

**Closing the entrepreneurial intention-action gap; the moderating role of  
spirituality**

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## **Abstract**

This study investigated the entrepreneurial intention-action gap through Ajzen's (1991) Theory of Planned Behaviour (TPB) framework, focusing on the moderating role of spirituality. While personal attitude, subjective norms, and perceived behavioural control are established predictors for entrepreneurial behaviour within the TPB model, documented observations have shown that intention alone cannot guarantee that entrepreneurial action will be realised. The research adopted a quantitative, cross-sectional approach in which data from 143 South African respondents was analysed using IBM's Statistical Package for the Social Sciences. Validated instruments were utilised to measure entrepreneurial intention and its three antecedents, entrepreneurial action, and spirituality, operationalised as two components (*experience and connection* (SP\_ec) and *compassion and acceptance* (SP\_ca)).

The findings reaffirmed that personal attitude, subjective norms, and perceived behavioural control were significant predictors of entrepreneurial intention. Spirituality's moderating effects were found to be partial and pathway specific; SP\_ec strengthened motivational pathways, while SP\_ca positively moderated the entrepreneurial intention-action relationship among tertiary-educated respondents. This suggests that spirituality evolves from a motivational enhancer to a volitional enabler as education levels rise and may therefore be leveraged to narrow the intention-action gap within certain contexts.

## **Keywords**

Entrepreneurial intention-action gap, spirituality, Theory of Planned Behaviour, entrepreneurial intention, and entrepreneurial action.

**Plagiarism 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 Business Administration 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.

Faria Essopp

03 November 2025

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## 1. Introduction to the research problem

### 1.1 Background and context

Entrepreneurship is critical to reducing extreme poverty as it encourages innovation, provides solutions to issues that impoverished communities face ([Sutter et al., 2019](#)), and drives economic growth by launching new businesses that create jobs and stimulate productivity ([Global Entrepreneurship Monitor, 2024](#)). According to [Global Entrepreneurship Monitor \(2024\)](#) and illustrated in [Figure 1](#), Total early-stage Entrepreneurial Activity (TEA) varies widely across contexts, from as low as 6% in Morocco, to 11% in South Africa, and over 32% in Ecuador. This signals potential in translating entrepreneurial intention (EI) into sustained entrepreneurial action (EA). This concept is of particular significance to low-income economies, as entrepreneurial behaviour has a direct impact on Sustainable Development Goal (SDG) Target 1.2 which aims to “reduce at least by half the proportion of men, women and children of all ages living in poverty” globally by 2030 ([United Nations, n.d.](#)). For South Africa in particular, where unemployment – especially youth unemployment – remains a structural challenge ([Statistics South Africa, 2024](#)), the failure to translate entrepreneurial intention into entrepreneurial action represents both a developmental risk and a missed opportunity for spurring economic renewal.

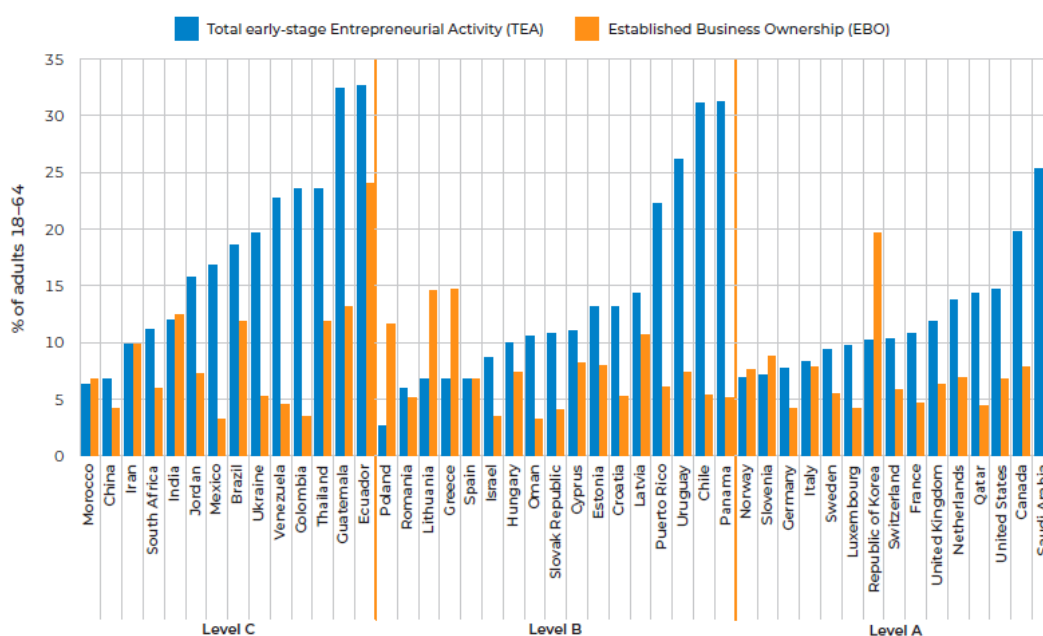


Figure 1: TEA and established business ownership for 2023 ([Global Entrepreneurship Monitor, 2024](#))

The [Global Entrepreneurship Monitor \(2024\)](#) data affirms that new business formation is more than a mechanism for individual income, with [Figure 2](#) illustrating the levels of early-stage entrepreneurs expressing expectations of job creation within five years of starting businesses. This reinforces the view of [Ratten \(2023\)](#), that entrepreneurship enables sustainable livelihoods and broadens the employment base, especially in countries grappling with youth unemployment.

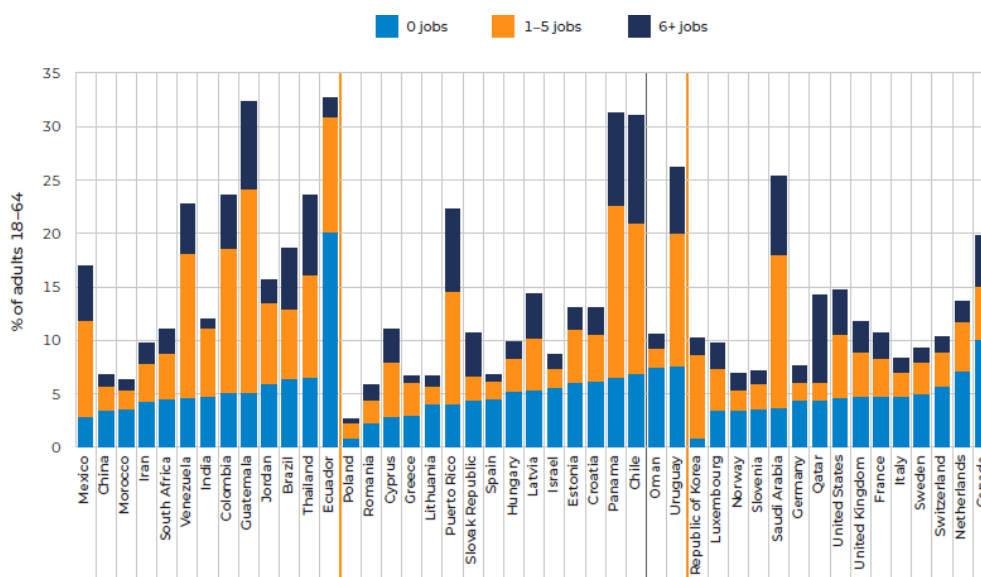


Figure 2: Job growth expectations among early-stage entrepreneurs expecting to employ people within five years ([Global Entrepreneurship Monitor, 2024](#))

Beyond employment, [Shi et al. \(2020\)](#) suggest that entrepreneurship also contributes significantly to innovation, economic diversification, and market competitiveness. Moreover, as indicated in [Figure 3](#), real-world entrepreneurial activity demonstrates a close alignment with global development priorities and the United Nations SDGs. This reinforces the view that entrepreneurship plays a pivotal role in driving not only economic growth, but also societal transformations.

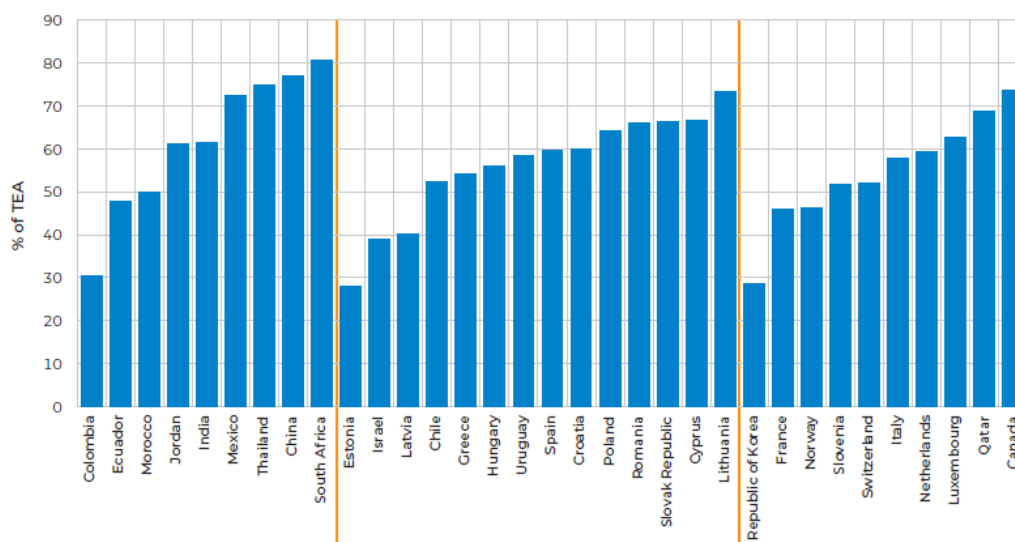


Figure 3: The percentage of individuals starting/running new businesses who have identified an SDG as a priority for their business ([Global Entrepreneurship Monitor, 2024](#))

As a direct predictor of EA, entrepreneurial intention has been widely studied in the entrepreneurship literature ([Ajzen, 1991](#); [Gieure et al., 2020](#); [Hueso et al., 2020](#); [Innocent Otache et al., 2024](#)). However, growing evidence suggests that while EI is a necessary precondition for EA, EI alone is not enough to guarantee entrepreneurial behaviour ([Meoli et al., 2019](#)). Literature research ([Bogatyрева et al., 2019](#); [Van Hoa Tran et al., 2023](#)) as well as real-world studies conducted by the [Global Entrepreneurship Monitor \(2024\)](#) highlight the growing gap between EI and EA; with many individuals expressing a desire to start a business but failing to do so.

The [Global Entrepreneurship Monitor \(2024\)](#) identifies factors, such as fear of failure, that contribute to the EI-EA gap. An increasing gap that poses a challenge in fostering entrepreneurial behaviour which is imperative for economic growth, innovation, and poverty-alleviating job creation. The data reveals that although EI remains strong, fear of failure deters as much as 40% of aspiring entrepreneurs across 78% of the economies surveyed, with women disproportionately affected (82% of the surveyed economies reported higher proportion of women deterred by fear of failure). This disjunction between intention and follow-through of entrepreneurial behaviours underscores the urgency of addressing the entrepreneurial intention-action gap ([Global Entrepreneurship Monitor, 2024](#)).

So, while [Ajzen's \(1991\)](#) Theory of Planned Behaviour (TPB) remains the dominant framework for explaining EI, recent empirical findings highlight that its constructs

often explain less than 34% of the variance in EA ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)). This limitation foregrounds the academic problem addressed in this study: intention is necessary but insufficient to guarantee action. By leveraging the TPB framework, strategies such as the introduction of moderators may be employed to influence the translation of EI into EA ([Tornikoski & Maalaoui, 2019](#)). Spirituality (SP), which is characterised by a sense of connection to something greater than oneself, greater purpose, and resilience ([Ganzin et al., 2019](#)), has been put forward as one such construct that could potentially influence the transformation of EI into concrete business actions ([Rashid & Ratten, 2021](#)).

## 1.2 Problem statement

Despite the acknowledged role of entrepreneurship in job creation, innovation and sustainable development, a persistent disconnect remains between EI and EA, presenting both a practical and theoretical challenge.

Practically, the EI-EA gap undermines the full realisation of entrepreneurial contributions to employment, innovation, and inclusive economic and social development. This is highlighted by the [Global Entrepreneurship Monitor \(2024\)](#) data shown in [Figure 2](#) which indicates high expectations for job creation; however, these expected outcomes will only be realised if individuals act upon their intentions.

On an academic level, the EI-EA gap reveals limitations in widely utilised behavioural models like the TPB framework ([Ajzen, 1991](#)), which indicate a strong correlation between intention and actual behaviour. This dual challenge, of the inefficiencies observed in practice ([Global Entrepreneurship Monitor, 2024](#)) and the under-explanation within TPB theory ([Tornikoski & Maalaoui, 2019](#)), frames the central research problem of this study. Recent works by [Bosnjak et al. \(2020\)](#) and [Tornikoski and Maalaoui \(2019\)](#), acknowledge that intention alone does not guarantee that a desired behaviour is enacted. It is proposed that contextual and psychological moderators, particularly those affecting volitional control and self-regulation, influence the translation of individual's intention into the desired action ([Conner & Norman, 2022](#)).

Spirituality is one such moderator, with the potential to either close or widen the intention-action gap. [Rashid and Ratten \(2021\)](#), in support of this assertion, suggest that SP can assist entrepreneurs better manage uncertainty and overcome fear of

failure; a fear that the [Global Entrepreneurship Monitor \(2024\)](#) data views as prevalent in most economies and a major deterrent to starting a business venture. The stark reality of the fear is visible in [Figure 4](#), which shows the percentage of adults across 46 economies, who even if presented with worthy entrepreneurial opportunities, would not take up the opportunity and start a new business for fear of the initiative failing. However, despite recent research indicating that SP may serve as a moderator, the empirical examination of SP as a moderating variable within the TPB framework remains underdeveloped, particularly in quantitative scales.

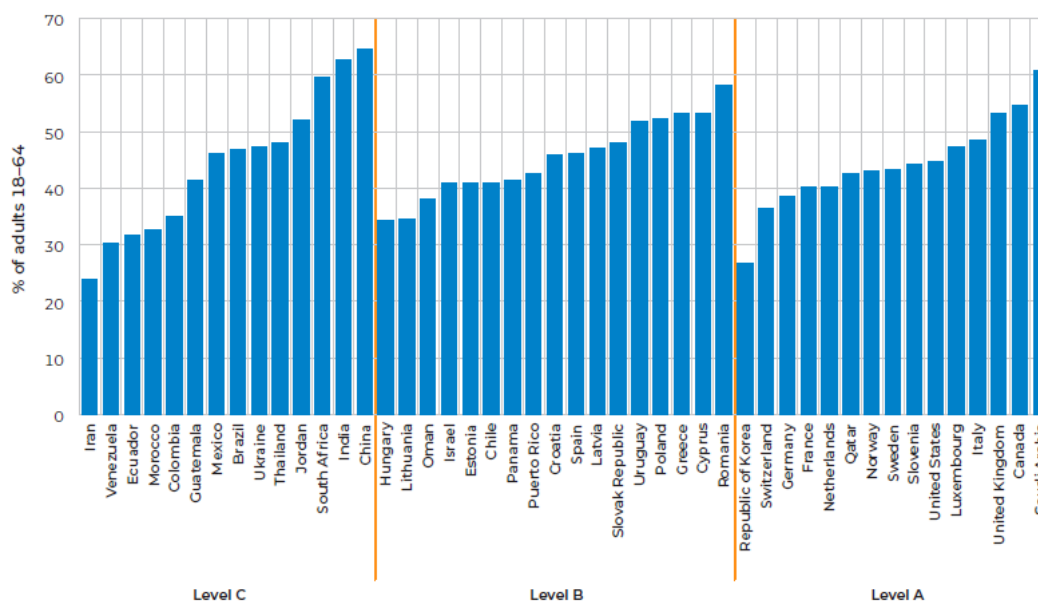


Figure 4: Percentage of adults who would not start a business for fear that it might fail ([Global Entrepreneurship Monitor, 2024](#))

### 1.3 Research aim and objectives

The purpose of this research project is to examine the moderating role of SP on the relationship between EI and EA, using Ajzen's TPB as a guiding framework. Specifically, by integrating SP into the TPB model, this study seeks to determine whether SP enhances or inhibits the transition from EI to entrepreneurial behaviour, considering possible psychological and social dimensions.

The objectives are therefore threefold:

1. To assess the extent of the EI-EA gap.
2. To contribute to both theoretical and practical understanding by examining how SP influences the conversion of EI into actions.

3. To identify potential mechanisms that could effectively bridge the intention-action gap in entrepreneurship and ultimately enhance entrepreneurial outcomes.

In so doing, the study explicitly tests whether SP strengthens TPB's explanatory power in predicting EA, addressing both a pressing practical problem and an unresolved academic debate.

The central hypothesis of the study is that individuals with higher levels of SP may possess stronger psychological resources that enhance the likelihood of them acting upon entrepreneurial intentions; especially when facing fear, uncertainty, or limited external support ([Rashid & Ratten, 2021](#); [Smith et al., 2021](#)).

#### 1.4 Rationale for the study

**Business rationale** – From a practical perspective, the inability of EI to consistently lead to EA reflects economic inefficiencies. While entrepreneurship development programmes focus mainly on intention stimulation ([Gieure et al., 2020](#)), supporting the volitional phase of EA is also important ([Van Hoa Tran et al., 2023](#)) but often neglected. As the [Global Entrepreneurship Monitor \(2024\)](#) report emphasises, entrepreneurship is a key driver of job creation and sustainable economic and social growth; however, the expected benefits are only realised if aspiring entrepreneurs transition from ideation to execution of entrepreneurial behaviour.

This provides a business-critical insight; namely, entrepreneurship ecosystems that only measure “intention” risk overstating their growth potential unless they also address the volitional execution stage. For South Africa, with one of the world's highest youth unemployment rates ([Statistics South Africa, 2024](#)), failure to close the EI-EA gap has immediate developmental consequences.

Further, by understanding how SP influences the EI-EA transition, stakeholders can tailor interventions to support individuals who may be constrained not by intent, but by internal barriers such as fear or misalignment with purpose ([Rashid & Ratten, 2021](#)).

**Theoretical rationale** – From a theoretical perspective, the study will extend the TPB framework by testing SP as a moderator of EI-EA congruence. TPB's overly cognitive framing neglects volitional resources such as resilience, meaning-making,

and self-regulation ([Adebusuyi et al., 2021](#); [Conner & Norman, 2022](#)) and scholars have called for additional moderators to explain the intention-action gap ([Bosnjak et al., 2020](#); [Tornikoski & Maalaoui, 2019](#)).

Spirituality conceptualised inclusively as a search for meaning, connection, and purpose ([de Brito Sena et al., 2021](#); [Rashid & Ratten, 2021](#)), has been suggested as a potential moderator but rarely empirically tested within entrepreneurship research ([Games et al., 2024](#); [Roos & Botha, 2022](#)). This study addresses that omission.

### **1.5 Contributions of the study**

In clarifying whether spirituality supports the translation of entrepreneurial intention into action, this study contributes practically by providing evidence for policymakers, educators, and practitioners seeking to design interventions that move beyond inspiring entrepreneurship to enabling execution. Additionally, this study extends Ajzen's TPB by integrating spirituality as a moderating construct, empirically testing a variable that has been conceptually proposed ([Rashid & Ratten, 2021](#); [Tornikoski & Maalaoui, 2019](#)) but rarely operationalised quantitatively in entrepreneurship ([Games et al., 2024](#); [Roos & Botha, 2022](#)). By doing so, it enriches TPB's predictive power with a volitional dimension absent from its original design.

The study also contributes practically by providing evidence for policy makers, educators, and practitioners seeking design interventions that move beyond inspiring entrepreneurship to enabling sustained execution entrepreneurial behaviours.

Together, the above contributions highlight both the academic novelty and the applied value of the study, leading directly into the central research question.

### **1.6 Conclusion**

Unless the intention-action is closed, entrepreneurship policy risks overstating its developmental capacity, particularly in contexts like South Africa where job creation is critical. Existing behavioural models like TPB, while useful, leave the volitional phase underexplored.

This study therefore proposes the following research question to guide the research:

**Does spirituality have a moderating effect on the relationship between entrepreneurial intention and entrepreneurial action?**

Answering this question will help determine whether spirituality can serve as a latent resource for closing the intention–action gap, thereby unlocking more of entrepreneurship’s socio-economic potential.

The first step in addressing the theoretical and practical limitations outlined above, is to conduct a thorough literature review to explore whether and how SP influences the volitional entrepreneurial pathway. The next chapter reviews the literature in greater depth, tracing how and why TPB has been applied, its limitations, and how spirituality may enrich its explanatory power.

## 2. Literature review

### 2.1 Introduction

This chapter highlights how previous research has informed the development of the study's conceptual model and research hypothesis. The literature review integrates theory and empirical findings to build a clear argument that while TPB explains EI, it inadequately accounts for the gap between EI and EA. This chapter positions Spirituality (SP) as a potential moderator capable of addressing this gap.

### 2.2 Theoretical foundations

#### 2.2.1 The Theory of Planned Behaviour (TPB)

The relationship between EI and EA has been widely explored within the TPB model, and its constructs of Personal Attitude (PA), Subjective Norms (SN), and Perceived Behavioural Control (PBC) explaining the transition from intention to action ([Ajzen, 1991](#); [Tornikoski & Maalaoui, 2019](#)). In entrepreneurial research, TPB provides a framework to understand how an individual's PA, SN, and PBC shapes their intention to start a business venture, which in turn predicts whether the entrepreneurial behaviour is enacted ([Liñán et al., 2010](#); [Lortie & Castogiovanni, 2015](#)).

However, while TBP has been extensively applied to entrepreneurship ([Liñán et al., 2010](#); [Lortie & Castogiovanni, 2015](#)), critics argue that TPB remains overly cognitive and fails to adequately capture post-intentional volitional processes such as resilience and self-regulation ([Adebusuyi et al., 2021](#); [Conner & Norman, 2022](#); [van Gelderen et al., 2017](#)). Extensions of TPB ([van Gelderen et al., 2017](#)) highlight that additional moderators or mediators are therefore necessary to explain the intention-action gap. This underscores the need to test different constructs such as spirituality within the TPB framework.

#### 2.2.2 Alternative theoretical perspectives on entrepreneurial behaviour

Recent studies ([Adebusuyi et al., 2021](#); [Belchior & Lyons, 2021](#); [Keller et al., 2020](#); [Lu et al., 2021](#)) have drawn upon complementary theories to capture the motivational and behavioural dynamics that TPB does not fully explain. A review of these theories highlights conceptual gaps within TPB but also clarifies why TPB continues to serve as the theoretical framework for this study.

Self-determination Theory (SDT) – In entrepreneurship, the three psychological needs that SDT posits as the basis for sustained engagement in a desired behaviour manifests in the pursuit of autonomy through self-employment, the demonstration of competence through venture creation, and the cultivation of social bonds through networks and collaborations ([Lu et al., 2021](#); [Ryan & Deci, 2020](#); [van Gelderen et al., 2017](#)). While SDT expands on the motivational aspects, it does not explicitly account for the intention-action gap and lacks the predictive parsimony that makes TPB attractive for hypothesis testing in this study.

Mindset Theory of Action Phases (MAP) – MAP distinguishes between motivational and volitional phases but does not differentiate between the types of motivation during the initial goal setting ([Keller et al., 2020](#)). Further, it requires additional theories like SDT to explain whether the underlying motivation is autonomous or controlled ([Lu et al., 2021](#); [Ryan & Deci, 2020](#)).

While the alternatives highlight both the strengths and the shortcomings of approaches beyond TPB, TPB offers a simple and measurable structure with validated scales that have been widely used in entrepreneurship research ([Gieure et al., 2020](#); [Liñán et al., 2010](#); [Liñán et al., 2013](#)). This allows for operationalising of constructs and comparability of this study across existing research. The TPB model also allows for the integration of moderating variables in a clear and testable manner.

## **2.3 Entrepreneurial Intention (EI)**

Entrepreneurial intention refers to a person's conscious and deliberate mindset that directs one's focus and actions towards ideas of starting up and running a new business ([Hueso et al., 2020](#)). It is the first step and a prerequisite for starting the entrepreneurial process and engaging in EA ([Al-Jubari et al., 2018](#)) but is not synonymous with EA, and a growing body of research calls for greater nuance in explaining what transforms intention into action ([Meoli et al., 2019](#)).

### **2.3.1 Determinants of EI under TPB**

Within the TPB framework, EI is influenced by the three motivational antecedents of PA, SN, and PBC ([Donaldson, 2019](#)).

**Attitude** – Individuals can either perceive entrepreneurial behaviour as beneficial and fulfilling or as risky ([Hueso et al., 2020](#); [Nowinski & Haddoud, 2019](#)). Expected

rewards; in the form of financial independence, personal fulfilment, or the ability to innovate and make a difference, shape PA in a positive manner and foster stronger EI ([Neneh, 2020](#)). Conversely, [Nguyen and Nguyen \(2023\)](#) and [Neneh \(2020\)](#) also suggest that fear of failure, insecurity and risk impact PA in a negative manner which weakens EI by reducing entrepreneurial aspirations and the perceived value of starting the business.

The above findings suggest that while positive PA towards entrepreneurship stimulate stronger EI, adverse perceptions such as fear can diminish it. Spirituality may moderate this PA-EI relationship by fostering optimism, resilience, and meaning-making, thereby shielding against negative emotions and amplifying the positive effects of favourable attitudes ([Ganzin et al., 2019](#)). Hence it is proposed that spirituality positively moderates the relationship between personal attitude and entrepreneurial intention (H1).

**Subjective norms** – SN considers a person's social context, and the perceived social pressures as related to entrepreneurial behaviour ([Gieure et al., 2020](#)). Supportive social environments, like encouragement from family ([Neneh, 2020](#)) and a national culture that supports entrepreneurship ([Bogatyreva et al., 2019](#); [Liñán et al., 2013](#)), positively influence EI, while negative or neutral feedback in the form of family disapproval or cultural bias towards stability, can suppress EI ([Neneh, 2020](#)).

[Al Jubari et al. \(2018\)](#) found that although SN shapes EI through social approval or disapproval, these influences are not uniform across contexts. Further, [Busenitz & Lichtenstein \(2019\)](#) and [Obregon et al. \(2021\)](#) posit that SP, through its emphasis on compassion and social responsibility, may reinforce positive support while protecting individuals against discouraging. This suggests that SP could influence the effect of SN on EI, leading to the expectation that SP positively moderates the relationship between subjective norms and entrepreneurial intention (H2).

**Perceived behavioural control** – In the context of entrepreneurship, [Ajzen \(1991\)](#) defines PBC as being akin to self-efficacy and as an individual's perception of their own ability to overcome challenges and successfully execute the desired entrepreneurial behaviour. A higher level of PBC would positively impact EI ([Hueso et al., 2020](#)). It would require that the individual assess both available resources; like

time, money, skills, and knowledge, as well as perceived obstacles; like competition and bureaucracy ([Neneh, 2020](#)).

PBC is a key determinant of EI ([Al-Jubari et al., 2018](#)), reflecting confidence in one's entrepreneurial capabilities. However, often aspiring entrepreneurs underestimate their ability to mobilise resources and overcome obstacles to realising their entrepreneurial goals ([Fesharaki, 2019](#)). Spirituality may strengthen self-efficacy and resilience within aspiring entrepreneurs, enabling such individuals to persist despite resource constraints or uncertainty ([Fesharaki, 2019](#)). Accordingly, this study hypothesises that spirituality positively moderates the relationship between perceived behavioural control and entrepreneurial intention (H3).

In contributing to the literature on the motivational antecedents, [Neneh \(2020\)](#) states that when the three antecedents of EI align positively, EI is enhanced, and the likelihood of the actual entrepreneurial behaviour being actioned increases. However, though these constructs increase understanding about the motivational phase of TPB they fail to explain the discrepancies between intention and action, necessitating a more thorough exploration of post-intentional influences and dynamics. This opens theoretical space for moderators such as spirituality.

### 2.3.2 Emerging determinants of EI beyond TPB

However, although TPB provides a validated framework for explaining entrepreneurial intentions, recent works increasingly argue that PA, SN, and PBC are insufficient to capture the full range of factors shaping entrepreneurial motivation ([Van Hoa Tran et al., 2023](#)). Studies detail that TPB's core antecedents explain only a portion of the variance in subsequent entrepreneurial behaviour, often below 34% ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)), highlighting the need to explore additional determinants of entrepreneurial motivation and EA.

Additional factors that could improve the understanding of EI include **entrepreneurial passion**, referring to the intensity of positive feelings directed towards entrepreneurial activity ([Murnieks et al., 2019](#)) and an individual's **entrepreneurial self-identity** reflecting the degree to which individuals internalise being an entrepreneur as part of their self-concept, which not only strengthens commitment to entrepreneurial goals but also impacts the effects of PA and SN on EI ([Roos & Botha, 2022](#)).

Further, as individual motivations do not exist in a vacuum, the demographic profiles of gender, age, educational attainment, household income, should be considered. The broader social, cultural, and economical contexts within which people operate (namely: national culture, proximate social environment, economic and institutional condition) should also be considered as these are important in shaping motivation. The [Global Entrepreneurship Monitor \(2024\)](#) illustrates that EI varies across gender, age, and cultural settings, with women often reporting lower EI due to social expectations and perceived barriers; while contexts that value stability over risk act towards reducing the formation of entrepreneurial intention ([Bogatyreva et al., 2019](#)). In such contexts, SP can serve as a source of empowerment, resilience, and legitimisation that helps aspiring entrepreneurs to resist discouraging subjective norms or overcome self-doubt.

The emerging determinants reinforce the view that EI is influenced by psychological and contextual factors beyond the antecedents posited by TPB. However, these determinants do not replace or weaken the explanatory power of the three TPB antecedents but rather complement them by providing additional pathways through which intentions can be shaped and strengthened ([Pidduck et al., 2024](#)).

#### **2.4 Entrepreneurial Action (EA)**

While TPB posits intention as the immediate antecedent of behaviour, it does not fully account for volitional deficits that often block the desired action ([Jenkins et al., 2021](#)). EA thus reflects a volitional entrepreneurial outcome, requiring mechanisms like resilience, self-regulation, and purpose, which are potentially mediated by constructs like SP ([Conner & Norman, 2022](#)).

[Hueso et al. \(2020\)](#) consider EI to be the single most accurate predictor of EA. Where EI is the first step in the entrepreneurial process and reflects the individual's desire to start a new business, EA is the desired end-state of the entrepreneurial process and refers to the actual observable activities that the individual undertakes to start up, operate or grow a new business venture ([Bogatyreva et al., 2019](#); [Hueso et al., 2020](#)). Entrepreneurial activities are key tasks that are undertaken during the pre-launch, launch, and post-launch phases of the entrepreneurial process ([Gielnik et al., 2020](#)). EA could include identifying and evaluating business opportunities, acquiring necessary resources, registering the business, developing business plans,

launching the product or service, entering markets and acquiring customers ([Donbesuur et al., 2020](#); [Gielnik et al., 2020](#)).

However, although the literature indicates that EI largely predicts EA will be undertaken, empirical evidence consistently shows that many aspiring entrepreneurs fail to act on their intentions ([Jenkins et al., 2021](#)). This discrepancy defines the entrepreneurial intention-action gap.

#### **2.4.1 Barriers to entrepreneurial action**

While [Hueso et al. \(2020\)](#) affirm EI as a strong predictor of EA, their findings leave unaddressed the mechanisms by which volitional action is suppressed or enhanced. This gap warrants a shift towards examining moderating constructs such as spirituality, which may reveal latent forces that influence the volitional phase of EA.

[Donaldson \(2019\)](#) and [Jenkins et al. \(2021\)](#) assert that the entrepreneurial intention-action gap arises when aspiring entrepreneurs do not move beyond forming intentions to follow through with actual entrepreneurial behaviour. Potential barriers that can stall the entrepreneurial process and contribute to the EI-EA gap include:

**Uncertainty** is inherent in the entrepreneurial process and can create hesitancy in undertaking entrepreneurial behaviours ([Wood et al., 2019](#)).

**Psychological barriers** represent the internal, cognitive constraints that prevent individuals from acting on their EI ([Khanin et al., 2021](#)). Fear of failure; low PBC; lack of stamina, perseverance, and dedication; and lack of ambition are a few such barriers that reduce the motivational strength of EI, thereby reducing the likelihood of EA ([Duong, 2022](#); [Khanin et al., 2021](#)).

**Contextual and structural barriers** that stem from external limitations can inhibit EA and include limited access to capital and resources; regulatory and institutional obstacles like bureaucracy, corruption, and over-regulation; cultural factors like societal inequality; market failures and competition; and lack of social support ([Khanin et al., 2021](#)).

**Behavioural execution gaps** in the form of procrastination and inertia, lack of planning, and cognitive-overload that may paralyse decision-making can also negatively impact EA ([Khanin et al., 2021](#); [van Gelderen et al., 2017](#)).

These barriers suggest that bridging the EI-EA gap requires more than motivation; it requires among others, personal resilience and clarity of purpose, dimensions where SP may offer positive gains. By understanding these barriers that prevent EI from translating into EA, individuals can develop informed interventions targeting barriers particular to their personal situation.

#### **2.4.2 Temporal dynamics and cross-domain intention-action gaps**

Another aspect that researchers sought to understand was the temporal dynamics involved in the EI-EA gap. Studies found that even when intentions were initially strong, their predictive power weakened over time, when faced with competing priorities, procrastination, and changing circumstances ([Sheeran & Webb, 2016](#); [Steel & König, 2006](#); [Steel et al., 2018](#)). This erosion effect suggests that the EI-EA gap is a process that unfolds dynamically, highlighting the importance of volitional resources that will sustain motivation beyond the initial intention formation phase and realise into tangible entrepreneurial actions.

Parallel studies in domains such as health behaviour ([Godin et al., 2005](#); [Rebar et al., 2019](#)) and environmental behaviour ([Wang et al., 2022](#)) illustrate that individuals frequently intend to enact a desired behaviour yet fail to act consistently due to volitional deficits; suggesting that the intention-action gap is a general human phenomenon and is not unique to entrepreneurship. What distinguishes entrepreneurship, however, is the increased state of uncertainty, resource intensity, and emotional investment involved ([Zayadin et al., 2022](#)). This recognition underscores the importance of volition support and provides further rationale for introducing moderating constructs like spirituality.

#### **2.4.3 Bridging the EI-EA gap**

Despite extensive theoretical advancements, which also identify various factors that impede or facilitate the transition from intention to action, the gap between entrepreneurial intention and actual entrepreneurial behaviour persists ([Bogatyreva et al., 2019](#); [Global Entrepreneurship Monitor, 2024](#); [Van Hoa Tran et al., 2023](#)).

Successful translation of EI into EA requires clear behavioural planning and activation mechanisms. [Ganzin et al. \(2019\)](#) proposes that these processes may be

moderated by deeper belief systems and cultural frameworks, such as spirituality and social norms.

Research in the fields of health behaviours and sustainability choices also document intention-action gaps, showing that individuals often intend to act but fail to execute due to volitional deficits ([Godin et al., 2005](#); [Rebar et al., 2019](#)). This cross-domain evidence strengthens the case for identifying psychological moderators like spirituality, that may empower individuals' follow-through in entrepreneurship.

The persistence of the EI-EA gap highlights the limitations of motivational antecedents alone in predicting EA ([Bogatyreva et al., 2019](#); [Global Entrepreneurship Monitor, 2024](#); [Van Hoa Tran et al., 2023](#)). By providing psychological strength, resilience, and comfort with uncertainty, SP may offer volitional resources that empower individuals to enact their entrepreneurial intentions ([Ganzin et al., 2019](#)). Thus, it is proposed that spirituality positively moderates the relationship between entrepreneurial intention and entrepreneurial action (H4).

## **2.5 The role of spirituality**

Spirituality has emerged as a potential enabler in the entrepreneurship process; by way of being a possible source of meaning, motivation, and resilience for entrepreneurs and mitigating identified barriers to EA ([Rashid & Ratten, 2021](#); [Smith et al., 2021](#)). This highlights a shift from purely economical and rational perspectives to a more holistic view of entrepreneurship when trying to close the intention-behaviour gap ([Smith et al., 2023](#)).

### **2.5.1 Definitions and conceptualisations of spirituality**

The vast range of individual interpretations of spirituality requires that the most widely recognised conceptualisations be acknowledged and understood; such that an inclusive understanding of the term is adopted for this research undertaking. This is in alignment with [de Brito Sena et al. \(2021\)](#) who, in the absence of a single unified interpretation of spirituality, advocate for understanding the diverse interpretations, practices, and experiences of spirituality for individuals with different beliefs and values; as well as across different cultural, religious, and philosophical backgrounds must be recognised. For this study, spirituality is conceptualised inclusively as the search for meaning, connection, and purpose - whether religious or non-religious, noting the following broad dimensions of spirituality:

**Existential spirituality** does not necessarily have a religious foundation but rather considers an individual's personal journey in finding meaning, purpose, and direction in this life ([de Brito Sena et al., 2021](#); [Lalani, 2020](#); [Murgia et al., 2020](#); [Obregon et al., 2021](#)).

**Transcendence and connectedness** consider the relationship that one has with their inner selves as well as with those around them ([Clark & Emerson, 2020](#); [Lalani, 2020](#); [Murgia et al., 2020](#)). This includes a person's connectedness to any one or a combination of the following: connection to a higher power, their community, the universe and natural world around them, or even art power ([Clark & Emerson, 2020](#); [de Brito Sena et al., 2021](#); [Watts et al., 2022](#)).

**Religious spirituality** is centred around God and considers religion and spirituality as inexorably intertwined ([Lalani, 2020](#); [Perera et al., 2018](#)) with people expressing their spirituality through the tenets of a specific religion ([de Brito Sena et al., 2021](#); [Lalani, 2020](#)).

**Cultural/indigenous spirituality** can be understood as a social construct whose meaning is shaped by cultural backgrounds, ancestral traditions, and historical contexts, and how people perceive it ([de Brito Sena et al., 2021](#); [Games et al., 2024](#); [Murgia et al., 2020](#)).

**Secular or humanist spirituality** sees spirituality as more than religion and seeks to create meanings that are shared by all human beings, and which are outside of any religious or theistic systems ([de Brito Sena et al., 2021](#); [Murgia et al., 2020](#); [Steensland et al., 2018](#)). The focus here is on secular and humanistic elements which could include ethics, moral responsibility, and human potential among others, rather than religious beliefs and values ([Lalani, 2020](#)).

These multiple dimensions of spirituality influence how people think, feel, and act; and may ultimately impact the different ways in which individuals show up on the entrepreneurial journey ([Rashid & Ratten, 2021](#)).

## 2.5.2 Spirituality and inner resources

Spirituality, if positively integrated into one's life, can offer a plethora of resources to individuals by fostering inner strengths that manifest in psychological, emotional, physical, or ethical perspectives. [Rodrigues et al. \(2019\)](#) argue that spirituality can

help a person derive meaning and purpose in their life, which in turn manifests in increased productivity and creativity. Additional benefits, identified by [Bravin et al. \(2019\)](#) and [Ganzin et al. \(2019\)](#), speak to resilience and coping under stress as being sources of hope and strength which allow for adapting when presented with difficult situations.

Positive traits like compassion, empathy, and connectedness, are also promoted by spirituality and can lead to increased social cohesion and a sense of personal responsibility to others ([Noh & Shahdan, 2020](#); [Rodrigues et al., 2019](#)). By fostering self-awareness and mindfulness, spirituality can reduce anxiety as well as enhance self-regulation and decision-making ([Arend, 2023](#)). These qualities map directly onto the volitional resources absent in Ajzen's TPB framework, suggesting that spirituality could act as a resource enabling aspiring entrepreneurs to persist under uncertainty. Further, spirituality provides a moral compass that guides behaviour and accountability, while simultaneously shaping personal values like integrity and responsibility ([Frunză et al., 2019](#)).

This spiritual capital, which [Games et al., 2024](#) define as moral and existential resources that individuals draw upon for meaning-making, can function as a latent entrepreneurial asset; providing strength under adversity and fuelling action even when external resources are limited.

It should, however, be noted that while spirituality offers numerous benefits, it may also introduce challenges when beliefs are internalised in a manner that may be rigid, fear-based or exclusionary. These potential challenges could include negative impacts on behaviours that result in reduced creativity and commitment ([Arend, 2023](#)); as well as increased conflict and antagonism that may manifest as judgemental, exclusionary, and superiority attitudes towards others ([Rocha & Pinheiro, 2020](#)).

The varying dynamics of spirituality present differently in individuals; for example, while religious spirituality may promote ethical intentionality, secular or humanist spirituality may align with autonomous entrepreneurial agency. The manner in which spirituality affects individuals depends on their beliefs, implying differing moderating effects of SP on the EI-EA relationship ([de Brito Sena et al., 2021](#); [Steensland et al., 2018](#)).

### 2.5.3 Spirituality across education levels

[Kavadias et al. \(2023\)](#) and [Voas \(2014\)](#) posit that education is a key determinant of cognitive development, worldview formation, and value orientation. In researching the effect of education levels on spirituality, studies reveal that the influence of education on spirituality does not follow a simple linear trend but rather, it is a complex context-dependent relationship ([Astin et al., 2010](#); [Hungerman, 2011](#)).

[Kavadias et al. \(2023\)](#) found that in research across 76 countries, as education encourages analytical reasoning and autonomy that challenge traditional doctrines, people with increased schooling demonstrated weaker religious beliefs. However, the data also revealed that in the same societies, less educated groups often remain more religious and involved in collective traditional religious engagements, suggesting widening belief differences rather than uniform secularisation.

Conversely, research also revealed that higher education can foster personal spirituality, transforming rather than diminishing spirituality. Tertiary-educated individuals in Taiwan reported less engagement in formal worship, a shift away from collective religiosity, but greater interest in transcendent experiences ([Voas, 2014](#)). Consistent with this finding, a longitudinal study by [Astin et al. \(2010\)](#) found that although students' religious engagement declined during the years of study, their inner spiritual qualities of compassion, equanimity, and search for meaning, tended to strengthen through reflection, intercultural exposure, and service learning.

[Nasrollahi et al. \(2020\)](#) argued further that context matters and when spirituality and moral reflection are intentionally embedded in pedagogy and institutional culture, spirituality can strengthen alongside academic development.

Collectively, these findings demonstrate that higher levels of education may reduce conventional religiosity but can also enhance reflective, ethical, and humanistic dimensions of spirituality. Thus, while education may not predict the extent of spiritual belief, it shapes how spirituality is experienced and expressed; an insight critical for understanding the relationship between education and spirituality and spirituality's moderating role in behavioural models such as TPB.

### **2.5.4 Measuring spirituality in entrepreneurship research**

While the multiple conceptualisations of spirituality have been discussed in literature, a key challenge lies in the difficulty of measuring spirituality, as the construct does not have a single universally accepted definition or operationalisation, which complicates its inclusion in empirical models ([de Brito Sena et al., 2021](#)). A wide range of measurement approaches have been employed by researchers; from single-item measures of religiosity ([Westerink, 2013](#)) to multidimensional scales capturing different facets of the construct ([Games et al., 2024](#)).

Within entrepreneurship research, the lack of consensus on how spirituality should be measured has limited the comparability of findings; with some studies equating SP with religious affiliation while others have assessed it through broader measures of meaning and purpose ([Rashid & Ratten, 2021](#); [Smith et al., 2023](#)). For the present study, SP is conceptualised inclusively, as the search for meaning, connection, and purpose, whether religious or non-religious; thus, avoiding reducing SP to denominational belief or religious practice ([Pidduck et al., 2024](#)).

Establishing and employing valid and inclusive measures of SP provides the foundation for examining how it influences entrepreneurial behaviour; a question that the next section explores by analysing ways in which SP shapes both EI formation and the enactment of EA.

## **2.6 Spirituality and the entrepreneurial process**

The dual role of spirituality in shaping inner psychological resources has the potential to play out in the entrepreneurial process. On the one hand, spirituality can take on a supportive role to equip entrepreneurs with critical psychological resources that enhance EI formation, EA completion, and promote persistence under uncertainty ([Pidduck et al., 2024](#)). On the other hand, possible conflicts between spiritual beliefs and conventional business practices may hinder the entrepreneurial process ([Smith et al., 2023](#)).

### **2.6.1 Spirituality and entrepreneurial intention**

Spirituality when related to trust in a higher power, and in the context of the Locus of Control Theory ([Timmins & Martin, 2019](#)), can increase confidence and decrease fear and anxiety in people; fostering a sense of guidance and protection in

entrepreneurial intention and efforts ([Arend, 2023](#); [Rocha & Pinheiro, 2020](#)). The guidance and confidence arise from either a well of inner strength or belief in an external higher power ([Ganzin et al., 2019](#)). Spirituality can also facilitate innovation by increasing openness to new ideas, thus further positively influencing entrepreneurial intention ([Games et al., 2024](#)).

However, [Rietveld and Hoogendoorn \(2021\)](#) argue that spirituality may also act as a barrier under certain conditions, by conflicting with entrepreneurial values like profit maximisation and competition. [Ganzin et al. \(2019\)](#) add that some spiritual teachings may also view entrepreneurship as risky or worldly, thus creating internal conflicts that lower EI.

### **2.6.2 Spirituality and entrepreneurial action**

[Busenitz and Lichtenstein \(2019\)](#) posit that spirituality may push entrepreneurs to persist in entrepreneurial activities even when the economic benefits are slow to materialise. Spirituality can also lead to increased levels of comfort with uncertainty, providing entrepreneurs with the impetus to take action in the face of uncertainty ([Busenitz & Lichtenstein, 2019](#)).

Conversely, [Timmins and Martin \(2019\)](#) suggest that belief in a higher power can correlate to increased levels of external locus of control, which reduces proactive entrepreneurial behaviour by making people passive; as they rely on divine intervention and believe that outcomes are in the control of a higher power.

Recent studies also agree that spirituality influences how entrepreneurs interpret uncertainty, suggesting its potential as a moderator of the EI-EA pathway ([Pidduck et al., 2024](#); [Smith et al., 2023](#)). Building on this evidence, SP is positioned as a moderator that strengthens the likelihood that entrepreneurial intentions are enacted as observable behaviours. Specifically, individuals with higher levels of spirituality may draw upon inner resources that promote persistence, courage, and positive action under uncertainty ([Arend, 2023](#); [Ganzin et al., 2019](#)). This leads directly to H4, which posits that SP positively moderates the relationship between EI and EA.

### **2.6.3 Case examples of spirituality in entrepreneurship**

While conceptual research positions spirituality as a potential moderator in the entrepreneurial process, empirical illustrations demonstrate how spiritual beliefs and

practices are embedded in real-world entrepreneurial activities. These examples show that SP can act as both an enabler and a constraint.

Faith-driven entrepreneurship – Spirituality is often expressed through religious or faith-based practices (see section 2.5.1) that guide entrepreneurs' decision-making. Both [Rashid and Ratten \(2021\)](#) as well as [Pidduck et al. \(2024\)](#) submit that in uncertain environments, faith traditions provide resilience and legitimacy by framing entrepreneurial action as purposeful and ethically grounded. This influence extends beyond motivation to the volitional resources required to persist, as entrepreneurs draw on spirituality to cope with uncertainty and resource scarcity ([Pidduck et al., 2024](#)).

Indigenous and cultural forms of spirituality – Spirituality is not confined to religious practice but is also embedded in cultural and indigenous belief systems that shape entrepreneurial behaviour ([Pidduck et al., 2024](#)). [Games et al. \(2024\)](#) show SP as a dimension of “spiritual capital” in entrepreneurship, encompassing values such as collective responsibility and moral duty. Similarly, [de Brito Sena et al. \(2021\)](#) demonstrate how indigenous forms of spirituality, rooted in cultural traditions and communal connectedness, can legitimise entrepreneurial action and strengthen social support, thereby aligning entrepreneurial behaviour with subjective norms ([Tornikoski & Maalaoui, 2019](#)).

Yet, despite its enabling potential, SP may also generate tensions when its value conflict with competitive logics and profit-maximising ([Global Entrepreneurship Monitor, 2024](#)). [Smith et al. \(2023\)](#) illustrate that while SP can foster perseverance and ethical intentionality, it may simultaneously create hesitation where SP commitments discourage risk-taking or prioritise non-material goals over commercial outcomes ([Games et al., 2024](#)). These tensions demonstrate that SP is not uniformly positive but can both support and inhibit EA.

Together, these cases paint a picture in which SP is not an abstract concept but a lived resource that manifests across religious, cultural, and personal contexts of entrepreneurship ([Pidduck et al., 2024](#)). Its ability to enhance resilience reinforce social legitimacy, and sometimes constrain action ([Pidduck et al., 2024](#)) underscores its relevance as a moderating construct within the TPB framework ([Tornikoski & Maalaoui, 2019](#)).

## **2.7 Conclusion**

The literature shows that while TPB explains antecedents of EI, it fails to account for volitional execution, giving rise to the EI-EA gap. Spirituality offers unique psychological and social resources that could bridge this gap, but empirical testing remains limited. This study proposes extending the TPB model by positioning spirituality as a moderator of the EI-EA relationship, contributing to the quantitative analysis in the field. Ultimately, the contribution is twofold: (i) to strengthen theory by integrating spirituality into behavioural models, and (ii) to provide practical insights for entrepreneurship education, where intention is often measured but action remains elusive.

In summary, the literature review highlights that spirituality may operate as a moderating construct across all stages of the TPB model. By reinforcing the effects of personal attitudes (H1), subjective norms (H2), and perceived behavioural control (H3) on entrepreneurial intention, as well as strengthening the translation of entrepreneurial intention into desired entrepreneurial behaviours (H4), spirituality emerges as a theoretically grounded yet underexplored mechanism for addressing the EI-EA gap. These four hypotheses flow logically from the reviewed literature and form the empirical focus of this research study.

### 3. Research question and hypotheses

#### 3.1 Introduction

Building directing on the research problem and the literature gaps identified in Chapter 2, this chapter translates the study's purpose into a focused research question and testable hypotheses. Chapter 2 established that while TPB ([Ajzen, 1991](#)) explains entrepreneurial intention effectively it falls short in predicting entrepreneurial action, explaining less than 34% of the variance ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)). Furthermore, spirituality emerged as a potential underexplored moderator ([de Brito Sena et al., 2021](#); [Steensland et al., 2018](#)).

#### 3.2 Research question

The overarching research question aims to determine whether and how SP influences the translation of entrepreneurial intention (EI) into concrete, observable entrepreneurial actions (EA). It positions spirituality (SP) as a potential volitional resource that strengthens the explanatory power of [Ajzen's \(1991\)](#) Theory of Planned Behaviour beyond its cognitive antecedents.

**RQ1: Does spirituality have a moderating effect on the relationship between entrepreneurial intention and entrepreneurial action?**

#### 3.3 Hypotheses development

Four hypotheses are advanced to operationalise the theoretical insights that emerged the literature review detailed in Chapter 2. Each hypothesis is grounded in TPB and supported by recent literature linking spirituality to resilience, meaning-making, and volitional follow-through.

**H1: SP positively moderates the relationship between PA and EI**

Personal Attitude (PA) shapes EI by reflecting perceived desirability of entrepreneurship ([Hueso et al., 2020](#); [Neneh, 2020](#); [Nguyen & Nguyen, 2023](#)). Fear of failure, however, may weaken this link ([Global Entrepreneurship Monitor, 2024](#)). Spirituality fosters optimism, resilience, and meaning-making ([Ganzin et al., 2019](#)), can shield entrepreneurs against fear and amplify the positive impact of favourable attitudes. Thus, SP is expected to strengthen the PA-EI pathway and leads to hypothesis one (H1).

## **H2: SP positively moderates the relationship between SN and EI**

Subjective Norms (SN) capture the influence of family, peers, and community ([Liñán et al., 2013](#); [Neneh, 2020](#)). Supportive contexts enhance EI, while discouraging contexts weaken it ([Bogatyreva et al., 2019](#); [Linan2013Neneh, 2020](#)). Spirituality emphasises compassion, moral responsibility, and connectedness ([Busenitz & Lichtenstein, 2019](#); [Obregon et al., 2021](#)), which can reinforce positive social influences and shield against negative ones. Hence SP is hypothesised to positively moderate the SN-EI relationship and leads to hypothesis two (H2).

## **H3: SP positively moderates the relationship between PBC and EI**

Perceived Behavioural Control (PBC) reflects self-efficacy and perceived ability to mobilise resources ([Ajzen, 1991](#); [Hueso et al., 2020](#)). Many entrepreneurs underestimate their capacity to overcome obstacles ([Fesharaki, 2019](#)). Spirituality as spiritual capital ([Games et al., 2024](#)), can strengthen confidence, self-regulation, and resilience, thereby magnifying the PBC-EI link, leading to hypothesis three (H3).

## **H4: SP positively moderates the relationship between EI and EA, reducing the gap between entrepreneurial intention and actual entrepreneurial behaviour.**

Although EI is strong predictor of EA, the well-documented intention-action gap persists ([Bogatyreva et al., 2019](#); [Jenkins et al., 2021](#)). Cross-domain studies show that intentions often decay without volitional supports ([Sheeran & Webb, 2016](#)). Spirituality provides persistence, purpose, and tolerance of uncertainty ([Pidduck et al., 2024](#); [Rashid & Ratten, 2021](#)), suggesting that it may strengthen the translation of EI to EA. Therefore, SP is expected to positively moderate the EI-EA relationship, leading to hypothesis four (H4)

Together, these hypotheses form the basis of the proposed conceptual model, which visually depicts spirituality as a moderator within TPB and provides a structured foundation for empirical testing.

### **3.4 Conceptual model**

The conceptual model presented in [Figure 5](#) integrates the hypotheses derived above within [Ajzen's \(1991\)](#) TPB framework. It positions SP as a moderating construct that influences both the motivational antecedents of EI (PA, SN, and PBC) and the volitional pathway from EI to EA. By extending TPB in this way, the model

addresses the theoretical under-specification of volitional processes and the practical challenge of the persistent EI-EA gap.

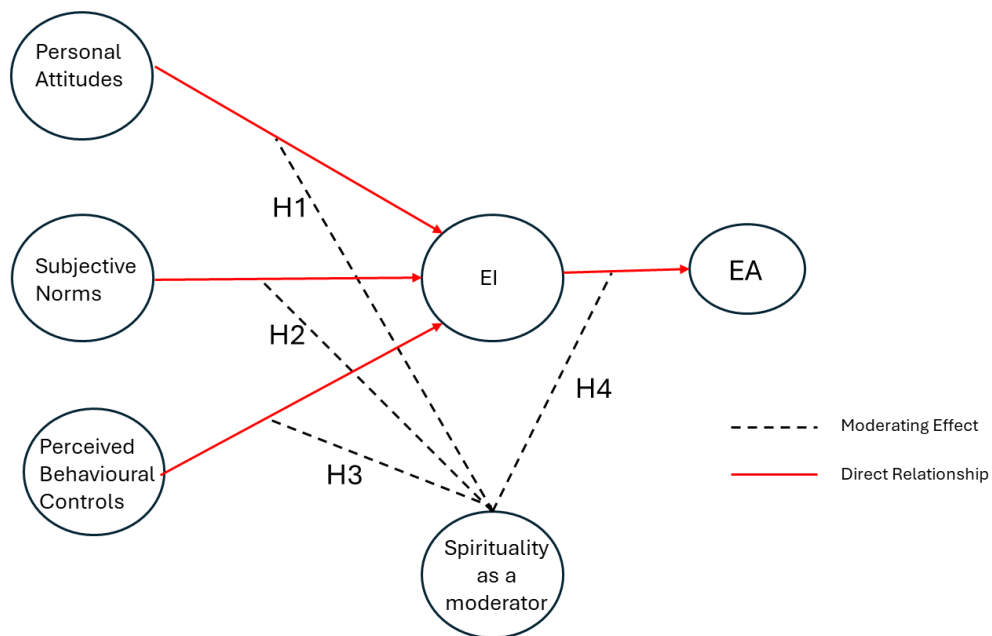


Figure 5: Proposed research conceptual model based on the Theory of Planned Behaviour

### 3.5 Conclusion

In summary, the hypotheses derived from current existing literature position spirituality as a possible moderating construct within the TPB framework. The proposed model addresses the theoretical gap of post-intentional entrepreneurial processes as well as the practical challenge of the observed entrepreneurial intention-action gap. Chapter 4 now details the research methodology adopted to empirically test Hypotheses H1 to H4.

## 4. Research methodology

### 4.1 Introduction

This chapter details the choice of research design, the research methodology that was adopted, and the approach that was taken in data collection and analysis. To empirically assess the formulated research question and hypotheses, the following methodology was adopted to guide this research, considering best practices in quantitative TPB-based moderation studies ([Van Hoa Tran et al., 2023](#)).

### 4.2 Choice of research design

#### 4.2.1 Purpose of research design

This research adopted a **descripto-explanatory** approach; a research design that was also followed by previous studies using the TPB framework ([Van Hoa Tran et al., 2023](#)) and supported hypothesis testing within established theoretical frameworks ([Saunders & Lewis, 2018](#)). The purpose of the research was to firstly gather quantitative data to describe the relationship between the various constructs of the study (entrepreneurial intention, entrepreneurial action, and spirituality) amongst respondents. Statistical analyses were then used within the TPB framework to further explain the findings derived from the survey responses.

#### 4.2.2 Philosophy

This research tested hypotheses that were derived from existing entrepreneurship and TPB literature. **Positivism** assumes an objective reality that can be measured and quantified and was therefore better suited to testing the hypotheses, as opposed to the interpretation of subjective experiences; a core tenet of interpretivism ([Saunders & Lewis, 2018](#)). The positivist research philosophy that was adopted by this research report was also adopted by previous studies that leveraged Ajzen's TPB framework ([Wang et al., 2021](#)).

#### 4.2.3 Approach selected

A **deductive** approach was used for this research, as the aim was not to develop new theories, but rather to develop hypotheses from existing established theory and test them through empirical observation of collected data, establishing possible

relationships between the research constructs. [Wang et al. \(2021\)](#) adopted the same approach to their TPB-related study to explain causal relationships between variables.

The structured and quantitative nature often associated with deductive research provides mechanisms for minimising researcher bias and subjective interpretations of results ([Sarwar et al., 2021](#)).

#### 4.2.4 Methodological choice

[Saunders and Lewis \(2018\)](#) identify the three approaches to conducting research as quantitative, qualitative, and mixed methods research. Quantitative research methods involves the use of questionnaires or surveys for the collection of quantifiable data from a sample population to achieve generalisation ([Creswell, 2014](#); [Saunders & Lewis, 2018](#)). However, this data must be suitable for statistical analysis. Qualitative research requires that the researcher engages with participants to explore their experiences; collects data through interviews, observations, or focus groups; and analyses the participants' responses by identifying common themes ([Creswell, 2014](#); [Saunders & Lewis, 2018](#)). In the mixed method approach, a combination of quantitative and qualitative research methods is applied within the same study ([Creswell, 2014](#); [Saunders & Lewis, 2018](#)).

This study followed the research approach adopted by previous studies on TPB and the intention-behaviour gap, which opted for **quantitative mono-method** design ([Meoli et al., 2019](#); [Van Hoa Tran et al., 2023](#)). The aim of this research study was to seek numerical validation of the developed hypotheses and therefore lent itself well to the proposed quantitative research methodology.

#### 4.2.5 Research strategy

[Ajzen \(1991\)](#) advocated for using **surveys** as the information-collecting instrument when conducting research using the TPB framework. This purpose of this study was to evaluate the effect that spirituality has on the entrepreneurial intention-action relationship. To observe possible linkages between the constructs, this study adapted appropriate validated surveys that were deemed relevant to all three constructs of the research conceptual model illustrated in [Figure 5](#).

#### 4.2.6 Time horizon

The research question was designed to assess the effect that spirituality has on the relationship between entrepreneurial intention and entrepreneurial action. Due to the resource constraints of this project, specifically the time allocated for completion of the MBA research project, a **cross-sectional** study was undertaken as it is both cost-effective and time efficient. Previous studies in this area, with similar time constraints, also undertook the cross-sectional time horizon design ([Meoli et al., 2019](#)). However, it should be noted that this research would have benefitted from a longitudinal study that better captures the transition of entrepreneurial intention to entrepreneurial action; as the intention-action process is longitudinal in nature and should be tracked over an extended period of time, not assessed through the collection of data at a specific point in time ([Van Hoa Tran et al., 2023](#)).

### 4.3 Methodology

#### 4.3.1 Population

The research population is the comprehensive group of interest; and while directly studying the entire population is often not feasible or possible, the chosen sample's representativeness is essential to applying findings broadly to that population ([Saunders & Lewis, 2018](#)).

While previous TPB-based entrepreneurship intention-behaviour related quantitative studies often targeted business school students ([Meoli et al., 2019](#); [Sarwar et al., 2021](#)), [Loi et al. \(2023\)](#) and [Miralles et al. \(2015\)](#) advocate for a broader population scope; recognising that EI and EA are not exclusive to students in formal business school programs. [Gieure et al. \(2020\)](#), in support of a broader population, elaborates that entrepreneurship is a societal phenomenon which affects diverse individuals beyond academic boundaries.

Consequently, the population for this study included individuals across various educational, occupational, and demographic backgrounds; provided they expressed some level of EI. This approach allowed for capturing a more inclusive sample; more accurately reflecting real-world entrepreneurship. Expanding the population scope also aligned this study with practices employed in research undertaken by the [Global](#)

[Entrepreneurship Monitor \(2024\)](#), which highlighted that EI and EA are found across a wide range of professional and educational levels.

#### **4.3.2 Unit of analysis**

The unit of analysis, or primary entity studied in this research paper, was any individual with entrepreneurial intent. To leverage the TPB framework, the variables were measured at the individual level and surveys were disseminated electronically to individual participants ([Ajzen, 1991](#)). The survey focused on responses for individual decision-making and not group-level analysis or organisational outcomes.

#### **4.3.3 Sampling method and size**

Probability sampling could not be undertaken as a complete list of the population, or sampling frame, was not readily available ([Saunders & Lewis, 2018](#)). Therefore, a non-probability sampling technique was used to conduct in this study. [Saunders and Lewis \(2018\)](#) further expand on the four non-probability sampling techniques that include quota sampling, purposive sampling, volunteer sampling, and convenience sampling; which due to their practicality, allow data to be collected in a shorter time frame compared to probability sampling ([Rahman, 2023](#)).

Purposive, or judgemental sampling, which is used when researchers aim to identify individuals with traits that are necessary to measure the constructs of the study, was employed in this research project ([Rahman, 2023](#); [Saunders & Lewis, 2018](#)). The survey was disseminated using the researcher's personal networks and social media, student and professional networks, academic platforms (WhatsApp), LinkedIn, and email, with a request that only individuals with entrepreneurial intention participate.

A sufficiently large number of respondents are required to reduce sampling error and biases. However, while the recommended sample size for a population exceeding 100000 at a 95% confidence level and a 5% margin of error is 383 ([Saunders & Lewis, 2018](#)), this study obtained 155 responses. The current study's sample size of 155 aligned with quantitative entrepreneurship research by [Krueger et al. \(2000\)](#); which used data collected from less than 150 respondents to examine entrepreneurial intention using structural equation modelling, with valid and significant results.

Another study by [Douglas \(2013\)](#) analysed a sample set of 140 respondents, underlining the feasibility of analysing datasets of sizes similar to the current study sample size in entrepreneurship research.

#### 4.3.4 Measurement instrument

The measurement instrument for this research project was a questionnaire adapted from existing survey instruments. A structured approach was adopted in developing a survey instrument that accurately captured the research constructs while meeting the required standards of validity and reliability. The process involved the following key steps:

##### **Definition of constructs**

The first step was to clearly define the core constructs EI, EA, and SP; based on the research objectives and existing literature. EI and EA were positioned within the TPB framework, while the multiple dimensions of SP were conceptualised to ensure that an inclusive understanding of the term was adopted for this research.

##### **Literature review**

The next step was to conduct an extensive literature review to identify existing validated instruments that align with each of the constructs. Emphasis was placed on instruments that had been used in peer-reviewed research.

##### **Selection of instruments**

Three instruments were identified as meeting the study requirements. Firstly, the ***Entrepreneurial Intention Questionnaire (EIQ)*** by [Liñán and Chen \(2009\)](#) was selected for its alignment with Ajzen's TPB. Permission for use was granted by the authors of the instrument with the stipulation that the source be acknowledged. Secondly, the ***Entrepreneurial Action scale*** used by [Gieure et al. \(2020\)](#) was chosen for its empirical validation in extending TPB to include behavioural outcomes and was accessed from the original journal article. Thirdly, the ***Daily Spiritual Experience Scale (DSES)*** was selected for its inclusive and validated approach to measuring everyday spirituality across both religious and non-religious contexts ([Underwood & Teresi, 2002](#)). A registration form was submitted to the author of the DSES; thereafter, permission was granted for non-profit use of the scale. Permissions received from the instrument authors are included in [Appendix B](#).

### **Adaptation for cohesion**

The original items of the three instruments were combined into a single cohesive tool that directly supported the aim of assessing the influence of SP on the EI-EA relationship. Only minor formatting adjustments, like question numbering and consistent instructions, were made for clarity and user-friendliness.

The adapted survey, which can be found in [Appendix C](#), began with screening questions aimed to ensure that the relevant individuals participate in the survey. The survey was conducted in English with responses for EI and EA measured using a five-point Likert scale, and SP responses measured on the original 6-point scale of the DSES.

### **Demographics**

The survey asked participants three questions, aimed at understanding the demographics of respondents within the sample set. [Wegner \(2020\)](#) classifies data in terms of four measurement scales: namely nominal, ordinal, interval and ratio. The gender and education level variables were measured using nominal scales, while the age variable was measured on an ordinal scale.

### **Construct 1 – Entrepreneurial intention**

Each of the constructs of this study was tested through a set of sub-questions. Responses to survey items associated with EI and the antecedents of EI (PA, SN, and PBC) were assessed using established scales from [Liñán and Chen \(2009\)](#). The primary data for this subset, which comprised 20 survey items (question four to question 23, was collected as numeric interval data. A five-point Likert scale was used as per [Liñán and Chen \(2009\)](#), and is detailed in [Appendix D](#), with responses ranging from “strongly disagree” = 1 to “strongly agree” = 5. Further, [Liñán and Chen \(2009\)](#) used Cronbach’s alpha to test reliability of the measurement scale, obtaining values above 0.7, indicating that the scales are reliable.

### **Construct 2 – Entrepreneurial action**

Data for the EA construct was also collected as numeric interval data with the relevant survey items evaluated on a five-point Likert scale, described in [Appendix D](#) ([Gieure et al., 2020](#)), with item responses ranging from “strongly disagree” = 1 to “strongly agree” = 5. The survey instrument included six items related to this

construct (from question 25 to question 30), adapted from [Gieure et al. \(2020\)](#), who calculated a Cronbach's alpha of over 0.7 for this dimension.

### **Construct 3 – Spirituality**

Spirituality was measured using items from the DSES instrument ([Underwood & Teresi, 2002](#)), which captured the frequency of ordinary daily spiritual experiences like feeling God's presence and feeling a deep inner peace, and is grouped from question 31 to question 45 of the adapted survey instrument. Participant responses were recorded on a Likert-type frequency scale representing numeric interval data, with responses ranging from "never" = 1 to "many times a day" = 5, as detailed in [Appendix D](#).

[Underwood and Teresi \(2002\)](#) determined internal consistency reliability with Cronbach's alpha values over 0.7, noting that individuals' daily spiritual experiences are generally stable over short-term periods. The DSES was thus appropriate for the current cross-sectional research study. However, the authors advise that for longitudinal studies, the DSES scores may vary, as participant responses will change depending on the participant's feelings and reactions to external stressors at different times along the longitudinal timeline.

## **4.4 Data gathering process**

The survey was constructed and conducted using the SurveyMonkey online platform. SurveyMonkey offered ease of access and ease of use, generated a hyperlink that was shared with prospective respondents, and collated the data in a format that was readily exported to Excel. The data was translated into an input arrangement that was acceptable to statistical analysis software packages. Participation in the survey was voluntary and anonymous, ensuring ethical compliance and minimising response biases.

After ethical clearance was obtained, a pilot test was conducted to refine questions for clarity and assessment of ease of survey completion before dissemination of the questionnaire to the broader sample set. The main purpose was to identify and resolve ambiguities in wording, assess the flow of questions, determine the ease with which the survey could be accessed and navigated, and ascertain the average time taken to complete the survey. The draft questionnaire was distributed electronically to 10 individuals within the researcher's personal network who represented a

relevant demographic of business students and who expressed entrepreneurial intent. The participants were asked to complete the survey in its entirety and provide feedback on the clarity of the opening instructions, wording of items, length and overall ease of completion.

Respondents provided feedback that the average survey completion time was less than five minutes, which was considered acceptable and unlikely to cause participant fatigue. Further, the response times aligned with the initial survey consent statement that stated that the survey would take between five and 10 minutes to complete.

The insights gained from the pilot study informed several refinements to the draft questionnaire. The sequence of questions was reported as logical, although a slight reordering of questions was undertaken to ensure that the demographic items appeared at the beginning for smoother navigation. No spelling mistakes were identified by the pilot group however, minor rewording of the EA and EI constructs was undertaken to improve clarity as four respondents indicated that the word “firm” misled them into thinking that the survey was only interested in large enterprises, thus excluding smaller businesses. The word “firm” was therefore replaced with the synonym “business” to be more inclusive of all entrepreneurial activities, irrespective of the size of the enterprise. No technical issues were encountered on the SurveyMonkey platform.

The pilot study confirmed that the adapted survey instrument was clear and user-friendly, included items that were relevant to each of the research constructs, and provided confidence for its deployment in the full study. The survey link was distributed via the following digital channels: email, WhatsApp, Facebook, and LinkedIn. Reminders were sent out on groups, encouraging participation, and after five weeks, 155 responses were collected. All data collected has been stored on a USB memory stick and Google Drive cloud storage and will continue to be stored for a period of 10 years.

#### **4.5 Data analysis approach**

IBM’s Statistical Package for the Social Sciences (SPSS) was the statistical analysis tool used to analyse the primary data collected. Survey responses were exported in a CSV file format from SurveyMonkey, edited to remove participant responses with missing answers, coded, and imported into IBM SPSS for analysis. The Likert scale

responses were coded into values that facilitated processing of the data on SPSS. A summary of the data coding is available in [Appendix D](#).

### **Descriptive statistics**

To understand the basic features of a dataset and develop an immediate sense of its characteristics, descriptive statistics such as means, measures of central tendency, measures of variability, measures of frequency, and measures of distribution shape were used to summarise participant characteristics and key variables ([Hair et al., 2019](#); [Saunders & Lewis, 2018](#)). In this study, descriptive statistics were used to summarise participant characteristics based on sample size, age, education levels, and gender, and are detailed in Chapter 5.

## **4.6 Quality controls**

Quality control in research refers to the process of ensuring the accuracy, reliability, and validity of research findings and the quality of data collected ([Hubbard & Carriquiry, 2019](#)). The following measures will be implemented to ensure quality control within the study:

### **Clear and standardised survey design**

Questions were logically grouped together by construct to enhance response accuracy. A five-point Likert scale for EI, antecedents of EI, and EA response design was used to ensure uniform responses for the TPB framework questions.

### **Pilot testing**

A pilot study was conducted to determine the approximate completion time for answering all survey items and identify any ambiguities, confusing questions, or technical issues in the survey instrument. Feedback received from the 10 individuals who participated in the pre-testing was then used to refine the questionnaire before the survey was made available on the SurveyMonkey platform.

### **Ethical considerations and anonymity**

Permission was requested for use of the survey instruments that were adapted for the purpose of this study and can be found in [Appendix B](#). Informed consent was obtained from participants before presenting the survey questions to be answered, to ensure that the respondents fully understood the purpose of the study. The survey was kept anonymous and confidential, thereby encouraging honest responses.

### **Data cleaning**

The surveys were checked for incomplete responses and surveys that were absent of critical data were discarded. Eleven responses were found to be incomplete and missing answers to items related to the research constructs. Removal of these incomplete surveys reduced the sample set to 144 usable responses, which was still within the acceptable minimum required sample size ([Douglas, 2013](#); [Krueger et al., 2000](#)).

### **Data entry and statistical quality checks**

The dataset was checked for errors before analyses to ensure accuracy when coding responses; with data exported and cross verified between software tools (SurveyMonkey→Excel→SPSS).

### **Use of validated scales**

In quantitative research, validity testing checks whether the measurement instrument is actually measuring what it is supposed to measure ([Hair et al., 2019](#); [Sürücü & Maslakçı, 2020](#)). The primary methods for testing instrument validity include **content validity**, ensured by using established, peer-reviewed scales adapted from prior studies ([Gieure et al., 2020](#); [Mellinger & Hanson, 2021](#); [Sürücü & Maslakçı, 2020](#)); **construct validity**, which interrogates whether the research instrument actually measures the theoretical dimensions it is intended to measure ([Emerson, 2024](#); [Sürücü & Maslakçı, 2020](#)); and **criterion validity**, which checks whether the results of a measurement instrument correlate with an external criterion that is already known to be valid ([Emerson, 2024](#)).

For this study, the adapted questionnaire incorporated three validated instruments that each, separately, measured the constructs of EI ([Liñán & Chen, 2009](#)), EA ([Gieure et al., 2020](#)), and SP ([Underwood & Teresi, 2002](#)). This strategy was taken to firstly establish content validity and ensure that the study results would be based on existing peer-reviewed instruments. Construct validity was then tested to ensure that for the collected responses, relationships observed between the research constructs were theoretically sound.

Convergent validity was tested to confirm that the different items that were intended to capture the same construct agree with each other and point to the same dimension, determining the degree to which measures of the same construct are

correlated ([Cheung et al., 2023](#); [Hair et al., 2019](#)). As proposed by [Cheung et al. \(2023\)](#) and [Wegner \(2020\)](#), correlation between items measuring the same construct were assessed through employing correlation matrices (details on which items are grouped under each construct are detailed in [Appendix D](#)). A bivariate correlation analysis was therefore conducted in SPSS, to establish validity of each construct scale by examining the resultant Pearson correlation coefficient and significance levels against total item scores. Interpretations for Pearson's correlation coefficient ( $r$ ) values, which range between -1 and +1, have been adapted from [Wegner \(2020\)](#), and are detailed in [Table 1](#). The associated sign indicates the direction of correlation (i.e., a positive sign means that the two variables move in the same direction and as one increases/decreases, the other tends to also increase/decrease; while a negative sign means that the variables move in opposite direction and as one increases/decreases, the other decreases/increases). The closer the absolute value moves to 1, the stronger the association; and the closer the absolute value moves to 0, the weaker the linear relationship between the variables.

Table 1: Interpretation of Pearson's correlation coefficient ([Wegner, 2020](#))

( $r$ )	Strength of relationship	Direction
$r = 0$	No correlation	n/a
$r < 0.5$	Weak	Positive/negative
$r \geq 0.5$	Moderate - High	Positive/negative
$r = 1$	Perfect correlation	Positive/negative

For this study, the item total score for all items measuring a specific construct was calculated by summing the individual participant item response scores for each construct. The SPSS correlation matrix output for each construct, reflected in [Table 4](#) to [Table 9](#) in Chapter 5, was then analysed to determine the strength of the relationship between each item within a construct's sub-questions and the construct's calculated item total scores. Statistical significance was indicated by p-values below 0.05 ([Gieure et al., 2020](#); [Wegner 2020](#)).

### Reliability testing

In quantitative research, reliability testing is a means to confirm that the measurement instrument *consistently* captures what it is intending to measure, ensuring that the study yields beneficial results that are considered sound, and is a prerequisite for validity ([Sürücü & Maslakçi, 2020](#)). Establishing reliability reduces

measurement error while simultaneously facilitating theory building and comparison across research studies ([Mellinger & Hanson, 2021](#); [Tavakol & Dennick, 2011](#)).

Frequently used reliability checks include **test-retest reliability**, which assesses the consistency of results when a measuring instrument is administered to the same participants at two different points in time ([Sürücü & Maslakçi, 2020](#)); **inter-method reliability**, which ascertains the degree to which different measuring instruments targeting the same construct yield similar results ([Emerson, 2024](#); [Mellinger & Hanson, 2021](#)); and **internal consistency reliability**, which assesses how well the items in the measuring instrument measure the underlying constructs ([Mellinger & Hanson, 2021](#); [Sürücü & Maslakçi, 2020](#); [Tavakol & Dennick, 2011](#)). This study measured internal consistency reliability of the measurement scale by using Cronbach's alpha ( $\alpha$ ), which is expressed as a number between 0 and 1 ([Sürücü & Maslakçi, 2020](#)).

A value of 0.5 or below for Cronbach's alpha indicates that the scale is unreliable and does not display internal consistency, a value closer to 1 indicates high internal consistency, and values above 0.95 possibly indicate redundancy among items ([Hair et al., 2019](#); [Sürücü & Maslakçi, 2020](#)). Actual alpha values obtained from conducting reliability testing on SPSS were compared to [Table 2](#), which details the interpretation of varying Cronbach's alpha values.

*Table 2: The classification of Cronbach's alpha coefficient adopted from Sürücü and Maslakçi (2020)*

<b>Cronbach's alpha coefficient (<math>\alpha</math>)</b>	<b>Level of reliability</b>	<b>Interpretation</b>
$\alpha \geq 0.95$	Very high	May suggest redundancy among items
$\alpha \geq 0.90$	Excellent	Internal consistency of the scale is high
$0.7 \leq \alpha < 0.9$	Good	Items reliably measure the construct
$0.6 \leq \alpha < 0.7$	Acceptable	Items measure the construct with some error
$0.5 \leq \alpha < 0.6$	Weak	Scale may not consistently measure the construct
$\alpha \leq 0.5$	Unacceptable	Scale is unreliable

The research survey instrument was also adapted from existing scales with reported alpha values as follows: the EIQ indicated acceptable internal consistency reliability with Cronbach's alpha values above 0.7 ([Liñán & Chen, 2009](#)), the EA Scale displayed Cronbach's alpha values above 0.74 ([Gieure et al., 2020](#)), and the DSES indicated high internal consistency reliability with alpha values above 0.9 ([Underwood & Teresi, 2002](#)).

To test that the subset items for each construct continued to display reliability when sent out to participants of this research survey, Cronbach's alpha was calculated at a construct level on SPSS. [Sürücü and Maslakçi \(2020\)](#) raise a concern around reverse-coded items in relation to Cronbach's alpha, cautioning that failure to correctly recognise and reverse-score such items could yield a low alpha value, resulting in an inaccurate representation of the measurement instrument's internal consistency. No reverse-coded items were identified in the measurement scales used for this study; hence, no reverse scoring was required.

### **Factor analysis**

After establishing validity and reliability of the scales used within this study, the research progressed to factor analysis, undertaken to condense the sub-items per construct into smaller sets called factors; all in a manner that retains meaning ([Emerson, 2024](#); [Hair et al., 2019](#); [Sürücü & Maslakçi, 2020](#)).

There are two types of factor analysis, namely Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA); with [Myers et al. \(2011\)](#) advising that employing CFA for sample sizes below 200 is risky. Therefore, EFA was conducted for this study with an effective sample size of 144. This variable reduction technique prepared the data for further analysis and effectively reduced the number of analyses required to be conducted for each construct.

An EFA, using principal component analysis method with Varimax rotation, was conducted in SPSS and the computed outputs allowed the researcher to determine how the various construct sub-items could be grouped. Firstly, to confirm that the data was suitable for factor analysis, the **Correlation Matrix** output table was reviewed to confirm that all items demonstrated at least one correlation above 0.3, indicating reasonable correlation. If, for a given item, no correlations exceeded 0.3 then including it would potentially weaken the model fit.

The next output reviewed was the ***Kaiser-Meyer-Olkin (KMO) and Bartlett's Test*** output, for which [Wang and Sahid \(2024\)](#) stated that to confirm sample adequacy for factor analysis, a KMO measure of sampling adequacy above 0.5 was required and Bartlett's test of sphericity must indicate correlation between items with p-values < 0.05. For p-values  $\geq 0.05$ , principal component analysis was not suitable, and grouping of the items would not be possible. Both conditions for KMO and Bartlett's test had to be met to continue with factor analysis.

Thereafter, the ***Total Variance Explained*** output was then assessed, to determine how many components to extract for each construct. The Eigenvalue 1 rule was specified in SPSS ([Hair et al., 2019](#)), and components with Eigenvalues  $\geq 1$  were extracted to form groups within each construct. The remaining items with Eigenvalues < 1 were grouped with the various extracted components. The ***Rotated Component Matrix*** output was then reviewed to determine item grouping, with items being grouped with components on which they loaded the highest.

#### **4.7 Statistical testing**

To test the research hypotheses (H1 – H4) and predict the target variable based on identified explanatory variables, multiple moderated linear regression analyses were conducted using IBM SPSS.

##### **Appropriateness of the analysis technique**

Regression analysis was the most appropriate technique given that and this study employed interval-scaled numeric data collected via Likert-type measures ([Wegner, 2020](#)). The research model is grounded in TPB, which posits directional relationships between constructs (e.g., intention  $\rightarrow$  action). Regression explicitly models such predictor-outcome relationships and has been widely used for testing moderating effects on the intention-action gap within the TPB framework ([Godin et al., 2005](#); [Hannan et al., 2015](#); [Yang et al., 2020](#)).

Further, moderation requires examination of the interaction effect ([Hair et al., 2019](#)), between an independent variable (IV) and the moderator (Spirituality), on the dependent variable (DV). Regression, via interaction terms, has been an accepted method for detecting these conditional effects in existing TPB studies ([Godin et al., 2005](#); [Hannan et al., 2015](#); [Yang et al., 2020](#)).

### Assumptions of regression

Before testing the hypotheses, assumptions of regression were assessed to ensure model validity, consistent with [Hair et al. \(2019\)](#). Regression analysis relies on the following assumptions for its findings to be valid and reliably interpreted: linearity of relationships, normality of residuals, homoscedasticity, independence of errors, lack of multicollinearity, and absence of outliers ([Hair et al., 2019](#); [Rebar et al., 2019](#)).

### Hypotheses testing

For each hypothesis tested below, the statistical regression model (see [Figure 6](#)) included the main effects of the IV and Spirituality, and the interaction term (IV x Spirituality). Moderation was confirmed when a statistically significant interaction ( $p$ -value  $< 0.05$ ) was demonstrated.

**H1:** DV = Entrepreneurial intention; IV = Personal attitude; Moderator = Spirituality

**H2:** DV = Entrepreneurial intention; IV = Subjective norms; Moderator = Spirituality

**H3:** DV = Entrepreneurial intention; IV = Perceived behavioural controls; Moderator = Spirituality

**H4:** DV = Entrepreneurial action; IV = Entrepreneurial intention; Moderator = Spirituality

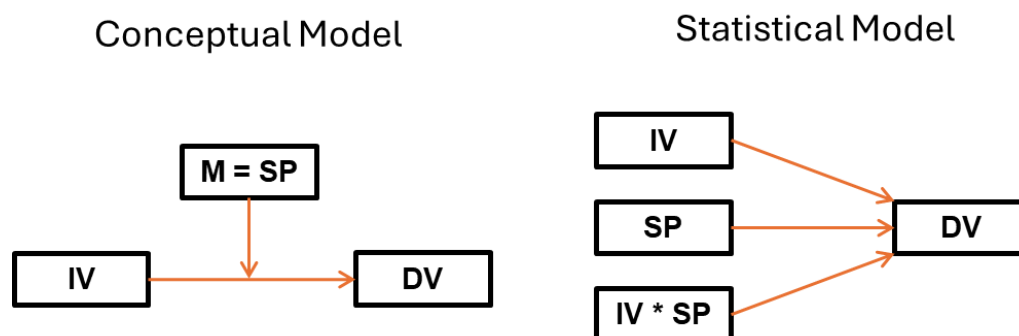


Figure 6: Research conceptual and statistical models

### Hypothesis testing across education levels

To determine whether education influences the relationships proposed in the conceptual model, the four hypotheses (H1–H4) were tested separately for two educational sub-groups. Respondents were categorised into (1) those whose highest

qualification was high school and (2) those who held a tertiary qualification (undergraduate or postgraduate degree).

### **Level of significance**

Hypotheses were tested at a 95% confidence level ( $\alpha = 0.05$ ). Two-tailed tests were employed, given that moderation could have either strengthened or weakened the relationship between the independent and dependent variables.

## **4.8 Limitations**

Acknowledging the limitations of a study demonstrates research integrity and mitigates against overgeneralisation or misinterpretation of presented conclusions. Further, highlighting and understanding the limitations serve to guide future studies, which could then refine the current research methodologies and expand on the work presented by closing identified gaps. While this research project aligned with methodologies adopted by existing literature and established frameworks, the following limitations could have affected the reliability and overall generalisability of the study's findings:

### **Sampling limitations**

Selection bias may have arisen from distributing surveys solely via digital platforms, as it may have excluded individuals who do not have access to the internet or are without digital literacy ([Tsuboi et al., 2012](#)). This could have led to a non-representative sample set, that could limit the degree to which the research findings may be applied to a broader context.

### **Cross-sectional design**

The cross-sectional approach of this study resulted in the primary data being collected at a single point in time. The study may have thus failed to capture the transition of EI to EA, as the intention-action process is longitudinal in nature ([Van Hoa Tran et al., 2023](#)). Future studies should consider a longitudinal design approach to accommodate the lagging effect between the antecedents of EI, the moderator, EI, and EA.

### **Measurement challenges**

While the study proposed adapting existing validated scales, SP is a multifaceted and subjective construct with no instrument currently available that accurately

measures all the dimensions of spirituality by means of a single standardised survey questionnaire ([Kapuscinski & Masters, 2010](#)).

### **Platform and response bias**

The leveraging of personal networks and social media to disseminate surveys may have led to homogeneous respondent characteristics which can serve to reduce the diversity of the population sample ([Kapuscinski & Masters, 2010](#)).

### **Self-reported data bias**

Survey participants may have provided responses that reflect what they believe is expected or constitutes a 'good' answer, rather than their actual thoughts and behaviours ([Bogatyreva et al., 2019](#)). Such an occurrence could have introduced an element of social desirability bias that may skew the findings.

### **Mono-method approach**

A mixed-method approach, employing both qualitative interviews/case study and a quantitative survey, could offer deeper contextual understandings of *why* SP influences the EI-EA relationship ([Kapuscinski & Masters, 2010](#)). However, this study adopted a mono-method quantitative approach, which may have overlooked potential key qualitative insights that could be gained.

## **4.9 Conclusion**

In summary, this chapter outlined the methodological design process adopted to empirically test the proposed hypotheses on the moderating role of SP within the TPB framework. By adopting a quantitative, cross-sectional design, and applying validated measurement scales for EI, EA, and SP, the study ensured methodological alignment with prior TPB-based research.

Having established the methodological foundation, the next chapter presents the empirical results derived from the collected data. These results not only evaluate the proposed hypotheses but also provide the basis for interpreting how SP may contribute to bridging the entrepreneurial intention-action gap.

## 5. Results

### 5.1 Introduction

This chapter presents the empirical results of the study. Building on the methodology described in Chapter 4, the findings are reported in alignment with the objectives and hypotheses (H1 – H4). The results are presented objectively, without interpretation, which is reserved for Chapter 6.

### 5.2 Sample description

A total of 155 responses were received from the electronically distributed survey, of which 144 were retained after data cleaning (see Chapter 4). The first three items of the questionnaire captured demographic and sample descriptive data from participants.

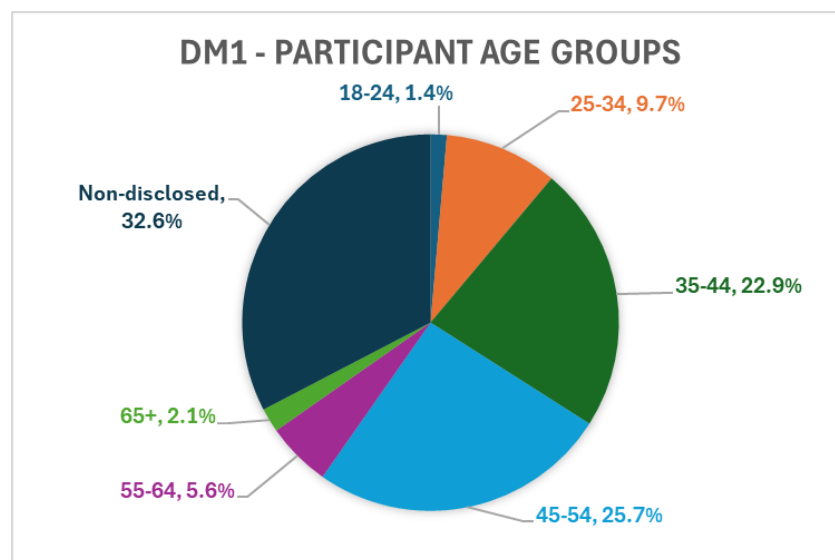
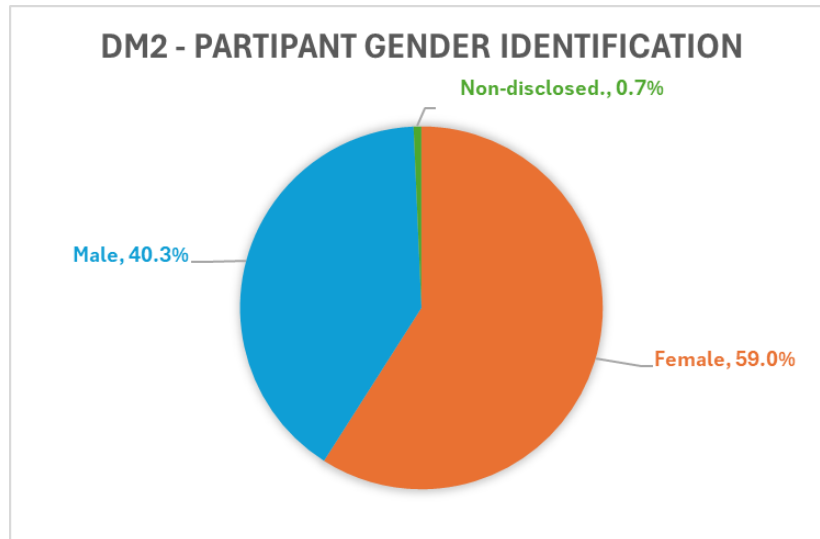


Figure 7: Participants by highest education level

Of the 144 respondents, only 97 disclosed their age, 32.6% respondents did not answer the question. The participant age breakdown is illustrated in [Figure 7](#). The largest reported age category was 45-54 years (25.7%), followed by 35-44 years (22.9%), 25-34 years (9.7%), and 55-64 years (5.6%). Ages 65+ constituted 2.1% of the sample set and 18-to-24-year-olds made up 1.4%.

The gender profile of the sample set is illustrated in [Figure 8](#). Three categories were used to define participant gender: Female, Male, and Other. One respondent did not answer this question.



*Figure 8: Participants by gender*

The sample comprised 59% female respondents ( $n = 85$ ), 40.3% male respondents ( $n = 58$ ), and 0.7% non-disclosed ( $n = 1$ ).

In terms of education, all 144 respondents indicated that the highest levels of education attained included high school, undergraduate and postgraduate qualifications. The majority of respondents held a postgraduate qualification (57.2%;  $n = 83$ ), 21.4% held an undergraduate qualification ( $n = 31$ ), and 20.7% had received a high school education ( $n = 30$ ). These demographics are represented in [Figure 9](#) and illustrate that 78.6% of participants held a tertiary qualification.

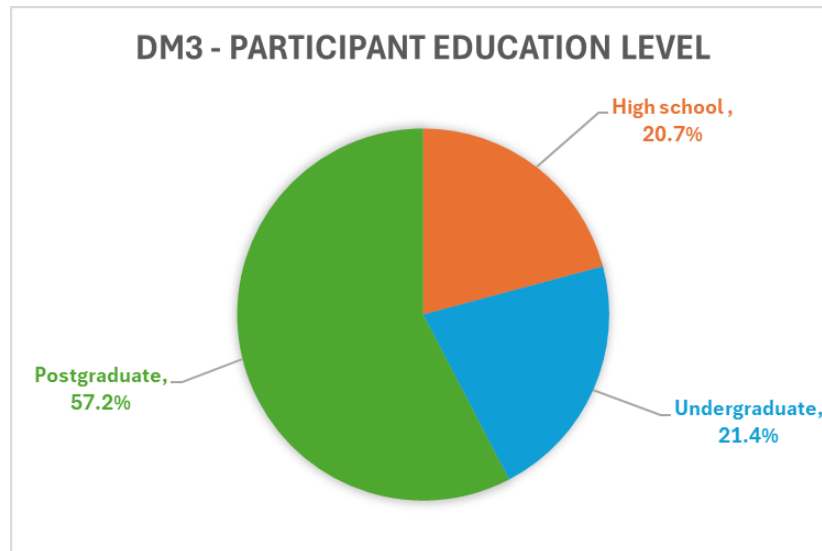


Figure 9: Participation by highest education level

### 5.3 Descriptive statistics of constructs

Descriptive statistics were generated to provide an overview of participants' responses to the survey items. This step was essential for understanding the general trends in the data collected and for situating subsequent statistical analyses within the TPB framework with spirituality as the study's moderating construct. [Table 3](#) summarises the descriptive statistics for each construct, reporting the minimum and maximum values, means (M), and standard deviations (SD).

Table 3: Descriptive statistics of constructs

Descriptive Statistics					
Construct	Items	Min	Max	Mean (M)	SD
Personal attitude	5	1.00	5.00	4.25	0.69
Subjective norms	3	1.00	5.00	3.98	0.81
Perceived behavioural controls	6	1.00	5.00	3.89	0.73
Entrepreneurial intention	6	1.00	5.00	4.15	0.76
Entrepreneurial activity	7	1.00	5.00	3.96	0.73
Spirituality	15	1.73	6.00	4.70	0.97

Note: Author's own, constructed from SPSS outputs (2025)

Respondents reported generally positive **personal attitudes** toward entrepreneurship (PA: M = 4.25, SD = 0.69), alongside high perceptions of **subjective norms** (SN: M = 3.98, SD = 0.81) and **perceived behavioural control**

(PBC:  $M = 3.89$ ,  $SD = 0.73$ ). **Entrepreneurial intention** was also high ( $M = 4.15$ ,  $SD = 0.76$ ), indicating that participants expressed strong aspirations to engage in entrepreneurship. **Entrepreneurial action**, however, was slightly lower ( $M = 3.96$ ,  $SD = 0.73$ ).

**Spirituality**, measured using items adapted from the DSES, returned a high mean score ( $M = 4.70$ ,  $SD = 0.97$ ) on its 6-point scale, suggesting that participants frequently reported spiritual experiences.

#### 5.4 Validity testing

Validity of the scales was tested per the process detailed in Chapter 4. Construct validity was examined using Pearson's bivariate correlation analysis between individual items and their respective item total scores (ITS) for each construct. Items that demonstrated significant ( $p\text{-value} < 0.05$ ) and positive correlations (Pearson's correlation coefficient ( $r \geq 0.5$ )) with their constructs ITS evidenced that they are valid indicators of the construct (Wegner, 2020). The results confirm that all items were significantly correlated with their respective item total score for each construct.

For instance, within **personal attitude (PA)**, correlations between individual items (PA4-PA8) and the ITS ranged from  $r = 0.699$  to  $r = 0.871$  ( $p < 0.05$ ), indicating strong item–construct relationships (see Table 4). Similarly, **subjective norms (SN)** items (SN9-SN11) correlated highly with their ITS, ranging from  $r = 0.850$  to  $r = 0.895$  ( $p < 0.05$ ) (see Table 5).

For **perceived behavioural control (PBC)**, all six items (PBC12–PBC17) correlated strongly with the ITS, with coefficients between  $r = 0.722$  and  $r = 0.828$  ( $p < 0.05$ ) (see Table 6). The **entrepreneurial intention (EI)** scale demonstrated high internal correlations (detailed in Table 7), with item-ITS correlations ranging from  $r = 0.771$  to  $r = 0.920$  ( $p < .05$ ). Likewise, **entrepreneurial action (EA)** items (EA24-EA30) correlated with the ITS at levels between  $r = 0.666$  and  $r = 0.858$  ( $p < 0.05$ ); presented in Table 8.

Finally, for **spirituality (SP)**, all 15 items (SP31–SP45) were significantly correlated with the construct's ITS, as detailed in Table 9. The majority of correlations were strong, ranging from  $r = 0.667$  to  $r = 0.922$  ( $p < 0.05$ ). Two items displayed correlations with  $r < 0.5$ , with  $p < 0.05$  (i.e., SP43 with  $r = 0.470$  and SP44 with  $r = 0.414$ )

These results provide evidence that each item validly measures its intended construct, thereby confirming construct validity across all six dimensions.

Table 4: Results of Pearson's correlation test for validity (PA4-PA8)

<b>Correlations</b>		
		<b>PA ITS</b>
PA4	Pearson Correlation	,699**
	Sig. (2-tailed)	0.000
	N	144
PA5	Pearson Correlation	,798**
	Sig. (2-tailed)	0.000
	N	144
PA6	Pearson Correlation	,784**
	Sig. (2-tailed)	0.000
	N	144
PA7	Pearson Correlation	,871**
	Sig. (2-tailed)	0.000
	N	144
PA8	Pearson Correlation	,773**
	Sig. (2-tailed)	0.000
	N	144
**. Correlation is significant at the 0.01 level (2-tailed).		

Note: Author's own, constructed from SPSS outputs (2025)

Table 5: Results of Pearson's correlation test for validity (SN9-SN11)

<b>Correlations</b>		
		<b>SN ITS</b>
SN9	Pearson Correlation	,850**
	Sig. (2-tailed)	0.000
	N	144
SN10	Pearson Correlation	,895**
	Sig. (2-tailed)	0.000
	N	144
SN11	Pearson Correlation	,858**
	Sig. (2-tailed)	0.000
	N	144
**. Correlation is significant at the 0.01 level (2-tailed).		

Note: Author's own, constructed from SPSS outputs (2025)

Table 6: Results of Pearson's correlation test for validity (PBC12-PBC17)

<b>Correlations</b>		
		<b>PBC ITS</b>
PBC12	Pearson Correlation	,752**
	Sig. (2-tailed)	0.000
	N	144
PBC13	Pearson Correlation	,722**
	Sig. (2-tailed)	0.000
	N	144
PBC14	Pearson Correlation	,815**
	Sig. (2-tailed)	0.000
	N	144
PBC15	Pearson Correlation	,777**
	Sig. (2-tailed)	0.000
	N	144
PBC16	Pearson Correlation	,828**
	Sig. (2-tailed)	0.000
	N	144
PBC17	Pearson Correlation	,741**
	Sig. (2-tailed)	0.000
	N	144

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Note: Author's own, constructed from SPSS outputs (2025)

Table 7: Results of Pearson's correlation test for validity (EI18-EI23)

<b>Correlations</b>		
		<b>EI ITS</b>
EI18	Pearson Correlation	,791**
	Sig. (2-tailed)	0.000
	N	144
EI19	Pearson Correlation	,857**
	Sig. (2-tailed)	0.000
	N	144
EI20	Pearson Correlation	,920**
	Sig. (2-tailed)	0.000
	N	144
EI21	Pearson Correlation	,913**
	Sig. (2-tailed)	0.000
	N	144
EI22	Pearson Correlation	,771**
	Sig. (2-tailed)	0.000
	N	144
EI23	Pearson Correlation	,894**

	Sig. (2-tailed)	0.000
	N	144

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Note: Author's own, constructed from SPSS outputs (2025)

Table 8: Results of Pearson's correlation test for validity (EA24-EA30)

<b>Correlations</b>		
		<b>EA ITS</b>
EA24	Pearson Correlation	,776**
	Sig. (2-tailed)	0.000
	N	144
EA25	Pearson Correlation	,784**
	Sig. (2-tailed)	0.000
	N	144
EA26	Pearson Correlation	,858**
	Sig. (2-tailed)	0.000
	N	144
EA27	Pearson Correlation	,796**
	Sig. (2-tailed)	0.000
	N	144
EA28	Pearson Correlation	,666**
	Sig. (2-tailed)	0.000
	N	144
EA29	Pearson Correlation	,700**
	Sig. (2-tailed)	0.000
	N	144
EA30	Pearson Correlation	,726**
	Sig. (2-tailed)	0.000
	N	144

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Note: Author's own, constructed from SPSS outputs (2025)

Table 9: Results of Pearson's correlation test for validity (SP31-SP45)

<b>Correlations</b>		
		<b>SP ITS</b>
SP31	Pearson Correlation	,875**
	Sig. (2-tailed)	0.000
	N	144
SP32	Pearson Correlation	,681**
	Sig. (2-tailed)	0.000
	N	144
SP33	Pearson Correlation	,854**
	Sig. (2-tailed)	0.000

	N	144
SP34	Pearson Correlation	,905**
	Sig. (2-tailed)	0.000
	N	144
SP35	Pearson Correlation	,877**
	Sig. (2-tailed)	0.000
	N	144
SP36	Pearson Correlation	,667**
	Sig. (2-tailed)	0.000
	N	144
SP37	Pearson Correlation	,857**
	Sig. (2-tailed)	0.000
	N	144
SP38	Pearson Correlation	,922**
	Sig. (2-tailed)	0.000
	N	144
SP39	Pearson Correlation	,900**
	Sig. (2-tailed)	0.000
	N	144
SP40	Pearson Correlation	,755**
	Sig. (2-tailed)	0.000
	N	144
SP41	Pearson Correlation	,720**
	Sig. (2-tailed)	0.000
	N	144
SP42	Pearson Correlation	,746**
	Sig. (2-tailed)	0.000
	N	144
SP43	Pearson Correlation	,470**
	Sig. (2-tailed)	0.000
	N	144
SP44	Pearson Correlation	,414**
	Sig. (2-tailed)	0.000
	N	144
SP45	Pearson Correlation	,826**
	Sig. (2-tailed)	0.000
	N	144
**. Correlation is significant at the 0.01 level (2-tailed).		
*. Correlation is significant at the 0.05 level (2-tailed).		

Note: Author's own, constructed from SPSS outputs (2025)

All items proved to be valid in understanding the construct they were intended to measure, displaying p-values < 0.05 ([Gieure et al., 2020](#); [Wegner 2020](#)), and yielding Pearson's correlation coefficients above 0.5 (except for SP43 and SP44) when

evaluated against the corresponding construct item score total ([Wegner, 2020](#)). After establishing that the scales were valid, they were tested for reliability.

### 5.5 Reliability testing

Once validity of the scales was assured, reliability analyses for each construct was then conducted on SPSS. Reliability testing was conducted using Cronbach's alpha ( $\alpha$ ), with values greater than 0.70 considered acceptable for exploratory and confirmatory research ([Hair et al., 2019](#); [Sürücü & Maslakçi, 2020](#)).

As the research framework was grounded in TPB, the constructs of **entrepreneurial intention (EI)** and its three antecedents; **personal attitude (PA)**, **subjective norms (SN)**, and **perceived behavioural control (PBC)** were examined first. The tests generated Cronbach's alpha values for each construct and details of the subset of items linked to each dimension are available in [Appendix D](#). Cronbach's alpha values for these scales all exceeded the recommended threshold ( $\alpha > 0.7$ ), confirming that the items consistently captured their respective constructs. These findings strengthened the empirical basis for testing TPB pathways in this study, aligning with prior work by [Liñán and Chen \(2009\)](#).

The construct of **entrepreneurial activity (EA)**, representing the translation of entrepreneurial intention into action, was tested next. The seven-item scale demonstrated good reliability, with an alpha coefficient of 0.874, consistent with reliability indices reported in comparable entrepreneurship research ([Gieure et al., 2020](#)). This provided confidence in assessing the intention–action gap using EA as the outcome variable.

For the moderating construct of **spirituality (SP)**, the 15-item scale adapted from the Daily Spiritual Experience Scale ([Underwood & Teresi, 2002](#)) initially returned an alpha value of 0.951. While this indicated high reliability, alpha values above 0.95 may suggest redundancy among items ([Sürücü & Maslakçi, 2020](#)). Examination of the *Item-Total Statistics* table for this construct, detailed in [Appendix E](#), revealed that certain items inflated the coefficient. Removal of three of these items (SP34, SP37, and SP39), reduced the alpha to 0.926 for a 12-item scale, which remained highly reliable but avoided redundancy concerns. This adjustment ensures that spirituality is measured robustly, while also preserving parsimony with fewer and more efficient items, for its role as a moderator in later regression analyses.

A summary of Cronbach's alpha values observed across constructs is provided in [Table 10](#). Further, all SPSS outputs for the reliability analysis conducted on each of the constructs can be found in [Appendix E](#).

*Table 10: Cronbach's alpha values calculated for all study constructs*

<b>Construct</b>	<b>Cronbach's alpha (<math>\alpha</math>)</b>	<b>Number of items</b>
Personal attitude	0.843	5
Subjective norms	0.833	3
Perceived behavioural controls	0.862	6
Entrepreneurial intention	0.926	6
Entrepreneurial activity	0.874	7
Spirituality	0.951	15
Spirituality	0.926	12 (SP34, SP37, SP39 removed)

*Note:* Author's own, constructed from SPSS outputs (2025)

The above results confirmed that all constructs used in this study demonstrated satisfactory levels of internal consistency, with Cronbach's alpha values consistently exceeding the recommended threshold of 0.70. This provided strong evidence that the items within each scale measured their intended constructs consistently across respondents. These results establish confidence that the scales employed in this study are reliable and suitable for subsequent statistical analyses.

Having confirmed the internal consistency of the measurement instruments, the next step was to conduct factor analyses of the scales.

## **5.6 Factor analysis**

Following the establishment of validity and reliability, exploratory factor analysis was conducted to reduce the multi-item constructs into parsimonious factors suitable for hypothesis testing. Consistent with Chapter 4, principal component analysis with Varimax rotation was applied to each of the six study constructs. All SPSS outputs are included in [Appendix F](#).

### **Personal attitude**

Five items (PA4, PA5, PA6, PA7, and PA8) were assessed for factor analysis of the personal attitude construct. Inspection of the "correlation matrix" output revealed that all items tested displayed correlations above 0.30 ([Appendix F](#)), verifying the strength of correlation between the items.

To further confirm adequacy of the sample set, the “KMO and Bartlett’s test of sphericity” outputs, detailed [Appendix F](#), were inspected. A KMO value of 0.77 was observed, together with a Bartlett’s test Sig. value of less than 0.001. The items analysed for PA therefore met the adequacy and factorability thresholds of  $KMO > 0.5$  and Bartlett’s  $p$ -value  $< 0.05$ , as described in Chapter 4, and principal component analysis was applied to the data.

Applying the criterion of Eigenvalue  $\geq 1$  on the “total variance explained” output table presented in [Appendix F](#), identified a one-factor solution, with the component (Eigenvalue = 3.10) accounting for 62.09% of the variance.

This meant that instead of analysing five separate items under the PA construct, EFA evidenced that all five items could be grouped and tested as a single component. Individual participant responses to items within the extracted component were then averaged to provide a single averaged score, representative of items PA4 to PA8. As there was only one component extracted that represented all sub-items of the construct (see [Appendix F](#)), the component was renamed “PA” for use in subsequent statistical analyses.

### **Subjective norms**

For the SN construct, sample adequacy and factorability were assessed using three sub-items (SN9, SN10, and SN11). A scan of the “correlation matrix” output revealed that all inter-item correlations exceeded 0.30 ([Appendix F](#)), confirming the strength of correlation between the items and supporting factorability.

Examination of the “KMO and Bartlett’s test of sphericity” outputs, presented in [Appendix F](#), further indicated the adequacy of the sample set. A KMO value of 0.70 and a Bartlett’s test Sig. value of less than 0.001 were attained, indicating that the three sub-items for the SN construct met the required adequacy and factorability thresholds ( $KMO > 0.5$  and Bartlett’s  $p$ -value  $< 0.05$ ).

Applying principal component analysis to the data for this construct generated the “total variance explained” output table reflected in [Appendix F](#). An examination of this output table revealed a single component with the Eigenvalue  $> 1$  (i.e., Eigenvalue = 2.24), with the one-factor solution accounting for 74.81% of the variance.

As only one component was extracted, the three separate items under construct SN were thus reduced to a single averaged variable, representative of items SN9 to SN11, and renamed “SN” in subsequent statistical analyses.

### **Perceived behavioural control**

Factor analyses were tested on six items (PBC12, PBC13, PBC14, PBC15, PBC16, and PBC17) of the PBC construct. Inspection of the “correlation matrix” output table revealed that all items tested displayed correlations above 0.30 ([Appendix F](#)), verifying the strength of correlation between the items.

A KMO value of 0.86 was observed, together with a Bartlett’s test Sig. value of less than 0.001 ([Appendix F](#)), indicating that the items analysed for PBC met the adequacy and factorability thresholds of  $KMO > 0.5$  and Bartlett’s  $p\text{-value} < 0.05$ .

Applying principal component analysis to the data generated [Appendix F](#), displayed a single component with an Eigenvalue  $\geq 1$ . This component, with an Eigenvalue of 3.59, accounted for 59.83% of the variance.

The six sub-items of the PBC construct, were effectively reduced to a single averaged variable, representative of items PBC12 to PBC17, and renamed “PBC” in further SPSS analyses.

### **Entrepreneurial intention**

For the EI construct, sample adequacy and factorability were assessed using six sub-items (EI18, EI19, EI20, EI21, EI22, and EI23). The results from [Appendix F](#) evidence that all items correlated above the minimum 0.30 threshold, supporting factorability.

[Appendix F](#) confirms the data tested generated a KMO value of 0.87 and a Bartlett’s test Sig. value of less than 0.001, satisfying the requirements for establishing adequacy and factorability ( $KMO > 0.5$  and Bartlett’s  $p\text{-value} < 0.05$ ).

Further, the SPSS output tables for dimension reduction analysis run on this construct (detailed in [Appendix F](#)) identified a one-factor solution accounting for 73.85% of the variance and an Eigenvalue greater than 1 (i.e., Eigenvalue = 4.43). The six items tested under construct EI were reduced to a single averaged variable, representative of items EI18 to EI23, and renamed “EI”.

### **Entrepreneurial action**

Seven items (EA24, EA25, EA26, EA27, EA28, EA29, and EA30) were analysed under the entrepreneurial action construct (EA). Inspection of the SPSS output tables (presented in [Appendix F](#)) revealed that all items tested displayed at least one correlation above 0.30, confirming factorability of the sub-items.

A KMO value of 0.87 and a Bartlett's test Sig. value  $< 0.001$  were obtained from the output tables ([Appendix F](#)), meeting the adequacy and factorability thresholds of  $KMO > 0.5$  and Bartlett's p-value  $< 0.05$ , and establishing adequacy of the sample set.

Application of principal component analysis to the data generated the "total variance explained" table available in [Appendix F](#), which identified a single extracted component with an Eigenvalue  $\geq 1$ . This component, with an Eigenvalue of 4.06, accounted for 58.01% of the variance.

The seven sub-items could now be reduced to a single averaged variable, representative of items EA18 to EA30, and renamed "EA".

### **Spirituality**

As with all preceding constructs, factor analysis was conducted on the 12 sub-items (reduced from the original 15 items) of the final construct, spirituality (SP). Inspection of the "correlation matrix" output table revealed that all items tested displayed at least one correlation above 0.30 ([Appendix F](#)). The SPSS output tables displayed a KMO score of 0.9, exceeding the minimum threshold of 0.5, and a p-value of less than 0.001 for the Bartlett's test of sphericity, indicating statistical significance and establishing that factor analysis was appropriate.

Unlike the other constructs, application of the Eigenvalue = 1 criterion to the generated "total variance explanation" table for this data set ([Table 11](#)), resulted in a two-factor solution for this construct. The two components jointly explained 65.85% of the variance.

Table 11: Total variance explained for construct SP, adapted from the SPSS output

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cum %	Total	% of Var	Cum %	Total	% of Var	Cum %
	1	6.81	56.75	56.75	6.81	56.72	56.72	6.17	51.43
2	1.09	9.09	65.85	1.09	9.09	65.85	1.73	14.42	65.85

Note: Author's own, constructed from SPSS outputs (2025)

The 12 sub-items of the SP construct could then be reduced to two extracted components which were named SP\_Experience\_and\_Connection (SP\_ec) and SP\_Compassion-and Acceptance (SP\_ca). The rotated component matrix detailed in [Table 12](#) indicated that 10 items loaded onto Component 1 (SP\_EC) and two items loaded onto Component 2 (SP\_CA).

Table 12: Rotated component matrix for construct SP, adapted from SPSS output

Rotated Component Matrix <sup>a</sup>		
	Component	
	1	2
SP31	0.880	0.154
SP32	0.655	0.270
SP33	0.861	0.155
SP35	0.856	0.185
SP36	0.594	0.335
SP38	0.863	0.277
SP40	0.718	0.219
SP41	0.740	0.128
SP42	0.786	0.103
SP45	0.808	0.186
SP43	0.218	0.799
SP44	0.126	0.799
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

Note: Author's own, constructed from SPSS outputs (2025)

Through EFA, the 42 items initially used to measure each construct were reduced to seven variables that provided a sound foundation for regression analyses to test the study's hypotheses. The groupings of sub-items that each of the seven variables

represent are described in [Table 13](#). Importantly, while all TPB constructs (PA, SN, PBC, EI, EA) were represented as unidimensional scales, spirituality retained a two-factor structure.

*Table 13: Summary of SPSS factor analysis outcomes*

<b>Scale</b>	<b>Items represented</b>
Personal attitude (PA)	PA4, PA5, PA6, PA7, PA8
Subjective norms (SN)	SN9, SN10, SN11
Perceived behavioural control (PBC)	PBC12, PBC13, PBC14, PBC15, PBC16, PBC17
Entrepreneurial intention (EI)	EI18, EI19, EI20, EI21, EI22, EI23
Entrepreneurial action (EA)	EA24, EA25, EA26, EA27, EA28, EA28, EA30
Spirituality_Experience&Connection (SP_ec)	SP31, SP32, SP33, SP35, SP36, SP38, SP40, SP41, SP42, SP45
Spirituality_Compassion&Acceptance (SP_ca)	SP43, SP44

Having established valid and reliable factor structures, the next analytical step was to evaluate whether the dataset met the statistical assumptions detailed in Chapter 4. Assumption testing ensures that subsequent regression results can be interpreted confidently and that violations do not bias estimates ([Hair et al., 2019](#); [Rebar et al., 2019](#)). The following section therefore reports results of assumption tests.

### **5.7 Assumption testing for regression analysis**

Before conducting the regression analyses to test this study's hypotheses, statistical assumptions were assessed to determine whether the dataset met the assumptions underlying the statistical test technique. Each assumption is presented below with the results of the diagnostic checks conducted in SPSS.

#### **Outliers**

The dataset was screened for potential outliers across both independent and dependent variables. Outliers were assessed using boxplots in SPSS, where significant outliers are denoted by an asterisk. Inspection of the boxplots revealed one case that SPSS classified as an extreme outlier (line item 33) for variables PA and EA, illustrated in [Figure 10](#). This case was excluded from further analysis and

reduced the sample size to 143. Boxplots of PA and EA with outliers identified in SPSS.

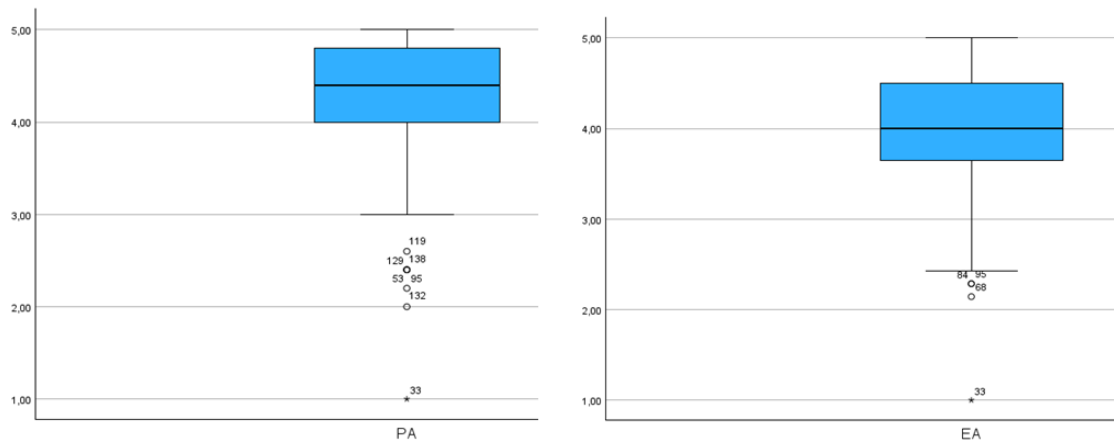


Figure 10: Boxplots of PA and EA with outliers identified in SPSS

The detection and removal of the significant outlier, aligns with established recommendations for preparing data prior to regression analysis (Hair et al., 2019; Wegner, 2020). The removal of a single outlier did not materially compromise the sample size, which remained within the thresholds established in Chapter 4.

### Linearity

To assess linearity, partial regression plots were generated for each IV-DV pair. In each case scatterplots with fitted regression lines were visually inspected to detect systematic curvature, and  $R^2$  values were reviewed to assess the strength of the linear relationship. The plots obtained from SPSS are illustrated in [Appendix G](#).

Linearity was first assessed with EI as the dependent variable in the following relationship pairs; For **DV = EI**: PA-EI, SN-EI, PBC-EI, SP\_EC-EI, and SP\_CA-EI.

The linearity assumption was reasonably met for PA ( $R^2 = 0.294$ ) and PBC ( $R^2 = 0.153$ ), with both showing clear positive associations with EI. However, SN, SP\_ec, and SP\_ca displayed weak but positive linear trends (see [Appendix G](#)).

When EA was specified as the dependent variable, linear diagnostics were executed on the following construct pairs: **DV = EA**: EI-EA, SP\_EC-EA, and SP\_CA-EA.

Again, the linearity assumption was reasonably met for EI ( $R^2 = 0.243$ ) with the spirituality components displaying weak linear effects (SP\_ec  $R^2 = 0.013$  and SP\_ca

$R^2 = 0.021$ ). Overall, the linear trends were adequate to meet the assumption of linearity.

### Normality

Normality assumes that the distribution of residuals approximates a normal curve, which is crucial for valid significance testing in regression ([Hair et al., 2019](#); [Rebar et al., 2019](#); [Wegner, 2020](#)). Normality was tested on the factor scores (reduced components for each construct) and not the individual sub-construct items. This aligned with literature emphasising that assumption testing should be applied at the level of the variables entered into the multivariate model ([Nejad et al, 2024](#); [Wegner, 2020](#)). Normality was assessed using graphical methods on SPSS.

Figures 11 and 12 display the histograms with superimposed normal curves, together with the Normal P-P plots of regression standardised residuals for each dependent variable. For EI ([Figure 11](#)), the histogram demonstrated an approximately bell-shaped distribution. While minor skewness is present, the overall pattern aligns closely with the normal curve. The P-P plot further corroborates this finding, as the majority of points lie along the diagonal line.

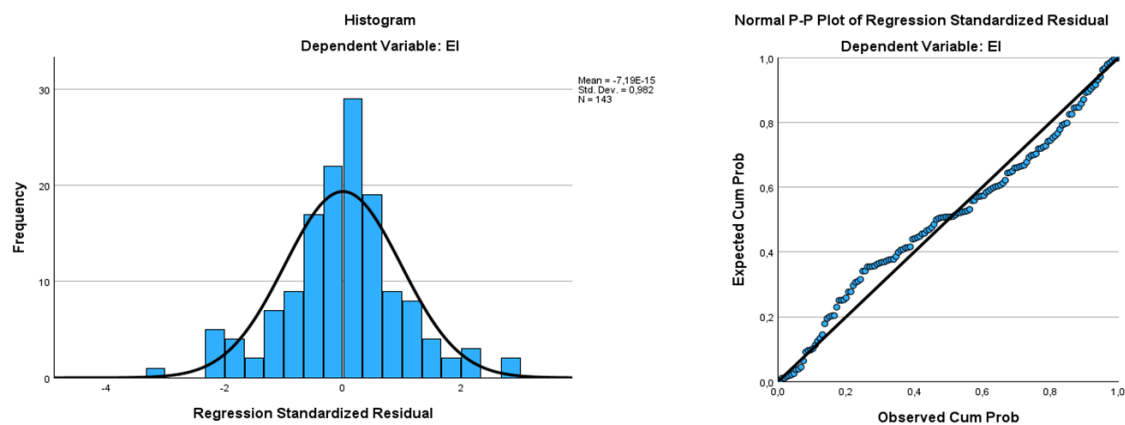


Figure 11: Histogram and Normal P–P Plot of Regression Standardised Residuals for EI

For EA, the histogram ([Figure 12](#)) also displays a near-symmetrical distribution of residuals with no evidence of extreme skewness or kurtosis. The residuals are clustered around zero, with frequencies tapering off at both ends, consistent with a normal distribution. The P-P plot confirms this observation as the cumulative probabilities closely follow the expected diagonal line.

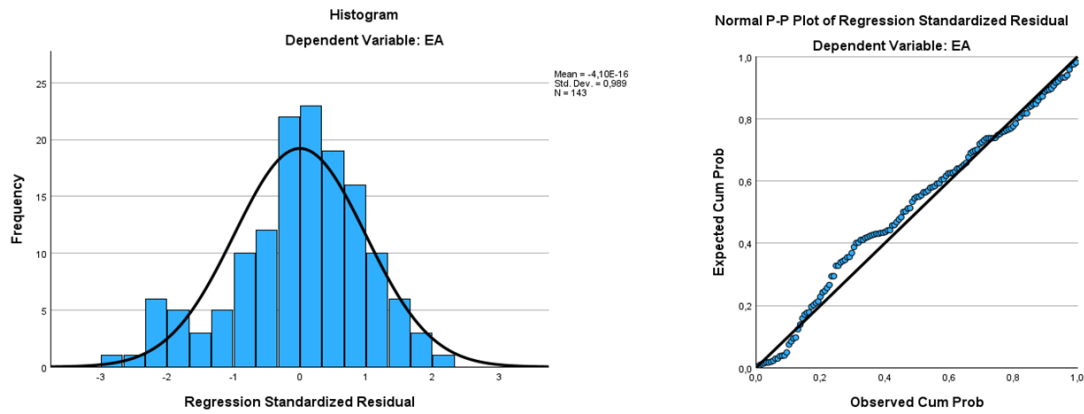


Figure 12: Histogram and Normal P–P Plot of Regression Standardised Residuals for EA

These graphical diagnostics indicate that the assumption of normally distributed residuals is reasonably satisfied for both EI and EI.

### Homoscedasticity

To test the assumption of homoscedasticity, a scatterplot of standardised residuals against standardised predicted values was examined (Figure 13). Visual inspection of the scatterplot indicated that the residuals were randomly dispersed around the horizontal axis, without any curvilinear pattern or systematic clustering. The overall distribution suggests that the variance of residuals remained relatively constant across the range of predicted values, thus supporting the assumption of homoscedasticity.

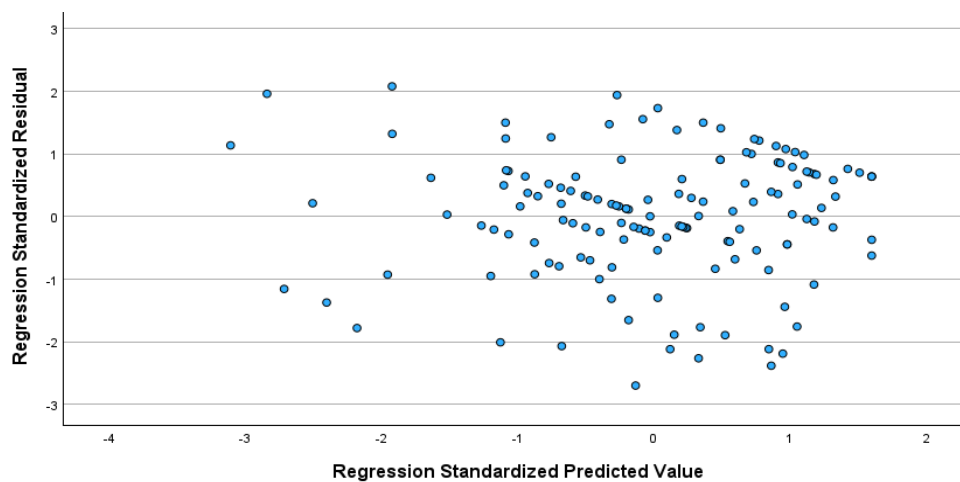


Figure 13: Scatterplot of standardized residuals versus standardized predicted values for homoscedasticity testing

### **Multicollinearity**

Multicollinearity was assessed to determine whether predictor variables in the regression model were highly correlated with each other. The collinearity statistics reported in [Appendix H](#) confirm that no predictor variable demonstrated problematic collinearity.

In summary, the diagnostic checks confirmed that the fundamental assumptions underlying regression analysis were satisfactorily met. Having established that the key assumptions were not violated, the outcomes validated the suitability of the study dataset for regression analysis and subsequent hypothesis testing.

### **5.8 Results for hypothesis testing (using full survey data set)**

This section presents the outcomes of the moderated regression analyses conducted in SPSS to assess whether spirituality strengthens the entrepreneurial relationships built within the TPB framework. Each hypothesis was tested by incorporating both the predictor variable (PA, SN, PBC, or EI) and the moderating variable (SP\_ec and SP\_ca), along with the interaction term, into the regression model. Moderation was confirmed when the interaction term displayed statistical significance ( $p < 0.05$ ) and then the effect was determined by examining the coefficients.  $R^2$  values were also evaluated to assess model fit. Simple slope comparisons were then conducted on the returned SPSS regression outputs.

The results are reported sequentially below, corresponding to the four hypotheses developed in Chapter 3 and using the fully set of 144 survey responses. The complete set of SPSS regression outputs for the moderation analysis is presented in [Appendix I](#).

#### **5.8.1 H1: Spirituality positively moderates the relationship between personal attitude and entrepreneurial intention**

The first hypothesis (H1) tests whether SP strengthens the link between PA and EI. Moderated regression models were run in SPSS with EI as the dependent variable, PA as the independent variable, and each SP component entered as a moderator.

**For moderator = SP\_ec:** The  $R^2$  value for EI, without the inclusion of the moderating effect (PA\*SP\_ec), was 0.486. This shows that 48.6% of the variance in EI is accounted for by PA. With the inclusion of the interaction term,  $R^2$  increased to 0.512;

showing an increase of 2.6% in variance explained in the outcome variable EI by the independent variables. This shows that with an increase in SP\_ec, the positive relationship between PA and EI is strengthened. A summary of the moderation analysis outputs is presented in [Table 14](#).

Significance of the moderating effect was analysed and revealed a positive and significant moderating impact of SP\_ec on the relationship between PA and EI ( $\beta = 0.205$ ,  $t = 2.736$ ,  $p = 0.007$ ); thus, supporting H1.

*Table 14: H1 SPSS moderation analysis output summary*

<b>Relationship</b>	<b>Beta</b>	<b>Std Error</b>	<b>t-value</b>	<b>p-value</b>
Moderating effect (PA*SP_ec) → EI	0.205	0.075	2.736	0.007
PA → EI	0.784	0.067	11.666	0.000
SP_ec → EI	0.058	0.043	1.322	0.188
Moderating effect (PA*SP_ca) → EI	0.076	0.082	0.930	0.354
PA → EI	0.748	0.070	10.703	0.000
SP_ca → EI	0.129	0.052	2.495	0.014

*Note:* Author's own, constructed from SPSS outputs (2025)

To better illustrate the nature of the moderating effects, the slope analysis is presented in [Figure 14](#). The slope of line is steeper for high SP\_ec, indicating that at higher levels of SP\_ec, the impact of PA on EI is stronger in comparison to instances of lower SP\_ec. At lower SP\_ec, the line tends to straighten signifying that at lower SP\_ec an increase in PA does not result in a similar change in EI as observed for high SP\_ec. In conclusion, SP\_ec strengthens the impact of PA and EI.

The interaction effect ( $F^2$ ) size indicates how much the moderation contributes to the explanation of the endogenous construct, with  $F^2$  values 0.02, 0.15, and 0.35 correspond to small, medium, and large effect sizes of moderation respectively. The  $F^2$  effect size was 0.05, small, suggesting that the moderating effect does not contribute significantly in explaining the construct EI.

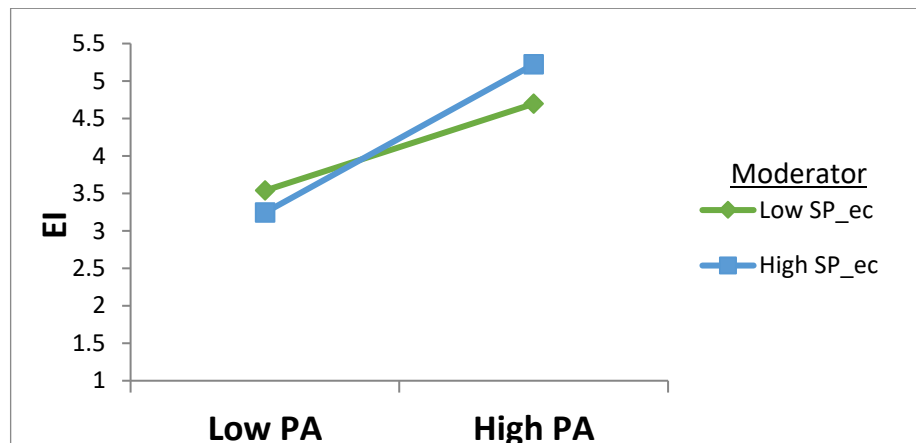


Figure 14: Two-way interaction effect for H1 unstandardised variables (graph of EI versus PA, with SP<sub>ec</sub> as the moderator)

**For moderator = SP<sub>ca</sub>:** The R<sup>2</sup> value for EI, without the inclusion of the moderating effect (PA\*SP<sub>ca</sub>), was 0.493. This shows that 49.3% of the variance in EI is accounted for by PA. With the inclusion of the interaction term, R<sup>2</sup> increased to 0.496; showing an increase of 0.3% in variance explained in the outcome variable EI by the independent variables. However, the p-value of the moderating effect was examined ([Table 14](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP<sub>ca</sub> did not display a significant moderating impact on the relationship between PA and EI ( $\beta = 0.076$ ,  $t = 0.930$ ,  $p = 0.354$ ); thus rejecting H1.

### 5.8.2 H2: Spirituality positively moderates the relationship between subjective norms and entrepreneurial intention

The second hypothesis (H2) tests whether SP strengthens the relationship between SN and EI. Moderated regression models were conducted with EI as the dependent variable, SN as the independent variable, and the two SP components as moderators.

**For moderator = SP<sub>ec</sub>:** The R<sup>2</sup> value for EI, without the inclusion of the moderating effect (SN\*SP<sub>ec</sub>), was 0.085. This shows that 8.5% of the variance in EI is accounted for by SN. With the inclusion of the interaction term, R<sup>2</sup> increased to 0.116; showing an increase of 3.1% in variance explained in the outcome variable EI by the independent variables. This suggests that with an increase in SP<sub>ec</sub>, the positive relationship between SN and EI is strengthened. A summary of the moderation analysis outputs for H2 is presented in [Table 15](#).

Significance of the moderating effect was analysed and revealed a positive and significant moderating impact of SP\_ec on the relationship between SN and EI ( $\beta = 0.172$ ,  $t = 2.201$ ,  $p = 0.029$ ), thus supporting H2.

Table 15: H2 SPSS moderation analysis output summary

Relationship	Beta	Std Error	t-value	p-value
Moderating effect (SN*SP_ec) → EI	0.172	0.078	2.201	0.029
SN → EI	0.191	0.076	2.522	0.013
SP_ec → EI	0.107	0.056	1.899	0.060
Moderating effect (SN*SP_ca) → EI	-0.009	0.078	-0.118	0.907
SN → EI	0.219	0.074	2.973	0.003
SP_ca → EI	0.228	0.066	3.435	0.001

Note: Author's own, constructed from SPSS outputs (2025)

The slope analysis of the moderated regression outputs is illustrated in [Figure 15](#). The slope of line is steeper for high SP\_ec, indicating that at higher levels of SP\_ec, the impact of SN on EI is stronger in comparison to instances of lower SP\_ec. At lower SP\_ec, the line straightens significantly, indicating that at lower SP\_ec an increase in SN does not result in a similar change in EI as observed for higher SP\_ec. In conclusion, SP\_ec strengthens the impact of SN and EI.

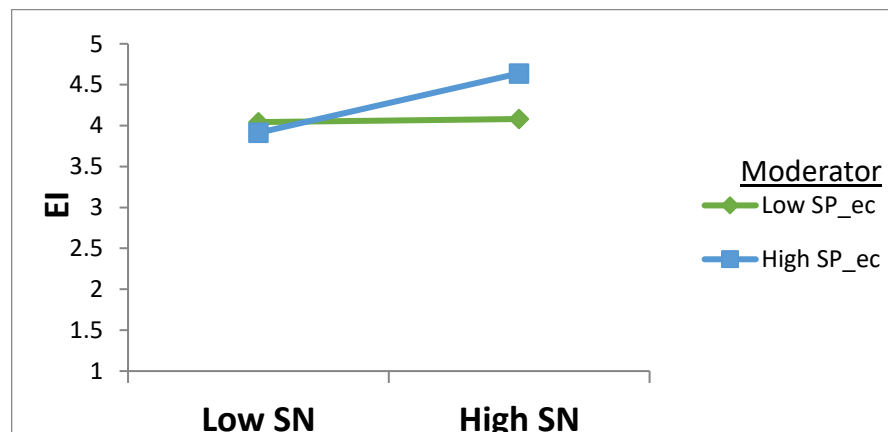


Figure 15: Two-way interaction effect for H2 unstandardised variables (graph of EI versus SN, with SP\_ec as the moderator)

**For moderator = SP\_ca:** The  $R^2$  value for EI, without the inclusion of the moderating effect (SN\*SP\_ca), was 0.134. This shows that 13.4% of the variance in EI is accounted for by SN. With the inclusion of the interaction term,  $R^2$  increased to 0.135;

showing an increase of 0.1% in variance explained in the outcome variable EI by the independent variables. However, the p-value of the moderating effect was examined ([Table 15](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP\_ca did not display a significant moderating impact on the relationship between SN and EI ( $\beta = -0.009$ ,  $t = -0.118$ ,  $p = 0.907$ ); thus rejecting H2.

### 5.8.3 H3: Spirituality positively moderates the relationship between perceived behavioural control

The third hypothesis (H3) examines whether SP enhances the link between PBC and EI. Moderated regression analyses were conducted with EI as the dependent variable, PBC as the independent variable, and SP\_ec and SP\_ca as moderators.

**For moderator = SP\_ec:** The R<sup>2</sup> value for EI, without the inclusion of the moderating effect (PBC\*SP\_ec), was 0.380. This shows that 38% of the variance in EI is accounted for by PBC. With the inclusion of the interaction term, R<sup>2</sup> increased to 0.388; showing an increase of 0.8% in variance explained in the outcome variable EI by the independent variables. However, the p-value of the moderating effect was examined ([Table 16](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP\_ec did not display a significant moderating impact on the relationship between PBC and EI ( $\beta = -0.088$ ,  $t = 1.306$ ,  $p = 0.194$ ); thus rejecting H3.

Table 16: H3 SPSS moderation analysis output summary

Relationship	Beta	Std Error	t-value	p-value
Moderating effect (PBC*SP_ec) → EI	0.088	0.067	1.306	0.194
PBC → EI	0.631	0.070	8.967	0.000
SP_ec → EI	0.029	0.048	0.594	0.554
Moderating effect (PBC*SP_ca) → EI	0.035	0.085	0.417	0.677
PBC → EI	0.602	0.069	8.676	0.000
SP_ca → EI	0.131	0.056	2.318	0.022

Note: Author's own, constructed from SPSS outputs (2025)

**Similarly, for moderator = SP\_ca:** The R<sup>2</sup> value for EI, without the inclusion of the moderating effect (PBC\*SP\_ca), was 0.402. This shows that 40.2% of the variance in EI is accounted for by PBC. With the inclusion of the interaction term, R<sup>2</sup> increased to 0.403; showing an increase of 0.1% in variance explained in the outcome variable EI by the independent variables. However, the p-value of the moderating effect was examined ([Table 16](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP\_ca

did not display a significant moderating impact on the relationship between PBC and EI ( $\beta = 0.035$ ,  $t = 0.417$ ,  $p = 0.677$ ); thus rejecting H3.

#### 5.8.4 H4: Spirituality positively moderates the relationship between entrepreneurial intention and entrepreneurial action

The fourth hypothesis (H4) investigates whether SP reduces the EI-EA gap by moderating the relationship between EI and EA. Moderated regression models were tested with EA as the dependent variable, EI as the independent variable, and the two SP components as moderators.

**For moderator = SP<sub>ec</sub>:** The  $R^2$  value for EA, without the inclusion of the moderating effect (EI\*SP<sub>ec</sub>), was 0.316. This shows that 31.6% of the variance in EA is accounted for by EI. With the inclusion of the interaction term,  $R^2$  increased to 0.319; showing an increase of 0.3% in variance explained in the outcome variable EA by the independent variables. However, the p-value of the moderating effect was examined ([Table 17](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP<sub>ec</sub> did not display a significant moderating impact on the relationship between EI and EA ( $\beta = 0.052$ ,  $t = 0.691$ ,  $p = 0.491$ ); thus rejecting H4.

Table 17: H4 SPSS moderation analysis output summary

Relationship	Beta	Std Error	t-value	p-value
Moderating effect (EI*SP <sub>ec</sub> ) → EA	0.052	0.075	0.691	0.491
EI → EA	0.488	0.068	7.221	0.000
SP <sub>ec</sub> → EA	0.106	0.048	2.224	0.028
Moderating effect (EI*SP <sub>ca</sub> ) → EA	0.067	0.081	0.826	0.410
EI → EA	0.476	0.070	6.770	0.000
SP <sub>ca</sub> → EA	0.142	0.058	2.435	0.016

Note: Author's own, constructed from SPSS outputs (2025)

**Similarly, for moderator = SP<sub>ca</sub>:** The  $R^2$  value for EA, without the inclusion of the moderating effect (EI\*SP<sub>ca</sub>), was 0.322. This shows that 32.2% of the variance in EA is accounted for by EI. With the inclusion of the interaction term,  $R^2$  increased to 0.326; showing an increase of 0.4% in variance explained in the outcome variable EA by the independent variables. However, the p-value of the moderating effect was examined ([Table 17](#) and [Appendix I](#)) and revealed that with p-value > 0.05, SP<sub>ca</sub> did not display a significant moderating impact on the relationship between EI and EA ( $\beta = 0.067$ ,  $t = 2.435$ ,  $p = 0.016$ ); thus rejecting H4.

## 5.9 Results for hypothesis testing across education levels

To examine whether educational attainment influenced the hypothesised relationships within the model, the sample was divided into two groups. The H1-H4 SPSS analyses results for Group 1 (respondents whose highest qualification was high school) are presented in [Table 18](#) and the results for Group 2 (respondents who held an undergraduate or postgraduate qualification) are presented in [Table 19](#).

### 5.9.1 Group 1 results - respondents whose highest qualification was high school

For testing both SP\_ec and SP\_ca as moderators in the EI→EA relationship within Group 1 responses, the p-value of the moderating effect was found to be greater than 0.05. This indicated that for respondents whose highest education qualification was high school, neither dimension of spirituality displayed a significant moderating effect on the relationship between EI and EA.

Table 18: H1-H4 SPSS moderation analysis output summary (Group 1)

Relationship	Beta	Std Error	t-value	p-value
H1 - Moderating effect (PA*SP_ec) → EI	0.325	0.159	2.048	0.051
H2 - Moderating effect (SN*SP_ec) → EI	0.689	0.181	3.797	0.001
H3 - Moderating effect (PBC*SP_ec) → EI	0.180	0.173	1.037	0.309
H4 - Moderating effect (EI*SP_ec) → EA	0.358	0.214	1.676	0.106
H1 - Moderating effect (PA*SP_ca) → EI	0.346	0.128	2.697	0.012
H2 - Moderating effect (SN*SP_ca) → EI	0.378	0.235	1.610	0.119
H3 - Moderating effect (PBC*SP_ca) → EI	-0.064	0.176	-0.363	0.719
H4 - Moderating effect (EI*SP_ec) → EA	0.040	0.218	0.182	0.857

Note: Author's own, constructed from SPSS outputs (2025)

### 5.9.2 Group 2 results - respondents who held an undergraduate or postgraduate qualification

Table 19: H1-H4 SPSS moderation analysis output summary (Group 2)

Relationship	Beta	Std Error	t-value	p-value
H1 - Moderating effect (PA*SP_ec) → EI	0.171	0.085	2.008	0.047
H2 - Moderating effect (SN*SP_ec) → EI	0.099	0.093	1.063	0.290
H3 - Moderating effect (PBC*SP_ec) → EI	0.082	0.077	1.061	0.291
H4 - Moderating effect (EI*SP_ec) → EA	-0.001	0.083	-0.017	0.987
H1 - Moderating effect (PA*SP_ca) → EI	0.009	0.080	0.117	0.907

H2 - Moderating effect (SN*SP_ca) → EI	0.095	0.082	1.151	0.252
H3 - Moderating effect (PBC*SP_ca) → EI	0.140	0.083	1.685	0.095
H4 - Moderating effect (EI*SP_ec) → EA	0.168	0.071	2.377	0.019

Note: Author's own, constructed from SPSS outputs (2025)

For Group 2, the SP\_ec dimension of SP, with  $p > 0.05$ , did not display a significance in moderating the relationship between EI and EA.

**However, for moderator = SP\_ca:** The  $R^2$  value for EA, without the inclusion of the moderating effect (EI\*SP\_ca), was 0.641. This shows that 64.1% of the variance in EA is accounted for by EI. With the inclusion of the interaction term,  $R^2$  increased to 0.663; showing an increase of 2.2% in variance explained in the outcome variable EA by the independent variables. Significance of the moderating effect was analysed and revealed a positive and significant moderating impact of SP\_ca on the relationship between EI and EA ( $\beta = 0.168$ ,  $t = 2.377$ ,  $p = 0.019$ ); thus, supporting H4 (see ([Table 19](#) and [Appendix J](#))).

### 5.10 Summary of findings

This section consolidates the results from hypothesis testing (Sections 5.8. and 5.9), providing an overview of how spirituality influenced the relationships between the TPB motivational antecedents of intention and entrepreneurial intention, as well as the entrepreneurial intention-action gap. A summary of the findings is presented in [Table 20](#).

**H1 (PA → EI moderated by SP):** Results indicated that PA remained a strong predictor of EI. However, the moderating effect of SP was limited, with SP\_ec showing a modest interaction effect while SP\_ca was non-significant.

**H2 (SN → EI moderated by SP):** The moderation results for H2 testing indicated that SN displays predictive capabilities for EI. However, the moderating effect of SP was again limited, with SP\_ec showing a modest interaction effect while SP\_ca was non-significant.

**H3 (PBC → EI moderated by SP):** PBC significantly predicted EI, but no meaningful moderation by SP was detected. Both SP\_ec and SP\_ca did not display significance in altering the strength of this relationship.

**H4 (EI → EA moderated by SP):** EI strongly predicted EA but for the full data set, neither SP\_ec nor SP\_ca displayed significance in influencing the strength of the EI-EA relationship. For Group 1, neither dimension of SP displayed significance in influencing the strength of the EI-EA relationship. However, for Group 2, a limited moderating effect of SP was observed, with SP\_ca showing a modest interaction effect while SP\_ec displayed no significance.

Table 20: Summary of moderation patterns by spirituality components

Hypotheses	Path tested	Moderator	Supported	Key finding
H1	PA→EI	SP_ec	Partially	SP_ec significantly strengthened the PA-EI link; SP_ca not significant
		SP_ca		
H2	SN→EI	SP_ec	Partially	SP_ec significantly strengthened the SN-EI link; SP_ca not significant
		SP_ca		
H3	PBC→EI	SP_ec	No	Neither spirituality component moderated the PBC-EI relationship
		SP_ca		
H4 - full data set	EI→EA	SP_ec	No	Neither spirituality component moderated the EI-EA relationship
		SP_ca		
H4 - Group1	EI→EA	SP_ec	No	Neither spirituality component moderated the PBC-EI relationship
		SP_ca		
H4 - Group2	EI→EA	SP_ec	Partially	SP_ca significantly strengthened the EI-EA link; SP_ec not significant
		SP_ca		

### 5.11 Conclusion

Overall, the analyses confirmed the robustness of the TPB model in predicting entrepreneurial intention, while also demonstrating that spirituality – conceptualised through two components: *Experience and Connection* (SP\_ec) and *Compassion and Acceptance* (SP\_ca), moderated two specific pathways of the model, as well as the EI→EA pathway for respondents holding undergraduate or postgraduate qualifications. The findings show that spirituality did not consistently emerge as a significant moderator across the tested relationships.

The next chapter interprets the above results in greater depth, positioning the findings within the broader literature on entrepreneurship, spirituality, and behavioural theory.

## **6. Discussion of results**

### **6.1 Introduction**

The purpose of this chapter is to interpret and contextualise the empirical results presented in Chapter 5. Whereas the Chapter 5 provided a descriptive and statistical account of the data analysis, this chapter links the findings back to the theoretical framework, research objectives, and hypotheses formulated in Chapters 2 and 3, focusing on what the results mean in relation to the central research problem. In so doing, Chapter 6 examines the extent to which the results confirm or challenge existing TPB literature, the EI-EA gap, and the moderating role of SP.

This discussion is structured to achieve three objectives:

1. Consolidate the findings across the sample population and the study's core constructs under the specified contexts.
2. Evaluate results from H1-H4 statistical analyses and compare the outcomes to existing literature on intention-action dynamics, volitional supports, and moderators within the TPB framework.
3. Evaluate the theoretical, practical, and methodological contributions of the study, outlining both implications and limitations of the research.

### **6.2 Sample population**

The study surveyed a total of 155 respondents, of which 144 usable responses were retained after data cleaning. The demographic profile of the final sample provides context for interpreting the findings, as it reflects a heterogeneous set of individuals with varying degrees of entrepreneurial exposure and intention.

#### **6.2.1 Age distribution**

While 32.6% of the respondents refrained and chose not to disclose their age groups, the remaining respondents spanned multiple age categories with the majority of respondents belonging to the 45-54 years and 35-44 years cohorts. These age groups are often characterised by greater experience and resource accumulation compared to younger cohorts ([Gielnik et al., 2020](#); [Neneh, 2020](#)). As a result, respondents may display higher levels of entrepreneurial self-efficacy (PBC) and confidence in mobilising resources.

Younger adults are typically associated with high entrepreneurial intention but due to the significant barriers faced, display lower conversion of entrepreneurial intention into action; while older individuals are more likely to follow through if opportunities align with the expertise and prior experience ([Al-Jubari et al., 2018](#); [Gielnik et al., 2020](#); [Van Hoa Tran et al., 2023](#); [Wood et al., 2019](#)). The dominance of respondents in the 35–54-year age bracket may therefore mean that this study captures individuals closer to the action stage of entrepreneurship, potentially influencing how the intention-action gap is expressed in the data.

While many TPB based entrepreneurship studies draw on youth or student samples ([Al-Jubari et al., 2018](#); [Bogatyreva et al., 2019](#); [Neneh, 2020](#); [Nguyen & Nguyen, 2023](#)), the current study contributes to literature by focusing on an older demographic, thus broadening applicability beyond academic contexts. However, it should also be noted the predominance of respondents aged 35-54 years may be a by-product of the digital distribution method of the survey instrument (via email, WhatsApp, Facebook, and LinkedIn) within the author's professional and personal networks. This mode of sampling could have skewed the age profile towards mid-career professionals more active on these platforms, underrepresenting younger or less digitally connected individuals. As such, the findings should be viewed with caution when generalising, recognising that the sample age composition illustrated in [Figure 7](#) may reflect the channels of recruitment leveraged to obtain survey responses.

### **6.2.2 Gender composition**

The sample for this study was predominantly female (59%) with males constituting 40.3% of the respondents, as can be seen in [Figure 8](#). This gender profile is noteworthy given that, according to the [Global Entrepreneurship Monitor \(2024\)](#), men remain more likely than women to engage in EA across most surveyed economies. Beyond participation rates, the [Global Entrepreneurship Monitor \(2024\)](#) also highlights that women are disproportionately deterred by fear of failure, with 82% of the surveyed economies reporting a higher proportion of women refraining from engaging in EA due to the fear of failure. The strong female representation in the present study therefore provides a valuable counterpoint, allowing the analysis to foreground women's entrepreneurial experiences in a context within which they are often underrepresented.

Prior research indicates that female entrepreneurial intentions are strongly shaped by subjective norms and social support from community members ([Neneh, 2020](#); [Sarwar et al., 2021](#)) Within this context, SP may act as a key psychological moderator that fosters resilience, optimism, and meaning-making to shield against discouraging environments and help women overcome systemic gender barriers ([Loi et al., 2023](#)). Overall, the gender composition provides an opportunity to explore how SP functions as a volitional support for female entrepreneurs grappling with the EI-EA pathway barriers.

However, the gender composition of the sample set also highlights a potential sampling bias; that the researcher's network may be more female dominated. The gender distribution also means that the findings may be more reflective of female entrepreneurial journeys, requiring caution in generalising across genders.

### **6.2.3 Educational attainment**

The sample revealed a high level of education amongst respondents, with 78.6% having completed tertiary qualifications. On the one hand, the overrepresentation of highly educated respondents in this study sample strengthens the reliability of insights into how educated individuals approach entrepreneurship. On the other hand, the sample set is not reflective of the population within South Africa, with [Statistics South Africa \(2022\)](#) indicating that only 11.4% of South Africans went on to obtain a tertiary qualification after passing matric. The sample underrepresents entrepreneurs from less formally educated backgrounds, who often engage in necessity-driven or informal entrepreneurship ([Global Entrepreneurship Monitor, 2024](#)).

Once again, the survey distribution method which leveraged the author's networks, is likely responsible for the sample being skewed towards respondents with higher levels of education, creating a form of selection bias that excludes less formally educated aspiring entrepreneurs.

### **6.3 Descriptive analysis of constructs**

The descriptive statistics reported in [Table 3](#) (Chapter 5) provide a foundation for interpreting how the sample engaged with the study constructs (PA, SN, PBC, EI, EA, and SP), offering a first indication of whether the empirical data aligns with the theoretical expectations established in the preceding chapters.

**Personal attitude** – respondents reported generally favourable personal attitudes towards entrepreneurship ( $M = 4.25$ ,  $SD = 0.69$ ), confirming that participants view entrepreneurship as personally attractive and desirable ([Krueger et al., 2000](#); [Liñán et al., 2010](#)), beneficial and worthwhile ([Hannan et al., 2015](#)), and a valid option to achieve a sense of fulfilment ([Liñán et al., 2013](#); [Westerink, 2013](#)). As Chapter 2 established, PA is a core antecedent of EI under TPB ([Ajzen, 1991](#); [Hueso et al., 2020](#)), and the high mean revealed for this construct indicates that the motivational conditions for EI were present in the sample set.

**Subjective norms** – The results also revealed a high mean score of for SN ( $M = 3.98$ ,  $SD = 0.81$ ), indicating that respondents generally perceived social approval from family, friends, or colleagues when pursuing EA. This finding suggests that participants generally feel social pressure and an expectation to engage in EA ([Douglas, 2013](#)), becoming a motivational factor that strengthens their intention to engage in EA ([Gielnik et al., 2020](#); [Nowinski & Haddoud, 2019](#)).

**Perceived behavioural control** – Within TPB, PBC reflects both self-efficacy and the perceived availability of resources required to engage in EA ([Ajzen, 1991](#); [Tornikoski & Maalaoui, 2019](#)). The high mean score for PBC ( $M = 3.89$ ,  $SD = 0.73$ ), indicate that participants have high confidence and strong belief in their ability to successfully perform the actions required to achieve their entrepreneurial goals ([Liñán et al., 2010](#); [Neneh, 2020](#)). It also indicates that respondents generally believe that they have the requisite resources and opportunities to engage in EA ([Tornikoski & Maalaoui, 2019](#)). The high levels of PBC also point to strong intentions to engage in EA on the part of respondents ([Liñán et al., 2010](#); [Tornikoski & Maalaoui, 2019](#)).

**Entrepreneurial intention and entrepreneurial action** – EI was revealed to be high ( $M = 4.15$ ,  $SD = 0.76$ ), corroborating the literature in Chapter 2 which states that positive PA, supportive SN, and high PBC foster strong intentions towards enacting entrepreneurial behaviours ([Ajzen, 1991](#); [Gieure et al., 2020](#); [Tornikoski & Maalaoui, 2019](#)).

EA, while high with  $M = 3.96$  and  $SD = 0.73$ , lagged the values presented for EI. This divergence evidences the persistence of the entrepreneurial intention-action gap that framed the research problem in Chapter 1 ([Bogatyreva et al., 2019](#); [Global Entrepreneurship Monitor, 2024](#); [Van Hoa Tran et al., 2023](#)).

The results also support the literature reviewed in Chapter 2, which found that the TPB constructs often account for less than 34% of the variance in EA ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)), and while the motivational antecedents predict EI, they insufficiently explain why intentions fail to materialise into EA. The descriptive results therefore reinforce the central thesis of this study: that volitional supports are required to bridge the EI-EA gap.

**Spirituality** – Respondents reported high levels of SP ( $M = 4.70$ ,  $SD = 0.97$ ) on the DSES ([Underwood & Teresi, 2002](#)), indicating that participants frequently experience spiritual connection, meaning and purpose in their lives. The prevalence of SP in the sample provides a strong basis for testing its moderating role within TPB, as hypothesised in Chapter 3.

**Implications of the descriptive findings** – The findings provide direct evidence from the sample responses that even when PA, SN, and PBC are favourable, the well-documented intention-action gap persists; reinforcing the rationale of the study: TPB explains motivation but fall short for capturing volitional execution, necessitating the consideration of moderators such as SP ([Conner & Norman, 2022](#); [Ganzin et al., 2019](#)).

As the descriptive statistics reveal both strong motivational antecedents and a demonstrable EI-EA gap, they confirm that the study's sample is well-suited to testing the developed hypotheses and contextualise the subsequent inferential analyses. The high baseline of SP among respondents also reinforces the study's theoretical contribution: by testing SP as a moderator, this research responds directly to calls in literature for extending the TPB model to account for volitional execution ([Bosnjak et al., 2020](#); [Conner & Norman, 2022](#); [Roos & Botha, 2022](#); [Tornikoski & Maalaoui, 2019](#)).

#### **6.4 Measurement properties of constructs**

Before proceeding to hypothesis testing, it is important to confirm that the study's constructs were measured in a valid, reliable, and statistically sound manner. Chapter 4 outlined the use of established, peer-reviewed scales for measuring EI, EA, and SP and detailed how the proposed quality controls would be tested for the acquired sample, while Chapter 5 reported the descriptive and diagnostic results of these measures. This section consolidates the findings by evaluating the three

critical aspects of measurement quality; validity, reliability, and assumption testing to provide assurance that the dataset will yield meaningful and credible results when assessing the moderating role of SP on the intention-action gap and ensuring that the proposed hypotheses (H1 – H4) are evaluated on a sound empirical foundation.

#### 6.4.1 Validity testing

The results of the validity testing, detailed in [Table 4](#) to [Table 9](#) of Chapter 5, confirm that the measurement instruments employed in this study were appropriate for capturing the constructs of interest. Pearson's bivariate correlations between each item and its item-total score were statistically significant at  $p < 0.05$  and predominantly strong ( $r > 0.5$ ), thereby establishing construct validity across PA, SN, PBC, EI, EA, and SP. This finding aligns with the methodological approach outlined in Chapter 4, where validated scales such as [Liñán and Chen's \(2009\)](#) Entrepreneurial Intention Questionnaire, [Gieure et al.'s \(2020\)](#) Entrepreneurial Action Scale, and [Underwood and Teresi's \(2002\)](#) Daily Spiritual Experience Scale were selected to ensure theoretical and empirical grounding.

The strong correlations observed for all constructs provide confidence that respondent's perceptions of desirability, social approval, and perceived control towards entrepreneurship were accurately captured, thereby ensuring that the subsequent hypotheses testing reflects the true dynamics within the sample rather than artefacts of measurement error ([Gieure et al., 2020](#); [Roos & Botha, 2022](#)). This is particularly important for EI-EA pathway, where construct validity ensures that any observed divergence between EI and EA is not due to poor measurement ([Gieure et al., 2020](#); [Roos & Botha, 2022](#)), but rather reflects the volitional and contextual barriers discussed in Chapter 2; e.g., fear of failure ([Global Entrepreneurship Monitor, 2024](#)), uncertainty and resource constraints ([Rashid & Ratten, 2021](#); [Smith et al., 2021](#)), and temporal dynamics ([Sheeran & Webb, 2016](#); [Steel & König, 2006](#); [Steel et al., 2018](#)).

The SP scale returned consistently high correlations, supporting the contention in Chapter 1 and Chapter 2 that SP can be meaningfully operationalised as a psychological resource to influence EA ([Games et al., 2024](#); [Rashid & Ratten, 2021](#); [Tornikoski & Maalaoui, 2019](#)). While two items (SP43 and SP44) produced weaker correlations ( $r = 0.470$  and  $r = 0.414$ ), their statistical significance indicates that they

still contributed positively to the broader construct of spirituality, albeit less strongly. This echoes the challenge identified in Chapter 2 regarding the multidimensional nature of SP ([de Brito Sena et al., 2021](#)) and suggests that while SP can be inclusively measured, some dimensions may resonate more strongly with entrepreneurial contexts than others.

In summary, the validity testing results confirm that all constructs were appropriately measured, with strong and significant item-construct relationships across the board. The observed robustness of the construct measurement instruments enhances both the internal validity of the study and its contribution to advancing TPB-based research on the EI-EA gap. Having established validity, the next step was to examine the reliability of the scales, to ensure that the constructs are not only valid but also measure consistently across respondents.

#### **6.4.2 Reliability testing**

While validity testing established whether each item accurately reflects its intended construct, reliability testing focuses on the consistency of responses across those items ([Mellinger & Hanson, 2021](#); [Sürücü & Maslakçi, 2020](#)). Section 5.5 presented the results of Cronbach's alpha tests for all constructs, detailed in [Table 10](#), providing an indication of their internal coherence and consistency ([Sürücü & Maslakçi, 2020](#); [Tavakol & Dennick, 2011](#)). The discussion that follows interprets these results in light of the study's objectives.

The TPB-based motivational constructs of PA, SN, and PBC all reported strong reliability ( $\alpha = 0.843, 0.833, \text{ and } 0.862$  respectively); suggesting that the adapted EI questionnaire ([Liñán & Chen, 2009](#)) functioned reliably in the South African context and reinforcing the methodological choices outlined in Chapter 4.

EI demonstrated excellent reliability ( $\alpha = 0.926$ ), while EA also displayed good reliability with a Cronbach's alpha of 0.874. These results confirm that both motivational and behavioural dimensions were consistently measured, allowing for a credible and sound assessment of the EI-EA gap highlighted in Chapter 1 and Chapter 2 ([Bogatyreva et al., 2019](#); [Global Entrepreneurship Monitor, 2024](#); [Van Hoa Tran et al., 2023](#)).

The SP construct initially returned a very high alpha of 0.951. While this indicates strong internal consistency, values above 0.95 may suggest redundancy among subset items ([Sürücü & Maslakçi, 2020](#)). Refining the original 15-item scale to 12 items produced a lower but still excellent Cronbach's alpha ( $\alpha = 0.926$ ), preserving both robustness and parsimony. This adjustment is consistent with the challenges raised in Chapter 2 regarding the measurement of SP as a multidimensional construct without a universally accepted single definition ([de Brito Sena et al., 2021](#)).

In summary, all the study constructs demonstrated good to excellent reliability, confirming that the construct sub-items consistently measured their intended dimensions. Having established validity and reliability, the study could then proceed to factor analysis to further refine and structure the constructs for hypothesis testing.

### 6.4.3 Factor analysis

Factor analysis was employed to ensure that the three multi-item scales adapted to measure the constructs of TPB and SP could be meaningfully reduced into parsimonious variables for hypothesis testing.

The EFA results, summarised in [Figure 13](#) of Chapter 5, for the TPB-based constructs (PA, SN, PBC, EI, and EA) all extracted single-factor solutions with Eigenvalues  $> 1$ , explaining between 58% and 75% of the variances. This aligns with the unidimensional conceptualisation of the constructs in prior TPB-based literature (Hannan et al., 2015).

In contrast, SP, adapted from the Daily Spiritual Experience Scale ([Underwood & Teresi, 2002](#)), returned a two-factor solution. The first factor, *Experience and Connection* (SP\_ec) captured items reflecting a sense of divine presence, peace, and connection to life and creation. The second factor, *Compassion and Acceptance* (SP\_ca) represented items reflecting empathy and acceptance of others. This finding resonates with the literature in Chapter 2 which positions SP as a multifaceted construct encompassing many dimensions ([de Brito Sena et al., 2021](#)).

In summary, the dimension reduction analysis condensed the original dataset of 42 construct-related items to a smaller, more manageable set of seven factors that rendered the data easier to interpret and use in subsequent regression analyses, and identified two latent structures within the items related to SP. Having established

the factor structures, the study then assessed whether the dataset meets the statistical assumptions outlined in Chapter 4 that are required for regression analyses.

## 6.5 Discussion of hypotheses test results

This section turns to the focus of the study: testing whether SP moderates the relationships with the TPB structure and the entrepreneurial intention-action pathway. As outlined in Chapter 2, TPB's antecedents (PA, SN, and PBC) act as strong cognitive predictors of entrepreneurial intention ([Ajzen, 1991](#)). However, consistent with the literature ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)), real-world observations ([Global Entrepreneurship Monitor, 2024](#)) have noted that intention alone is insufficient to guarantee entrepreneurial action, giving rise to the well-documented EI-EA gap.

In this study, spirituality was proposed as a potential moderator that could strengthen volitional follow-through ([Ganzin et al., 2019](#); [Rashid & Ratten, 2021](#)). The hypotheses tested therefore extend TPB by positioning SP as a conditional factor across both motivational (PA, SN, PBC → EI) and behavioural (EI → EA) pathways.

The following sections sub-sections discuss the findings for each hypothesis (H1-H4) and evaluate whether SP provides the volitional resources to reduce the entrepreneurial intention-action gap.

### 6.5.1 H1: SP positively moderates the relationship between PA and EI

The findings presented in Chapter 5 ([Table 14](#)) confirm that personal attitude is a strong and consistent predictor of entrepreneurial intention. This pattern aligns with the TPB literature which positions PA as a primary driver of EI ([Ajzen, 1991](#)), consistently supported in entrepreneurship research ([Hueso et al., 2020](#); [Neneh, 2020](#); [Nguyen & Nguyen, 2023](#)); entrepreneurs with favourable attitudes towards an intended behaviour form stronger intentions to act on the desired behaviour.

Introducing spirituality as a moderator showed a differentiated effect: the *experience and connection* dimension of spirituality (SP\_ec) displayed significance as a moderator in strengthening the PA-EI link, while the *compassion and acceptance* dimension (SP\_ca) did not demonstrate significance in moderating the relationship

between PA and EI. This evidence suggests that spirituality's influence is facet-specific, with only certain aspects enhancing the motivational power of PA.

Chapter 2 argued that spirituality can act as a resource that deepens meaning and shields against negative emotions like fear, thereby amplifying the effect of positive attitudes on EI ([Ganzin et al., 2019](#)). Chapter 3 translated this into H1, predicting a positive moderating effect of SP on the PA-EI pathway. The results support that proposition and the literature ([Ganzin et al., 2019](#)) for SP<sub>ec</sub>, while SP<sub>ca</sub> was not influential in shaping the PA-EI link. This divergence of the spirituality dimensions is also consistent with the factor structure confirmed in [Table 12](#) and [Table 13](#) of Section 5.6, where spirituality was extracted as two distinct components, suggesting that only the inward, experiential dimension directly bolsters entrepreneurial motivational conviction.

In relation to H1, the conclusion is that the evidence partially supports the hypothesis: spirituality, when conceptualised as *experience and connection*, does positively moderate the PA-EI relationship, while the *compassion and acceptance* component does not. Thus, H1 holds for SP<sub>ec</sub> but not SP<sub>ca</sub>.

### **6.5.2 H2: SP positively moderates the relationship between SN and EI**

The results reported in Chapter 5 ([Table 15](#)) confirm that subjective norms significantly predict entrepreneurial intention, though the influence is weaker compared to personal attitude. This finding resonates with the TPB literature, where SN are theorised as an antecedent of EI, but often with more context-specific or culturally contingent effects ([Ajzen, 1991](#); [Al-Jubari et al., 2018](#)). In emerging economy contexts, prior research posit that the expectations of family, peers, and communities can shape entrepreneurial intention by legitimising or discouraging entrepreneurial pathways ([Bogatyreva et al., 2019](#); [Liñán et al., 2013](#); [Neneh, 2020](#)).

When the moderating role of spirituality was examined, the results once again demonstrated that the moderation by spirituality depends on which facet of spirituality is being considered. This outcome is consistent with the factor analysis detailed in Section 5.6 ([Table 12](#) and [Table 13](#)), which separated spirituality into distinct inward (experiential) and outward (compassion-based) constructs. The *experience and connection* component (SP<sub>ec</sub>) enhanced the predictive power of SN on EI, showing that individuals scoring high in this spiritual dimension are more likely to translate

perceived social support into stringer entrepreneurial intentions. In contrast, the *compassion and acceptance* component (SP\_ca) failed to moderate this relationship (see Section 5.8.2, [Table 15](#)).

Chapter 2 anticipated that spirituality, through its emphasis on compassion and social responsibility, may reinforce positive social support while protecting against discouraging environments ([Busenitz & Lichtenstein, 2019](#); [Obregon et al., 2021](#)) and Chapter 3 translated this into H2, proposing a positive moderating effect. The results affirm this expectation for SP\_ec, where feelings of connection and transcendence appear to strengthen the way perceived social expectations translate into intention. However, the lack of support for SP\_ca suggests that outward-facing compassion does not alter how individuals internalise social influence in forming entrepreneurial intentions.

In relation to H2, the evidence partially supports the hypothesis: spirituality, in its experiential and connective forms, does positively moderate the relationship between SN and EI, but its compassion and acceptance dimension does not. Accordingly, H2 is upheld for SP\_ec but not for SP\_ca.

### **6.5.3 H3: SP positively moderates the relationship between PBC and EI**

The findings presented in Chapter 5 ([Table 16](#)) indicates that perceived behavioural control is a strong and significant determinant of entrepreneurial intention. This is consistent with the TPB model, in which PBC reflects an individual's belief in their own capacity to perform entrepreneurial activities, often serving as both a motivational and capability-oriented driver of intention ([Ajzen, 1991](#)). Previous entrepreneurial studies have similarly highlighted PBC as one of the most reliable predictors of EI across diverse contexts ([Al-Jubari et al., 2018](#); [Hueso et al., 2020](#); [Neneh, 2020](#)).

However, when spirituality was introduced as a moderator, neither of its two components established in Section 5.6 (SP\_ec or SP\_ca) exerted any meaningful influence on the PBC-EI relationship. This suggests that, unlike in the case of personal attitude and subjective norms, spirituality does not affect how individuals translate their perceived control into entrepreneurial intentions.

From a theoretical standpoint, this outcome diverges from the expectations outlined in Chapter 2 and Chapter 3. Chapter 2 pointed to literature suggesting that spirituality may strengthen self-efficacy and resilience, enabling aspiring entrepreneurs who underestimate their ability to mobilise resources and overcome obstacles and persist towards achieving their entrepreneurial goals despite resource constraints or uncertainty ([Fesharaki, 2019](#); [Games et al., 2024](#)). Chapter 3 translated this into H3, proposing that spirituality has a positive moderating effect on the PBC-EI relationship. Yet the empirical evidence presented in this study indicates otherwise: spirituality does not significantly interact with PBC in shaping entrepreneurial intention. This finding highlights the possibility that spirituality's moderating role may be constrained; suggesting that when individuals already perceive high levels of behavioural control, additional spiritual influence does not further strengthen their intention towards enacting entrepreneurial activities.

In conclusion, the findings do not support H3. While PBC is confirmed as a strong predictor of EI, SP in neither its experiential nor compassion-based dimensions moderates the PBC-EI relationship.

#### **6.5.4 H4: SP positively moderates the relationship between EI and EA, reducing the gap between entrepreneurial intention and actual entrepreneurial behaviour**

Chapter 5 ([Table 17](#)) shows that entrepreneurial intention is a significant predictor of entrepreneurial action, confirming the central claim of the TPB model that intention is the most immediate antecedent of behaviour ([Ajzen, 1991](#)). This is also consistent with prior entrepreneurship research, which consider strong entrepreneurial intentions to be the single most accurate predictor of successfully translating entrepreneurial goals into tangible actions ([Hueso et al., 2020](#)).

When the moderating role of spirituality was tested, the results revealed that no significant interaction for either of the spirituality dimensions (SP\_ec or SP\_ca) on the entrepreneurial intention-action relationship (see Section 5.8.4, [Table 17](#)). While spirituality was positively associated EI through the motivational pathways of TPB, it did not appear to reduce the entrepreneurial intention-action gap by strengthening the translation of intentions into desired actions. This indicates that spirituality may

shape the formation of entrepreneurial motivation but does not directly influence whether individuals act on those intentions.

These findings diverge from the literature presented in Chapter 2 and the expectations formulated in Chapter 3, where H4 hypothesised that spirituality could function as a bridging mechanism between entrepreneurial intention and action, providing would-be entrepreneurs with purpose, persistence, and tolerance of uncertainty ([Ganzin et al., 2019](#); [Pidduck et al., 2024](#); [Rashid & Ratten, 2021](#)) to carry entrepreneurial goals into practice. Instead, the results suggest that spirituality seems more influential in shaping why people want to become entrepreneurs rather than in ensuring that they follow through with concrete steps that materialise into entrepreneurial actions.

In conclusion, H4 is not supported by the data findings. Entrepreneurial intention remains a significant driver of entrepreneurial action, but spirituality does not moderate this pathway. Thus, while spirituality enhances some motivational processes within the TPB framework, its influence does not extend to bridging the entrepreneurial intention-action gap.

### **6.5.5 Hypothesis testing across education levels**

Section 5.9 investigated whether educational attainment influenced the strength of the hypothesised relationships within the TPB model extended by spirituality. With an aim to determine whether spirituality's moderating role was consistent across education levels or whether it manifests differently among respondents with greater formal education, the data set was divided into two sub-groups: Group 1 (respondents whose highest qualification was high school) and Group 2 (respondents holding undergraduate or postgraduate qualifications).

The theory presented in Chapter 2 suggested that education does not necessarily weaken spirituality but rather transforms its expression from collective, community-based religiosity at lower education levels to more reflective, ethical, and purpose-driven spirituality among individuals with higher education ([Astin et al., 2010](#); [Kavadias et al., 2023](#); [Nasrollahi et al., 2020](#); [Voas, 2014](#)). This section unpacks how these theoretical expectations align with or diverge from the empirical results.

### **Group 1: High school educated respondents**

Among Group 1 respondents, spirituality was found to primarily influence the motivational domain of entrepreneurship within TPB (see [Table 18](#) in section 5.9.1). Specifically, the *compassion and acceptance* component of spirituality (SP\_ca) strengthened the effect of favourable PA on EI, while the *experience and connection* component of spirituality (SP\_ec) strengthened the positive effect of SN on EI. Neither component of spirituality showed a significant moderating effect on the PBC→EI and EI→EA relationships, mirroring the full-sample findings.

H1 and H2 are supported by the data findings for Group 1, while H3 and H4 are not supported. The findings align with the argument that individuals with less formal education often draw on spirituality for social validation and guidance, rather than reflective self-determination ([Astin et al., 2010](#); [Kavadias et al., 2023](#); [Nasrollahi et al., 2020](#)). In this context, spirituality acts as a motivational enabler, reinforcing the PA → EI pathway and strengthening the internalisation of social approval (SN → EI).

Furthermore, the lack of significant moderation effects for PBC → EI and EI → EA adds to the existing literature by demonstrating that, among less-formally-educated respondents, spirituality's influence remains bounded within the motivational stage of the entrepreneurial process and does not extend to volitional enactment.

In conclusion, for Group 1, while spirituality enhances two of the motivational pathways within the TPB framework, its influence does not extend to bridging the entrepreneurial intention-action gap.

### **Group 2: Tertiary-educated respondents**

Among Group 2 respondents, spirituality's influence shifted from primarily motivation to volition, affecting the translation of intention into action rather than its formation (see [Table 19](#) in section 5.9.2).

The SP\_ec component of spirituality only demonstrated a positive moderating effect on the PA → EI motivational pathway, supporting H1. For H2 and H3, neither spirituality component demonstrated significance in moderating the SN → EI and PBC → EI pathways. However, SP\_ca demonstrated significance in strengthening the EI → EA relationship, thus supporting H4.

These findings confirm and extend the theory presented in Section 2.5.3, which argued that higher levels of education tend to transform rather than diminish spirituality ([Astin et al., 2010](#); [Hungerman, 2011](#); [Kavadias et al., 2023](#); [Voas, 2014](#)). The results support the notion that tertiary education fosters a more reflective, ethical, and purpose-driven spirituality, wherein individuals integrate spiritual meaning into self-determined, morally guided behaviour ([Astin et al., 2010](#); [Nasrollahi et al., 2020](#); [Voas, 2014](#)). The significant moderating effect of SP\_ca on the relationship between EI and EA illustrates this transformation.

Furthermore, the absence of significant moderation for the SN → EI pathway confirms the assertion that highly educated individuals are less reliant on social conformity ([Kavadias et al., 2023](#); [Voas, 2014](#)). Instead, their spirituality manifests through self-reflective conviction and ethical autonomy, aligning with [Astin et al. \(2010\)](#), [Nasrollahi et al. \(2020\)](#), and [Voas \(2014\)](#) who suggested that higher education cultivates critical reflection and personal meaning-making as dominant modes of spiritual expression.

Collectively, the results for Group 1 and Group 2 extend the theory by showing that education not only alters the form of spirituality but also its role within the entrepreneurial process. While spirituality among less educated individuals enhances the motivational antecedents of EI (as shown in Group 1), among tertiary-educated respondents it acts as a volitional enabler that can reduce the EI-EA gap.

In summary, spirituality among tertiary-educated individuals confirms the transformative model proposed by [Astin et al. \(2010\)](#) and [Voas \(2014\)](#), where education refines spirituality into an introspective, deeply personal resource that strengthens entrepreneurial follow-through; thereby enriching the TPB framework through a nuanced understanding of how education affects the moderating role of spirituality in entrepreneurial behaviour.

## 6.6 Conclusion

Across the discussions presented in this chapter, PA, SN, and PBC were reaffirmed as significant predictors of entrepreneurial intention, while intention itself strongly predicted entrepreneurial action. For the full data set, spirituality's moderating role, however, proved nuanced: the experiential and connection component (SP\_ec) enhanced the influence of PA and SN on EI, but no significant moderation was

observed for the compassion and acceptance component (SP\_ca). Moreover, SP did not strengthen the pathway from PBC to EI, nor from EI to EA.

Distinct patterns emerged when the survey data was examined across education levels. Among Group 1 respondents, spirituality primarily influenced the motivation domain of entrepreneurship. In contrast, among the tertiary-educated respondents of Group 2, the moderating influence of spirituality shifted towards the volitional stage and strengthening the EI → EA pathway through SP\_ca. This finding extends TPB literature by suggesting that higher education may transform the function of spirituality from motivating intention to facilitating entrepreneurial behaviour, supporting [Tornikoski and Maalaoui's \(2019\)](#) argument that volitional supports are critical in bridging the entrepreneurial intention-action gap.

The findings provide a direct answer to the central research question **(RQ1): Does spirituality have a moderating effect on the relationship between entrepreneurial intention and entrepreneurial action?** It confirms that spirituality has a partial moderating effect on the EI-EA relationship, under certain contexts.

Chapter 7 builds on these insights to provide the overall conclusion for this study, drawing together both theoretical and practical contributions.

## 7. Conclusion and recommendations

### 7.1 Introduction

This chapter concludes the research by synthesising its purpose, methodology, findings, and contributions. It discusses the theoretical implications in the field of academia and revisits the limitations of the study. In so doing, it closes the loop with the problem statement introduced in Chapter 1 and provides suggestions for future studies in the domain of entrepreneurship research and practice.

### 7.2 Overview of the study

This study investigated the entrepreneurial intention-action (EI-EA) gap, with a particular focus on the moderating role of spirituality within [Ajzen's \(1991\)](#) Theory of Planned Behaviour (TPB). While EI is widely acknowledged as a precursor to EA, existing research and real-world data show that intention alone is insufficient to guarantee EA ([Meoli et al., 2019](#)). Prior research clearly demonstrates the predictive strength of the TPB constructs (personal attitude (PA), subjective norms (SN), perceived behavioural control (PBC)), yet less is known about why entrepreneurial intentions often fail to translate into tangible actions ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)).

The significance of this study lies in its examination of SP as a moderator that may influence EA, thus providing a possible means to narrow the observed entrepreneurial intention-action gap ([Bogatyreva et al., 2019](#); [Van Hoa Tran et al., 2023](#)). Identifying mechanisms, like spirituality, that could close the EI-EA gap directly affects the capacity of entrepreneurship to contribute to economic growth, innovation, and poverty alleviation ([Global Entrepreneurship Monitor, 2024](#); [Sutter et al., 2019](#)).

### 7.3 Summary of key findings

The study employed a quantitative, cross-sectional survey design with validated scales; [Liñán and Chen's \(2009\)](#) scale which was modelled on the TPB framework and assessed survey items associated with EI and the motivational antecedents of EI (PA, SN, and PBC), the EA scale by [Gieure et al. \(2020\)](#) which presented survey items linked to entrepreneurial behaviours, and the Daily Spiritual Experience Scale ([Underwood & Teresi, 2002](#)) which measured different dimensions of spirituality. Data from 143 respondents were analysed through factor analysis, reliability testing

, and moderated regression analysis. The analysis firstly integrated results across the four hypotheses (H1-H4) and thereafter across education attainment levels to explore potential differences in moderating role of spirituality.

The results for the sample set response is illustrated in [Figure 16](#) and can be summarised as follows:

- (i) The TPB model was reaffirmed for the entrepreneurship domain. The antecedents proposed by the model (PA, SN, and PBC) significantly predicted EI, and EI in turn significantly predicted EA.
- (ii) For the full data set, spirituality's moderating effects were partial and nuanced. The experience and connection component of spirituality (SP\_ec) strengthened the PA-EI and SN-EI relationships. However, the compassion and acceptance component (SP\_ca) demonstrated no significant moderating effects
- (iii) For the full data set, spirituality did not significantly moderate either the PBC-EI or the EI-EA pathways.

When disaggregated by education level, distinct patterns emerged:

- (iv) Among respondents with lower educational attainment, spirituality primarily enhanced the motivational pathways ( PA → EI and SN → EI).
- (v) Among tertiary-educated respondents, spirituality's influence shifted towards volition, with the *Compassion and Acceptance* (SP\_ca) dimension strengthening the EI → EA pathway.

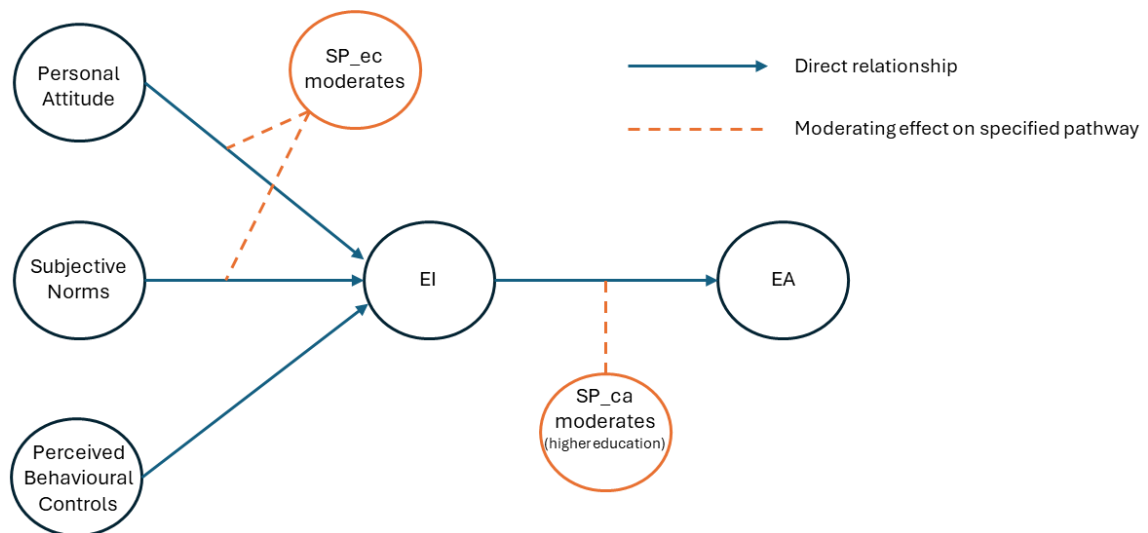


Figure 16: Adapted TPB model incorporating research findings

The findings demonstrated that spirituality acts both as a motivational enhancer, reinforcing positive personal attitudes and perceived social approval, and as a volitional enabler, with its moderating impact evolving with increased education exposure.

#### 7.4 Contributions to knowledge

This study makes five contributions to academia. Firstly, it extends TPB by empirically testing spirituality as a moderator, thereby increasing understanding of motivational antecedents while exposing the framework's limitations in explaining volitional transitions ([Ajzen, 1991](#); [Bosnjak et al., 2020](#)).

Secondly, it provides a nuanced view of spirituality. The identification and analysis of the moderating effect of two spirituality components, *experience and connection* (SP\_ec) and *compassion and acceptance* (SP\_ca), demonstrated that spirituality's influence is differentiated rather than uniform, highlighting the need to treat spirituality as a multidimensional construct rather than a one-dimensional construct ([de Brito Sena et al., 2021](#); [Underwood & Teresi, 2002](#)).

Thirdly, for the full data set, it also challenges prevailing assumptions that spirituality always strengthens entrepreneurial outcomes ([Rashid & Ratten, 2021](#)), instead highlighting boundary conditions where its influence is muted; for example, when perceived behavioural control is already high. Similarly, SP did not moderate the EI → EA pathway, challenging claims that it may universally bridge the EI-EA gap

([Ganzin et al., 2019](#); [Pidduck et al., 2024](#); [Rashid & Ratten, 2021](#)). The findings thus reveal that the moderating effects of SP are partial and pathway specific.

Fourthly, the analysis across education levels reveals that cognitive and reflective maturity shape how SP functions. For respondents with lower education, SP enhanced motivational antecedents, acting as a socially grounded source of belonging and guidance ([Kavadias et al., 2023](#)). Among tertiary-educated respondents, the SP\_ca component strengthened the EI-EA pathway, aligning with the transformative model advanced in Section 2.5.3, where education refines SP into introspective self-regulation ([Astin et al., 2010](#); [Voas et al., 2014](#)).

Finally, by situating the study in South Africa, the research broadens cross-cultural and external validity and speaks directly to entrepreneurial dynamics in emerging economies, where high levels of entrepreneurial intention exist but does not translate into corresponding levels of tangible entrepreneurial activity ([Global Entrepreneurship Monitor, 2024](#)).

Further, the study contributes to reframing entrepreneurship as a more human-centred, values-driven process; a perspective which moves beyond economic models to incorporate psychological and spiritual dimensions that motivate and sustain entrepreneurs. By positioning entrepreneurs as whole persons who are shaped by rational, social, and spiritual drivers, the research broadens the lens through which entrepreneurial behaviour can be understood and supported ([Gieure et al., 2020](#); [Pidduck et al., 2024](#))

## **7.5 Entrepreneurial ecosystem implications**

The findings of this study are not only of academic interest but also carry practical value for the entrepreneurial ecosystem, which includes aspiring entrepreneurs, practicing entrepreneurs, educators, policymakers, and researchers. To translate the findings of Chapter 6 into actionable guidance, this section presents recommendations tailored to the key stakeholder groups.

### **Entrepreneurs and practitioners**

To leverage spirituality as a motivational resource, entrepreneurs can draw on practices such as reflection, mindfulness, or faith-based routines ([Pidduck et al., 2024](#)) to sustain positive personal attitudes and align their ventures with personal

and social meaning, consistent with the finding that SP<sub>ec</sub> strengthens PA and SN links to entrepreneurial intention.

However, since spirituality did not strengthen the EI→EA pathway across the full data set, entrepreneurs should complement motivation with executional discipline by embracing accountability tools like structured planning, resource mobilisation, and measurable action steps to ensure entrepreneurial intentions are enacted ([Jenkins et al., 2021](#); [Sheeran & Webb, 2016](#)).

### **Educators and training institutions**

Entrepreneurship education must recognise that spirituality's moderating influence differs across educational levels. To leverage spirituality as both a motivational enhancer and a volitional enabler across diverse educational backgrounds, entrepreneurship education should intentionally combine reflective pedagogy with experiential executional learning. Spirituality should not be treated as a separate faith-based topic, but as a dimension of purpose, resilience, and ethical agency embedded in the learning process. Introducing mindfulness, values-based reflection, and personal purpose exercises ([Noh & Shahdan, 2020](#)) could strengthen motivation, but these must be complemented by modules focused on execution and resource deployment ([Gieure et al., 2020](#)). The training should emphasise prototyping, experimentation, and accountability structures that push students beyond ideation into implementation ([Pidduck et al., 2024](#); [van Gelderen et al., 2017](#)).

### **Policymakers and ecosystem enablers**

The findings confirm that non-economic resources like spirituality play a significant role in shaping the entrepreneurial process, yet their impact differs across educational strata. Policy frameworks should therefore recognise the psychological dimensions of entrepreneurship and support holistic ecosystem development that includes social and psychological resource, and which can enhance programme effectiveness ([Meoli et al., 2019](#); [Neneh, 2020](#); [Sarwar et al., 2021](#)).

Further, to close the observed EI-EA gap, policy designs and public programs should move beyond awareness campaigns and stimulating intention to provide structured support for entrepreneurial action ([Roos & Botha, 2022](#)). This could include incubators ([Meoli et al., 2019](#)), mentorship and community networks ([Liñán et al., 2010](#)), and funding access ([Roos & Botha, 2022](#)) that directly reduce the barriers to

entrepreneurial behaviour and facilitates the transition from aspiration to venture creation.

### **Academics and researchers**

The study offers empirical evidence that spirituality plays a selective role in entrepreneurship and demonstrates divergent effects of SP<sub>ec</sub> and SP<sub>ca</sub>, which encourages future researchers to treat spirituality as a layered, multidimensional construct rather than a simplistic one-dimensional construct. Since spirituality did not moderate the EI→EA pathway for less-educated individuals, research should investigate other volitional supports beyond spirituality that may explain how intentions translate into action and offer solutions to bridging the EI-EA gap for this group. Finally, because this study found that high entrepreneurial intention in South Africa does not consistently translate into action, and that SP only partially moderated motivational pathways, future research should expand to cross-cultural contexts. Such studies could then test whether these dynamics are unique to emerging economies, where structural and institutional barriers may be more pronounced ([Donbesuur et al., 2020](#)), or whether they hold across different cultural and economic environments.

### **7.6 Limitations of the study**

While the study generated insights into the entrepreneurial intention-action gap and the moderating role of spirituality, its findings should be interpreted within the scope and constraints of the research design. The research adopted a **cross-sectional design** which limited the ability to observe how EI evolves into EA over time. The results therefore offer a static rather than a dynamic view of the EI-EA gap. In addition, the **sample** was drawn from the author's digital professional and personal networks, introducing a bias towards educated, mid-career respondents. This reduces the generalisability of the findings to youth, informal entrepreneurs, or those with limited access to the leveraged digital platforms. This may explain why the results emphasised motivational pathways but did not capture the dynamics of more resource-constrained entrepreneurs.

The **measurement of spirituality** also warrants reflection. Although the Daily Spiritual Experience Scale is a well-established and validated instrument ([Underwood & Teresi, 2002](#)), it frames spirituality in predominantly individualistic terms. This conceptualisation may not fully capture the culturally diverse community-

based understandings of meaning-making and purpose, or indigenous expressions of spirituality that are relevant in the South African context. This may explain why only the SP\_ec component moderated motivational antecedents, while the SP\_ca dimension displayed no significant effect. Moreover, construct overlap between spirituality and traits like resilience, optimism, and locus of control could blur whether observed effects were truly attributable to spirituality or to the correlated psychological traits.

The **measure of entrepreneurial action** ([Gieure et al., 2020](#)) captured it as a single construct, without distinguishing between the different stages such as opportunity recognition, resource mobilisation, and venture launch. A possible limitation is that this study could therefore not assess the role that spirituality may play at these various stages.

The study also relied exclusively on **self-reported data** and the use of a **single quantitative method**. The first may have introduced a bias in which social desirability shaped responses, particularly in relation to sensitive constructs such as spirituality. The second prevents the capture of respondents lived experiences, in relation to entrepreneurship, or the contextual nuances of how spirituality is expressed in practice.

The EI-EA gap was also treated largely as an individual-level phenomenon. In reality, entrepreneurial action may be shaped more by structural constraints like policies and institutional barriers than by individual motivation and intention.

The above limitations create a foundation for the recommendations outlined in Section 7.7, where future research directions are identified to address these gaps.

## **7.7 Recommendations for future research**

By addressing the methodological, conceptual, and contextual limitations identified, future research can deepen understanding of the EI-EA gap and refine the role of spirituality within entrepreneurship theory and practice. The following recommendations are therefore grounded in the present study's empirical results and limitations.

### **Longitudinal approaches**

Although the study found that EI significantly predicted EA, the persistence of the EI-EA gap highlights that volitional processes unfold dynamically. Future research should therefore adopt longitudinal entrepreneurship designs to examine whether spirituality's effects emerge or shift over time, addressing both the limitations introduced through the cross-sectional design of the present study and the observed gap between EI and EA.

### **Mixed-method studies**

The quantitative design of the study was necessary for statistical testing but it limited the ability to uncover the contextual and experiential distinctions behind the findings. Future research should therefore assume mixed method designs to combine quantitative surveys with qualitative approaches like interviews or case studies, to better understand and explain why spirituality strengthens selected entrepreneurial motivational pathways (PA→EI and SN→EI) but does not consistently carry through to other volitional pathways (i.e., SP did not significantly moderate the EI→EA relationship).

### **Cross-cultural comparisons**

This study found that for the single-country sample dataset, high EI coexisted with weaker EA and SP displayed no significant influence on the EI→EA relationship. Given the single-country context, future research should test whether SP's role in supporting intention but not entrepreneurial action reflects barriers unique to emerging economies like South Africa, or whether these findings persist across diverse cultural and economic contexts.

### **Alternative volitional supports**

Spirituality was found to not moderate the EI→EA pathway, leaving the EI-EA gap unresolved. Future research should therefore test other volitional constructs that may explain how EI translates into EA, especially in resource-constrained contexts.

### **Stage-specific models of entrepreneurial action**

Finally, for the purposes of this study, entrepreneurial action was treated as a single contrast that limited the analysis of the different phases of EA. Since SP<sub>ec</sub> dimension of spirituality was found to moderate the PA-EI and SN-EI pathways but not the EI→EA relationship, future research should consider distinguishing between

the various stages of EA to test whether SP or other volitional supports present differently across the stages.

## **7.8 Conclusion**

This study set out to examine whether spirituality moderates the relationship between entrepreneurial intention and entrepreneurial action within the Theory of Planned Behaviour framework. Drawing on data collected from 143 South African respondents, the findings confirmed the robustness of the TPB model in explaining entrepreneurial intention and its translation into entrepreneurial behaviours.

However, the moderating role of spirituality emerged as nuanced and influenced by educational attainment levels. The findings demonstrate that education shapes how spirituality is internalised and applied within the entrepreneurial process. Higher education appears to refine spirituality into a more reflective and self-regulatory resource that supports entrepreneurial action, while lower education anchors spirituality in communal and motivational processes.

The results therefore partially support the central hypothesis that spirituality moderates the EI-EA relationship. They suggest that spirituality, particularly in its reflective and connective forms, can enrich the motivational foundations of the entrepreneurial process and, under certain conditions, aid volitional persistence.

The study extends TPB by exposing both its explanatory limits and its adaptability when integrated with psychological, educational, and non-economic resources. By combining theoretical insights with empirical evidence, the research offers a more holistic understanding of entrepreneurial behaviour, one that recognises how education influences the expression and utility of spirituality within entrepreneurial pathways.

The findings position spirituality as a valuable, though not definitive, resource that interacts dynamically with education attainment for narrowing the entrepreneurial intention-action gap. The study reaffirms the importance of supporting aspiring entrepreneurs not only through material and structural mechanisms but also by acknowledging the value of inner psychological resources and educational dimensions that motivate and sustain entrepreneurial action.

## Appendix A – Reference List

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## Appendix B – Approval to use survey instruments

Dear Faria Essopp,

Thank you for your interest in our work.

Please find attached 3 versions of the EIQ and the papers in which they were used.

The first versions (EIQ2 and EIQ3) are designed as aggregated scales. The papers in which they were used are Liñán & Chen (2009) and Liñán, Urbano & Guerrero (2011), respectively.

More recently, within the VIE Project (<http://institucional.us.es/vie>), we have developed a newer and more refined questionnaire. In it, Personal Attitude and Subjective Norm has been measured by pondering personal beliefs with the relevance attached to each belief.

I attached this newer version of the questionnaire (Original in Spanish, the translation made by ourselves), and one of the papers in which it was used (Liñán, Moriano & Jaén, 2016).

You can use them as you feel is best, but do please acknowledge your source.

Best regards,

*Francisco Liñán*

Dear Faria,

You have my permission to use the Daily Spiritual Experience Scale for non-profit use if you return the attached registration form to me and agree to the terms of use.

Make sure you are using an accurate form of the scale. The best place for resources on the scale and links to formats and scoring is:

<http://www.dsescscale.org>

Some people recently have used inline alternative language rather than depending on the introductory instructions. This language can be found in the checklist version or in the book, if you wish to use that in a few of the questions.

I have written a book on the scale designed for personal and professional use, *Spiritual Connection in Daily Life: 16 Little Questions That Can Make a Big Difference*, and it has been published in paperback.

Information on it and some further resources can be found at:

<http://www.lynnunderwood.com/book>

I think it would be helpful in your work with the scale. It is not expensive, and is on Amazon and in bookstores. In 2016 an international ebook is now available on Amazon international sites.

It is available as an audiobook too in a revised version.

See the links on the book page <http://www.lynnunderwood.com/book>

Or find it in the Apple Audiobook store or Amazon's Audible: [https://www.audible.com/pd/Spiritual-Connection-in-Daily-Life-Audiobook/B08YP1MYKH\\_](https://www.audible.com/pd/Spiritual-Connection-in-Daily-Life-Audiobook/B08YP1MYKH_)

Email me directly if you need another language version. There are 40 of them.

Best wishes to you in your life and in your work,

Lynn Underwood PhD

## **Appendix C – Survey instrument**

### **Spirituality as a moderator in closing the Entrepreneurial intention-action gap**

I am a student at the University of Pretoria's Gordon Institute of Business Science, completing my research in partial fulfilment of an MBA. The research is aimed at quantifying the role of spirituality in closing the Entrepreneurial intention-action gap for individuals.

Thank you for participating in this research study measuring spirituality and entrepreneurial behaviour. This anonymous survey will take approximately 10 minutes to complete. Your responses will be kept confidential and used for academic purposes only. Please respond to each item honestly. There are no right or wrong answers.

If you have any concerns, please contact me or my supervisor via any of the channels below.

Email: 24026213@mygibs.co.za

Email: priceg@gibs.co.za

Phone: +27 82 887 0011

#### ***Demographics (DM)***

**Scale:** 1 = 18-24, 2 = 25-34, 3 = 35-44, 4 = 45-54, 5 = 55-64, 6 = 65+

1. What is your age?

**Scale:** 1 = Female, 2 = Male, 3 = Other

2. What is your gender identity?

**Scale:** 1 = Primary school, 2 = High school, 3 = Undergraduate, 4 = Postgraduate

3. If I had the opportunity and resources, I would like to start a firm.

#### **Entrepreneurial Intention ([Liñán and Chen, 2009](#))**

**Scale:** 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

#### ***Personal Attitude (PA)***

4. Being an entrepreneur implies more advantages than disadvantages to me.

5. A career as an entrepreneur is attractive to me.
6. If I had the opportunity and resources, I would like to start a firm.
7. Being an entrepreneur would bring great satisfaction to me.
8. Among various options, I would rather be an entrepreneur.

***Subjective Norm (SN)***

9. My close family would approve of my decision to start a firm.
10. My friends would approve of my decision to start a firm.
11. My colleagues would approve of my decision to start a firm.

***Perceived Behavioural Control (PBC)***

12. Starting a firm and keeping it working would be easy for me.
13. I am prepared to start a viable firm.
14. I can control the creation process of a new firm.
15. I know the necessary practical details to start a firm.
16. I know how to develop an entrepreneurial project.
17. If I tried to start a firm, I would have a high probability of succeeding.

***Entrepreneurial Intention (EI)***

18. I am ready to do anything to be an entrepreneur.
19. My professional goal is to become an entrepreneur.
20. I will make every effort to start and run my own firm.
21. I am determined to create a firm in the future.
22. I have seriously thought about starting a firm.
23. I have the firm intention to start a firm someday.

**Entrepreneurial Action** ([Gieure et al., 2020](#))

**Scale:** 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

24. I have experience in starting new projects or businesses.
25. I am capable of developing a business plan.
26. I know how to start a new business.
27. I know how to do market research.
28. I have invested informally in a business.
29. I can save money to invest in a business.
30. I belong to a social network that can promote my business.

**Spirituality** ([Underwood & Teresi, 2002](#))

**Scale:** 1 = Never, 2 = Once in a while, 3 = Some days, 4 = Most days, 5 = Every day, 6 = Many times a day

31. I feel God's presence.
32. I experience a connection to all of life.
33. During worship or at other times when connecting with God, I feel joy which lifts me out of my daily concerns.
34. I find strength in my religion or spirituality.
35. I find comfort in my religion or spirituality.
36. I feel deep inner peace or harmony.
37. I ask for God's help in the midst of daily activities.
38. I feel guided by God in the midst of daily activities.
39. I feel God's love for me, directly.
40. I feel God's love for me, through others.
41. I am spiritually touched by the beauty of creation.
42. I feel thankful for my blessings.
43. I feel a selfless caring for others.
44. I accept others even when they do things I think are wrong.
45. I desire to be closer to God or in union with the divine.

## Appendix D – Survey data code book

Question number	Question/Statement	Subset/Construct	Code
Q1	What is your age?	Demographics	DM1
Q2	What is your gender identity?	Demographics	DM2
Q3	Highest education qualification	Demographics	DM3
Q4	Being an entrepreneur implies more advantages than disadvantages to me.	Personal Attitude	PA4
Q5	A career as an entrepreneur is attractive to me.	Personal Attitude	PA5
Q6	If I had the opportunity and resources, I would like to start a firm.	Personal Attitude	PA6
Q7	Being an entrepreneur would bring great satisfaction to me.	Personal Attitude	PA7
Q8	Among various options, I would rather be an entrepreneur.	Personal Attitude	PA8
Q9	My close family would approve of my decision to start a firm.	Subjective norms	SN9
Q10	My friends would approve of my decision to start a firm.	Subjective norms	SN10
Q11	My colleagues would approve of my decision to start a firm.	Subjective norms	SN11
Q12	Starting a firm and keeping it working would be easy for me.	Perceived behavioural control	PBC12
Q13	I am prepared to start a viable firm.	Perceived behavioural control	PBC13
Q14	I can control the creation process of a new firm.	Perceived behavioural control	PBC14
Q15	I know the necessary practical details to start a firm.	Perceived behavioural control	PBC15
Q16	I know how to develop an entrepreneurial project.	Perceived behavioural control	PBC16
Q17	If I tried to start a firm, I would have a high probability of succeeding.	Perceived behavioural control	PBC17
Q18	I am ready to do anything to be an entrepreneur.	Entrepreneurial intention	EI18
Q19	My professional goal is to become an entrepreneur.	Entrepreneurial intention	EI19
Q20	I will make every effort to start and run my own firm.	Entrepreneurial intention	EI20
Q21	I am determined to create a firm in the future.	Entrepreneurial intention	EI21
Q22	I have seriously thought about starting a firm.	Entrepreneurial intention	EI22
Q23	I have the firm intention to start a firm someday.	Entrepreneurial intention	EI23
Q24	I have experience in starting new projects or businesses.	Entrepreneurial action	EA24
Q25	I am capable of developing a business plan.	Entrepreneurial action	EA25
Q26	I know how to start a new business.	Entrepreneurial action	EA26
Q27	I know how to do market research.	Entrepreneurial action	EA27
Q28	I have invested informally in a business.	Entrepreneurial action	EA28
Q29	I can save money to invest in a business.	Entrepreneurial action	EA29
Q30	I belong to a social network that can promote my business.	Entrepreneurial action	EA30
Q31	I feel God's presence.	Spirituality	SP31
Q32	I experience a connection to all of life.	Spirituality	SP32
Q33	During worship or at other times when connecting with God, I feel joy which lifts me out of my daily concerns.	Spirituality	SP33
Q34	I find strength in my religion or spirituality.	Spirituality	SP34
Q35	I find comfort in my religion or spirituality.	Spirituality	SP35
Q36	I feel deep inner peace or harmony.	Spirituality	SP36
Q37	I ask for God's help in the midst of daily activities.	Spirituality	SP37
Q38	I feel guided by God in the midst of daily activities.	Spirituality	SP38
Q39	I feel God's love for me, directly.	Spirituality	SP39
Q40	I feel God's love for me, through others.	Spirituality	SP40
Q41	I am spiritually touched by the beauty of creation.	Spirituality	SP41
Q42	I feel thankful for my blessings.	Spirituality	SP42
Q43	I feel a selfless caring for others.	Spirituality	SP43
Q44	I accept others even when they do things I think are wrong.	Spirituality	SP44
Q45	I desire to be closer to God or in union with the divine.	Spirituality	SP45

Q1	Code
18-24	1
25-34	2
35-44	3
45-54	4
55-64	5
65+	6

Q2	Code
Female	1
Male	2
Other	3

Q3	Code
Primary school	1
High school	2
Undergraduate	3
Postgraduate	4

Q4-Q30	Code
Strongly disagree	1
Disagree	2
Neither agree nor disagree	3
Agree	4
Strongly agree	5

Q31-Q45	Code
Never	1
Once in a while	2
Some days	3
Most days	4
Every day	5
Many times a day	6

## Appendix E – SPSS reliability analyses output tables

**Cronbach's Alpha - PA****Case Processing Summary**

		N	%
Cases	Valid	144	99,3
	Excluded <sup>a</sup>	1	,7
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

**Inter-Item Correlation Matrix**

	PA4	PA5	PA6	PA7	PA8
PA4	1,000	,569	,379	,417	,358
PA5	,569	1,000	,522	,569	,435
PA6	,379	,522	1,000	,717	,507
PA7	,417	,569	,717	1,000	,736
PA8	,358	,435	,507	,736	1,000

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,843	,845	5

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PA4	17,20	8,470	,526	,342	,843
PA5	17,08	7,623	,655	,471	,809
PA6	16,76	8,252	,664	,536	,808
PA7	16,84	7,576	,786	,719	,773
PA8	17,03	7,978	,628	,546	,816

**Item Statistics**

	Mean	Std. Deviation	N
PA4	4,03	,892	144
PA5	4,15	,956	144
PA6	4,47	,810	144
PA7	4,39	,854	144
PA8	4,19	,903	144

**Scale Statistics**

Mean	Variance	Std. Deviation	N of Items
21,23	11,996	3,464	5

## Cronbach's Alpha - SN

### Case Processing Summary

		N	%
Cases	Valid	145	100,0
	Excluded <sup>a</sup>	0	,0
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

### Inter-Item Correlation Matrix

	SN9	SN10	SN11
SN9	1,000	,650	,537
SN10	,650	1,000	,677
SN11	,537	,677	1,000

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,828	,831	3

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SN9	7,89	2,779	,646	,440	,806
SN10	7,86	2,856	,757	,574	,698
SN11	8,15	2,838	,663	,474	,785

### Item Statistics

	Mean	Std. Deviation	N
SN9	4,06	,981	145
SN10	4,09	,873	145
SN11	3,80	,947	145

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
11,95	5,852	2,419	3

## Cronbach's Alpha - PBC

### Case Processing Summary

		N	%
Cases	Valid	145	100,0
	Excluded <sup>a</sup>	0	,0
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

### Inter-Item Correlation Matrix

	PBC12	PBC13	PBC14	PBC15	PBC16	PBC17
PBC12	1,000	,440	,522	,421	,503	,535
PBC13	,440	1,000	,588	,471	,463	,393
PBC14	,522	,588	1,000	,541	,617	,552
PBC15	,421	,471	,541	1,000	,680	,471
PBC16	,503	,463	,617	,680	1,000	,541
PBC17	,535	,393	,552	,471	,541	1,000

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,862	,865	6

### Item Statistics

	Mean	Std. Deviation	N
PBC12	3,37	1,072	145
PBC13	4,12	,939	145
PBC14	4,06	,856	145
PBC15	3,99	,975	145
PBC16	3,86	1,014	145
PBC17	3,93	,830	145

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PBC12	19,95	13,366	,608	,395	,849
PBC13	19,20	14,217	,591	,394	,850
PBC14	19,26	13,889	,731	,550	,827
PBC15	19,32	13,582	,661	,506	,837
PBC16	19,46	12,959	,726	,580	,825
PBC17	19,39	14,572	,635	,427	,843

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
23,32	19,288	4,392	6

## Cronbach's Alpha - EI

### Case Processing Summary

		N	%
Cases	Valid	145	100,0
	Excluded <sup>a</sup>	0	,0
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,926	,928	6

### Item Statistics

	Mean	Std. Deviation	N
EI18	3,81	1,002	145
EI19	4,05	,930	145
EI20	4,20	,894	145
EI21	4,27	,860	145
EI22	4,39	,775	145
EI23	4,19	,874	145

### Inter-Item Correlation Matrix

	EI18	EI19	EI20	EI21	EI22	EI23
EI18	1,000	,710	,702	,609	,375	,581
EI19	,710	1,000	,798	,678	,522	,655
EI20	,702	,798	1,000	,823	,637	,761
EI21	,609	,678	,823	1,000	,736	,875
EI22	,375	,522	,637	,736	1,000	,762
EI23	,581	,655	,761	,875	,762	1,000

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EI18	21,10	14,671	,682	,580	,929
EI19	20,86	14,486	,784	,685	,913
EI20	20,70	14,182	,880	,797	,900
EI21	20,63	14,470	,871	,831	,901
EI22	20,51	16,071	,681	,623	,925
EI23	20,72	14,524	,844	,805	,905

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
24,90	20,907	4,572	6

## Cronbach's Alpha - EA

### Case Processing Summary

		N	%
Cases	Valid	145	100,0
	Excluded <sup>a</sup>	0	,0
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,874	,877	7

### Item Statistics

	Mean	Std. Deviation	N
EA24	4,12	,927	145
EA25	4,10	,888	145
EA26	4,07	,895	145
EA27	3,89	1,008	145
EA28	3,97	,989	145
EA29	3,96	,964	145
EA30	3,78	1,057	145

### Inter-Item Correlation Matrix

	EA24	EA25	EA26	EA27	EA28	EA29	EA30
EA24	1,000	,651	,684	,565	,505	,379	,368
EA25	,651	1,000	,725	,587	,423	,419	,417
EA26	,684	,725	1,000	,686	,419	,575	,508
EA27	,565	,587	,686	1,000	,428	,446	,505
EA28	,505	,423	,419	,428	1,000	,297	,424
EA29	,379	,419	,575	,446	,297	1,000	,570
EA30	,368	,417	,508	,505	,424	,570	1,000

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EA24	23,77	19,417	,684	,566	,852
EA25	23,79	19,558	,703	,582	,850
EA26	23,82	18,843	,801	,710	,838
EA27	24,00	18,708	,704	,530	,849
EA28	23,92	20,168	,531	,332	,872
EA29	23,93	19,954	,578	,436	,866
EA30	24,11	19,154	,604	,442	,864

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
27,89	25,863	5,086	7

**Case Processing Summary**

		N	%
Cases	Valid	145	100,0
	Excluded <sup>a</sup>	0	,0
	Total	145	100,0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,951	,949	15

**Item Statistics**

	Mean	Std. Deviation	N
SP31	4,74	1,359	145
SP32	4,41	1,310	145
SP33	4,61	1,366	145
SP34	4,81	1,323	145
SP35	4,86	1,310	145
SP36	4,36	1,188	145
SP37	4,74	1,434	145
SP38	4,59	1,412	145
SP39	4,76	1,386	145
SP40	4,41	1,402	145
SP41	4,95	1,095	145
SP42	5,17	,931	145
SP43	4,94	,884	145
SP44	4,20	1,182	145
SP45	4,92	1,167	145

**Cronbach's Alpha - SP**

**Inter-Item Correlation Matrix**

	SP31	SP32	SP33	SP34	SP35	SP36	SP37	SP38	SP39	SP40	SP41	SP42	SP43	SP44	SP45
SP31	1,000	,697	,823	,780	,752	,532	,745	,775	,770	,629	,584	,623	,327	,227	,697
SP32	,697	1,000	,612	,514	,547	,475	,480	,562	,541	,384	,488	,477	,412	,184	,457
SP33	,823	,612	1,000	,809	,769	,455	,699	,732	,716	,596	,596	,633	,313	,273	,713
SP34	,780	,514	,809	1,000	,911	,515	,791	,828	,809	,633	,651	,675	,335	,299	,787
SP35	,752	,547	,769	,911	1,000	,523	,768	,787	,762	,587	,576	,640	,322	,287	,779
SP36	,532	,475	,455	,515	,523	1,000	,492	,689	,639	,525	,398	,465	,372	,201	,395
SP37	,745	,480	,699	,791	,768	,492	1,000	,845	,775	,596	,562	,565	,338	,330	,752
SP38	,775	,562	,732	,828	,787	,689	,845	1,000	,882	,703	,607	,652	,374	,320	,752
SP39	,770	,541	,716	,809	,762	,639	,775	,882	1,000	,734	,592	,652	,362	,297	,731
SP40	,629	,384	,596	,633	,587	,525	,596	,703	,734	1,000	,529	,531	,262	,303	,575
SP41	,584	,488	,596	,651	,576	,398	,562	,607	,592	,529	1,000	,656	,255	,260	,589
SP42	,623	,477	,633	,675	,640	,465	,565	,652	,652	,531	,656	1,000	,300	,196	,613
SP43	,327	,412	,313	,335	,322	,372	,338	,374	,362	,262	,255	,300	1,000	,371	,319
SP44	,227	,184	,273	,299	,287	,201	,330	,320	,297	,303	,260	,196	,371	1,000	,308
SP45	,697	,457	,713	,787	,779	,395	,752	,752	,731	,575	,589	,613	,319	,308	1,000

**Item-Total Statistics**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SP31	65,73	179,490	,850	,808	,945
SP32	66,06	188,025	,628	,597	,950
SP33	65,86	180,175	,825	,764	,946
SP34	65,66	179,158	,886	,894	,944
SP35	65,61	180,532	,853	,856	,945
SP36	66,11	190,613	,618	,575	,950
SP37	65,73	178,573	,826	,779	,945
SP38	65,88	176,368	,905	,884	,943
SP39	65,71	177,874	,879	,829	,944
SP40	66,06	183,420	,709	,589	,948
SP41	65,52	190,529	,680	,557	,949
SP42	65,30	192,946	,715	,580	,949
SP43	65,53	200,959	,421	,307	,953
SP44	66,27	199,434	,343	,226	,956
SP45	65,54	185,555	,798	,717	,946

**Scale Statistics**

Mean	Variance	Std. Deviation	N of Items
70,47	212,292	14,570	15

## Cronbach's Alpha – SP – reduced alpha. SP34. SP37. SP39

### Case Processing Summary

		N	%
Cases	Valid	144	100,0
	Excluded <sup>a</sup>	0	,0
	Total	144	100,0

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,926	,925	12

### Item Statistics

	Mean	Std. Deviation	N
SP31	4,74	1,364	144
SP32	4,42	1,314	144
SP33	4,60	1,370	144
SP35	4,86	1,315	144
SP36	4,35	1,191	144
SP38	4,58	1,417	144
SP40	4,40	1,406	144
SP41	4,95	1,099	144
SP42	5,17	,934	144
SP43	4,94	,887	144
SP44	4,20	1,186	144
SP45	4,92	1,171	144

### Inter-Item Correlation Matrix

	SP31	SP32	SP33	SP35	SP36	SP38	SP40	SP41	SP42	SP43	SP44	SP45
SP31	1,000	,698	,823	,752	,531	,775	,628	,584	,624	,327	,228	,697
SP32	,698	1,000	,613	,548	,477	,563	,385	,489	,476	,413	,184	,457
SP33	,823	,613	1,000	,769	,455	,732	,595	,596	,634	,313	,273	,713
SP35	,752	,548	,769	1,000	,523	,787	,587	,576	,641	,322	,287	,779
SP36	,531	,477	,455	,523	1,000	,689	,524	,398	,466	,372	,202	,395
SP38	,775	,563	,732	,787	,689	1,000	,703	,607	,652	,374	,321	,752
SP40	,628	,385	,595	,587	,524	,703	1,000	,529	,532	,262	,303	,575
SP41	,584	,489	,596	,576	,398	,607	,529	1,000	,656	,255	,260	,589
SP42	,624	,476	,634	,641	,466	,652	,532	,656	1,000	,300	,196	,613
SP43	,327	,413	,313	,322	,372	,374	,262	,255	,300	1,000	,371	,319
SP44	,228	,184	,273	,287	,202	,321	,303	,260	,196	,371	1,000	,308
SP45	,697	,457	,713	,779	,395	,752	,575	,589	,613	,319	,308	1,000

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SP31	51,41	96,523	,840	,793	,913
SP32	51,73	102,017	,645	,565	,922
SP33	51,54	96,977	,816	,750	,914
SP35	51,28	97,772	,822	,746	,914
SP36	51,79	104,502	,614	,552	,923
SP38	51,56	94,751	,875	,817	,912
SP40	51,74	99,465	,693	,549	,920
SP41	51,19	104,451	,678	,531	,921
SP42	50,97	106,279	,713	,572	,920
SP43	51,21	112,012	,431	,300	,929
SP44	51,94	110,976	,340	,220	,933
SP45	51,22	101,321	,771	,708	,917

### Scale Statistics

Mean	Variance	Std. Deviation	N of Items
56,15	120,881	10,995	12

## Appendix F – SPSS factor analyses output tables

### PA – Dimension reduction analysis outputs

**Correlation Matrix**

		PA4	PA5	PA6	PA7	PA8
Correlation	PA4	1,000	,569	,379	,417	,358
	PA5	,569	1,000	,522	,569	,435
	PA6	,379	,522	1,000	,717	,507
	PA7	,417	,569	,717	1,000	,736
	PA8	,358	,435	,507	,736	1,000

**Rotated Component Matrix<sup>a</sup>**

a. Only one component was extracted. The solution cannot be rotated.

**Total Variance Explained**

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,104	62,088	62,088	3,104	62,088	62,088
2	,809	16,178	78,266			
3	,505	10,106	88,372			
4	,390	7,800	96,172			
5	,191	3,828	100,000			

Extraction Method: Principal Component Analysis.

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,767
Bartlett's Test of Sphericity	Approx. Chi-Square	331,133
	df	10
	Sig.	<,001

## SN – Dimension reduction analysis outputs

### KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,698
Bartlett's Test of Sphericity	Approx. Chi-Square	169,510
	df	3
	Sig.	<,001

### Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,244	74,814	74,814	2,244	74,814	74,814
2	,464	15,478	90,293			
3	,291	9,707	100,000			

Extraction Method: Principal Component Analysis.

### Rotated Component Matrix<sup>a</sup>

a. Only one component was extracted. The solution cannot be rotated.

### Correlation Matrix

		SN9	SN10	SN11
Correlation	SN9	1,000	,650	,537
	SN10	,650	1,000	,677
	SN11	,537	,677	1,000

## PBC – Dimension reduction analysis outputs

**Correlation Matrix**

		PBC12	PBC13	PBC14	PBC15	PBC16	PBC17
Correlation	PBC12	1,000	,440	,522	,421	,503	,535
	PBC13	,440	1,000	,588	,471	,463	,393
	PBC14	,522	,588	1,000	,541	,617	,552
	PBC15	,421	,471	,541	1,000	,680	,471
	PBC16	,503	,463	,617	,680	1,000	,541
	PBC17	,535	,393	,552	,471	,541	1,000

**Rotated Component Matrix<sup>a</sup>**

a. Only one component was extracted. The solution cannot be rotated.

**Total Variance Explained**

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,590	59,830	59,830	3,590	59,830	59,830
2	,657	10,954	70,784			
3	,630	10,499	81,283			
4	,457	7,618	88,901			
5	,375	6,243	95,144			
6	,291	4,856	100,000			

Extraction Method: Principal Component Analysis.

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,861
Bartlett's Test of Sphericity	Approx. Chi-Square	367,279
	df	15
	Sig.	<,001

## EI – Dimension reduction analysis outputs

**Correlation Matrix**

		EI18	EI19	EI20	EI21	EI22	EI23
Correlation	EI18	1,000	,710	,702	,609	,375	,581
	EI19	,710	1,000	,798	,678	,522	,655
	EI20	,702	,798	1,000	,823	,637	,761
	EI21	,609	,678	,823	1,000	,736	,875
	EI22	,375	,522	,637	,736	1,000	,762
	EI23	,581	,655	,761	,875	,762	1,000

**Rotated Component Matrix<sup>a</sup>**

a. Only one component was extracted. The solution cannot be rotated.

**Total Variance Explained**

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,431	73,851	73,851	4,431	73,851	73,851
2	,753	12,557	86,408			
3	,293	4,883	91,291			
4	,241	4,013	95,304			
5	,175	2,915	98,219			
6	,107	1,781	100,000			

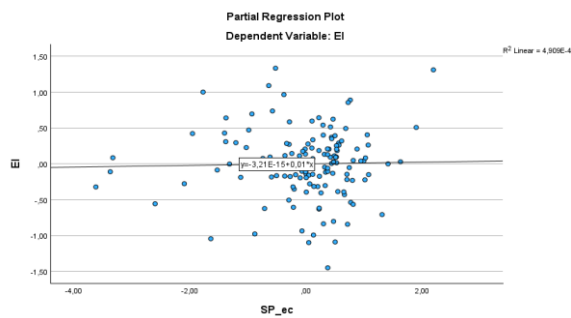
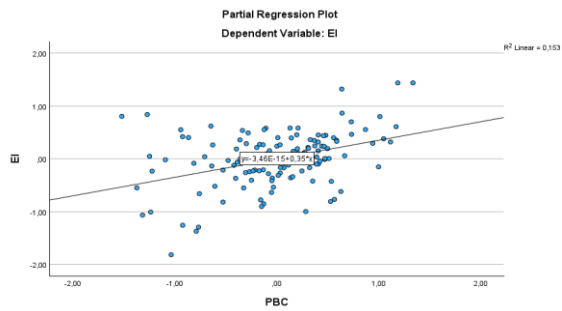
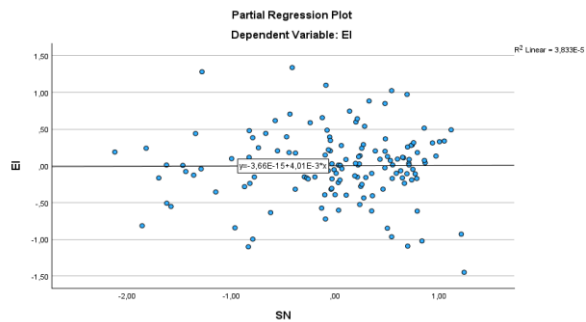
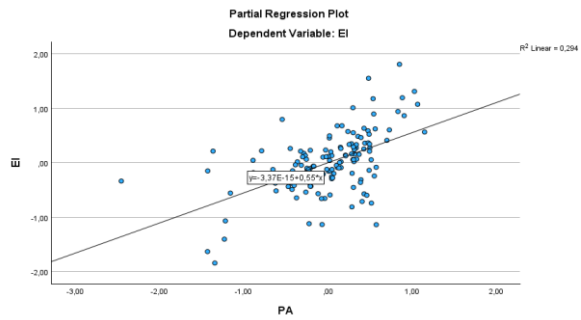
Extraction Method: Principal Component Analysis.

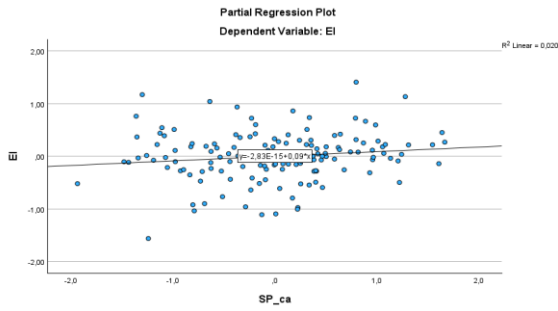
**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,870
Bartlett's Test of Sphericity	Approx. Chi-Square	765,942
	df	15
	Sig.	<,001

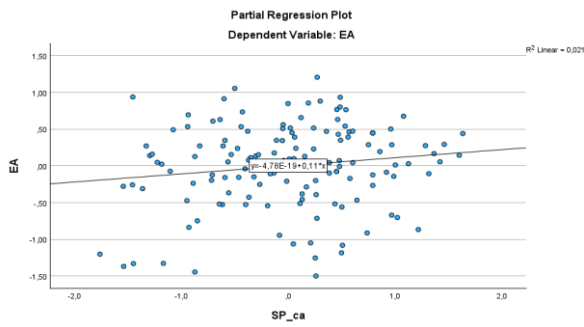
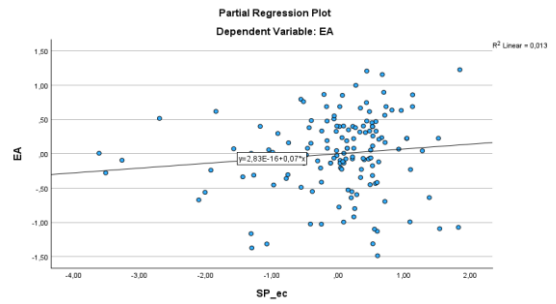
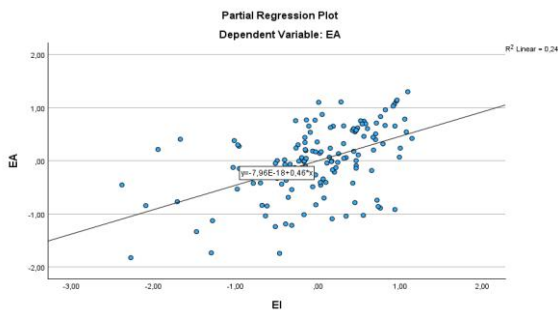
## Appendix G – SPSS linearity assumptions test outputs

### Dependent variable = Entrepreneurial Intention (EI)





**Dependent variable = Entrepreneurial Action (EA)**



## Appendix H – SPSS multicollinearity diagnostics

Dependent variable = Entrepreneurial Action (EI)

		Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-,031	,363		-,086	,931		
	PA	,554	,073	,492	7,549	<,001	,722	1,384
	SN	,004	,055	,004	,072	,942	,871	1,148
	PBC	,352	,071	,340	4,969	<,001	,655	1,528
	SP_ec	,011	,044	,016	,259	,796	,783	1,278
	SP_ca	,088	,053	,104	1,661	,099	,778	1,286

a. Dependent Variable: EI

Dependent variable = Entrepreneurial Action (EA)

		Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,256	,352		3,571	<,001		
	EI	,461	,069	,484	6,688	<,001	,918	1,089
	SP_ec	,070	,052	,104	1,345	,181	,808	1,238
	SP_ca	,110	,063	,138	1,740	,084	,765	1,308

a. Dependent Variable: EA

## Appendix I – SPSS moderated regression analyses outputs

### Dependent variable = Entrepreneurial Action (EI)

- H1: Independent variable = PA; Moderating variable = SP\_ec

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ec, CPA <sup>b</sup>	.	Enter	1	,697 <sup>a</sup>	,486	,479	,51946
2	Int_PAxSP_ec <sup>b</sup>	.	Enter	2	,716 <sup>b</sup>	,512	,502	,50784

a. Dependent Variable: EI  
b. All requested variables entered.

a. Predictors: (Constant), CSP\_ec, CPA  
b. Predictors: (Constant), CSP\_ec, CPA, Int\_PAxSP\_ec

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,175	,043		96,106	<,001
	CPA	,764	,068	,679	11,184	<,001
	CSP_ec	,089	,043	,126	2,075	,040
2	(Constant)	4,167	,043		97,923	<,001
	CPA	,784	,067	,696	11,666	<,001
	CSP_ec	,058	,043	,081	1,322	,188
	Int_PAxSP_ec	,205	,075	,169	2,736	,007

a. Dependent Variable: EI

- H1: Independent variable = PA; Moderating variable = SP\_ca

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ca, CPA <sup>b</sup>	.	Enter	1	,702 <sup>a</sup>	,493	,486	,51597
2	Int_PAxSP_ca <sup>b</sup>	.	Enter	2	,704 <sup>b</sup>	,496	,485	,51622

a. Dependent Variable: EI  
b. All requested variables entered.

a. Predictors: (Constant), CSP\_ca, CPA  
b. Predictors: (Constant), CSP\_ca, CPA, Int\_PAxSP\_ca

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,175	,043		96,755	<,001
	CPA	,738	,069	,656	10,687	<,001
	CSP_ca	,129	,052	,154	2,503	,013
2	(Constant)	4,167	,044		94,615	<,001
	CPA	,748	,070	,664	10,703	<,001
	CSP_ca	,129	,052	,153	2,495	,014
	Int_PAxSP_ca	,076	,082	,057	,930	,354

a. Dependent Variable: EI

- H2: Independent variable = SN; Moderating variable = SP\_ec

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ec, CSN <sup>b</sup>	.	Enter	1	,291 <sup>a</sup>	,085	,072	,69322
2	Int_SNxSP_ec <sup>b</sup>	.	Enter	2	,340 <sup>b</sup>	,116	,097	,68389

a. Dependent Variable: EI  
b. All requested variables entered.

a. Predictors: (Constant), CSP\_ec, CSN  
b. Predictors: (Constant), CSP\_ec, CSN, Int\_SNxSP\_ec

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	4,175	,058		72,017	<,001
	CSN	,224	,075	,241	2,975	,003
	CSP_ec	,109	,057	,154	1,909	,058
2	(Constant)	4,169	,057		72,832	<,001
	CSN	,191	,076	,205	2,522	,013
	CSP_ec	,107	,056	,152	1,899	,060
	Int_SNxSP_ec	,172	,078	,179	2,201	,029

a. Dependent Variable: EI

- **H2: Independent variable = SN; Moderating variable = SP\_ca**

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	CSP_ca, CSN <sup>b</sup>	.	Enter
2	Int_SNxSP_ca <sup>b</sup>	.	Enter

a. Dependent Variable: EI  
b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,367 <sup>a</sup>	,134	,122	,67419
2	,367 <sup>b</sup>	,135	,116	,67657

a. Predictors: (Constant), CSP\_ca, CSN  
b. Predictors: (Constant), CSP\_ca, CSN, Int\_SNxSP\_ca

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	4,175	,056		74,049	<,001
	CSN	,219	,073	,235	2,982	,003
	CSP_ca	,228	,066	,271	3,445	<,001
2	(Constant)	4,175	,057		73,729	<,001
	CSN	,219	,074	,235	2,973	,003
	CSP_ca	,228	,066	,272	3,435	<,001
	Int_SNxSP_ca	-,009	,078	-,009	-,118	,907

a. Dependent Variable: EI

- **H3: Independent variable = PBC; Moderating variable = SP\_ec**

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	CSP_ec, CPBC <sup>b</sup>	.	Enter
2	Int_PBCxSP_e <sup>c</sup>	.	Enter

a. Dependent Variable: EI  
b. All requested variables entered.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,617 <sup>a</sup>	,380	,372	,57038
2	,623 <sup>b</sup>	,388	,375	,56895

a. Predictors: (Constant), CSP\_ec, CPBC  
b. Predictors: (Constant), CSP\_ec, CPBC, Int\_PBCxSP\_ec

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	4,175	,048		87,528	<,001
	CPBC	,630	,071	,609	8,937	<,001
	CSP_ec	,022	,048	,031	,449	,654
2	(Constant)	4,161	,049		85,442	<,001
	CPBC	,631	,070	,610	8,967	<,001
	CSP_ec	,029	,048	,041	,594	,554
	Int_PBCxSP_ec	,088	,067	,087	1,306	,194

a. Dependent Variable: EI

- **H3: Independent variable = PBC; Moderating variable = SP\_ca**

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ca, CPBC <sup>b</sup>	.	Enter	1	,634 <sup>a</sup>	,402	,394	,56017
2	Int_PBCxSP_ca <sup>a</sup>	.	Enter	2	,635 <sup>b</sup>	,403	,390	,56183

a. Dependent Variable: EI  
 b. All requested variables entered.

a. Predictors: (Constant), CSP\_ca, CPBC  
 b. Predictors: (Constant), CSP\_ca, CPBC, Int\_PBCxSP\_ca

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,175	,047		89,121	<,001
	CPBC	,602	,069	,582	8,699	<,001
	CSP_ca	,130	,056	,155	2,315	,022
2	(Constant)	4,170	,048		86,436	<,001
	CPBC	,602	,069	,583	8,676	<,001
	CSP_ca	,131	,056	,156	2,318	,022
	Int_PBCxSP_ca	,035	,085	,027	,417	,677

a. Dependent Variable: EI

**Dependent variable = Entrepreneurial Action (EA)**

- **H4: Independent variable = EI; Moderating variable = SP\_ec**

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ec, CEI <sup>b</sup>	.	Enter	1	,563 <sup>a</sup>	,316	,307	,56990
2	Int_EIxSP_ec <sup>b</sup>	.	Enter	2	,565 <sup>b</sup>	,319	,304	,57096

a. Dependent Variable: EA  
 b. All requested variables entered.

a. Predictors: (Constant), CSP\_ec, CEI  
 b. Predictors: (Constant), CSP\_ec, CEI, Int\_EIxSP\_ec

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,010	,048		84,142	<,001
	CEI	,489	,067	,514	7,256	<,001
	CSP_ec	,107	,048	,159	2,246	,026
2	(Constant)	4,004	,049		82,395	<,001
	CEI	,488	,068	,513	7,221	<,001
	CSP_ec	,106	,048	,158	2,224	,028
	Int_EIxSP_ec	,052	,075	,048	,691	,491

a. Dependent Variable: EA

- **H4: Independent variable = EI; Moderating variable = SP\_ca**

Variables Entered/Removed <sup>a</sup>				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	CSP_ca, CEI <sup>b</sup>	.	Enter	1	,568 <sup>a</sup>	,322	,313	,56745
2	Int_ElxSP_ca <sup>b</sup>	.	Enter	2	,571 <sup>b</sup>	,326	,311	,56810

a. Dependent Variable: EA  
b. All requested variables entered.

a. Predictors: (Constant), CSP\_ca, CEI  
b. Predictors: (Constant), CSP\_ca, CEI, Int\_ElxSP\_ca

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,010	,047		84,503	<,001
	CEI	,465	,069	,489	6,741	<,001
	CSP_ca	,145	,058	,182	2,509	,013
2	(Constant)	3,998	,050		80,770	<,001
	CEI	,476	,070	,500	6,770	<,001
	CSP_ca	,142	,058	,177	2,435	,016
	Int_ElxSP_ca	,067	,081	,059	,826	,410

a. Dependent Variable: EA

## Appendix J – SPSS moderated regression analyses outputs for Group 2 (Respondents with undergraduate and postgraduate qualifications)

**H4: Independent variable = EI; Moderating variable = SP\_ca; Dependent variable = EA**

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	CSP_ca, CEI <sup>b</sup>	.	Enter
2	Int_ElxSP_ca <sup>b</sup>	.	Enter

a. Dependent Variable: EA

b. All requested variables entered.

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,641 <sup>a</sup>	,410	,400	,587439
2	,663 <sup>b</sup>	,439	,424	,575507

a. Predictors: (Constant), CSP\_ca, CEI

b. Predictors: (Constant), CSP\_ca, CEI, Int\_ElxSP\_ca

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,985	,055		72,430	<,001
	CEI	,540	,069	,579	7,802	<,001
	CSP_ca	,165	,065	,187	2,526	,013
2	(Constant)	3,963	,055		72,506	<,001
	CEI	,536	,068	,574	7,901	<,001
	CSP_ca	,175	,064	,199	2,732	,007
	Int_ElxSP_ca	,168	,071	,170	2,377	,019

a. Dependent Variable: EA