure/service, and f) race.

Such statistical inferences can be achieved with a sample size that is calculated from the target population size to achieve confidence on the data collected and a low margin of error (Saunders et al., 2023). Based on the target population of 2078, the study aimed to collect responses so there is 95 per cent confidence of the data and a margin of error rate of 5 per cent.

The units of analysis and play were also a critical consideration for this study since an incorrect level can flaw the inferences and results of the research (Nayak et al., 2025). Such units are the who or what can generalisations be made (Cambre et al., 2023). The study's unit level of analysis was at an employee level. This unit level of analysis has been used successfully in similar studies that were investigating individual motivation on anticipated individual performance or behaviour (Nayak et al., 2025).

4.3 Instrumentation

An online self-completed questionnaire, Appendice 2, was utilised for this study so to enable each participant to respond to a chronological set of predetermined questions (Saunders et al., 2023). The use of such a questionnaire was also ideal noting the location campuses of the

UoT (Leedy et al., 2021). The questionnaire and use of online participation were ideal for this study since the data was required from a large population and careful thought was applied to the construction of the questionnaire and the use of the language to ensure that it is easily understandable. Additionally;

- the participants were computer literate,
- the UoT does use this form of data collection to invite employee opinions on a number of matters,
- there was low likelihood of survey contamination, and
- the time and financial constraints were ideal for this study.

4.3.1 Pilot survey

Prior to the adoption and use of the questionnaire, a pilot survey was conducted with ten employees from the university who had an understanding of survey questionnaires – eight responded. This was key since pilot-testing a questionnaire carefully allows for reliability and validity (Omodan, 2025). The pilot was conducted in a four-week period to allow for critical input and reviews. The feedback from the pilot survey is provided in Annexure b. In summary, a) the feedback cautioned the use an exclusionary question, b) there was a request to add Academic/Lecturer as an option in the Level, c) the number of questionnaire statements was ideal, and d) the questionnaire statements were clear to the pilot group.

4.3.2 Survey sections

The questionnaire was constructed to ensure it is fruitful and efficient so it provides interpretable data. It was kept short yet simple and concrete, clear with straightforward language and instructions, and the sections were marked to provide rational to the respondent. The questionnaire was coded in advance for data interpretation and administered on Google Forms for ease of navigation and professional presentation (Leedy et al., 2021).

There were four sections to the questionnaire and the first section's objective was to obtain informed consent from the respondent. This section was critical as informed consent provides an opportunity to receive communication from the researcher, to understand the study's intentions, to elevate the voluntary participation, and to provide an avenue to raise any challenges with the researcher (Eeckhout et al., 2023).

The second section was on factual and demographic data about the respondent; i.e., age, gender, location, level, tenure and race. This data is important in research so a demographic comparison or differences can be studied on the attitudes, behaviours and opinions of the

respondents, as well as to check whether the respondents participation is a representative of the total population (Saunders et al., 2023).

Thirdly, the questionnaire's section three focused on technology adoption. As guided by research on TPB questionnaire construction, the behaviour of interest had to be defined (Ajzen, 2006). The behaviour of interest in this study was 'intention to adopt emerging technologies' at an individual level. This behaviour of interest then guided the formulation of the statements. Then, statements had to be formulated to assess each of the theory's constructs; i.e., attitude, subjective norm, perceived behavioural control and intention. Whilst five to six statements are recommended (Ajzen, 2006), three clear, concrete, simple, and straightforward statements were adopted (Gohil et al., 2024).

Section four, the final section, of the questionnaire focused on intrinsic motivation and the situational motivation scale (SIMS) was adopted (Guay et al., 2000). This was appropriate for the study as situational motivation refers to motivation whilst engaging in an activity (Guay et al., 2000). Since motivation is not static but dynamic (Törmänen et al., 2025), a situational scale referencing intention to adopt emerging technologies specifically was ideal for the study. Four statements, coded to measure intrinsic motivation on the SIMS scale (Guay et al., 2000), were therefore included to conclude the questionnaire.

The operationalisation of constructs variables was attained by using Likert-scaled statements that have been used in similar studies (Bevan-Dye & Synodinos, 2025; Nickell & Heinsz, 2023). Despite its limitations; e.g., as compared to the Best-Worst Scale, this interval scale was ideal because of its continued use in business research, convenience, and equal distance in variations in scaling (Heo et al., 2022). Similar to a study by Wong & Tajudeen (2024), the scales were clearly marked "strongly disagree" (1), "disagree" (2), "neutral" (3), "agree" (4), to "strongly agree" (5) to reduce confusion.

4.3.3 Data gathering

Upon the construction, finalisation and piloting of the questionnaire, the primary data gathering process commenced over a six-week period excluding the pilot period. The entire employee population was invited to partake in the survey through an email that was sent from the Research, Innovation and Engagement department. This was important to ensure a good response, which is enabled by respondents being motivated to complete and return it, since it was received from an internal department (Saunders et al., 2023).

As quantifiability is one of the fundamental aspects of positivists research (Omodan, 2025), a number of activities were adopted throughout the data gathering period; i.e. 1. two reminders were sent to the employee population to encourage participation, 2. sample size tracking to drive targeted participation with the Human Resources department and the sample frame, and, 3. continued examination of the data through Google Forms for anomalies, errors and omissions. Over the data gathering period, 207 responses were received.

Data gathering confidentiality, which refers to protecting the data and identity of participants, and anonymity, which refers to the inability to trace the data and identity of participants (Saunders et al., 2023), was observed throughout the study. Whilst the research data will be kept for at least ten years of the study, the participants' data and identity will remain confidential. Further, Google Forms settings were enabled so no location addresses or data was collected during the survey to ensure anonymity.

4.4 Analysis

The analysis of data was approached methodically for this study to ensure comprehensive examination of the study the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology. The phases adopted for the analysis were; i.e., 1) preliminary analysis, 2) descriptive analysis, 3) data validation and, 4) structural equation modelling (i.e., coefficients paths and their level of significance, coefficient determination, effect size and predictive relevance).

4.4.1 Preliminary analysis

Upon closure of the online survey questionnaire, the data was exported and imported into the IBM Statistical Package for Social Sciences (SPSS) software. This software is the most frequently used for analysing data especially within an African context (Fouche & Mentz-Coetzee, 2025), and it was adopted in the study for the preliminary analysis portion of data analysis. The data set was cleaned and sanitised to ensure that all respondents provided consent for participation in the survey and all anomalies are identified. Respondents had to respond to each question since the questionnaire statements were mandatory. All 207 responses were considered comprehensive and dependable for further analysis and interpretation.

4.4.2 Descriptive analysis

Once preliminary data analysis was completed, the descriptive data analysis process commenced. This involved the description of the data; i.e., the characteristics of the data, the calculation of the centre and the midpoint, the broadness of the data, the closeness of two or

more variables within the data (and their association) as well as standard deviation and data skewness (Leedy et al., 2021). This analysis also aided the visualisation and summary of sample for inferential statistics analysis and interpretation (Scott Jones & Goldring, 2021).

4.4.3 Data validation

Overall data reliability and validity were conducted as these underpin the credibility and trustworthiness of the collected data (Omodan, 2025). This part of the data analysis was conducted on SmartPLS software (Jie et al., 2022) version 4.1.0.0. SEM. A normality test was conducted to determine the data's central tendency (El Bouch et al., 2022; Chen & Xia, 2023) and the measurement models were analysed to assess the relationship between the observed measures (Brown, 2015).

Reliability is concerned with the reliability of the data collection method and whether this method can yield similar results upon repeating the survey (Omodan, 2025). The reliability for the study was assessed using Cronbach's Alpha and Composite Realisability which generally has been used to indicate test reliability, and using its indispensable cut-off values to maintain acceptable, good or excellent internal consistency (Malhotra, 2019; Field, 2024; Edelsbrunner et al., 2025).

Validity is concerned with guaranteeing the collected survey data accurately measures the intended phenomenon truthfully (Omodan, 2025). This was done using the following approach to the questionnaire; i.e., the development of the survey statements was informed by literature review as discussed in Chapter 2 and the hypotheses in Chapter 3, a pilot survey was conducted to ensure that the instrument measures the intended phenomenon and the respondents could comprehend and understand the survey statements, participant anonymity and confidentiality was guaranteed, the data gathering process was meticulous, and the questionnaire with clear and simple instructions was divided into sections to further aid the ease of survey completion. Statistically, convergent validity was conducted which included the Common Variance Bias Test to test for multicollinearity (Hosany et al., 2015; Kock, 2015; Hair et al., 2019; Zhu et al., 2025).

4.4.4 Structural equation modelling

The testing of hypotheses guided the inferential statistical analysis process of the research to determine the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. First, correlation analysis was conducted since calculating a correlation coefficient enabled the measurement of the strength and direction between the TPB variables (Omodan, 2025). This analysis focused on testing the theory's

variables on testing the relationship of attitude, subjective norm and perceived behavioural control on intention.

Second, a structural modelling analysis was adopted in the research study to the causality among the variables (Schindler, 2022). This analysis was conducted to understand the relationship between the dependent variable, intention, and the independent variables; attitude, subjective norm and perceived behavioural control. This analysis provided an opportunity to observe and quantify the statistical significance relationship, causality and interplay between the variables (Omodan, 2025).

Lastly, the structural model analysis further examined the path coefficients – their level of significance, Coefficient of determination, effect size and predictive relevance of intrinsic motivation on attitudes, subjective norm, perceived behavioural control and intention. This robust method has been used to assess and validate theoretical frameworks thus providing another objective means to test the conceptual framework proposed in the study (Omodan, 2025).

4.5 Limitations

This research study, in its attempt to explain the causality of the hypothesised relationships, had its limitations and these are explored further in this section under the following headings; i.e., method, instrumentation and analysis. Limitations were critical considerations for the research study's academic puzzle and such acknowledgement was done to sustain empirical rigour in the research's methodology (Cambre et al., 2023).

4.5.1 Method

The main limitation in literature regarding the quantitative method employed in the study was the inclination for this method to simplify complex phenomena by breaking it down into smaller parts (Omodan, 2025). The lens that was adopted in the study has reduced and isolated the variables without considering broader contexts like culture, history and location. It is acknowledged therefore that technology adoption happens within broader contexts.

This method choice also is also criticised for its bias towards measurables of quantities in the absence of the human experiences (Omodan, 2025). This limitation is acknowledged especially in that the study was aimed at observing social phenomena. The potential to validate the human experience can be achieved with the incorporation of a qualitative approach to the results.

The cross-sectional nature of the study was the final limitation observed on the method which focused on observing a particular phenomenon at a particular time (Saunders et al., 2023). A longitudinal study would have provided an opportunity to study the change and development over a much longer period thus allowing for deeper insights, and longer observation and interaction with data.

4.5.2 Instrumentation

The use of the questionnaire was not without its limitations as noted in the low return rate in this study (Leedy et al., 2021). This may have been due to a number of reasons; e.g., busy nature of the higher education institution with priority given to daily operations other than research activity, survey fatigue in the chosen institution, participants undue influence to or not to participate in the study despite guaranteed anonymity and confidentiality, low importance towards a study on emerging technologies adoption, or the time limit provided to complete the study. Due regard in the future should be provided to improving the return rate.

4.5.3 Analysis

There are a number of statistical analysis tools available for quantitative data and a limitation is noted that only a few tools and types of tests were used in the study. This limitation is noted because of the nature and timing of this research study. It is recommended in future studies and tests that an increased number of tools are adopted to enhance the reliability and generalisability of future research findings (Omodan, 2025).

4.5.4 Single-setting

Single-setting research studies have shown that they can impact sample sizes and generalisability of research results (Bayaga, 2024; Liu & Yao-Ping Peng, 2025). This limitation is also acknowledged for this research study since it was conducted in one UoT in South Africa. Future research should consider broadening this scope with possible comparative studies across UoTs, private and traditional universities.

4.6 Ethical considerations

Ethical considerations in research aim to safeguard the participants and the research process integrity (Saunders et al., 2023). There were five ethical considerations for this research study; 1) this research study was conducted after the approval of a research proposal by an independent research committee (Appendice 1), 2) the data collection was only conducted after the approval of ethical clearance from the UoT and research the data used a secured database for confidentiality & anonymity, 3) the findings presented in this study are precise and accurately reflects the data collected from the participants, 4) the participants rights were

observed with informed consent sought at the email invitation and at questionnaire completion, and 5) the researcher remained objective and observed the phenomena studied to enhance only the body of knowledge.

4.7 Conclusion

The chapter provided the research methodology adopted to study the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. The next chapter, Chapter 4, presents the empirical findings and results from the data collected.

Chapter 5: Results

5.1 Introduction

The previous chapter of this research project detailed the research methodology of the study on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). Table a provides the results roadmap for ease of reference that guided the statistical reporting on the results/findings of this research study.

Results Roadmap			
Headings & Sub-headings	5.1 Introduction	5.2 Preliminary Results	5.3 Descriptive Results
	5.4 Data Validation	5.5 Structural Equation Modelling	5.6 Conclusion

Table 3: Results Roadmap (Author's own)

The chapter starts with a discussion on the preliminary results and the data preparation, coding and cleaning that was employed. Then, the descriptive results are provided with information on the profile of the respondents to provide the context for the rest of the data. This is followed by the data validation section to check for reliability and validity for the survey instrument. Finally, for the hypotheses section, the structural equation modelling guides the testing for results and outcomes.

5.2 Preliminary results

The preliminary results stage involved data preparation; i.e., the overall process of coding, editing and creating data entries aimed at ensuring the data is statistically prepared to be converted from the raw form into an interpretable form accurately (Schindler, 2022). This step is additionally important because errors may be identified and corrected prior to data interpretation (Schindler, 2022).

The raw data of this research study, as per Table b, was first coded into a codebook for ease of interpretation with the assigning of numbers to all the categories of the survey instrument. The thorough examination of the raw data did not reveal any duplicate or incomplete replies since all the survey questions were compulsory. Specific attention was made to the 'Informed consent' section and all respondents agreed to participate in the survey. The Likert-scale

survey statements were also coded into numerical codes; i.e., ‘Strongly disagree’ – 1, ‘Disagree’ – 2, ‘Neutral’ – 3, ‘Agree’ – 4, and ‘Strongly agree’ – 5.

Variable	Description	Code
Informed consent - SQ		
	I agree to participate in the survey	1
	I do not agree to participate in the survey	2
Demographic questions – DQ		
Age	18 – 28 (Generation Z)	1
	29 – 44 (Millennials)	2
	45 – 60 (Generation X)	3
	61 – 79 (Baby Boomers)	4
	80 – 100 (Silent Generation)	5
Gender	Female	1
	Male	2
	Prefer not to say	3
Location	Bloemfontein	1
	Welkom	2
	Other	3
Level	Administrative/Non-managerial	1
	Team Leader	2
	Junior Manager	3
	Middle Manager	4
	Senior Management	5
	Executive	6
Tenure/Service	0 - 1 year	1
	1 - 3 years	2
	3 - 5 years	3
	5 - 10 years	4
	+10 years	5
Race	Black	1
	Coloured	2
	Foreign national	3
	Indian	4
	Prefer not to say	5

	White	6
Attitude towards behaviour (ATT)		
	For me, adopting and/or using new technology is easy	ATT1
	For me, adopting and/or using new technology is fun	ATT2
	For me, adopting and/or using new technology is positive	ATT3
Subjective norm (SBN)		
	Most people who are important to me think that I should adopt and/or use new technology	SBN1
	My spouse/significant other approves of me adopting and/or using new technology	SBN2
	My closest friend or family member (other than my spouse/significant other) approves of me adopting and/or using new technology	SBN3
Perceived behavioural control (PBC)		
	I do have personal control over whether or not I adopt and/or use the new technology	PBC1
	Adopting and/or using the new technology is within my control	PBC2
	I am able to adopt and/or use new technology	PBC3
Intention (INT)		
	My goal is to do adopt and/or use the new technology	INT1
	I intend to do adopt and/or use the new technology	INT2
	I plan adopt and/or use the new technology	INT3
Intrinsic motivation (MOT)		
	Because I think that adopting and/or using new technology is interesting	MOT1
	Because I think that adopting and/or using new technology is pleasant	MOT2
	Because I think that adopting and/or using new technology is fun	MOT3
	Because I feel good when adopting and/or using new technology	MOT4

Table 4: Research Study Codebook (Author's own)

5.3 Descriptive results

Since descriptive statistics provide the ability to describe, summarise and visualise the key descriptors of a sample (Scott Jones & Goldring, 2021), this section presents the descriptive results of the employees that participated in the study. Tables and graphs are presented

describe and visualise the sample, with additional commentary as a summary on each demographic.

5.3.1 Age

Table 5 and Figure 11 detail the Age frequency of the respondents presented as ‘Generation Z,’ ‘Millennials,’ ‘Generation X’ and ‘Baby Boomers.’ The highest frequencies are observed in the Millennials (48,3%) and Generation X (31,4%). The lower frequencies are in the Generation Z (16,9%) and Baby Boomers (3,4%).

	Frequency	Percentage
18 – 28 (Generation Z)	35	16,9
29 – 44 (Millennials)	100	48,3
45 – 60 (Generation X)	65	31,4
61 – 79 (Baby Boomers)	7	3,4
Total	207	100

Table 5: Age Group Results (Author’s own)

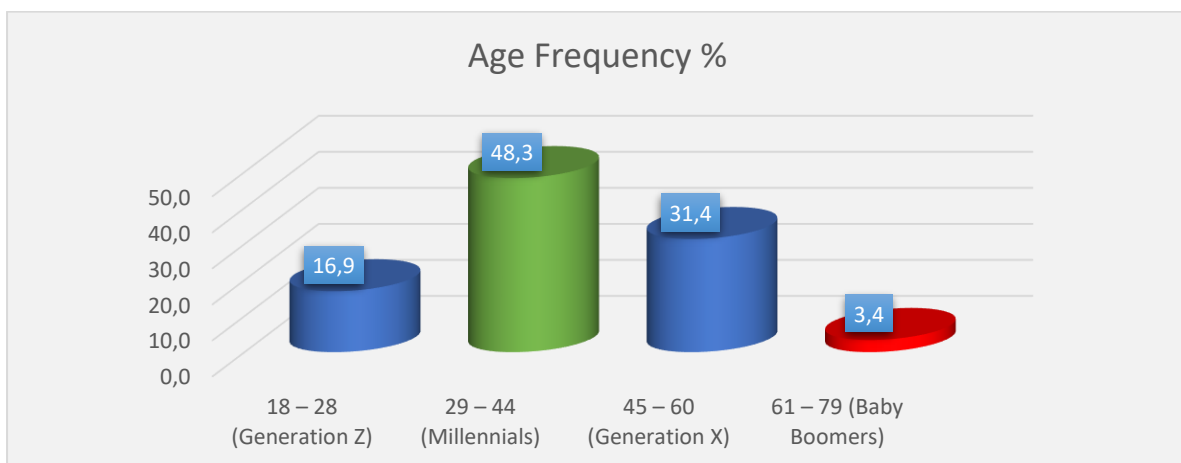


Figure 11: Age Group Graph (Author’s own)

5.3.2 Gender

The Gender frequency is presented in Table 6 and Figure 12 with respondents presented with ‘Female,’ ‘Male,’ and ‘Prefer not to say’ options in the survey. The highest frequency is observed in Female (51,7%), followed by Male (47,3%) and Prefer not to say being the lowest at 1%.

	Frequency	Percentage
Female	107	51,7
Male	98	47,3
Prefer not to say	2	1
Total	207	100

Table 6: Gender Results (Author's own)

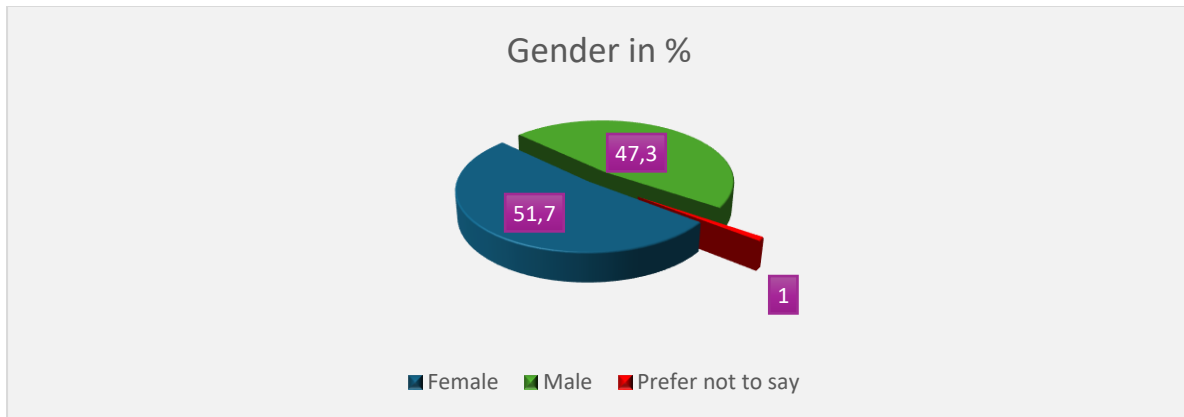


Figure 12: Gender Results Graph (Author's own)

5.3.3 Location

Table 7 and Figure 13 provide an analysis of the Location frequency as presented with the options of 'Bloemfontein,' 'Welkom,' and 'Other' to the respondents. The Bloemfontein frequency is the highest at 78,7%, followed by Welkom at 20,3%, with Other (1%) as the lowest.

	Frequency	Percentage
Bloemfontein	163	78,7
Other	2	1
Welkom	42	20,3
Total	207	100

Table 7 Location Results (Author's own)

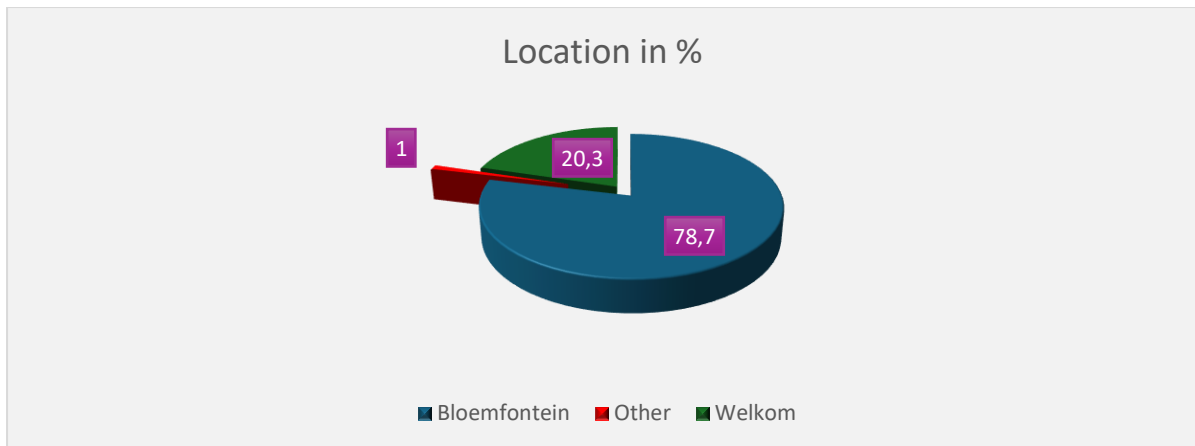


Figure 13: Location Results Graph (Author's own)

5.3.4 Level

Level frequency analysis is presented in Table 8 and Figure 14. The highest frequency levels are observed in Administrative / Non-managerial level (45,4%) and Academic/Lecturer (24,6%). The remaining levels are the lowest in descending order; i.e., Team Leader (7,7%), Junior Manager (6,8%), Senior Management (6,8%), Middle Manager (6,3%), and Executive (2,4%).

	Frequency	Percentage
Academic/Lecturer	51	24,6
Administrative / Non-managerial	94	45,4
Executive	5	2,4
Junior Manager	14	6,8
Middle Manager	13	6,3
Senior Management	14	6,8
Team Leader	16	7,7
Total	207	100

Table 8: Level Results (Author's own)

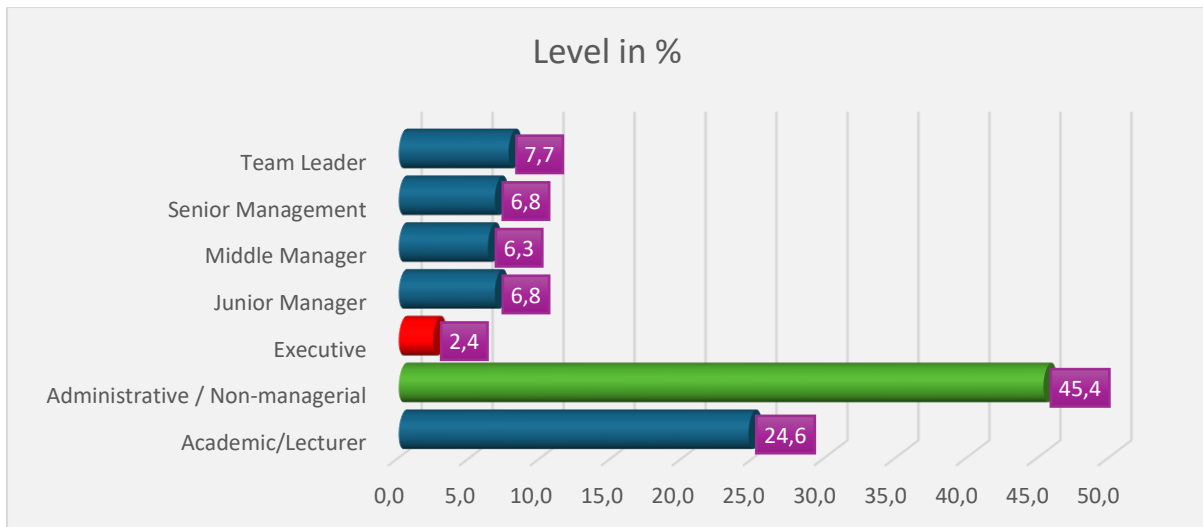


Figure 14: Level Results Graph (Author's own)

5.3.5 Tenure/Service

Table 9 and Figure 15 detail the Tenure/Service frequency analysis. The highest frequency levels are observed in +10 years (44,4%) and 5 – 10 years (30%). The remaining levels are the lowest in descending order; i.e., 3 – 5 years (14%), 1 – 3 years (8,7%), and 0 – 1 year (2,9%).

	Frequency	Percentage
0 - 1 year	6	2,9
1 - 3 years	18	8,7
3 - 5 years	29	14
5 - 10 years	62	30
+10 years	92	44,4
Total	207	100

Table 9: Tenure/Service Results (Author's own)

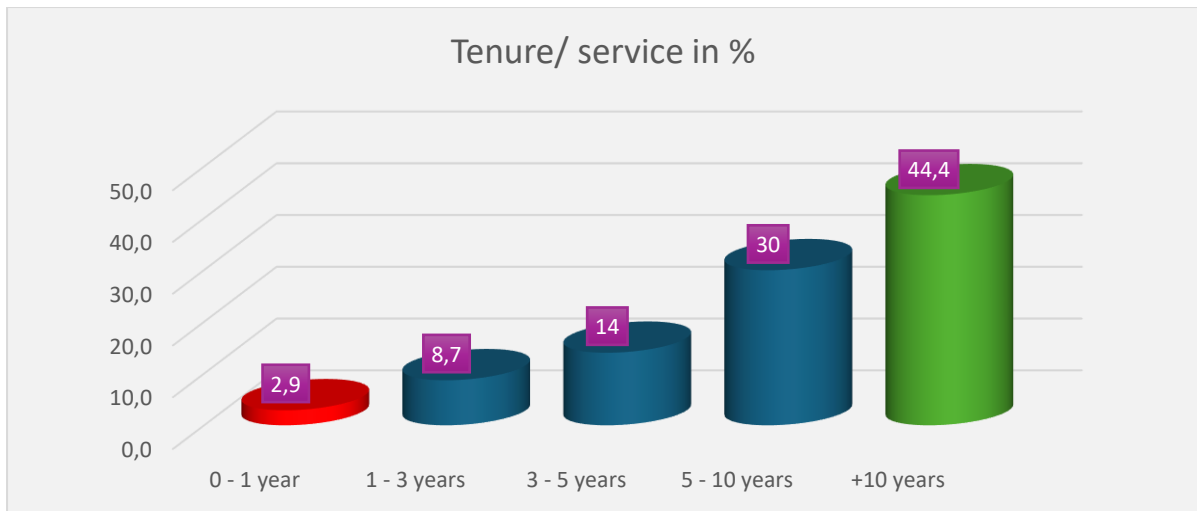


Figure 15: Tenure/Service Results Graph (Author's own)

5.3.6 Race

The Race frequency is presented in Table 10 and Figure 16. The highest frequencies are observed in Black (58%), followed by White (22,2%). The lowest frequencies in descending order are Coloured (10,6%), Indian (3,9%), Foreign national (2,9%) and Prefer not to say (2,4%).

	Frequency	Percentage
Black	120	58
Coloured	22	10,6
Foreign national	6	2,9
Indian	8	3,9
Prefer not to say	5	2,4
White	46	22,2
Total	207	100

Table 10: Race Results (Author's own)

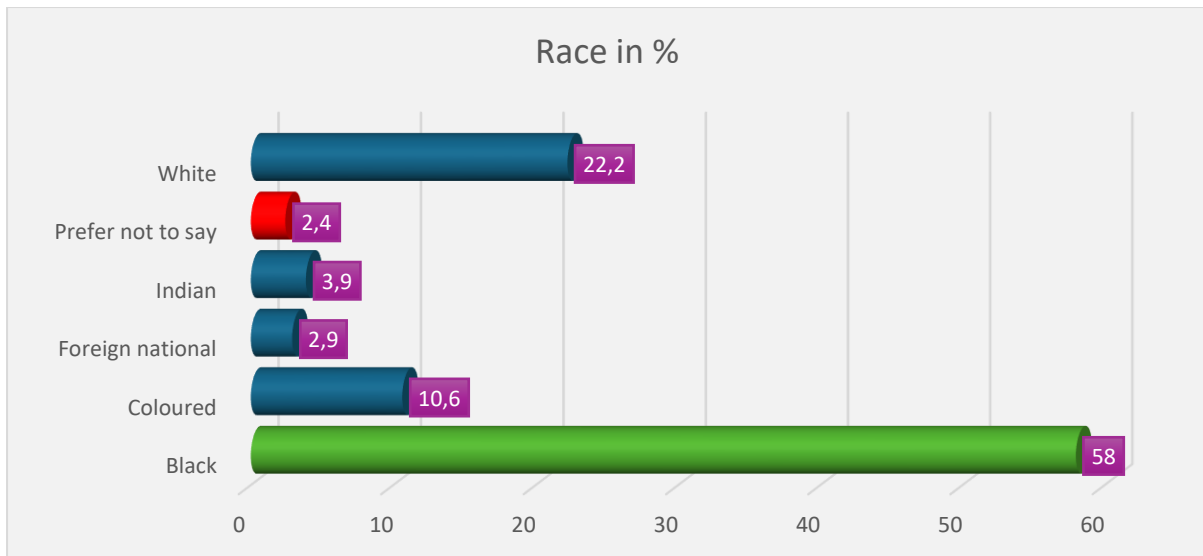


Figure 16: Race Results Graph (Author's own)

5.4 Data Validation

5.4.1 Normality test

The data validation process firstly commenced with conducting a normality test; i.e., determining the central tendency for the study data variables (El Bouch et al., 2022). The outcome testing for the p value signals the following:

- If $p \leq 0.05$, then the variable is considered not normally distributed, and
- If $p > 0.05$, then the variable is considered normally distributed.

Table 11: Normality Test Results (Author's own)

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Attitude	0,254	207	<,001	0,759	207	<,001
Subjective norm	0,142	207	<,001	0,889	207	<,001
Perceived behavioural control	0,205	207	<,001	0,869	207	<,001
Intention	0,242	207	<,001	0,778	207	<,001
Intrinsic motivation	0,196	207	<,001	0,826	207	<,001

a. Lilliefors Significance Correction

The results of the normality test, as per Table 11, highlight that all the variables are not normally distributed, as their Shapiro-Wilk test results are significant ($p < 0.05$), and that the study data variable is skewed (Chen & Xia, 2023). Therefore, as per Table 12, the median

was adopted as the most appropriate central tendency measure to adopt for the study data variables. The study data variable mean and standard deviation are presented in Table 13.

Variable	Items	Median	Interpretation
Attitude	ATT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Attitude, as reflected by an overall median of 4.67 that is closer to 5 than it is to 4.
	ATT2	5	
	ATT3	5	
	AVERAGE:	4,67	
Subjective norm	SBN1	4	The results indicate that at least 50% of the respondents tended to agree with the statements measuring Subjective Norm, as reflected by an overall median of 4.33 that is closer to 4 than it is to 5.
	SBN2	4	
	SBN3	5	
	AVERAGE:	4,33	
Perceived behavioural control	PBC1	4	The results indicate that at least 50% of the respondents tended to agree with the statements measuring Perceived Behavioural Control, as reflected by an overall median of 4.
	PBC2	4	
	PBC3	4	
	AVERAGE:	4	
Intention	INT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Intention, as reflected by an overall median of 4.67 that is closer to 5 than it is to 4.
	INT2	5	
	INT3	5	
	AVERAGE:	4,67	
Intrinsic motivation	MOT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Intrinsic Motivation, as reflected by an overall median of 4.5 that is closer to 5 than it is to 4.
	MOT2	5	
	MOT3	5	
	MOT4	5	
	AVERAGE:	4,5	

Table 12: Central Tendency Measure (Median) (Author's own)

Variable	Items	Mean	Std. Dev.
Attitude	ATT1	4,36	1,047
	ATT2	4,43	0,867
	ATT3	4,67	0,573
	AVERAGE:	4,49	0,692

Subjective norm	SBN1	4,18	0,925
	SBN2	4,24	0,755
	SBN3	4,41	0,724
	AVERAGE:	4,27	0,643
Perceived behavioural control	PBC1	3,76	1,25
	PBC2	3,75	1,233
	PBC3	3,91	1,205
	AVERAGE:	3,81	1,143
Intention	INT1	4,49	0,638
	INT2	4,5	0,66
	INT3	4,58	0,617
	AVERAGE:	4,52	0,575
Intrinsic motivation	MOT1	4,53	0,674
	MOT2	4,35	0,839
	MOT3	4,29	0,888
	MOT4	4,47	0,762
	AVERAGE:	4,41	0,675

Table 13: Central Tendency Measure (Mean) (Author's own)

5.4.2 Confirmatory composite analysis

The second part of the data validation process focused on the measurement models – that is, the relationship between the observed measures of indicators and latent variables or constructs (Brown, 2015). This relationship, part of the validity assessment, includes reliability, convergent and discriminant validity (Brown, 2015). Figure 17 provides the results of the outer model showing all factor loadings to be above 0.5 – that is, the observed measures are suitable for the respective variables.

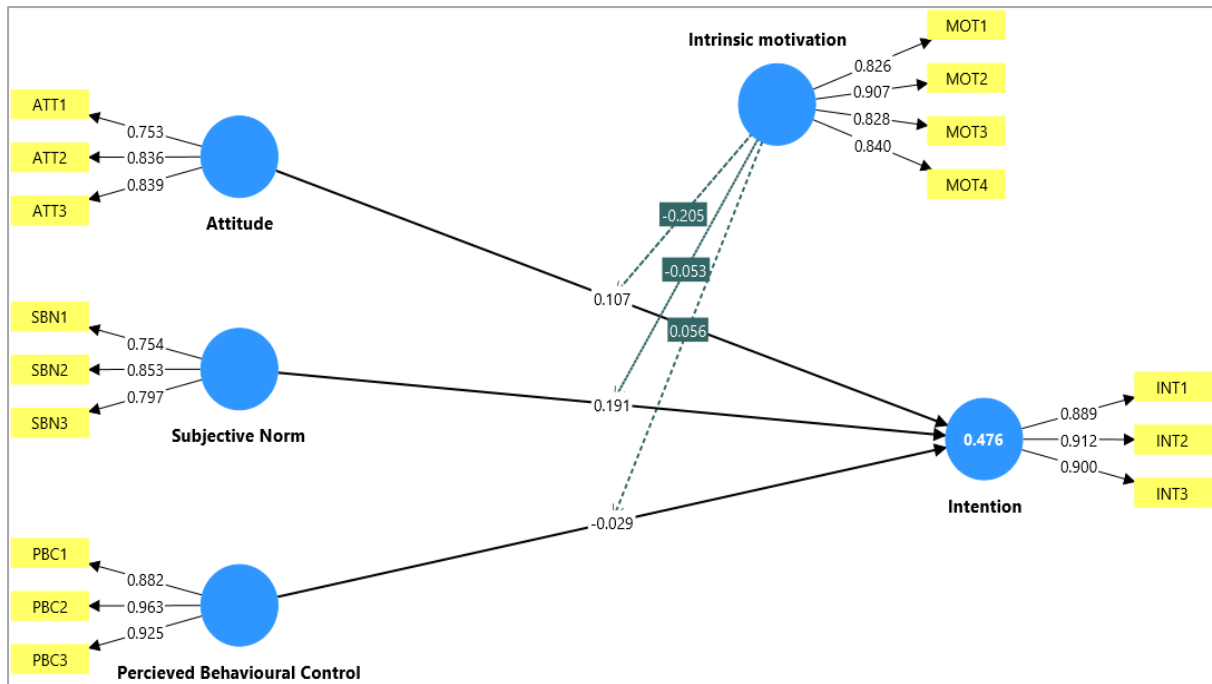


Figure 17: Outer Model Results (Author's own)

5.4.2.1 Reliability and convergent validity

The reliability assessment focuses on the stability and consistency of measurements over time (Taherdoost, 2018; Zhu et al., 2025) and in structural equation modelling studies, the Cronbach's Alpha and Composite Reliability (CR) were adopted to assess or measure the reliability, with a typical threshold of 0.7 required; although values as low as 0.6 may sometimes be accepted (Malhotra, 2019; Field, 2024).

Convergent validity is defined as the extent to which items measure a single latent construct in the same direction (Hosany et al., 2015); or "the extent to which the measures are capturing the same construct" (Zhu et al., 2025, p.220) and it is also examined to ensure that each set of items adequately represents its intended construct. Additionally, the Common Variance Bias Test was used to check for multicollinearity, indicated by Variance Inflation Factor (VIF) values below a threshold of 5.0 (Kock, 2015; Hair et al., 2019).

Constructs	Items	Loadings	VIF	P	Cronbach Alpha (α)	CR	AVE
Attitude	ATT1	0.753	1.852	***	0.753	0.851	0.656
	ATT2	0.836	2.15	***			
	ATT3	0.839	1.318	***			
	INT1	0.889	1.567	***	0.883	0.928	0.811

Intention	INT2	0.912	1.536	***			
	INT3	0.9	1.677	***			
Intrinsic motivation	MOT1	0.826	2.302	***	0.874	0.913	0.723
	MOT2	0.907	3.154	***			
	MOT3	0.828	2.134	***			
	MOT4	0.84	1.866	***			
Perceived behavioural control	PBC1	0.882	4.052	***	0.922	0.946	0.854
	PBC2	0.963	5.097	***			
	PBC3	0.925	2.777	***			
Subjective norm	SBN1	0.754	1.395	***	0.723	0.844	0.644
	SBN2	0.853	1.663	***			
	SBN3	0.797	1.382	***			

Table 14: Summary of Reliability and Convergent Validity Assessment Results Source: Author's own [P= p-value; α = Cronbach's Alpha and AVE= Average Variance Extracted; CR= Composite Reliability; VIF= Variance Inflation Factor (Collinearity Statistics)] (Author's

Table 14 presents the summary of the reliability and convergent validity assessment statistics for the variables in the SEM model. Reliability was assessed using Cronbach's Alpha (α) and Composite Reliability (CR), both of which exceed the 0.7 thresholds across all constructs, indicating satisfactory internal consistency (Malhotra, 2019; Field 2024); i.e.;

- Attitude has a Cronbach's Alpha of 0.753 and a CR of 0.851, demonstrating reliable measurement,
- Intention has a Cronbach's Alpha of 0.883 and a CR of 0.928, demonstrating reliable measurement,
- Intrinsic motivation has a Cronbach's Alpha of 0.874 and a CR of 0.913, demonstrating reliable measurement,
- Perceived behavioural control has a Cronbach's Alpha of 0.922 and a CR of 0.946, demonstrating reliable measurement, and
- Subjective norm has a Cronbach's Alpha of 0.723 and a CR of 0.844, also demonstrating reliable measurement.

The convergent validity was also supported, as all factor loadings met or exceeded 0.5, and the Average Variance Extracted (AVE) values for each construct were above the 0.5 threshold, signifying that each variable's items consistently measured their intended latent variable (Hosany et al., 2015) i.e.;

- Attitude has an AVE of 0.656,
- Intention has an AVE of 0.811,

- Intrinsic motivation has an AVE of 0.723,
- Perceived behavioural control has an AVE of 0.854, and
- Subjective norm has an AVE of 0.644.

5.4.2.2 Discriminant validity

Discriminant validity refers to the extent to which a variable is distinct from other variables in a model or the non-correlation of scale scores in measuring variables (Taherdoost, 2018; Schindler, 2022). This was done for this research study by comparing the inter-variable correlations with the square root of the Average Variance Extracted (AVE) for each variable (Fornell & Larcker, 1981).

	Attitude	Intention	Intrinsic motivation	Perceived behavioural control	Subjective norm
Attitude	0.81				
Intention	0.503	0.9			
Intrinsic motivation	0.454	0.512	0.851		
Perceived behavioural control	0.303	0.144	0.265	0.924	
Subjective norm	0.451	0.4	0.262	0.352	0.802

Table 15: Fornell & Larcker Intervariable Correlations (Author's own)

Additionally, the Heterotrait-Monotrait Ratio (HTMT) was used to further assess common variance between the variables, with values exceeding 0.9 suggesting potential issues with the discriminant validity (Henseler et al., 2015). As such, as per Table 15, there was no discriminant validity issue with the data as no HTMT coefficient exceeded 0.9; and all correlation coefficients (in Table 16) are lower than their respective square root AVEs.

	Attitude	Intention	Intrinsic motivation	Perceived behavioural

				control
Intention	0.573			
Intrinsic motivation	0.523	0.566		
Perceived behavioural control	0.414	0.13	0.295	
Subjective norm	0.589	0.494	0.326	0.44

Table 16: HTMT Ratio (Author's own)

5.5 Structural equation modelling

Structural equation modelling is a data analysis tool of covariance structure that is adopted in research data to explain the causality among variables (Schindler, 2022). In this research study, the structural model examined the path coefficients (β) and their level of significance, Coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Figure 18 depicts the structural model analysis of the study.

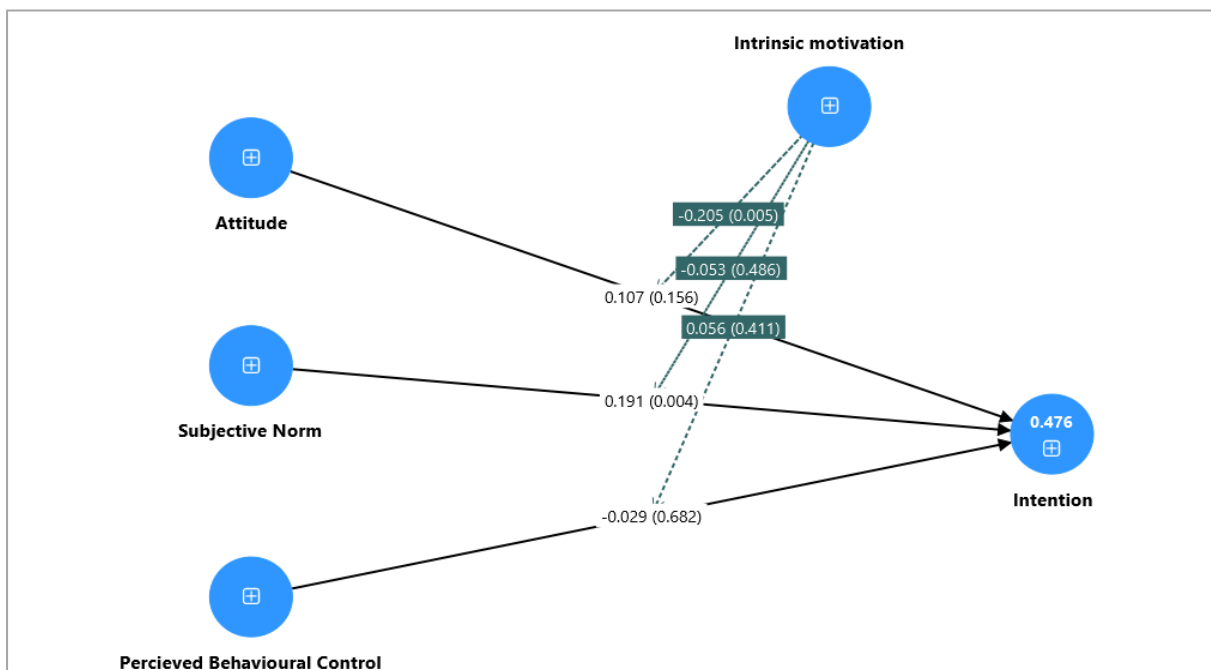


Figure 18: Research Study Structural Model (Author's own)

The structural model was developed and tested to evaluate the significance of the predictors, and a graphical representation of the model is presented of this analysis in Figure 18. In research data analysis, an R² value of 0.25 is generally considered moderate, while values above 0.5 are viewed as substantial (Hair et al., 2017). The results of this research study depict that the model explains 47.6% of the variance in Intention, which is moderate as per the findings depicted in Table 17.

	R-square
Intention	0.476

Table 17: Summarised Explanatory Power Analysis (Author's own)

5.5.1 Hypotheses testing

The research study was directed by four hypotheses as aligned to the research questions. The outcomes of the hypotheses are presented in this section, preceded by the standardised regression weights observation of the model's variable relationships, with the hypotheses' conclusions provided as per the structural modelling analysis.

Hypothesis (H1): Intrinsic motivation has a moderating effect on the relationship between attitude and intention to adopt emerging technologies.

Relationship	β	f-square	VIF	P values
Attitude -> Intention	0.107	0.012	1.849	0.156

Table 18: Standardised Regression Weights Attitude -> Intention (Author's own)

Observation: Attitudes does not influence Intention because the p-value (P= 0.156) is above 0.05, indicating that the relationship is statistically non-significant.

Hypothesis	Beta	P values
Intrinsic motivation x Attitudes -> Intention	- 0.205	0.005

Table 19: Intrinsic Motivation x Attitudes -> Intention Results (Author's own)

Conclusion: Intrinsic motivation negatively moderates with a β value of -0. 205 the relationship between Attitude and Intention because the p-value (p = 0.005) is below 0.05, indicating that

the relationship is statistically significant. The null hypothesis is rejected in support of the alternate hypothesis.

Hypothesis (H2): Intrinsic motivation has a moderating effect on the relationship between subjective norm and intention to adopt emerging technologies.

Relationship	β	f-square	VIF	P values
Subjective norm - > Intention	0.191	0.051	1.366	0.004

Table 20: Standardised Regression Weights Subjective Norm -> Intention (Author's own)

Observation: Subjective norm has a positive and significant impact on Intention with a β value of 0.191. The p-value ($P = 0.004$) confirms the statistical significance of that effect. Additionally, the $f^2 = 0.051$ indicates a small effect size.

Hypothesis	Beta	P values
Intrinsic motivation x Subjective norm -> Intention	- 0.053	0.486

Table 21: Intrinsic Motivation x Subjective Norm -> Intention Results (Author's own)

Conclusion: Intrinsic motivation does not moderate the relationship between Subjective norm and Intention because the p-value ($P = 0.486$) is above 0.05. This is indicating that the relationship is statistically non-significant. As a result, the null hypothesis is accepted and the alternate hypothesis is rejected.

Hypothesis (H3): Intrinsic motivation has a moderating effect on the relationship between perceived behavioural control and intention to adopt emerging technologies.

Relationship	β	f-square	VIF	P values
Perceived behavioural control -> Intention	- 0.029	0.001	1.301	0.682

Table 22: Standardised Regression Weights Perceived Behavioural Control -> Intention (Author's own)

Observation: Perceived behavioural control does not influence Intention because the p-value (P =0.682) is above 0.05, indicating that the relationship is statistically non-significant.

Hypothesis	Beta	P values
Intrinsic motivation x Perceived behavioural control -> Intention	0.056	0.411

Table 23: Intrinsic Motivation x Perceived Behavioural Control -> Intention Results (Author's own)

Conclusion: Intrinsic motivation does not moderate the relationship between Perceived Behavioural Control and Intention because the p-value (p= 0.411) is above 0.05. This is indicating that the relationship is statistically non-significant. As a result, the null hypothesis is accepted and the alternate hypothesis is rejected.

Hypothesis (H4): Intrinsic motivation has a significant statistical relationship with the intention towards behaviour to adopt emerging technologies.

Hypothesis	β	f-square	VIF	P values
Intrinsic Motivation -> Intention	0.325	0.128	1.573	0.000

Table 24: Standardised Regression Weights Intrinsic Motivation -> Intention (Author's own)

Conclusion: Intrinsic motivation has a positive and significant impact on Intention with a β value of 0.325. The p-value (P= 0.000) confirms the statistical significance of that effect. As a result, the null hypothesis is rejected in support of the alternate hypothesis.

5.5.2 Revised conceptual model

Based on the hypotheses testing, a revised conceptual model presented in Figure 19 showing the tested relationships; i.e., a) intrinsic motivation has a statistically significant negative moderation relationship between attitude and intention towards adopting emerging technologies, and b) intrinsic motivation has a statistically significant positive relationship with intention towards adopting emerging technologies.

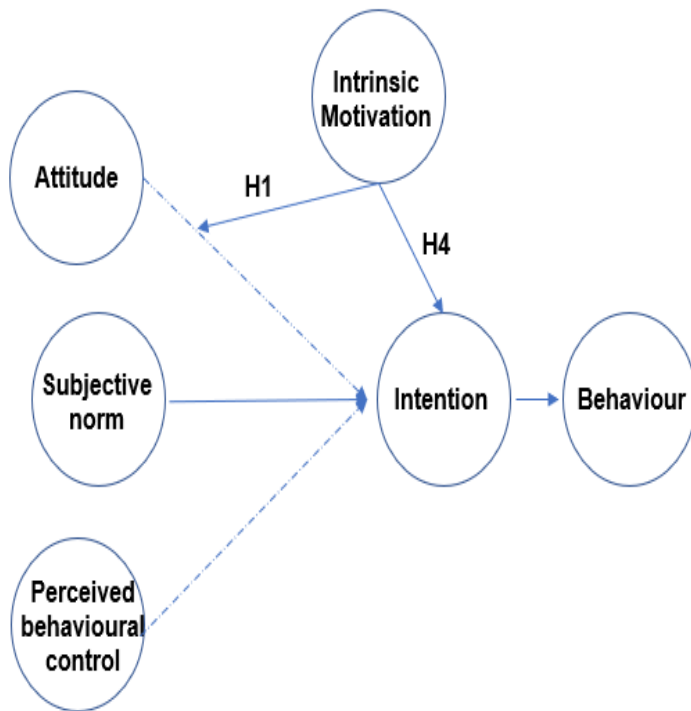


Figure 19: Revised Conceptual Model (Author's own)

5.6 Conclusion

This chapter provided the results of the study on the relationship intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). Using a self-administered questionnaire, the chapter aimed to provide insights and results that should impact and guide the nature of technology adoption.

The respondents' profile was dynamic enough with varying ages, a gender mix, location that was a combination of respondents from Bloemfontein and Welkom, levels across the organisation (from administration level to executives), tenure/service with institutional knowledge and a race mix that is typical of South Africa. The results require an interpretation that with such nuances.

The results of this chapter will be discussed in Chapter six with an opportunity to delve deeper into their findings against the literature in Chapter two. The importance of the chapter will be in the understanding the intention to adopt emerging technologies that is backed by the empirical findings; thus providing a backing of theoretical insights with the tested results for consideration in the higher education industry.

Chapter 6: Discussion

6.1 Introduction

The previous chapter of this research study provided the research results of the study on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). Table 25 provides the discussion roadmap for ease of reference that guided the systematic and thorough structure to ensure a meaningful and a detailed presentation.

Discussion Roadmap				
Headings & Sub-headings	6.1 Introduction	6.2 Summary of the Results	6.3 Attitude	6.4 Subjective Norm
	6.5 Perceived Behavioural Control	6.6 Intention	6.7 Hypotheses Testing & Research Questions	6.8 Conclusion

Table 25: Discussion Roadmap (Author's own)

6.2 Summary of the results

6.2.1 Data collection and rigour

The data collection and rigour of the study ensured that reliable and valid information was obtained about the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. The questionnaire utilised, post a piloting phase, aimed for instrument reliability and validity. The collected data was exported onto two statistical softwares for the descriptive and inferential data interpretation, and for the testing of the four hypotheses.

6.2.2 Conceptual framework

The study extended the Theory of Planned Behaviour (TPB) model by integrating intrinsic motivation on the model's variables; i.e., attitude, subjective norm, and perceived behavioural control to predict intention. The survey instrument was meticulously designed to assess these variables with statements guided by previous studies and questionnaires. The framework presented firstly, the moderating relationship intrinsic moderation has on attitude, subjective norm and perceived behavioural control, and secondly, the direct influence intrinsic motivation has on intention.

6.2.3 Validity of the results

The results of the study were validated with a number of statistical tests designed to provide credibility; i.e., normality test for central tendency, factor loading for the measurement of the models, reliability & convergent validity to assess adequate representation of intended variables, discriminant validity to compare inter-variable correlations, Heterotrait-Monotrait ratio for common variance testing, and structural modelling analysis for path coefficients, coefficient determination, effect size, & predictive relevance. Standardised regression was applied to observe the framework's variables relationships and to test the hypotheses.

6.2.4 Sample statistics and validation

207 was the final sample of the research study with the descriptive statistics highlighting the following demographic data; a) age: the majority of the survey respondents, 79,7%, were Millennials and Generations X, b) gender: 51,7% respondents were females, c) location: 78,7% of the respondents were located in Bloemfontein, d) level: the majority of the survey respondents, 70%, were in Academic/Lecturer and Administrative/Non-managerial roles, e) tenure/service: 44,4% of the respondents were +10 years in the service with the institution, and f) race: the majority of the survey respondents, 80,2%, were Black and White.

6.3 Attitude

Relationship	β	f-square	VIF	P values
Attitude -> Intention	0.107	0.012	1.849	0.156

Table 26: Standardised Regression Weights Attitude -> Intention (Author's own)

The findings of the research study revealed that attitude towards the intention to adopt emerging technologies did not have a statistically significant relationship with intention towards this behaviour (with a β value of 0.107 and a p-value of 0.156). This result of the study was neither intuitively nor conceptually expected since, as argued by Ajzen (2020), the three model's variables are the factors that should determine the intention to behaviour.

Variable	Items	Median	Interpretation
Attitude	ATT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Attitude, as reflected by an overall median of 4.67 that is closer to 5 than it is to 4.
	ATT2	5	
	ATT3	5	
	AVERAGE:	4,67	

Table 27: Attitude Survey Statements Median (Author's own)

Attitude in the model refers to the degree of favourability or unfavorability about a certain behaviour and it has direct impact on intention and the planned behaviour (Ajzen, 1991; Ajzen, 2020, Al Breiki, 2023). In the context of the study, the survey statements focused on three aspects of attitude towards adopting emerging technologies; i.e., easy, fun and positive. The variable therefore focused on understanding the favourable or unfavourable evaluations and response on the intended behaviour (Shirahada & Zhang, 2022; Wong & Tajudeen, 2024).

The absence of a statistically significant relationship further deviates from a number of empirical studies that have determined the impact of attitude on the intended behaviour. Shih et al. (2022) found that financial attitude did have a significant and positive effect on financial behavioural intention; albeit the study focused on a different form of attitude. Ataei et al. (2021) found in their application of the model that attitude was the most influential variable of intention whilst Nickell & Hinsz (2023) and Gong et al. (2025) also validated the relationship between the variables.

Since attitude forms part of the behavioural beliefs of the model (Chowdhury et al., 2025), the results perhaps shed complex perceptions about such attitude beliefs at the institution; i.e., the beliefs around the ease of emerging technologies, the fun attributed with the technologies and the sense of positiveness evoked by the technologies. The opportunity exists to further unearth the weak behavioural belief's statistical relationship.

Tiwari et al. (2023) extended the TPB model by adding perceived trust as an influencer on attitude intention and there was a positive and a significant relationship between the variables. It is therefore possible, in advancing the discussion on unearthing the weak behavioural relationship, that other variables that have been studied in theory to influence attitude can be introduced to strengthen the variables' relationship at the institution.

6.4 Subjective norm

Relationship	β	f-square	VIF	P values
Subjective norm -> Intention	0.191	0.051	1.366	0.004

Table 28: Standardised Regression Weights Subjective Norm -> Intention (Author's own)

The research study's findings revealed that subjective norm does have a positive and a statistically significant relationship with the intention to adopt emerging technologies (with a β value of 0.191 and a p-value of 0.156). The small effect size of $f^2 = 0.051$ was however an

interesting part of the result. This result of the study was both intuitively and conceptually expected since it further advanced the model's variables as factors that should determine the intention to behaviour (Ajzen, 2020).

Variable	Items	Median	Interpretation
Subjective norm	SBN1	4	The results indicate that at least 50% of the respondents tended to agree with the statements measuring Subjective Norm, as reflected by an overall median of 4.33 that is closer to 4 than it is to 5.
	SBN2	4	
	SBN3	5	
	AVERAGE:	4,33	

Table 29: Subjective Norm Survey Statements Median (Author's own)

Subjective norm is the societal factor that translates into peer pressure to perform or not to perform the intended behaviour (Ajzen, 1991; Shirahada & Zhang, 2022). The perceptions of people who are important to an individual are important in forming and framing the intention to perform or not to perform a behaviour (Granic, 2023). The survey statements of the study included these aspects of understanding subjective norms on the intention to adopt emerging technologies; i.e., perceptions of people important to the respondent, perception of their spouse/significant other, and perceptions of closest friend or family member.

The results corroborate a number of studies that have also observed the significant relationship subjective norm has on intention; e.g., Al Breiki (2023), Nickell & Hinsz (2023), and Gong et al. (2025). Even in a meta-analysis longitudinal study of on the theory, Hagger & Hamilton (2024) corroborated the variables stability over time; highlighting the impact indeed peer pressure has on personal perceptions.

Gong et al. (2025) argued that this variable is the most complicated and weakest in the theory since, from its original framework, it overlooked the relationship potential between attitude and subjective norm in particular situations. The small size effect of the statistical relationship with intention, as has been noted in other studies (Atatei et al., 2021), is perhaps a critical indication as well in this study; especially noting the lack of a significant relationship between attitude and intention.

Social beliefs then in the institution regarding the intent to adopt emerging technologies offer an institutional advantage towards driving the behaviour to adopt them. The understanding of the employee groups and communities that affected such beliefs can provide further avenues

and platforms to solidify individual judgements thus generating external influences towards technology transformation (Tiwari et al., 2024).

6.5 Perceived behavioural control

Relationship	β	f-square	VIF	P values
Perceived behavioural control -> Intention	- 0.029	0.001	1.301	0.682

Table 30: Standardised Regression Weights Perceived Behavioural Control -> Intention (Author's own)

Perceived behavioural control is another variable of the study that provided results that were both unexpected intuitively and conceptually. The variable did not have a positive and a statistically significant relationship with the intention to adopt emerging technologies (with a β value of -0.029 and a p-value of 0.682). This statistically non-significance details the lack of the variable's influence on attitude and subjective norm on intention (Ajzen, 2020).

This variable, part of the control beliefs, is related to an individual's perceptions on the ease or difficulty, or self-efficacy and controllability, towards the intention to adopt emerging technologies (Ajzen 1991; Ajzen, 2002). The survey statements of the study tested for perceptions of actual control, personal control and ability to adopt emerging technologies. Limited knowledge of actual control should guide the prediction of behaviour and perhaps the results further extended the individual assumptions of perceived control (Ajzen, 2020).

Variable	Items	Median	Interpretation
Perceived behavioural control	PBC1	4	The results indicate that at least 50% of the respondents tended to agree with the statements measuring Perceived Behavioural Control, as reflected by an overall median of 4.
	PBC2	4	
	PBC3	4	
	AVERAGE:	4	

Table 31: Perceived Behavioural Control Survey Statements Median (Author's own)

The literature and several research studies suggested a number of observations on perceived behavioural control; e.g., an increase in sample size may influence the results of the accuracy of the variable (Ma et al., 2023), the level of extensive control over a behaviour does impact behavioural intention (Nickell & Hinsz, 2023) and that perceived behavioural control did not influence the behavioural intention (Tiwari et al., 2024).

This result brings an interesting dimension on the control beliefs of the respondents and their perceptions of these beliefs on their intention to adopt emerging technologies. Line managers in the institution have an opportunity to investigate the states of actual and perceived control, against the perceptions of respondents' intention to adopt emerging technologies. The variations in the perceptions can be insightful to drive intended behaviour.

6.6 Intention

	R-square
Intention	0.476

Table 32: Summarised Explanatory Power Analysis (Author's own)

The structural model analysis of this study revealed that the model explained 47,6% of the variance in intention to adopt emerging technologies. This R^2 value is above 0.25 which is generally considered to be moderate; whilst still below, yet closer, to 0.5, which is considered substantial. This result is therefore moderate enough to have confidence in the model that it did measure the desired intention of the study.

Variable	Items	Median	Interpretation
Intention	INT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Intention, as reflected by an overall median of 4.67 that is closer to 5 than it is to 4.
	INT2	5	
	INT3	5	
	AVERAGE:	4,67	

Table 33: Intention Survey Statements Median (Author's own)

6.7 Hypotheses testing

The aim of the study was to analyse quantitatively the relationship of intrinsic motivation on the intention to adopt emerging technologies within a UoT. The hypotheses of the study were developed so the hypothesised moderation relationship of intrinsic motivation is tested on attitude, subjective norm and perceived behavioural control. Further, a relationship of intrinsic motivation, as an extension to the model was hypothesised. The discussion on the results of the hypotheses are presented in this section, further building on to the variables discussion presented earlier in this chapter.

6.7.1 Hypothesis 1

Hypothesis 1	Intrinsic motivation has a moderating effect on the relationship between attitude and intention to adopt emerging technologies
Relationship	Intrinsic motivation x Attitudes -> Intention
Regression Coefficient	-0.205
Significance (p-value)	0.005
Null hypothesis rejected?	Yes

Table 34: Intrinsic Motivation x Attitudes -> Intention Results (Author's own)

The results of the hypothesis test detailed that intrinsic motivation negatively moderates the relationship between attitude and intention with a β value of -0.205. Also, the moderated relationship between attitude and intention is statistically significant with a p-value of 0.005; which is below 0.05. This therefore means the null hypothesis is rejected in support of the alternate hypothesis.

Whilst the impact of intrinsic motivation on attitude was intuitively and conceptually expected, the negative type of moderation was an outlier. This type of motivation deals with the aspects of performing an activity for the sake of it, the internal satisfaction it generates outside of some consequences (Ryan & Deci, 2000; Sun & Gao, 2020). The result that intrinsic motivation decreases the strength of the relationship between attitude and intention has a theoretical implication from this study.

This may be influenced by the earlier finding that attitude towards the intention to adopt emerging technologies did not have a statistically significant relationship with intention. The negative moderation relationship of intrinsic motivation on this relationship may detail that the respondents' behavioural beliefs, which did not have a statistically significant relationship with intention, were weakened by the strength of intrinsic motivation. Intrinsic motivation has been observed though, in a study, to not have a direct influence on behavioural intention (Sun & Gao, 2020).

A pivotal point of this result flags the importance of understanding the dynamic nature of intrinsic motivation since it can vary from day to day as influenced by specific work goals or tasks (Zhou & Shang, 2024; Wu & Wang, 2025). The specific-point-in-time nature of this study

may perhaps reveal the variation of the variable in the institution at the point of conducting the study thus signalling an opportunity for the line management to further understand this variation.

Linking then the results of the relationship between attitude and intention, an understanding of the nature of this relationship is key to further investigating the state of employee and task engagement (Wu & Wang, 2025), state of employee relations and levels of unfair treatment (Kim et al., 2020), and the mental fatigue and well-being of the employees (Herlambang et al., 2021).

6.7.2 Hypothesis 2

Hypothesis 2	Intrinsic motivation has a moderating effect on the relationship between subjective norm and intention to adopt emerging technologies
Relationship	Intrinsic motivation x Subjective norm -> Intention
Regression Coefficient	-0.053
Significance (p-value)	0.486
Null hypothesis rejected?	No

Table 35: Intrinsic Motivation x Attitudes -> Intention Results (Author's own)

The results of the hypothesis test detailed that intrinsic motivation does not moderate the relationship between subjective norm and intention with a β value of -0.053. Also, the moderated relationship between subjective norm and intention is not statistically significant with a p-value of 0.486. This therefore means the null hypothesis is accepted, and the alternate hypothesis is rejected.

In studies before that have observed subjective norm and intrinsic motivation; Qin & Tao (2021) found that attitude, subjective norm and intrinsic motivation were significant antecedents for intention on retention of music teachers in China, whilst Gao et al. (2023) found that on farmers, intrinsic motivation based on joy and responsibility – together with attitude, subjective norm and perceived behavioural control, do influence each other towards intention. It is therefore interesting that in this study that the relationship results offer a non-significant relationship.

As discussed, subjective norm did have a positive and statistically significant relationship with the intention to adopt emerging technologies. The introduction of intrinsic moderator as moderator was intuitively and conceptually expected to further positively strengthen the relationship. This may be partially explained by the true nature of intrinsic motivation – acting in the absence of external goals or rewards (Kiefer, 2025) such as subjective norm.

There is perhaps then a delineation in this study for the line managers to appreciate the impact and relationship of doing an activity for its own sake and the social beliefs about the same activity. This result's intricate relationship and balance of these variables in this study has practical implications for future understanding, especially on the emerging technologies' perceived usefulness by others and other motivational constructs (Ateş & Gündüzalp, 2025).

6.7.3 Hypothesis 3

Hypothesis 3	Intrinsic motivation has a moderating effect on the relationship between perceived behavioural control and intention to adopt emerging technologies
Relationship	Intrinsic motivation x Perceived behavioural control -> Intention
Regression Coefficient	0.056
Significance (p-value)	0.411
Null hypothesis rejected?	No

Table 36: Intrinsic Motivation x Attitudes -> Intention Results (Author's own)

The results of the hypothesis test detailed that intrinsic motivation does not moderate the relationship between perceived behavioural control and intention with a β value of 0.056. Also, the moderated relationship between perceived behavioural control and intention is not statistically significant with a p-value of 0.411. This therefore means the null hypothesis is accepted, and the alternate hypothesis is rejected.

Again, the result of this hypothesis was intuitively and conceptually unexpected. This was also at the back of the result on the same variable not having a positive and a statistically significant relationship with the intention to adopt emerging technologies. The lack of a statistical influence of intrinsic motivation on an individual's perceptions regarding the ease or difficulty of adopting emerging technologies elevates perhaps the need to further deepen the studies on such variables in the context of the research.

McCarrick et al. (2024) provided evidence that perceived behavioural control may change and shift as per the nature of the intended behaviour over time. The time factor therefore cannot be overlooked in this study as assessing this variable consistently may perhaps lead to a different result. Park & Kim (2025) also flagged that resources and opportunities to perform a behaviour will influence perceived behavioural control.

The efficacy therefore of intrinsic motivation to not significantly moderate this variable statistically has implication for line managers on viewpoints of respondents about the convenience and challenges associated with the intention to adopt emerging technologies (Gong et al 2025). There may be factors unique to the institution that are affecting perceptions of actual and perceived control.

6.7.4 Hypothesis 4

Hypothesis 4	Intrinsic motivation has a significant statistical relationship with the intention towards behaviour to adopt emerging technologies
Relationship	Intrinsic Motivation -> Intention
Regression Coefficient	0.325
Significance (p-value)	0.000
Null hypothesis rejected?	Yes

Table 37: Intrinsic Motivation x Attitudes -> Intention Results (Author's own)

The result of this hypothesis test detailed that, within a model that explained 47,6% of the variance in intention to adopt emerging technologies, intrinsic motivation does have a statistically significant relationship with the intended behaviour. The β value from the testing was 0.325 and with a p-value of 0.000. This therefore means the null hypothesis is accepted, and the alternate hypothesis is rejected.

Variable	Items	Median	Interpretation
Intrinsic motivation	MOT1	5	The results indicate that at least 50% of the respondents tended to strongly agree with the statements measuring Intrinsic Motivation, as reflected by an overall median of 4.5 that is closer
	MOT2	5	
	MOT3	5	
	MOT4	5	

	AVERAGE:	4,5	to 5 than it is to 4.
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Table 38: Intrinsic Motivation Survey Statements Median (Author's own)

Overall, the hypothesis results were intuitively and conceptually expected. The continuous critic of human behaviour towards understanding motivation (Deci, 1971; Remic 2022) has been enhanced by the moderating quality of intrinsic motivation in the TPB. The positive feelings generated by intrinsic motivation, its inherent interest descriptor of task performance, is solidified as an influencer of intention (Deci & Ryan, 2008; Ryan & Deci, 2020; Zheng et al., 2022).

Intention has been presented in Chapter 2 as the antecedent of the performance of a behaviour and it has been noted in literature as the best predictor of actual behaviour (Nayak et al., 2025). There have also been numerous studies conducted on the continued impact on intention by intrinsic motivation even post the observation of the intended behaviour (Oliveira et al., 2022). The richness of this hypothesis rests on appreciating the ability to influence then intention by focusing on intrinsic motivation.

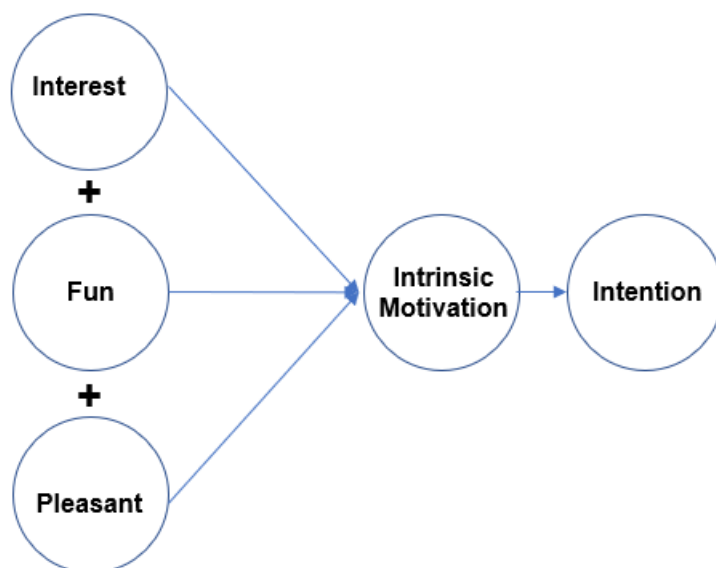


Figure 20: Extended Diagrammatic Representation of Intrinsic Motivation (Author's own)

A diagrammatic representation of intrinsic motivation was also presented in Chapter 2 on the three deduced characteristics of intrinsic motivation based on definitions of the concept; i.e., interest, fun, and pleasant (Ryan & Deci, 2020; Zheng et al., 2022; Hubley et al., 2024). Figure 20 has now extended this diagrammatic representation by incorporating the results of the

statistically significant relationship between the concept and intention to behaviour; that is that intrinsic motivation does mediate intention.

This extended representation has potential significant impact the role of intrinsic motivation on the adoption of emerging technologies. The impact is on the empirical outcome which signals that the intelligent nature of individuals to act on a behaviour can be cultivated from a point of interest and enjoyment without the availability of outside goals or external reward (Hubley et al., 2024; Kiefer, 2025).

Building on this understanding then, line managers can be confident about the preferred nature of intrinsic motivation towards the delivery of a performance or an outcome (Hubley et al., 2024). This confidence in the daily operations of an organisation is solidified by research that shows task autonomy on intrinsically motivated individuals can further improve performance or outcome (Freyer et al., 2025).

The dynamic nature that will be brought on in organisations by emerging technologies will require, at an individual level, powerful variables that like intrinsic motivation towards attainment of goals and objective (Khan et al., 2025). At an organisation and country level, social interactions will be adapted and more regulations may be required to regulate them in various industries (Barra et al., 2024).

The nimble and novel nature of emerging technologies is further going to impact business models forcing proactive and reactive adaptations for industry competitiveness (Wei et al., 2022; Ali et al., 2024). Business models therefore precipitated by emerging technologies will be costly, with a potential to change the future capabilities required for identify, allocate and deploy them (Wei et al., 2022; Ajigini & Chinamasa, 2022).

In the higher education sector, the same impact is observed on the impact of emerging technologies to impact the manner with which employees at these organisations live and work and the paradigm shifts that will be associated with the impact (Burim, 2025). Academic practices of teaching and learning will be altered in light of the new demands placed on the sector to deliver meaningful programs and high-quality graduates (v et al., 2024). The sector's challenges of acceptance and adoption of technology (Ahmad et al., 2023) will require employees that are able to display interest, fun and pleasantness in the intention to adopt such emerging technology.

This study has contributed to the exploration the importance of motivational factors that have been noted in other research to drive innovation (Kandoth & Shekhar, 2025). It has further built on the research of the impact of intrinsic motivation on adoption and use of technology (Brashi, 2025). The value of observing human factors aimed at increasing employee engagement and a digital work environment (Wong & Tajudeen, 2025) has been tested and it is concluded in this study that intrinsic motivation does indeed underpin the intentional behaviour towards the adoption of technology (Brashi, 2025).

6.7.5 Final study model

This research study was guided by a conceptual framework that was presented in Chapter 2. The framework conceptualised the hypotheses on intrinsic motivation arguing that attitude, subjective norm and perceived behavioural control were moderated by intrinsic motivation. Further, the framework conceptualised that there is a direct statistically significant relationship between intrinsic motivation and the intention to adopt emerging technologies.

The final study model then is a culmination of this research study presenting the relationships on the intention on behaviour to adopt emerging technologies. The model shows that; a) attitude does not have a positive statistically significant relationship with intention, b) subjective norm does have a positive and a statistically significant relationship with intention, c) perceived behavioural control does not have a positive and a statistically significant relationship with intention, d) intrinsic motivation negatively moderates the relationship between attitude and intention, and e) intrinsic motivation does have a statistically significant relationship with the intended behaviour.

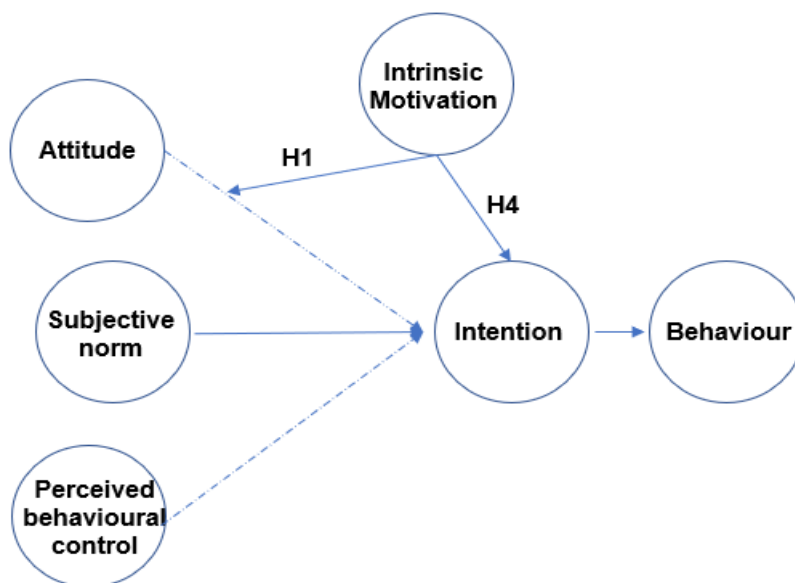


Figure 21: Final Study Model Source: Author's own (adapted from Ajzen, 1991)

This model can then be considered for crafting the journey towards the intention to implement emerging technologies. It crafts the strategic picture for considerations of the TPB model's variables for successful adoption and improvement on emerging technologies adoption. The interplay, or lack thereof in some instances, requires careful attention as an implication to the line managers and other stakeholders.

6.7.6 Research questions

There were four questions that guided the development and executing of this study to analyse quantitatively the relationship of intrinsic motivation on the intention to adopt emerging technologies within a UoT. The research questions are advanced again in this section with answers provided to each question as per the hypotheses testing and the final study model presented in the preceding subsections.

Question 1: How does intrinsic motivation influence the relationship between attitude and the intention to adopt emerging technologies?

- The answer to this research question is presented in hypotheses 1. Intrinsic motivation negatively moderates the relationship between attitude and intention. This is coupled by an outcome of the study which revealed that attitude towards the intention to adopt emerging technologies did not have a statistically significant relationship with intention towards this behaviour.

Question 2: How does intrinsic motivation influence the relationship between subjective norm and the intention to adopt emerging technologies?

- The answer to this research question is presented in hypotheses 2. Intrinsic motivation does not moderate the relationship between subjective norm and intention. Additionally, however, subjective norm does have a positive and a statistically significant relationship with the intention to adopt emerging technologies

Question 3: How does intrinsic motivation influence the relationship between perceived behavioural attitude and the intention to adopt emerging technologies?

- The answer to this research question is presented in hypotheses 3. Intrinsic motivation does not moderate the relationship between perceived behavioural control and intention. Also, perceived behavioural control does not have a positive and a statistically significant relationship with the intention to adopt emerging technologies.

Question 4: How does intrinsic motivation influence the intention to adopt emerging technologies?

- The answer to this research question is presented in hypotheses 4. Intrinsic motivation does have a statistically significant relationship with the intention towards behaviour to adopt emerging technologies.

6.8 Conclusion

This chapter discussed the results of the study on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT. Chapter 7, the final chapter, synthesizes the main conclusions of the study with focus on principal theoretical conclusions, practical research contributions, recommendations for management and/or other stakeholders, the limitations of the research study, and the suggestions for future research.

Chapter 7: Conclusion

7.1 Introduction

Chapter 6 of this research study provided the research results discussion of the study on the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market university of technology (UoT). This chapter then aims to synthesize the main conclusions and it is presented as follows: a) first, the principal theoretical conclusions are provided with practical implications, b) second, the practical research contributions are discussed, c) third, recommendations for management and/or other stakeholders are presented, d) fourth, the limitations of the research study are highlighted and, e) fifth, suggestions for future research conclude the chapter.

7.2 Principal theoretical conclusions

This research study's principal theoretical conclusions are based on the Theory of Planned Behaviour (TPB) (Ajzen, 1991), particularly within the higher education industry aiming to adopt emerging technologies to ensure competitiveness and sustainability. The theory argues that attitude, subjective norm, and perceived behavioural control as antecedents for intention; and intention being the best predictor of actual performance. The significance of these variables in emerging technologies adoption behaviour has been further empirically tested.

Conclusions (Hypothesis 1): Attitude in this study did not have a statistically significant relationship with intention towards this behaviour. This intuitively and conceptually unexpected finding has theoretical implications for the understanding of attitude as the model's predictor of intention, and the contracts in these results; which may be linked to the study's context or nature.

The finding also of Intrinsic motivation that it negatively moderated the relationship between attitude and intention is an additional theoretical implication from the study. The nature of a intrinsic motivation to positively motivate attitude and intention presents further theoretical implications in this study; especially within the unexpected finding of the statistically insignificant relationship between attitude and intention.

Conclusions (Hypothesis 2): Subjective norm has been tested to have a positive and a statistically significant relationship with the intention to adopt emerging technologies. This relationship was intuitively and conceptually expected to validate the theory's predictive

strength. Social beliefs in the literature presented did show the impact this variable has on influencing intention.

Another observation though was that intrinsic motivation did not moderate the relationship between subjective norm and intention presenting another contrast in the study's results. Aligned to the above theoretical conclusion, this contrast needs further empirical analysis towards extrapolating the non-significance and providing theoretical insights on the lack of influence on social beliefs. Work environments are social in nature and this conclusion hinges on the understanding of social beliefs at work.

Conclusions (Hypothesis 3): Perceived behavioural control has been tested and it did not have a positive and a statistically significant relationship with the intention to adopt emerging technologies. This was another intuitively and conceptually unexpected result of the study has theoretical implications on the control beliefs and their potential to influence intended behaviour.

The results of the hypothesis test detailed that intrinsic motivation does not moderate the relationship between perceived behavioural control and intention. Building on the results of the relationship between perceived behavioural control and intention, this outcome of this hypothesis extends the theoretical conclusions to include individuals' perceptions on actual and perceived control.

Conclusions (Hypothesis 4): This hypothesis showed that intrinsic motivation did have a statistically significant relationship with the intention to adopt emerging technologies. The result was intuitively and conceptually expected because of the true nature of intrinsic motivation on individuals who perform a task for its inherent enjoyment because of the interest, fun and pleasant nature.

The focus on the human factors that underpin emerging technologies adoption by elevating the role of intrinsic motivation in this study. The continuous business landscape in the higher education sector will continue to call for innovative and sustainable policies and practices for sustainable adoption of such technologies. The identification then of intrinsic motivation as an empirical human factor towards achievement of this success is a theoretical conclusion aimed at further broadening the knowledge of about the predictive power of intrinsic motivation in this dynamic and digitally transforming world.

7.3 Research contributions

This study's research contributions are on the body of knowledge of the TPB (Ajzen, 1991), and its variables, with a particular focus on the HEI and universities of technology. The distinct nature of the university, location and context of the institution offer invaluable insights on the application of the theory in the industry to predict intended behaviour on emerging technologies.

The nature of the relationships of the variables has been further expanded upon, showing the relationships being not as predictable as in a number of studies. The unpredictability nature then of the variables contributes to researchers to identify, anticipate and address any relationship contradictions from theory – and to further expect these contradictions in predicting behaviour.

Finally, the introduction of intrinsic motivation as an additional variable to the framework has significant implication for the management of emerging technologies adoption in the institution and potentially in higher education. The continued complexity of human behaviour is a phenomenon for business research that aims to ensure improved performance, innovation and competitiveness.

7.4 Recommendations for management and/or other stakeholders

There are definitely key recommendations that arise from this study for line management and other stakeholders within the higher education sector. This presentation is done so to sustain the acquiring, application and adoption of emerging technologies in the sector. The financial investments driven by emerging technologies will be substantial and the following six recommendation are aimed at an improved return of investment.

Recommendation 1: Line management at the university is encouraged to expand the employee engagement assessment to provide details on employee attitudes, subjective norm and perceived behavioural control on the intention to adopt emerging technologies. The feedback on this assessment can bolster management to take proactive measures that will ensure improved adoption rates of the technology.

Recommendation 2: A clear and transparent strategy and plan on the adoption of emerging technologies in the institution. The strategy should be informed by an emerging technologies maturity matrix – attempting to understand the level of maturity in the institution adopt new and novel technologies. The level of maturity can craft the 'as-is' status and the 'to-be'

strategy; from which a plan of action can be adopted with clear milestones and guidelines on technology adoption.

Recommendation 3: A change management approach is recommendation for the strategy and plan towards becoming an institution that is agile and nimble to transformation. This approach should be best on change management practices and principles of elevating the awareness for change, crafting the case for change for all stakeholders, providing the knowledge and competence towards the desired future state and the implementations to reinforce the change in the future.

Recommendation 4: Whilst extrinsic motivation remains critical in driving human performance, this study has elevated the importance of intrinsic motivation as well. In order to drive the sense of interest, fun and pleasantness on emerging technologies, policies and procedures on emerging technologies should create a sense of autonomy, creativity in the workplace to encourage curiosity on the technologies.

Recommendation 5: Line management is also encouraged to advance the nature of the UoT by incorporating emerging technologies, and their adoption, in the strategy and vision of the university. Being deliberate about being a technology university should be clearly crafted and pronounced in the strategy document. An opportunity also exists with further extending this nature to the philosophy and value of the institution.

Recommendation 6: Expanding the sphere of collaboration on emerging technologies is further recommendation through the creating of ecosystems that foster collaboration with other higher education institutions, government and the public. Ecosystem, built on sound governance, can bring brand and revenue benefits for the university as it builds internal technology capabilities.

7.5 Limitations of the research

Whilst the research study aimed at exploring the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT, there were several limitations which need to be considered when interpreting the study results. The seven identified areas of limitations are discussed in this section with considerations and recommendation on improving future research studies.

Firstly, the study focused on a single-setting UoT located in the Free State province, which thus impacts the results to be directly applicable or to predict intention to adopt emerging technologies in other institutions of higher learning. The specific context of the study needs to be understood and appreciated, thus providing a possible platform for similar research in other UoTs, and public or private higher institutions of learning.

Secondly, the study was focused in an emerging market towards contributing and improving empirical knowledge in international business. The tapestry of knowledge that awaits to be woven by researchers in emerging markets remains a source for future competitive advantage. Whilst this limitation refers to South Africa, which has a context and unique history that has shaped the HEI, the results of the study need to be interpreted in this context with an opportunity to build on the knowledge across other emerging markets.

Thirdly, the size of the sample provides a limitation for the study. There were various attempts to improve participation to ensure 95 per cent confidence of the data with a margin of error rate of 5 per cent. The interpretation therefore of the results must be within this reality so not to overgeneralise the results. The data however provides an academic opportunity and signal that may be improved upon with a much larger sample.

Fourthly, further affecting the size of sample was the time frame for the research study. The set time frame allowed for a data collection period of six weeks within an institution with limited ability to access it and drive 'on the ground' encouragement, excitement and participation. There may be new insights drawn from a larger sample size which creates an opportunity in expanding the time frame for a future similar study.

Fifthly, the size of the sample also impacted the ability for the data to be inferred beyond the overall sample size, i.e., the ability to test the relationships of the variables across the demographic population of age, gender, location, level, tenure/service, and race. There are rich insights to be drawn from such data as there may well be variations for line managers and stakeholders to note, thus impacting the strategies employed to deploy emerging technologies at the institution – or other institutions.

Sixthly, the type of research method that was adopted for the study presents a limitation that must be considered in interpreting the results. The method provided for an online self-administered questionnaire with predetermined statements for analysis. This method, by its very nature, did not provide for additional inputs from the participants outside of the survey statement thus limiting the ability to further shape the research data.

And lastly, as part of the research methodology, this study employed a cross-sectional design which provides for research to be conducted at a particular time. This snap-shot approach, whilst important in testing for the current reality, may limit the observation of the phenomenon being studied over a period of time. Consideration then to be employed in reading the results with future opportunities of probing the variables' relationships should the study be longitudinal in nature.

7.6 Suggestions for future research

Building on the limitations of this research to study the relationship of intrinsic motivation on the intention to adopt emerging technologies in an emerging market UoT, Table 39 presents the suggestions for future research further incorporating the gaps and challenges identified in the literature.

Research area	Commentary
Higher education	
Comparative studies across UoTs, private and public institutions of higher learning	A comparative analysis across other UoTs, private and public institutions may help unearth understanding of technology adoption in this industry with the potential to generalise the results for the South African higher education industry
Comparative studies across emerging markets in Southern Africa and Africa	An analysis on the emerging markets across Southern Africa and Africa will build on empirical research on adoption of technology in the region to drive future investments and improve adoption rate of this technology in higher education and other sectors
Technology adoption	
Faculty and student adoption of technology	Future research in South Africa and emerging markets can explore intrinsic motivation and other human factors impacting technology adoption across administration, faculty and student populations
Complementing the TPB with other technology adoption frameworks	The TPB can be complemented with other theories to investigate technology adoption efficacies; e.g., the technology acceptance model; the technology organisation environment, the diffusion of innovation, & the unified theory of acceptance and use of technology; further broadening the

	variables of attitude, subjective norm and perceived behavioural control.
Intrinsic motivation	
Expanding the TPB model to include extrinsic motivation	The concept of motivation can be fully tested on the TPB model to assess the interplay of both intrinsic and extrinsic motivation on technology adoption in emerging markets
Other individual and organisational factors	
Enhance the model with other individual and organisational factors	There may be other individual and organisational factors that can be assessed; e.g., personal beliefs, psychological safety, institutional culture, institutional strategy, governance, team effectiveness, and leadership, to understand their mediating or moderating effect on the adoption of technology
Research design	
Longitudinal study	The observation of the intention to adopt emerging technologies can be extended in future with a longitudinal study to observe the relationship changes in the variables.
Mixed-method study	Enhancing the quantitative method of this study, a mixed-method approach should be explored to provide an inductive validation of the outcomes of the variables; thus building an empirically comprehensive status of the nature of emerging technologies adoption behaviour.

Table 39: Suggestions for Future Research (Author's own)

7.7 Concluding remarks

In concluding with the aim of the study, the strategic impact of intrinsic motivation in the adoption of emerging technologies was provided with empirical examination conducted for institutions of higher learning in South Africa. This impact was presented through the lens of the Theory of Planned Behaviour. The growth of this novel technology in the industry, and across the globe, will continue to shape the delivery of teaching and learning in these institutions. The higher education industry can review the practical applicability of this study to strategically reinforce their institutions towards competitiveness and sustainability.

Furthermore, the study's conclusions provide the consideration of intention, subjective norm and perceived behavioural for line managers in universities and how intrinsic motivation impacts on the intention for the desired behaviour. The possibility therefore remains, in

conclusion, to expand on the concept of motivation by studying the interplay of both intrinsic and extrinsic motivation in significantly influencing the intentional behaviour to adopt emerging technologies in the emerging markets' institutions of higher learning.

REFERENCES

Abeer, Q. (2021). Influencing Factors in M-Learning Adoption in Higher Education. *Education and Information Technologies*, 26(2), 1755-1785. <https://doi.org/10.1007/s10639-020-10323-z>

Abeysekera, I., & Sharma, R. (2023). Activity-based costing technology adoption in Australian universities. *Frontiers in psychology*, 14, 1168955. <https://doi.org/10.3389/fpsyg.2023.1168955>

Abu-Shanab, E. A., & Maduku, D. K. (2022). Drivers of Social Media Networking Site Continuance Intention in Jordan and South Africa: Do National Cultural Differences Matter? *International Journal of E-Services and Mobile Applications (IJESMA)*, 14(1), 1–29. <https://doi.org/10.4018/IJESMA.295961>

Adu-Gyamfi, G., Song, H., Nketiah, E., Obuobi, B., Adjei, M., & Cudjoe, D. (2022). Determinants of adoption intention of battery swap technology for electric vehicles. *Energy*, 251. <https://doi.org/10.1016/j.energy.2022.123862>

Agyei, V., Adom-Asamoah, G., Nanor, M. A., & Poku-Boansi, M. (2025). Understanding walking behaviour from an African context through the lenses of the theory of Planned behaviour. *Transportation Research Part F: Psychology and Behaviour*, 113, 143-157. <https://doi.org/10.1016/j.trf.2025.04.027>

Ahmad, S., Mohd Noor, A. S., Alwan, A. A., Gulzar, Y., Khan, W. Z., & Reegu, F. A. (2023). eLearning Acceptance and Adoption Challenges in Higher Education. *Sustainability*, 15(7), 6190. <https://doi.org/10.3390/su15076190>

Aithal, R. K., Choudhary, V., Maurya, H., Pradhan, D., & Sarkar, D. N. (2023). Factors influencing technology adoption amongst small retailers: insights from thematic analysis. *International Journal of Retail & Distribution Management*, 51(1), 81-102. <https://doi.org/10.1108/IJRDM-02-2022-0042>

Ajigini, O. A., & Chinamasa, T. J. W. (2023). Modelling Digital Transformation Within the Financial Sector: A South African Perspective. *Information Resources Management Journal (IRMJ)*, 36(1), 1–20. <https://doi.org/10.4018/irmj.320642>

Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behavior and Human Decision Processes*, 50, 179-211.

Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior¹. *Journal of Applied Social Psychology*, 32(4), 665-683. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>

Ajzen, I. (2006) *Constructing a Theory of Planned Behaviour Questionnaire: Conceptual and Methodological Consideration*.
<http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314-324. <https://doi.org/10.1002/hbe2.195>

Ajzen, I., & Sheikh, S. (2013). Action versus inaction: anticipated affect in the theory of planned behavior. *Journal of Applied Social Psychology*, 43(1), 155-162. <https://doi.org/10.1111/j.1559-1816.2012.00989.x>

Akanksha Jaiswal, C. J. A. A. V. (2022). Rebooting employees: upskilling for artificial intelligence in multinational corporations. *The International Journal of Human Resource Management*, 33:6, 1179-1208. <https://doi.org/10.1080/09585192.2021.1891114>

Akhter, S., Rather, M. I., & Zargar, U. R. (2024). Understanding the food waste behaviour in university students: An application of the theory of planned behaviour. *Journal of Cleaner Production*, 437. <https://doi.org/10.1016/j.jclepro.2024.140632>

Al Breiki, M., Al Abri, A., Al Moosawi, A. M., & Alburaiqi, A. (2023). Investigating Science Teachers' Intention to Adopt Virtual Reality through the Integration of Diffusion of Innovation Theory and Theory of Planned Behaviour: The Moderating Role of Perceived Skills Readiness. *Education and Information Technologies*, 28(5), 6165-6187. <https://doi.org/10.1007/s10639-022-11367-z>

Al-Riyami, T., Al-Maskari, A., & Al-Ghnimi, S. (2023). Faculties Behavioural Intention Toward the Use of the Fourth Industrial Revolution Related-Technologies in Higher Education Institutions. *International Journal of Emerging Technologies in Learning (iJET)*, 18(07), 159-177. <https://doi.org/10.3991/ijet.v18i07.37051>

Al-Samarraie, H. (2019). A Scoping Review of Videoconferencing Systems in Higher Education: Learning Paradigms, Opportunities, and Challenges. *International Review of Research in Open and Distributed Learning*, 20(3), 121–140

Alfuqaha, O. A., Shunnar, O. F., Khalil, R. A., Alhalaiqa, F. N., Thaher, Y. A., Al-Masarwah, U. M., & Al Amad, T. Z. (2023). Work alienation influences nurses' readiness for professional development and willingness to learn: A cross-sectional correlation study. *PloS One*, 18(5), e0284963. <https://doi.org/10.1371/journal.pone.0284963>

Ali, S. S., Kaur, R., Gupta, H., Ahmad, Z., & Elnaggar, G. (2024). Determinants of an Organization's Readiness for Drone Technologies Adoption. *IEEE Transactions on Engineering Management*, 71. <https://doi.org/10.1109/TEM.2021.3083138>

Alqassab, M., & León, J. (2024). Motivational messages from teachers before exams: Links to intrinsic motivation, engagement, and academic performance. *Teaching and Teacher Education*, 151. <https://doi.org/10.1016/j.tate.2024.104750>

Anthony, B., Jr., Kamaludin, A., Romli, A., Raffei, A. F. M., Phon, D. N. A. L. E., Abdullah, A., & Ming, G. L. (2022). Blended Learning Adoption and Implementation in Higher Education: A Theoretical and Systematic Review. *Technology, Knowledge and Learning*, 27(2), 531-578. <https://doi.org/10.1007/s10758-020-09477-z>

Anwana, E. O. (2022). Decolonising The Law Curricula at Universities of Technology: Students' Perspective on Content. *South African Journal of Higher Education*, 36(1), 59-75. <https://doi.org/10.20853/36-1-4067>

Arifin, N., Fuad, E. N., & Muhson, A. (2022). Innovative behaviour in religious-based theory of planned behaviour perspective. *SA Journal of Human Resource Management*, 20(1). <https://doi.org/10.4102/sajhrm.v20i0.1809>

Ataei, P., Gholamrezai, S., Movahedi, R., & Aliabadi, V. (2021). An analysis of farmers' intention to use green pesticides: The application of the extended theory of planned behavior and health belief model. *Journal of Rural Studies*, 81, 374-384. <https://doi.org/10.1016/j.jrurstud.2020.11.003>

Ateş, H., & Gündüzalp, C. (2025). The convergence of GETAMEL and protection motivation theory: A study on augmented reality-based gamification adoption among science teachers. *Education and Information Technologies : The Official Journal of the IFIP Technical Committee on Education*, 30(12), 17361-17403. <https://doi.org/10.1007/s10639-025-13480-1>

Avenyo, E. K., Bell, J. F., & Nyamwena, J. (2024). Determinants of digital technologies' adoption in South African manufacturing: Evidence from a firm-level survey. *South African Journal of Economics*, 92(2), 235-259. <https://doi.org/10.1111/saje.12378>

Baihaqi Siddik, L., & Anita, Y. (2024). Mapping Knowledge and Research Trend on Technology Adoption in Higher Education: A Bibliometric Analysis. *Education and Information Technologies*, 29(18), 24415-24458. <https://doi.org/10.1007/s10639-024-12801-0>

Barra, C., Grimaldi, M., Muazzam, A., Troisi, O., & Visvizi, A. (2024). Digital divide, gender gap, and entrepreneurial orientation: How to foster technology adoption among Pakistani higher education students? *Socio-Economic Planning Sciences*, 93. <https://doi.org/10.1016/j.seps.2024.101904>

Bayaga, A. (2024). Leveraging AI-enhanced and emerging technologies for pedagogical innovations in higher education. *Education and Information Technologies : The Official Journal of the IFIP Technical Committee on Education*, 30(1), 1045-1072. <https://doi.org/10.1007/s10639-024-13122-y>

Behl, A., Pereira, V., Sindhwani, R., Bhardwaj, S., Papa, A., & Hassan, Y. (2024). Improving Inclusivity of Digitalization for Employees in Emerging Countries Using Gamification. *IEEE Transactions on Engineering Management*, 71. <https://doi.org/10.1109/TEM.2022.3216553>

Belletier, C. M., Charkhabi, M., Pires de Andrade Silva, G., Ametepe, K., Lutz, M., & Izaute, M. (2019). Wearable cognitive assistants in a factory setting: a critical review of a promising way of enhancing cognitive performance and well-being. *Cognition, Technology & Work*, 23(1), 103-116. <https://doi.org/10.1007/s10111-019-00610-2>

Bevan-Dye, A. L., & Synodinos, C. (2025). Antecedents of Consumers' Green Beauty Product Brand Purchase Intentions: An Extended Theory of Planned Behavior Approach. *Sustainability*, 17(3), 1323. <https://doi.org/10.3390/su17031323>

Black, E. L., Burton, F. G., & Cieslewicz, J. K. (2021). Improving Ethics: Extending the Theory of Planned Behavior to Include Moral Disengagement. *Journal of Business Ethics*, 181(4), 945-978. <https://doi.org/10.1007/s10551-021-04896-z>

Bond, M., & Bedenlier, S. (2019). Facilitating Student Engagement through Educational Technology: Towards a Conceptual Framework. *Journal of Interactive Media in Education*, 2019(1)

Borragán, G., Ortiz, M., Böning, J., Fowler, B., Dominguez, F., Valkering, P., & Gerard, H. (2024). Consumers' adoption characteristics of distributed energy resources and flexible loads behind the meter. *Renewable and Sustainable Energy Reviews*, 203. <https://doi.org/10.1016/j.rser.2024.114745>

Boucif, S. A., Wan Nawang, W. R., Saadallah, O., & Mursidi, A. (2025). Extending the theory of planned behavior in predicting entrepreneurial intention among university students: The role of perceived relational support. *The International Journal of Management Education*, 23(2). <https://doi.org/10.1016/j.ijme.2025.101168>

Brachten, F., Kissmer, T., & Stieglitz, S. (2021). The acceptance of chatbots in an enterprise context - A survey study. *International Journal of Information Management*, 60. <https://doi.org/10.1016/j.ijinfomgt.2021.102375>

Brashi, A. (2025). AI Adoption in Legal Translation: A Study of Intrinsic Motivation among Saudi Students. *International Journal for the Semiotics of Law - Revue internationale de Sémiotique juridique*, 38(6), 2061-2081. <https://doi.org/10.1007/s11196-025-10273-0>

Breetzke, G. D., Greve, M., Hedding, D. W., Nel, W., & Jansen van Vuuren, B. (2020). COVID-19 and the academe in South Africa : not business as usual. *South African Journal of Science*, 116(7-8), 17-19. <https://doi.org/10.17159/sajs.2020/8298>

Breetzke, G. D., Hedding, D. W., & Pijper, L. (2022). The academic staff profile of Geographers at higher education institutions (HEIs) in South Africa: the challenges for transformation. *Journal of Geography in Higher Education*, 46(2), 222-240. <https://doi.org/10.1080/03098265.2020.1856797>

Brown, R. (2025). Farmer technology adoption in Cambodia: The impact of climate change, risk aversion, and crop type. *Journal of Rural Studies*, 114. <https://doi.org/10.1016/j.jrurstud.2024.103551>

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (Second edition ed.). The Guilford Press. <http://site.ebrary.com/id/11001916>

Budhwar, P., Malik, A., De Silva, M. T. T., & Thevisuthan, P. (2022). Artificial intelligence – challenges and opportunities for international HRM: a review and research agenda. *The*

Burim, M. (2025). Adopting Digital Tools in Higher Education: Opportunities, Challenges and Theoretical Insights. *European Journal of Education*, 60(1). <https://doi.org/10.1111/ejed.12819>

Caitlin, F., & Laurie, O. C. (2025). Factors That Predict Teachers' Intentions to Utilize Emerging Technologies: An Investigation Using PLS-SEM. *Education and Information Technologies*, 30(2), 1589-1606. <https://doi.org/10.1007/s10639-024-12796-8>

Cambré, B., Elliott, K., & Fierens, J. (2023). *How to design and develop a business research project : demystifying academic research for business professionals*. Edward Elgar Publishing. <https://www.elgaronline.com/view/book/9781035307845/9781035307845.xml>

Campbell, L. O., & Frawley, C. (2023). An exploration of factors that predict higher education faculty members' intentions to utilize emerging technologies. *Educational technology research and development : A bi-monthly publication of the Association for Educational Communications & Technology*, 72(2), 643-659. <https://doi.org/10.1007/s11423-023-10321-1>

Chatterjee, S., & Bhattacharjee, K. K. (2020). Adoption of artificial intelligence in higher education: a quantitative analysis using structural equation modelling. *Education and Information Technologies : The Official Journal of the IFIP Technical Committee on Education*, 25(5), 3443-3463. <https://doi.org/10.1007/s10639-020-10159-7>

Chen, C. X., Lill, J. B., & Vance, T. W. (2020). Management Control System Design and Employees' Autonomous Motivation. *Journal of management accounting research*, 32(3), 71-92.

Chen, H., & Xia, Y. (2023). A Normality Test for High-dimensional Data Based on the Nearest Neighbor Approach. *Journal of the American Statistical Association*, 118(541), 719-731. <https://doi.org/10.1080/01621459.2021.1953507>

Chowdhury, A., Kabir, K. H., McQuire, M., & Bureau, D. P. (2025). The dynamics of digital technology adoption in rainbow trout aquaculture: Exploring multi-stakeholder perceptions in Ontario using Q methodology and the theory of planned behaviour. *Aquaculture*, 594. <https://doi.org/10.1016/j.aquaculture.2024.741460>

Chugh, R., & Ruhi, U. (2019). Social Media for Tertiary Education. In: *Tatnall, A. (eds) Encyclopedia of Education and Information Technologies*. Springer, Cham. https://doi.org/10.1007/978-3-319-60013-0_202-1

Chugh, R., Turnbull, D., Cowling, M. A., Vanderburg, R., & Vanderburg, M. A. (2023). Implementing Educational Technology in Higher Education Institutions: A Review of Technologies, Stakeholder Perceptions, Frameworks and Metrics. *Education and Information Technologies*, 28(12), 16403-16429. <https://doi.org/10.1007/s10639-023-11846-x>

Clark, M., & Costandius, E. (2020). Redress at Higher Education Institutions in South Africa: Mapping a Way Forward. *de arte*, 55(3), 26-48. <https://doi.org/10.1080/00043389.2020.1728874>

Day, G. S., & Schoemaker, P. J. H. (2004). Driving Through the Fog: Managing at the Edge. *Long Range Planning*, 37(2), 127–142. <https://doi.org/10.1016/j.lrp.2004.01.004>

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18(1), 105-115. <https://doi.org/10.1037/h0030644>

Deci, E. L., & Ryan, R. M. (2008). "Facilitating optimal motivation and psychological well-being across life's domains": Correction to Deci and Ryan (2008). *Canadian Psychology / Psychologie canadienne*, 49(3), 262. <https://doi.org/10.1037/0708-5591.49.3.262>

Delpechitre, D., Gupta, A., Zadeh, A. H., Lim, J. H., & Taylor, S. A. (2020). Toward a new perspective on salesperson success and motivation: a trifocal framework. *Journal of Personal Selling and Sales Management*, 40(4), 267-288. <https://doi.org/10.1080/08853134.2020.1805748>

DHET. (2023). *Statistics on post-school education and training in South Africa 2020*. DHET. <https://www.dhet.gov.za/Information%20Systems%20Management/Statistics%20on%20Post-School%20Education%20and%20Training%20in%20South%20Africa%2C%202023.pdf>

Dorobantu, S., Gruber, M., Ravasi, D., & Wellman, N. (2024). The AMJ Management Research Canvas : A Tool for Conducting and Reporting Empirical Research. *Academy of Management Journal*, 67(5), 1163-1174. <https://doi.org/10.5465/amj.2024.4005>

Edelsbrunner, P. A., Simonsmeier, B. A., & Schneider, M. (2025). The Reliability, But Not the Cronbach's Alpha, of Knowledge Tests Matters: Response to Zitzmann and Orona (2025). *Educational Psychology Review*, 37(2). <https://doi.org/10.1007/s10648-025-10023-5>

Eeckhout, D., Aelbrecht, K., & Van Der Straeten, C. (2023). Informed Consent: Research Staff's Perspectives and Practical Recommendations to Improve Research Staff-Participant Communication. *Journal of Empirical Research on Human Research Ethics*, 18(1-2), 3-12. <https://doi.org/10.1177/15562646221146043>

El Bouch, S., Michel, O., & Comon, P. (2022). A normality test for multivariate dependent samples. *Signal Processing*, 201. <https://doi.org/10.1016/j.sigpro.2022.108705>

Etse, D., McMurray, A., & Muenjohn, N. (2021). The Effect of Regulation on Sustainable Procurement: Organisational Leadership and Culture as Mediators. *Journal of Business Ethics*, 177(2), 305-325. <https://doi.org/10.1007/s10551-021-04752-0>

Fauzi, M. A., Nguyen, M., & Malik, A. (2024). Knowledge sharing and theory of planned behavior: a bibliometric analysis. *Journal of Knowledge Management*, 28(2), 293–311. <https://doi.org/10.1108/JKM-11-2022-0933>

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & López Meneses, E. (2024). Adoption of the Internet of Things in higher education: opportunities and challenges. *Interactive Technology and Smart Education*, 21(2), 292-307. <https://doi.org/10.1108/ITSE-01-2023-0025>

Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital Transformation Initiatives in Higher Education Institutions: A Multivocal Literature Review. *Education and Information Technologies*, 28(10), 12351-12382. <https://doi.org/10.1007/s10639-022-11544-0>

Field, A. (2024). *Discovering statistics using IBM SPSS statistics* (6th edition ed.). SAGE.

Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, 18(3), 382-388. <https://doi.org/10.2307/3150980>

Fouché, Nadia, & Mentz-Coetzee, Melody. (2025). Automating monitoring and evaluation data analysis by using an open-source programming language. *African Evaluation Journal*, 13(1), 1–11.

Freyer, T., Radbruch, J., Schaube, S., & Strang, L. (2025). The effect of task (mis)matching and self-selection on intrinsic motivation and performance. *Journal of Economic Behavior and Organization*, 234. <https://doi.org/10.1016/j.jebo.2025.107010>

Găianu, P.-A., Giosan, C., & Sârbescu, P. (2024). Personality traits and traffic violations: the serial mediating role of theory of planned behavior constructs and intention. *South African Journal of Psychology*, 54(2), 260-273. <https://doi.org/10.1177/00812463241234056>

Gao, Y., Khan, A. A., Khan, S. U., Ali, M. A. S., & Huai, J. (2023). Investigating the rationale for low-carbon production techniques in agriculture for climate change mitigation and fostering sustainable development via achieving lowcarbon targets. *Environmental Science and Pollution Research International*. <https://doi.org/10.1007/s11356-023-26630-0>

Gao, Y., & Tang, Y. (2023). A Study on the Mechanism of Digital Technology's Impact on the Green Transformation of Enterprises: Based on the Theory of Planned Behavior Approach. *Sustainability*, 15(15), 11854. <https://doi.org/10.3390/su151511854>

Gartner. (2025). 2025 technology adoption map. Gartner. https://emt.gartnerweb.com/ngw/globalassets/en/publications/documents/2025-technology-adoption-roadmap-infographic-agnostic.pdf?_gl=1*1tley*_gcl_au*MTkxNDA0MDAyOS4xNzQ1NTgwOTE3LjUxNzlwMjc4M4xNzQ1NTgxMjE4LjE3NDU1ODEyMTg.*_ga*MTcwODA0NTUuMTc0NTU4MDkxNA..*_ga_R1W5CE5FEV*MTc0NTU4MDkxMy4xLjEuMTc0NTU4MTIxOC4yNi4wLjA

Giurge, L. M., & Woolley, K. (2022). Working during non-standard work time undermines intrinsic motivation. *Organizational Behavior and Human Decision Processes*, 170. <https://doi.org/10.1016/j.obhdp.2022.104134>

Gohil, M. N., Muruganatham, B., Raval, M., & Bearne, L. M. (2024). Translation, cross-cultural adaptation, and validation of a Gujarati version of a theory of planned behavior questionnaire that assesses walking treatment beliefs in people with intermittent claudication. *Journal of Vascular Nursing*, 42(3), 182-190. <https://doi.org/10.1016/j.jvn.2024.05.004>

Gong, Y., Yu, J., Wang, Z.-H., Che, C., Wong, P. P. W., & Wang, L. (2025). Chinese elderly tourists' perceptions regarding rural tourism destination revisit and recommend intentions:

Merging the value-attitude-behaviour and theory of planned behaviour. *Revue européenne de psychologie appliquée*, 75(3). <https://doi.org/10.1016/j.erap.2023.100927>

Granić, A. (2023). Technology adoption at individual level: toward an integrated overview. *Universal Access in the Information Society : International Journal*, 23(2), 843–858. <https://doi.org/10.1007/s10209-023-00974-3>

Guay, F. d. r., Vallerand, R. J., & Blanchard, C. I. (2000). On the Assessment of Situational Intrinsic and Extrinsic Motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, 24(3), 175-213. <https://doi.org/10.1023/A:1005614228250>

Hagger, M. S., & Hamilton, K. (2024). Longitudinal tests of the theory of planned behaviour: A meta-analysis. *European Review of Social Psychology*, 35(1), 198-254. <https://doi.org/10.1080/10463283.2023.2225897>

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (Second edition ed.). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>

Henseler, J. r., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science : Official Publication of the Academy of Marketing Science*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>

Heo, C. Y., Kim, B., Park, K., & Back, R. M. (2022). A comparison of Best-Worst Scaling and Likert Scale methods on peer-to-peer accommodation attributes. *Journal of Business Research*, 148, 368-377. <https://doi.org/10.1016/j.jbusres.2022.04.064>

Herlambang, M. B., Crossen, F., & Taatgen, N. A. (2021). The effects of intrinsic motivation on mental fatigue. *PloS one*, 16(1), e0243754. <https://doi.org/10.1371/journal.pone.0243754>

Hosany, S., Prayag, G., Deesilatham, S., Caušević, S., & Odeh, K. (2015). Measuring Tourists' Emotional Experiences: Further Validation of the Destination Emotion Scale. *Journal of Travel Research*, 54(4), 482-495. <https://doi.org/10.1177/0047287514522878>

Hubley, C., Edwards, J., Miele, D. B., & Scholer, A. A. (2024). Metamotivational beliefs about intrinsic and extrinsic motivation. *Journal of Personality and Social Psychology*, 126(1), 26-57. <https://doi.org/10.1037/pspa0000362>

International Trade Administration. (2024). *Digital economy overview*. International Trade Administration. <https://www.trade.gov/country-commercial-guides/south-africa-digital-economy>

Ivanov, S., Soliman, M., Tuomi, A., Alkathiri, N. A., & Al-Alawi, A. N. (2024). Drivers of generative AI adoption in higher education through the lens of the Theory of Planned Behaviour. *Technology in Society*, 77. <https://doi.org/10.1016/j.techsoc.2024.102521>

Jaiswal, A., Arun, C. J., & Varma, A. (2022). Rebooting employees: upskilling for artificial intelligence in multinational corporations. *The International Journal of Human Resource Management*, 33(6), 1179–1208. <https://doi.org/10.1080/09585192.2021.1891114>

Jansen, J. D. (2023). *Corrupted : a study of chronic dysfunction in South African universities*. Wits University Press. <https://muse.jhu.edu/book/101561/>

Jantjies, M., Moodley, T., & Maart, R. (2018). Experiential learning through Virtual and Augmented Reality in Higher Education. *In Proceedings of the 2018 International Conference on Education Technology Management*. <https://doi.org/10.1145/3300942.3300956>

Jie, W., Poulouva, P., Haider, S. A., & Sham, R. B. (2022). Impact of internet usage on consumer impulsive buying behavior of agriculture products: Moderating role of personality traits and emotional intelligence. *Frontiers in Psychology*, 13, 951103. <https://doi.org/10.3389/fpsyg.2022.951103>

Jimenez, L. W. A., Ong, A. K. S., Gumasing, M. J. J., & Cahigas, M. M. L. (2024). Analysis of sustainable E-money usage in a developing country: Perspective from the development of the Philippines. *Acta Psychologica*, 251. <https://doi.org/10.1016/j.actpsy.2024.104588>

Kaliisa, R., & Picard, M. (2017). A Systematic Review on Mobile Learning in Higher Education: The African Perspective. *Turkish Online Journal of Educational Technology - TOJET*, 16(1), 1–18.

Kandoth, S., & Shekhar, S. K. (2025). Employees' intrinsic motivation in mediating the relationship between perceived ambidextrous organizational culture and innovative behaviour in the Indian IT sector. *The Learning Organization*, 32(2), 237-258. <https://doi.org/10.1108/TLO-03-2024-0089>

Karima, L., Joseph, C., & Kerryn, B.-H. (2025). Academic Leadership during COVID-19 in Higher Education: Technology Adoption and Adaptation for Online Learning during a Pandemic. *International Journal of Leadership in Education*, 28(1), 1-17. <https://doi.org/10.1080/13603124.2021.1988716>

Khan, F. A., Quddoos, M. U., Qudsia, M., Adeel, M., Amin, M. S., & Rahim, M. A. B. U. (2025). Resolving the project control-performance paradox: boosting individual performance through intrinsic motivation. *Current Psychology : A Journal for Diverse Perspectives on Diverse Psychological Issues*, 1-16. <https://doi.org/10.1007/s12144-025-08293-x>

Khan, S., Zhang, Q., Khan, I. U., Khan, S. U., & Mehmood, S. (2025). Tourists' pro-environmental behaviour in an autonomous vehicle's adoption: aligning the integration of value-belief-norm theory and the theory of planned behaviour. *Current Issues in Tourism*, 28(4), 604-621. <https://doi.org/10.1080/13683500.2024.2325491>

Kiefer, A. B. (2025). Intrinsic Motivation as Constrained Entropy Maximization. *Entropy (Basel, Switzerland)*, 27(4). <https://doi.org/10.3390/e27040372>

Kim, J. Y., Campbell, T. H., Shepherd, S., & Kay, A. C. (2020). Understanding contemporary forms of exploitation: Attributions of passion serve to legitimize the poor treatment of workers. *Journal of Personality and Social Psychology*, 118(1), 121-148. <https://doi.org/10.1037/pspi0000190>

Kim, S. L., Yun, S., & Cheong, M. (2023). Empowering and directive leadership and taking charge: a moderating role of employee intrinsic motivation. *Journal of Managerial Psychology*, 38(6), 389-403. <https://doi.org/10.1108/JMP-10-2022-0518>

Ko, A., Fehér, P., Kovacs, T., Mitev, A., & Szabó, Z. (2022). Influencing factors of digital transformation: management or IT is the driving force? *International Journal of Innovation Science*, 14(1), 1-20. <https://doi.org/10.1108/IJIS-01-2021-0007>

Kock, N. (2015). Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach. *International Journal of e-Collaboration (IJeC)*, 11(4), 1-10. <https://doi.org/10.4018/ijec.2015100101>

Kotera, Y., Taylor, E., Fido, D., Williams, D., & Tsuda-McCaie, F. (2023). Motivation of UK graduate students in education: self-compassion moderates pathway from extrinsic motivation to intrinsic motivation. *Current Psychology (New Brunswick, N.J.)*, 42(12), 10163–10176. <https://doi.org/10.1007/s12144-021-02301-6>

Kruger, S., & Steyn, A. A. (2024). Navigating the fourth industrial revolution: a systematic review of technology adoption model trends. *Journal of Science and Technology Policy Management*, 16(10), 24-56. <https://doi.org/10.1108/JSTPM-11-2022-0188>

Laasch, O., Lindebaum, D., & Caza, A. (2022). Constructing Ontological Foundations for Management Learning and Education Research. *Academy of Management Learning & Education*, 21(4), 525-531. <https://doi.org/10.5465/amle.2022.0171>

Lazar, I. M., Panisoara, G., Panisoara, I. O., & Dragan, D. (2020). Digital technology adoption scale in the blended learning context in higher education: Development, validation and testing of a specific tool. *PloS one*, 15(7). <http://dx.doi.org/10.1371/journal.pone.0235957>

Leavy, A., Dick, L., Meletiou-Mavrotheris, M., Papparistodemou, E., & Stylianou, E. (2023). The Prevalence and Use of Emerging Technologies in STEAM Education: A Systematic Review of the Literature. *Journal of Computer Assisted Learning*, 39(4), 1061-1082. <https://doi.org/10.1111/jcal.12806>

Lederman, N. G., & Lederman, J. S. (2015). What Is A Theoretical Framework? A Practical Answer. *Journal of Science Teacher Education*, 26(7), 593-597. <https://doi.org/10.1007/s10972-015-9443-2>

Leedy, P. D., Ormrod, J. E., & Johnson, L. R. (2021). *Practical research : planning and design* (Twelfth edition, Global edition ed.). Pearson.

Li, F., Xiaoqing, S., Zhaoyuan, X., & Xiaohui, Y. (2025). How Gamification-Based Course Drives Online Learners' Engagement: Focusing on Intrinsic Motivation and Effect Mechanism. *Education and Information Technologies*, 30(8), 10943-10977. <https://doi.org/10.1007/s10639-024-13242-5>

Lichtenthaler, U. (2020). Extremes of acceptance: employee attitudes toward artificial intelligence. *Journal of Business Strategy*, 41(5), 39-45. <https://doi.org/10.1108/JBS-12-2018-0204>

Liu, Q., Geertshuis, S., & Grainger, R. (2020). Understanding academics' adoption of learning technologies: A systematic review. *Computers & Education*, 151. <https://doi.org/10.1016/j.compedu.2020.103857>

Liu, Q., & Yao-Ping Peng, M. (2025). Exploring factors influencing university students' entrepreneurial intentions: The role of attitudes, beliefs, and environmental support. *PloS one*, 20(1), e0316392. <https://doi.org/10.1371/journal.pone.0316392>

Ma, J., Yin, Z., Hipel, K. W., Li, M., & He, J. (2023). Exploring factors influencing the application accuracy of the theory of planned behavior in explaining recycling behavior. *Journal of Environmental Planning and Management*, 66(3), 445–470. <https://doi.org/10.1080/09640568.2021.2001318>

Ma, X., Lee, S., & Hwang, J.-Y. (2025). Exploring the Role of Intrinsic Motivation in Healthy Eating Intentions: An Extension of the Theory of Planned Behavior in Chinese Adults. *Nutrients*, 17(12). <https://doi.org/10.3390/nu17122007>

Magwegwe, F. M., & Shaik, A. (2024). Theory of planned behavior and fast fashion purchasing: an analysis of interaction effects. *Current Psychology : A Journal for Diverse Perspectives on Diverse Psychological Issues*, 43(36), 28868-28885. <https://doi.org/10.1007/s12144-024-06465-9>

Malhotra, N. K. (2019). *Marketing research : an applied orientation* (Seventh edition ed.). Pearson.

Maria Magdalena, S., Cristina, D., & Florentina, B. (2025). Investigating Teachers' Attitude toward Integration of ChatGPT in Language Teaching and Learning in Higher Education. *Education and Information Technologies*, 30(11), 15281-15298. <https://doi.org/10.1007/s10639-025-13396-w>

Marks, B., & Thomas, J. (2021). Adoption of virtual reality technology in higher education: An evaluation of five teaching semesters in a purpose-designed laboratory. *Education and Information Technologies : The Official Journal of the IFIP Technical Committee on Education*, 27(1), 1287-1305. <https://doi.org/10.1007/s10639-021-10653-6>

Markus, E. D., & Govender, N. (2023). Can Universities of Technology in South Africa Achieve Transformation by Promoting a Culture of Social Responsibility Among Academic and Student Agents? *Public Organization Review : A Global Journal*, 23(4), 1571-1589. <https://doi.org/10.1007/s11115-023-00701-9>

Masinde, M., & Coetzee, J. (2021). Counting what counts: A researcher productivity scoring framework for South African's universities of technology. *South African Journal of Higher Education*, 35(3), 83-106. <https://doi.org/10.20853/35-3-3887>

Matarirano, O., Jere, N. R., Sibanda, H. S., & Panicker, M. (2021). Antecedents of Blackboard Adoption by Lecturers at a South African Higher Education Institution – Extending GETAMEL. *International Journal of Emerging Technologies in Learning (iJET)*, 16(01), 60. <https://doi.org/10.3991/ijet.v16i01.16821>

Mateko, F. M., Dowelani, M., & Sinamano, R. (2025). Digital Inequality and Transformation in South African Higher Education During COVID-19: A Comparative Analysis of Historically Disadvantaged and Historically Advantaged Universities. *Higher Education Policy*, 1-19. <https://doi.org/10.1057/s41307-025-00416-0>

Matolino, B. (2020). Philosophers' debt to their students : the South African case. *Transformation in Higher Education*, 5(1), 1–9. <https://doi.org/10.4102/the.v5i0.87>

Mathee, M. (2025, April 1). *Research workshop in preparation of research proposal hand in* [Power Point Slides]. Gordons Institute of Business Science.

Mbala, K. (2021). *How is South Africa's digital divide making inequality worse in the country?* Global Citizen. <https://www.globalcitizen.org/en/content/south-africa-digital-divide-makes-inequality-worse/>

McArthur, J., Blais, J., & Ternes, M. (2024). Digital Dating Abuse: An Application of the Theory of Planned Behavior. *Journal of interpersonal violence*, 39(5-6), 1308-1326. <https://doi.org/10.1177/08862605231205595>

McCarrick, D., Prestwich, A., & O'Connor, D. B. (2024). Perseverative cognition and health behaviours: exploring the role of intentions and perceived behavioural control. *Psychology & Health*, 39(9), 1183-1199. <https://doi.org/10.1080/08870446.2022.2130921>

McKinsey. 2024. *McKinsey technology trends outlook 2024*. McKinsey. <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-top-trends-in-tech#enterprise-tech-adoption>

McNaughton, H., & Fu, V. (2023). Intrinsic motivation. *Practical neurology*, 23(6), 489-492. <https://doi.org/10.1136/pn-2023-003763>

Moriña, A., & Perera, V. H. (2025). Promoting inclusive practices with emerging technologies in higher education: Faculty professional development through blended-learning. *The Internet and Higher Education*, 67. <https://doi.org/10.1016/j.iheduc.2025.101019>

Nayak, P. M., Nayak, M., & Joshi, H. G. (2025). Extending the theory of planned behaviour: Entrepreneurial motivation as a moderator of intention-behaviour link in emerging economies. *Industry and Higher Education*. <https://doi.org/10.1177/09504222251375615>

Neumann, W. P., Winkelhaus, S., Grosse, E. H., & Glock, C. H. (2021). Industry 4.0 and the human factor - A systems framework and analysis methodology for successful development. *International Journal of Production Economics*, 233. <https://doi.org/10.1016/j.ijpe.2020.107992>

Nickell, G. S., & Hinsz, V. B. (2023). Applying the theory of planned behavior to understand workers' production of safe food. *Journal of Work and Organizational Psychology*, 39(2), 89-100. <https://doi.org/10.5093/jwop2023a10>

Noriega Del Valle, M., Łaba, K., & Mayer, C.-H. (2024). Erratum: Unlocking technology acceptance among South African employees: A psychological perspective. *SA Journal of Industrial Psychology*, 50. <https://doi.org/10.4102/sajip.v50i0.2220>

Ntshoe, I., & Malebo, N. J. (2021). Knowledge and Specialism in Curricula of Professional and Sectoral Fields of Practices in South Africa: The Case of Universities of Technology. *Perspectives in Education*, 39(2), 128-142. <https://doi.org/10.18820/2519593X/pie.v39.i2.10>

Olawale, B. E., Mncube, V. S., Ndondo, S., & Mutongoza, B. H. (2022). Building a sustainable and democratic future in rural South African higher education institutions. *Perspectives in Education*, 40(3), 14-28. <https://doi.org/10.18820/2519593X/pie.v40.i3.2>

Oliveira, T., Barbeitos, I., & Calado, A. (2022). The role of intrinsic and extrinsic motivations in sharing economy post-adoption. *Information Technology & People*, 35(1), 165–203. <https://doi.org/10.1108/ITP-01-2020-0007>

Omodan, B. I. (2025). Research paradigms and their methodological alignment in social sciences : a practical guide for researchers. *Routledge*. <https://doi.org/10.4324/9781003484066>

Park, J. W., & Kim, S. Y. (2025). The role of employee empowerment in promoting perceived behavioural control over whistleblowing: implications for public organizations. *Public Management Review*, 27(5), 1333-1356. <https://doi.org/10.1080/14719037.2023.2287494>

Park, Y. S., Konge, L., & Artino, A. R. (2020). The Positivism Paradigm of Research. *Academic medicine : journal of the Association of American Medical Colleges*, 95(5), 690-694. <https://doi.org/10.1097/ACM.0000000000003093>

Passarelli, M., Bongiorno, G., Cucino, V., & Cariola, A. (2023). Adopting new technologies during the crisis: An empirical analysis of agricultural sector. *Technological Forecasting & Social Change*, 186. <https://doi.org/10.1016/j.techfore.2022.122106>

Peiris, M., Ferrazza, A., & Tharindi Donmanige, T. (2024). Enhancing Student Engagement: Technology Acceptance in Higher Education During Covid-19. *International Journal of Emerging Technologies in Learning (iJET)*, 19(07), 104-125. <https://doi.org/10.3991/ijet.v19i07.51351>

Peng, Y., & Min, H. (2020). Older employees' postretirement work planning: an application of the theory of planned behavior. *Career Development International*, 25(6), 565-579. <https://doi.org/10.1108/CDI-02-2020-0038>

Price, M. (2023). *Statues and storms : leading through change* (First edition ed.). Tafelberg, an imprint of NB Publishers.

PwC. (2023). *African business agenda: technology perspectives 2023*. PwC. <https://www.pwc.co.za/en/assets/pdf/africa-business-agenda-technology-perspective-2023.pdf>

Qin, M., & Tao, D. (2021). Understanding Preservice Music Teachers' Intention to Remain in the Profession: An Integrated Model of the Theory of Planned Behaviour and Motivation Theory. *International Journal of Music Education*, 39(4), 355-370. <https://doi.org/10.1177/0255761420963149>

Razali, F., Daud, D., Weng-Wai, C., & Anthony Jiram, W. R. (2020). Waste separation at source behaviour among Malaysian households: The Theory of Planned Behaviour with moral norm. *Journal of Cleaner Production*, 271. <https://doi.org/10.1016/j.jclepro.2020.122025>

Remic, B. (2022). Three accounts of intrinsic motivation in economics: a pragmatic choice? *Journal of Economic Methodology*, 29(2), 124-139. <https://doi.org/10.1080/1350178X.2021.1952291>

Richard, B., Elizabeth, S., & Dawn, B.-B. (2025). AcademAI: Investigating AI Usage, Attitudes, and Literacy in Higher Education and Research. *Journal of Educational Technology Systems*, 54(1), 6-33. <https://doi.org/10.1177/00472395251347304>

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). Free Press.

Rotolo, D., Hicks, D., & Martin, B. R. (2015). What is an emerging technology? *Research Policy*, 44(10), 1827-1843. <https://doi.org/10.1016/j.respol.2015.06.006>

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61. <https://doi.org/10.1016/j.cedpsych.2020.101860>

Sandri, O., Holdsworth, S., Wong, P. S. P., & Hayes, J. (2024). Upskilling plumber gasfitters for hydrogen: An empirical study using the Theory of Planned Behavior. *Renewable Energy*, 221. <https://doi.org/10.1016/j.renene.2023.119800>

Santini, F. d. O., Sampaio, C. H., Rasul, T., Ladeira, W. J., Kar, A. K., Perin, M. G., & Azhar, M. (2025). Understanding students' technology acceptance behaviour: A meta-analytic study. *Technology in Society*, 81. <https://doi.org/10.1016/j.techsoc.2024.102798>

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (Ninth edition ed.). Pearson.

Sayaf, A. M., Alamri, M. M., Alqahtani, M. A., & Al-Rahmi, W. M. (2021). Information and Communications Technology Used in Higher Education: An Empirical Study on Digital Learning as Sustainability. *Sustainability*, 13(13), 7074. <https://doi.org/10.3390/su13137074>

Schindler, P. S. (2022). *Business research methods* (Fourteenth edition / International student edition ed.). McGraw-Hill.

Scott Jones, J., & Goldring, J. (2021). *Exploratory and descriptive statistics*. Sage Publications.

Sembey, R., Hoda, R., & Grundy, J. (2024). Emerging technologies in higher education assessment and feedback practices: A systematic literature review. *The Journal of Systems & Software*, 211. <https://doi.org/10.1016/j.jss.2024.111988>

Shang, L., Heckelei, T., Gerullis, M. K., Börner, J., & Rasch, S. (2021). Adoption and diffusion of digital farming technologies - integrating farm-level evidence and system interaction. *Agricultural Systems*, 190. <https://doi.org/10.1016/j.agsy.2021.103074>

Shant Priya, S., Jain, V., Priya, M. S., Dixit, S. K., & Joshi, G. (2023). Modelling the factors in the adoption of artificial intelligence in Indian management institutes. *foresight*, 25(1), 20-40. <https://doi.org/10.1108/FS-09-2021-0181>

Shih, H.-M., Chen, B. H., Chen, M.-H., Wang, C.-H., & Wang, L.-F. (2022). A Study of the Financial Behavior Based on the Theory of Planned Behavior. *International Journal of Marketing Studies*, 14(2), 1. <https://doi.org/10.5539/ijms.v14n2p1>

Shirahada, K., & Zhang, Y. (2022). Counterproductive knowledge behavior in volunteer work: perspectives from the theory of planned behavior and well-being theory. *Journal of Knowledge Management*, 26(11), 22-41. <https://doi.org/10.1108/JKM-08-2021-0612>

Soria-Barreto, K., & Novoa-Hernández, P. (2025). A systematic mapping and meta-analysis on sustainable entrepreneurial intention: Insights from the theory of planned behavior. *Acta Psychologica*, 260. <https://doi.org/10.1016/j.actpsy.2025.105733>

Stratton, S. J. (2021). Population Research: Convenience Sampling Strategies. *Prehospital and Disaster Medicine*, 36(4), 373–374. <https://doi.org/10.1017/S1049023X21000649>

Sun, Y., & Gao, F. (2020). An Investigation of the Influence of Intrinsic Motivation on Students' Intention to Use Mobile Devices in Language Learning. *Educational Technology Research and Development*, 68(3), 1181-1198. <https://doi.org/10.1007/s11423-019-09733-9>

Taherdoost, H. (2018). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *SSRN*. <https://doi.org/10.2139/ssrn.3205040>

TatvaSoft. (n. d.). Emerging technologies in education. TatvaSoft. <https://www.tatvasoft.com/outsourcing/2022/06/emerging-technologies-in-education.html>

Teppo, M., Soobard, R., & Rannikmäe, M. (2025). Predictors of Change in Intrinsic Motivation Factors on Adolescent Science Learning. *Science Education International*, 36(2), 117–126.

Tiwari, A., Kumar, A., Kant, R., & Jaiswal, D. (2024). Impact of fashion influencers on consumers' purchase intentions: theory of planned behaviour and mediation of attitude. *Journal of Fashion Marketing and Management: An International Journal*, 28(2), 209-225. <https://doi.org/10.1108/JFMM-11-2022-0253>

Törmänen, T., Ketonen, E., Lehtoaho, E., Turunen, M., Zabolotna, K., Shubina, T., & Järvenoja, H. (2025). Situational Motivation in Academic Learning: A Systematic Review. *Educational Psychology Review*, 37(2). <https://doi.org/10.1007/s10648-025-10036-0>

Tornatzky, L. G., & Fleischer, M. (1990). *The process of technological innovation*. Lexington Books

Turnbull, D., Chugh, R., & Luck, J. (2022). An Overview of the Common Elements of Learning Management System Policies in Higher Education Institutions. *TechTrends : Linking Research and Practice to Improve Learning A Publication of the Association for Educational Communications & Technology*, 66(5), 855–867. <https://doi.org/10.1007/s11528-022-00752-7>

Ukil, M. I., Ullah, M. S., Islam, K. M. Z., Razzak, B. M., Saridakis, G., & Alamoudi, S. M. (2025). Examining the emotion-entrepreneurial intention link using the theory of planned behavior. *Journal of Small Business and Enterprise Development*, 32(2), 344-370. <https://doi.org/10.1108/JSBED-08-2023-0398>

Urban, B., & Maphumulo, M. (2022). The moderating effects of entrepreneurial orientation on technological opportunism and innovation performance. *European Journal of Innovation Management*, 25(3), 901–921. <https://doi.org/10.1108/EJIM-12-2020-0509>

Uriguen Aguirre, P. A., & Avolio Alecchi, B. E. (2023). Impact of intellectual capital on organizational performance through intrinsic motivation in higher education institutions. *Cogent Business & Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2189772>

Uzorka, A., Namara, S., & Olaniyan, A. O. (2023). Modern technology adoption and professional development of lecturers. *Education and Information Technologies : The Official Journal of the IFIP Technical Committee on Education*, 28(11), 14693-14719. <https://doi.org/10.1007/s10639-023-11790-w>

v, Kumar, D., & Koul, S. (2024). Digital transformation in higher education: A comprehensive review of e-learning adoption. *Human Systems Management*, 43(4), 433-454. <https://doi.org/10.3233/HSM-230190>

VanDerSchaaf, H. P., Daim, T. U., & Basoglu, N. A. (2023). Factors Influencing Student Information Technology Adoption. *IEEE Transactions on Engineering Management*, 70(2). <https://doi.org/10.1109/TEM.2021.3053966>

Veletsianos, G. (2010). *Emerging technologies in distance education*. AU Press. <http://www.aupress.ca/index.php/books/120177>

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>

Wei, S., Xu, D., & Liu, H. (2022). The effects of information technology capability and knowledge base on digital innovation: the moderating role of institutional environments. *European Journal of Innovation Management*, 25(3), 720-740. <https://doi.org/10.1108/EJIM-08-2020-0324>

Williams, M., Wiggins, R. D., & Vogt, W. P. (2021). *Beginning quantitative research*. Sage Publications. <https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=3107685>

Wollast, R., Phillips, J. B., Hagger, M. S., Hamilton, K., DeSmet, A., & Luminet, O. (2025). Theory of planned behavior constructs as mediators of relations between personality traits, trust, and COVID-19 preventive behavior adherence. *Social science & medicine* (1982), 384, 118531. <https://doi.org/10.1016/j.socscimed.2025.118531>

Wong, X. J., & Tajudeen, F. P. (2025). Factors Affecting Employees' Intention to Work Through the Metaverse Platform. *International Journal of Human-Computer Interaction*, 41(11), 7058-7075. <https://doi.org/10.1080/10447318.2024.2388480>

World Bank. (2024). *Digital transformation drives development in Africa*. World Bank. <https://www.worldbank.org/en/results/2024/01/18/digital-transformation-drives-development-in-afe-afw-africa>

World Bank. (2025). *The world bank in South Africa*. World Bank. <https://www.worldbank.org/en/country/southafrica/overview#1>

Wu, H., & Wang, H. (2025). Is being intrinsically motivated a mixed blessing? The differential effects of daily intrinsic motivation on employee functioning. *Tourism Management*, 107. <https://doi.org/10.1016/j.tourman.2024.105073>

Xu, S., Hao, L., Yang, G., Lu, K., & An, X. (2021). A topic models based framework for detecting and forecasting emerging technologies. *Technological Forecasting & Social Change*, 162. <https://doi.org/10.1016/j.techfore.2020.120366>

Xue, J., Esangbedo, M. O., Zhang, Q., Zhang, W., & Wu, L. (2024). The Impact of Emerging Technologies in the Aviation Manufacturing Industry: A Case Study of the Gradual-Change Factors in Shaanxi, PR China. *IEEE Transactions on Engineering Management*, 71. <https://doi.org/10.1109/TEM.2021.3118709>

Yang, Y., Zou, J., & Arshad, M. H. (2025). Navigating stress in high-pressure environments: Financial communication, intrinsic motivation, and technological moderators in Chinese accounting. *Acta Psychologica*, 260, 105643. <https://doi.org/10.1016/j.actpsy.2025.105643>

Ye, Q., & Wang, H. (2023). Effects of Profession-Related Support from Different Sources on Subjective Well-Being Among Chinese Tuition-Free Normal University Students: The Mediation of Intrinsic Motivation for Teaching and Moderation of Dispositional Gratitude. *Psychology Research and Behavior Management*, 16, 5237–5254. <https://doi.org/10.2147/PRBM.S445123>

Yee, C. H., Al-Mulali, U., & Ling, G. M. (2021). Intention towards renewable energy investments in Malaysia: extending theory of planned behaviour. *Environmental Science and Pollution Research*, 29(1), 1021-1036. <https://doi.org/10.1007/s11356-021-15737-x>

Yu, K., & Dlamini, R. (2025). *Higher education ICT integration in Africa : readiness, implementation and trajectory*. Routledge, Taylor & Francis Group. <https://doi.org/10.4324/9781003394877>

Zhang, Y., & Liu, S.-M. (2022). Balancing employees' extrinsic requirements and intrinsic motivation: A paradoxical leader behaviour perspective. *European Management Journal*, 40(1), 127-136. <https://doi.org/10.1016/j.emj.2021.11.008>

Zhao, L. (2022). On the Entrepreneurial Intention and Entrepreneurial Behavior Path of College Students Based on the Theory of Planned Behavior. *International Journal of Emerging Technologies in Learning (IJET)*, 17(17), 90-104. <https://doi.org/10.3991/ijet.v17i17.34173>

Zheng, Y., Janiszewski, C., & Schreier, M. (2022). Exploring the Origins of intrinsic motivation. *Motivation and Emotion*, 47(1), 28-45. <https://doi.org/10.1007/s11031-022-09969-8>

Zhou, N. (2024). Emerging market multinationals' liability of outsidership. *Journal of World Business*, 59(3). <https://doi.org/10.1016/j.jwb.2023.101505>

Zhu, G., Shou, Y., & Smithson, M. (2025). An investigation of the convergent validity and test-retest reliability of three uncertainty preference measures. *Behavior research methods*, 57(8), 221. <https://doi.org/10.3758/s13428-025-02729-9>

APPENDICES

1. Ethical Clearance

Ethical Clearance Approved External Inbox x



Masters Research <MastersResearch@gibs.co.za>
to me, Masters ▾

**Gordon Institute
of Business Science**
University of Pretoria

**Ethical Clearance
Approved**

Dear [REDACTED]

Please be advised that your application for Ethical Clearance has been approved.
You are therefore allowed to continue collecting your data.
We wish you everything of the best for the rest of the project.

[Ethical Clearance Form](#)

Kind Regards

This email has been sent from an unmonitored email account. If you have any comments or concerns, please contact the GIBS Research Admin team.

2. Research Study Questionnaire

Date

Employee Name and Surname

University Name

Dear Employee

INFORMED CONSENT LETTER

I am conducting research on the relationship of employee intrinsic motivation on emerging technologies adoption in an emerging market's university of technology. To that end, you are asked to complete a survey relating to my topic.

The survey should take no more than ten (10) minutes. Your participation is voluntary and you can withdraw at any time without penalty. Your participation is also confidential and anonymous and only aggregated data will be reported.

By completing the survey, you indicate that you voluntarily participate in this research. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher name: Mr Sipiwe Hlongwane
Email: sipiwe.hlongwane@gmail.com
Phone: 083 736 3446

Research supervisor name: Prof. Manoj Chiba
Email: chibam@gibs.co.za
Phone: 011 771 4222

Survey Questionnaire

Title: Employee intrinsic motivation on adopting emerging technologies.

SECTION A

Please mark your choice by putting the {X} in the appropriate box.

INFORMED CONSENT (SQ)

1. Informed Consent

I agree to participate in the survey	1
I do not agree to participate in the survey	2

Demographic Questions (DQ)

1. Age

18 – 28 (Generation Z)	1
29 – 44 (Millennials)	2
45 – 60 (Generation X)	3
61 – 79 (Baby Boomers)	4
80 – 100 (Silent Generation)	5

2. Gender

Female	1
Male	2
Prefer not to say	3

3. Location

Bloemfontein	1
Welkom	2
Other	3

4. Level

Administrative / Non-managerial	1
Team Leader	2

Junior Manager	3
Middle Manager	4
Senior Management	5
Executive	6

SECTION B

Please mark rate the extent to which you agree / disagree with the following statements by putting the {X} in the appropriate box, indicating:

- 1 = Strongly Disagree,
- 2 = Disagree,
- 3 = Neutral,
- 4 = Agree,
- 5 = Strongly Agree.

1. Attitude towards the behaviour

	Please mark your choice by putting the {X} in the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Attitude towards adopting emerging technologies (ATT)						
ATT1	For me, adopting and/or using new technology is easy	1	2	3	4	5
ATT2	For me, adopting and/or using new technology is fun	1	2	3	4	5
ATT3	For me, adopting and/or using new technology is positive	1	2	3	4	5

2. Subjective norm

	Please mark your choice by putting the {X} in the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Subjective norm towards adopting emerging technologies (SBN)						
SBN1	Most people who are important to me think that I should adopt and/or use new technology	1	2	3	4	5

SBN2	My spouse/significant other approves of me adopting and/or using new technology	1	2	3	4	5
SBN3	My closest friend or family member (other than my spouse/significant other) approves of me adopting and/or using new technology	1	2	3	4	5

3. Perceived behavioural control

	Please mark your choice by putting the {X} in the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Perceived behavioural control towards adopting emerging technologies (PCD)						
PCD1	I do have personal control over whether or not I adopt and/or use the new technology	1	2	3	4	5
PCD2	Adopting and/or using the new technology is within my control	1	2	3	4	5
PCD3	I am able to adopt and/or use new technology	1	2	3	4	5

4. Intention

	Please mark your choice by putting the {X} in the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Intention to adopting emerging technologies (INT)						
INT1	My goal is to do adopt and/or use the new technology	1	2	3	4	5
INT2	I intend to do adopt and/or use the new technology	1	2	3	4	5
INT3	I plan adopt and/or use the new technology	1	2	3	4	5

5. Motivation

	Please mark your choice by putting the {X} in the appropriate box.	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Reasons for adopting emerging technologies (MOT)						
MOT1	Because I think that adopting and/or using new technology is interesting	1	2	3	4	5

MOT2	Because I think that adopting and/or using new technology is pleasant	1	2	3	4	5
MOT3	Because I think that adopting and/or using new technology is fun	1	2	3	4	5
MOT4	Because I feel good when adopting and/or using new technology					