

The mediating role of impulsivity in the relationship
between entrepreneurial intention and the
entrepreneurial action stages

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DECLARATION

I declare that the thesis “*The mediating role of impulsivity in the relationship between entrepreneurial intention and the entrepreneurial action stages*” is my original work and has not been submitted to any university or published previously. All sources used or quoted have been acknowledged and fully referenced.

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ABSTRACT

The mediating role of impulsivity in the relationship between entrepreneurial intention and the entrepreneurial action stages

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Most aspiring entrepreneurs desire to start their own businesses; however, their intentions do not always translate into action. The issue of low entrepreneurial action levels is a global phenomenon and South Africa is no exception. However, in this study it is addressed through exploiting the role of impulsivity in the relationship between entrepreneurial intention (EI) and different stages of entrepreneurial action (EA).

This research expanded on the work by Wiklund, Yu and Patzelt (2017) by positing the dimensions of impulsivity (urgency, lack of perseverance, lack of premeditation and sensation seeking). A survey was administered to a database of 1000 entrepreneurs which was obtained from Small Enterprise Development Agency (SEDA). From this database, 597 nascent and established entrepreneurs completed the survey and therefore the response rate was 59.7%. The collected data were analysed through Confirmatory Factor Analysis and Structural Equation Modelling. The elements that inform EI were established through the Theory of Planned Behaviour in conjunction with Motivation Opportunity Ability theory, and for the stages of EA, the creative theory and discovery theory were utilised. Through this study, a variety of models were tested, and an overall model fit positing dimensions of impulsivity linking entrepreneurial intention to stages of entrepreneurial action was demonstrated. As a result urgency, lack of perseverance and lack of premeditation partially mediated the relationship between EI and the stages of EA, while sensation seeking partially mediated the evaluation stage, though not the entrepreneurial opportunity discovery and exploitation stages.

The study also investigated the influence of age, gender and years in business in the relationship between EI and the stages of EA, mediated by dimensions of impulsivity. No moderation effect by age or gender was detected between EI and the dimensions of impulsivity; only the number of years in business moderated the path between EI and the lack of premeditation dimension. In terms of the relationship between the impulsivity dimensions and the stages of EA, the following moderated mediations were detected, namely: Years in business between lack of perseverance and the opportunity discovery stage; Years in business between sensation seeking and the opportunity exploitation stage; Years in business between lack of premeditation and all the three stages of the entrepreneurial action; Gender between lack of perseverance and the opportunity evaluation stage; and Gender between lack of premeditation and the discovery and evaluation stage.

Notwithstanding the study's limitations, the findings indicate that impulsivity dimensions, which were previously viewed as negative personality traits, could play a significant role, in particular to a nascent entrepreneur, and are expected to affect entrepreneurial action in order for the entrepreneurial action to take place. Therefore, the findings in this study can provide useful guidelines in that dimensions of impulsivity should be incorporated into entrepreneurship training programmes to enhance the entrepreneurial action of aspiring and established entrepreneurs.

Keywords: Entrepreneurial action; entrepreneurial intention; impulsivity dimensions, stages of entrepreneurial action

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ABBREVIATION, ACRYNOMS GLOSSARY

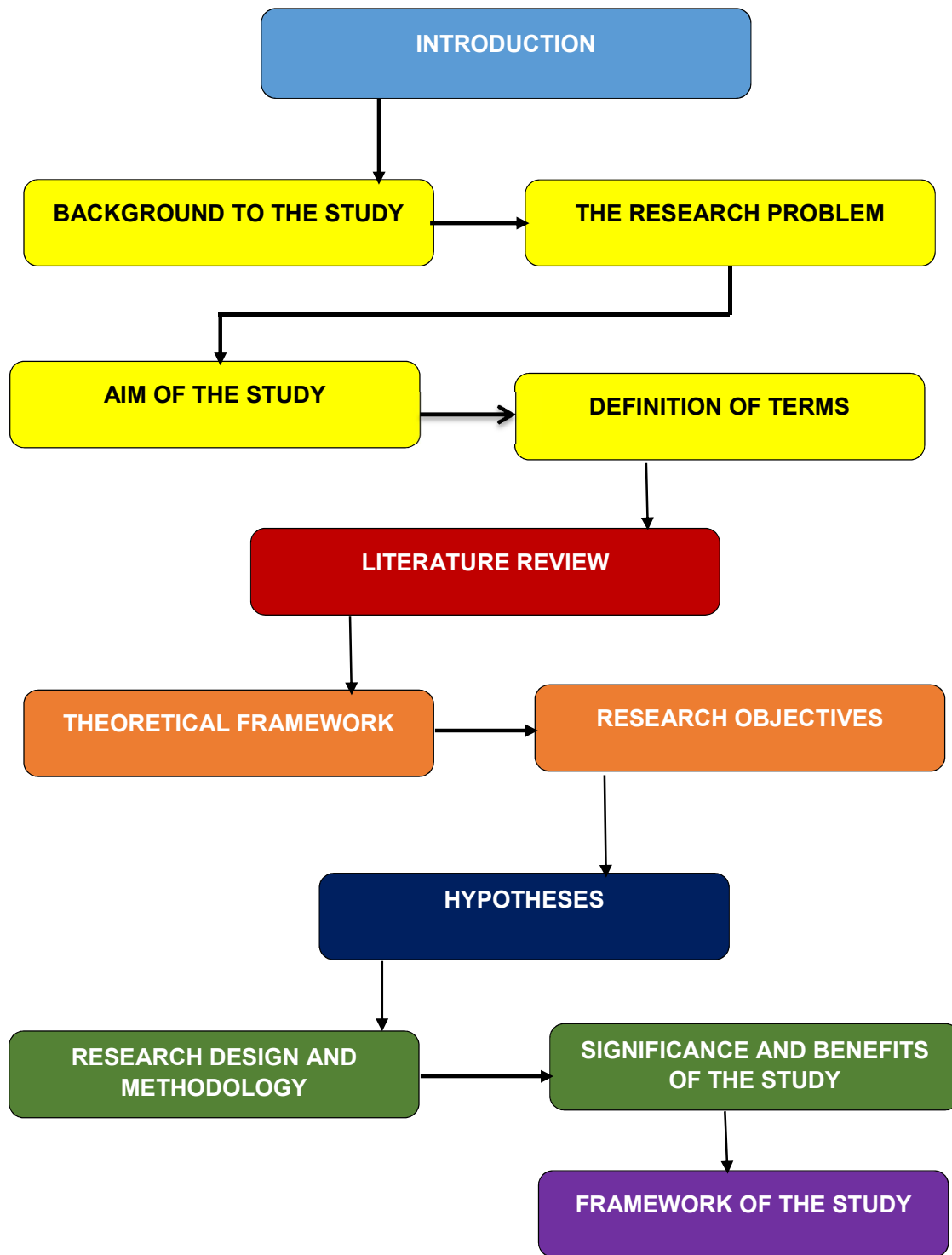
CFI	Comparative Fit Index
CT	Creation Theory
DT	Discovery Theory
EA	Entrepreneurial Action
EBCI	Effect and bootstrapped Confidence Interval
EI	Entrepreneurial Intention
EODI	Entrepreneurial Opportunity Discovery
EOEV	Entrepreneurial Opportunity Evaluation
EOEX	Entrepreneurial Opportunity Exploitation
FFM	Five Factor Model
GEM	Global Entrepreneurship Monitor
HTMT	Heterotrait-Monotrait Ratio
ICII	Interaction term Confidence interval Index of moderated mediation
IDs	Impulsivity Dimensions
IFI	Incremental Fit Index
KMO	Kaiser-Meyer-Olkin
LPer	Lack of Perseverance
LPrem	Lack of Premeditation
MOA	Motivation-Opportunity-Ability
PAF	Principal Axis Factoring
PBC	Perceived Behavioural Control
RMSEA	Root Mean Square Error of Approximation
SA	South Africa
SEDA	South Africa Enterprise Development Agency
SEE	Shapero's model of the entrepreneurial event
SEM	Structural Equation Modelling
SME	Small and Medium-size Enterprise
SRMR	Standardised Root Mean Residual
SSI	Statistical significance of interaction
SS	Sensational Seeking



TEA	Total Entrepreneurial Activity
TFT	Three Factor Theory
TLI	Trucker-Lewis Index
TPB	Theory of Planned Behavior
Ur	Urgency



CHAPTER 1 INTRODUCTION AND BACKGROUND TO THE STUDY



1.1 INTRODUCTION

Aspiring entrepreneurs desire to start and have their own business ventures, but their intentions do not always translate into action. To understand the reason for this is a focal challenge facing the entrepreneurship fraternity (Wiklund, Yu & Patzelt, 2017:3). The absence of action while there are entrepreneurial intentions results in a vacuum referred to in literature as the '*entrepreneurial intention-action*' (EI-EA) gap (Sniehotta, Scholz, & Schwarzer, 2005:143; Adam & Fayolle 2015:37; Oliviera & Lima-Rua, 2018:508; Van Gelderen, Kautonen, Wincent, & Biniari 2018:924). This gap is a missing link correlating entrepreneurial intention (EI) with entrepreneurial action (EA) (Van Gelderen, Kautonen & Fink, 2015:655). It is informed by a lack of action when entrepreneurial opportunities are not exploited despite EI being in place (Asante & Affum-Osei, 2019: 227), that could have resulted in the creation of business ventures (Van Gelderen *et al.*, 2015:655; Wiklund *et al.*, 2017:3).

The gap between EI and EA is a worldwide phenomenon that is also prevalent in South Africa (SA) (Herrington, Kew, & Mwanga 2016:7). It is for this reason that factors that could contribute to translating EI into EA remain under investigation (Asante & Affum-Osei, 2019: 227). Previous research on psychological factors that could contribute to effecting EA mainly focused on those factors that are deemed positive, such as self-sufficiency, risk-taking, resilience, and inspiration (Omoredede, Thorgren & Wincent, 2015). There is not sufficient research that investigates the contribution of negative factors such as impulsivity; though Wiklund *et al.* (2017:3) are of the view that impulsivity may play a role in the relationship of translating EI into EA.

Research reveals impulsivity to be a well-researched construct in most psychological contexts (Kreek, Nielsen, Butelman, & LaForge, 2005:1450; Berry, Sweeney, Morath, Odum, & Jordan, 2014:1); however, its potential contribution to entrepreneurship is lacking (Wiklund *et al.*, (2017:4). In pursuance of addressing the poor EA levels, this study seeks to expand on the work by Wiklund *et al.* (2017). These authors conceptualise the framework; investigating the possible contribution of impulsivity to effect EA. Their proposition postulates a cluster of traits labelled under impulsivity that at a certain level may affect EA. Their study, however, only offered a theoretical argument and recommended empirical studies to this effect. Tucker, Lowman and Marino (2017:627) advocate that psychological traits be considered in linking the relationship between intentions and action. This research study

seeks to illustrate the mediating effect of impulsivity in the relationship between the EI and EA stages.

This will be achieved by presenting the supporting literature on impulsivity, EI and the stages of EA. The study will evolve further by tabulating how each of the impulsivity dimensions relates independently to each of the stages of EA. Thereafter it will link the insights from literature and present each of the impulsivity dimensions to those of the stages of EA. From there it will develop specific hypotheses, postulating the mediating role of each of the impulsivity dimensions in the relationship between EI and each of the stages of EA. This chapter is intended to give reasons for the purpose of the study, firstly by offering a brief background, thereafter articulating the research problem, aim of the study, relevant literature and proposed methodology that will aid the researcher to test stated hypotheses. Lastly it will provide a snap synopsis of chapters that inform this research.

Impulsivity disorder studies are mostly from the developed nations (Tustin, 2011:5424; Moeller, Barratt, Dougherty, Schmitz & Swann, 2011:1784). However this is a global phenomenon; developing nations such as South Africa are not immune from the growing numbers of people with impulsivity disorder (Chiumia & Van Wyk, 2018:1; Deon 2011: 5424; Walker, Venter, Van der Walt & Esterhuysen, 2011:25). Exploring the linkages between impulsivity and entrepreneurship from the developing economies' point of view will have substantial real-life consequences for the millions of individuals who up until now have been marginalised. A study such as this one broadens the literature that suggests attributes that inform an "entrepreneur". In support of Thies, Wessel, Rudolf and Benlian (2016:12), that suggest a positive link between personality traits and the adoption and diffusions of business ventures. Therefore, examining the dark side of personality traits (Klotz & Neubaum, 2016:7) may not only add to the body of knowledge but may also contribute to addressing low levels of entrepreneurial action (Van Gelderen *et al.*, 2015:655), and in turn unemployment and poor economic growth that to date have been threatening the socioeconomic stability of most developing economies (Herrington *et al.*, 2017:7).

The study also seeks to contribute substantially to the body of knowledge by increasing the stream of literature that examines the positive contribution of this "dark-side" personality trait, which has the potential to contribute significantly to increasing the entrepreneurial activity levels that have to date been substantially low, due to the low levels of entrepreneurial action (Klotz & Neubaum, 2016:7).

1.2 BACKGROUND TO THE STUDY

As early as the 1980s, entrepreneurship research cited EA as being the direct result of EI. This was based on findings that suggested intentions were a good predictor for entrepreneurial events (Ajzen, 1991:179; Kautonen, Van Gelderen and Fink, 2015:4). However, research found no direct correlation suggesting EA resulting from EI (Adam & Fayolle, 2015:36; Van Gelderen *et al.*, 2015:655; Oliviera & Lima-Rau, 2018:38). This prompted studies, such as the one by Wiklund *et al.* (2017), to illustrate factors that might influence EA and possibly minimise the EI–EA gap.

The Global Entrepreneurship Monitor (GEM) report on South Africa (SA) reveals low levels of entrepreneurial activity, irrespective of high EI levels recorded (Herrington *et al.*, 2017:7). This suggests that intentions do not necessarily translate into action (Sniehotta *et al.*, 2005:143; Adam & Fayolle 2015:37; Van Gelderen *et al.*, 2018:924), even with EI regarded as a sensible state of mind that precedes action (Esfandiar, Sharifif-Tehrani, Pratt and Altinay, 2019:173). From this, it can be considered that EA is a process that consists of three pertinent stages: Entrepreneurial opportunity discovery, Entrepreneurial opportunity evaluation; and Entrepreneurial opportunity exploitation (Wiklund *et al.*, 2017; McMullen & Shepherd, 2006:134).

In an endeavour to address poor EA levels and possibly minimise the EI–EA gap, Hmieleski, Corbett, and Baron (2013:140) explored factors such as business competition, dynamism and industry. McCarthy, Schoorman, and Cooper (1993:9), and Baron (2007:168) put forward the inclusion of psychological factors in this regard, as their exclusion renders intention/action models incomplete (Adam & Fayolle, 2015:36).

Shane, Nicolaou, Cherkas, and Spector (2010:1154) claim that the “who, how and what” process that informs an entrepreneur is correlated by a variety of psychological attributes, from which impulsivity cannot be excluded. Until now, recent entrepreneurship literature has paid very little attention to negative traits that inform an entrepreneur’s attributes (Wiklund *et al.*, 2017:627). It is only with the emergence of current conversation investigating the “dark pathological” constructs, such as impulsivity; that are likely to affect EA (Pietersen & Botha, 2021; Lerner, Hatak & Rauch, 2018:3) that research has been paid.

Much as there is sufficient research conducted on impulsivity across a wide variety of contexts (Leland, Arce, Feistein & Paulus, 2006: 725; Daniel, Richard, & Dimo, 2018:52), its contribution to the entrepreneurial context is still considered under-researched (Wiklund *et al.*, 2017:3; Lerner *et al.*, 2018:7). Therefore, by expanding the work by Wiklund *et al.* (2017); determining the role of impulsivity could be found to have an effect on EA levels; and subsequently lead to the creation of new business ventures (Van Gelderen *et al.*, 2015:655; Wiklund *et al.*, 2017:5; Aboujaoude, & Starcevic, 2016, 1014).

By focusing on the contrasting positive contribution of impulsivity, this study will not only add to the body of knowledge, but also provide a counterbalance to the dominating view that has always associated impulsivity with negative narratives, by including this trait as a determinant for EA (Klotz & Neubaum, 2016:8). The influence of impulsivity may be pertinent to explain why certain individuals, and not others, are keen to take the plunge and become entrepreneurs (Wiklund *et al.* 2017:3; Pietersen & Botha, 2021:1).

1.3 THE RESEARCH PROBLEM

The existence of low EA levels despite high EI levels is a source of concern globally, and South Africa (SA) is not immune to the phenomenon (Herrington *et al.*, 2017:7). What and how EA can be improved is a critical question in the minds of scholars and policy makers (Van Gelderen *et al.*, 2015:655; Herrington *et al.*, 2017:7; Klotz & Neubaum, 2016:7). For entrepreneurial activity to be realised, an entrepreneur is central in the equation in order to translate intentions into actions (Oliveira & Lima-Rua, 2018:508). As previously stated, what informs an entrepreneur was mainly focused on those attributes considered to be positive (Baum, Frese, Baron & Katz, 2007:2; Klotz & Neubaum, 2016:8). However, not all persons possess the same behavioral traits. Some entrepreneurial individuals have some attributes with negative psychological or pathological inferences (Miller, 2015:1).

Certain traits may play a determinant role in leading an entrepreneurial event to take place. The question is: can inclusion of negative psychological traits such as impulsivity contribute to effecting EA and the possible creation of new ventures? Despite the negative inferences associated with impulsivity, Wiklund *et al.* (2017) and Lerner *et al.* (2018) state that impulsivity has attributes that are positive to affecting EA. Eysenck and Zuckerman (1978:483) have highlighted these as creativity, and taking action under uncertainty.

McMullen and Shepherd (2006:134) attest that these attributes are the key requirements required to translate ideas into action.

Wiklund *et al.* (2017) have conceptualised the possible contribution of impulsivity to entrepreneurship. In order to test this, Wiklund *et al.* (2017) recommend empirical studies to ascertain the effect of impulsivity in relation to its contribution on effecting EA. These authors are of the view that entrepreneurs who include an element of impulsivity have a better chance of translating their intentions into action (Wiklund *et al.*, 2017:5; Lerner *et al.*, 2018:4; Yu 2018:1). It is against this backdrop that this empirical study seeks to illustrate the effect of impulsivity in mediating in the relationship between EI and the stages of EA. This approach supports Schjoedt and Bird (2017:380), Guo and Ng'anjo (2016:1) and Van Gelderen *et al.* (2015:656); who profess that such psychological traits are important to illustrate the mediation effect in the relationship.

1.4 AIM OF THE STUDY

In addressing the challenge presented by low EA levels, Wiklund *et al.* (2017:3) and Yu (2018:1) formulated a framework that conceptualises the contribution of impulsivity to effecting entrepreneurial action. Figure 1.1 below expands on this framework; in order to illustrate the mediating role which impulsivity can play to influence EA, leading to the entrepreneurial activity taking place.

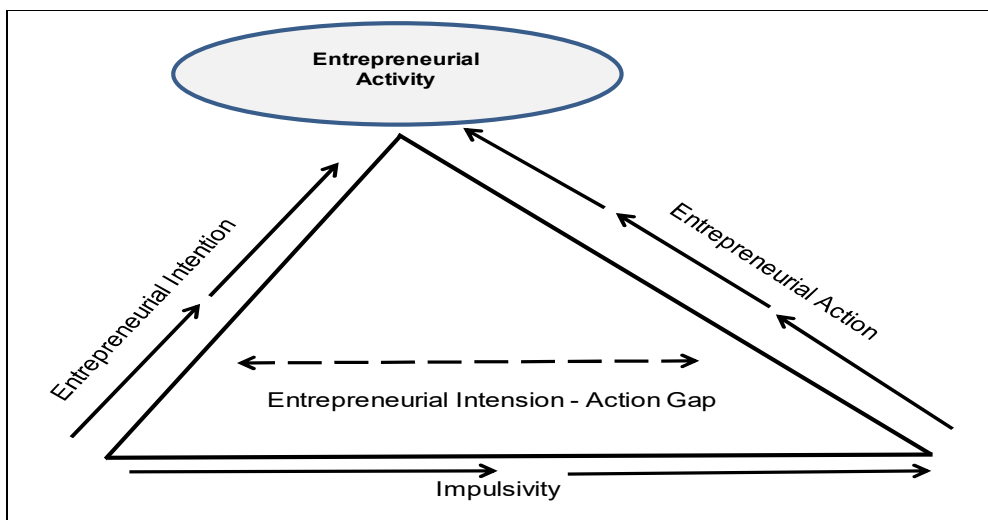


Figure 1.1: Entrepreneurial intention-action gap

Source: Own compilation

In Figure 1.1 the left line represents EI levels, the right line the EA levels and the bottom line impulsivity levels. A lack of direct correlation between EI and EA creates an EI–EA gap, as indicated inside Figure 1.1. Previous research focused on entrepreneurial activity through intention models and conceptualisations. As such, determinants that inform these intentions could only account for about 30%; as input from the EI in which EA was derived. This implied that EA was not only a direct consequence of EI, as previously assumed (Adam & Fayolle, 2015:45; Oliveira & Lima-Rua, 2018:508).

In order to address the conundrum of poor EA levels, Wiklund *et al.* (2017), in their conceptual framework, are of the view that at a certain level of impulsivity, EA is likely to be affected. Their proposition suggests the positive contribution of impulsivity influencing EA. Recent studies reveal a growing number of people with impulsivity disorder, suggesting that individuals with this condition cannot be ignored; if issues of economic growth are to be addressed. This study will reach out to an audience where up until now little investigation has been conducted, to illustrate the effect of their personality trait in relation to its possible contribution to entrepreneurial activities (Wiklund *et al.*, 2017:5; Lerner *et al.*, 2018:4). This will be in lieu of research that found a significant contribution of positive personality traits in effecting EA (Shane *et al.*, 2010:1154).

Investigating the mediating role of impulsivity in the relationship between EI and EA will contribute significantly to the literature and curriculum, by inclusion of those traits that were previously ignored. Wiklund *et al.* (2017) are of the view that impulsivity is likely to contribute to affecting EA. Improvement in EA levels has the potential to address the EI-EA gap and issues of economic development and unemployment (Klotz & Neubaum, 2016:7; Sanchez Badini, Hajjar & Kozak, 2018:43).

So the study aims to investigate: the role of impulsivity in mediating the relationship between entrepreneurial intention and the stages of entrepreneurial action.

1.5 DEFINITION OF TERMS

According to McLeod and Hanks (1995:230), concepts are thoughts and ideas in which theoretical models are formulated and embedded. Concepts assist us in providing understanding and communicating information about objects, events, and a common ground on which this takes place (Cooper & Schindler, 2011:36; Memon, Ting, Ramayah, Chuah, & Cheah 2017:3).

This research outlines the most important concepts that aid in providing the foundation for the study. These are:

1.5.1 Entrepreneur

According to Hartanto, Gunawan, Stoffers, Kornarius, and Nugroho (2017:1130), an entrepreneur is an individual who has specialised in making decisions about gathering and administering limited resources, with the purpose of converting those resources to profit. An entrepreneur comes in three phases: nascent, start-up and established. In the nascent phase are those entrepreneurial individuals who are starting a business and have been less than a year in operation. "Start-up entrepreneur's phase" relates to those individuals who have run their ventures from a year to three and a half years; while the established phase is anything above the three and a half years (Hartanto *et al.*, 2017:1131).

This study will be focusing on those entrepreneurs who are in the nascent phase, who have just started, or are in the process of creating an enterprise. These will include anyone from those who have not only shown intentions to those who are working or have worked on converting intention into action (Alcalde, Martin-Martin & González-Rodríguez, 2002:27).

1.5.2 Impulsivity

Impulsivity is a concept that has been around since the nineteenth century, and its definition is stone-age (Lange, Reich, Lange, Tucha & Tucha, 2010:241). Cloninger, Svrakic and Przybeck (1993:977) describe impulsivity loosely as those spontaneous responses to new ideas that occur and are motivated at a preconscious level, owing to biological predispositions. Mobini, Grant, Kass and Yeomans (2007:1527) define the impulsivity trait as inability to wait, or the tendency to act without forethought, or deficient tolerance of

delayed gratification. Greco and Roger (2001:530) view impulsivity as an inclination to act rashly, without adequate forethought. Moeller *et al.* (2001:1784) describe impulsivity as the tendency to act rapidly, or unplanned reactions to internal or external drivers without any regard for the consequences of the reactions.

This study adopts the definition by Whiteside and Lynam (2001:687) that views impulsivity as a broad multi-faceted construct with four distinct personality traits; these being sensation seeking, lack of premeditation, lack of perseverance, and urgency.

1.5.2.1 Sensation seeking

Zuckerman (1994: 27) defines sensation seeking as a tendency to seek varied or novel, complex and intense sensational experiences, often compounded by the inclination to take physical, social, lawful, and monetary risks for the sake of such experiences. Aluja, Garcia, and Garcia (2003:671) define sensation seeking as a predisposition to extreme activities such as adventure sports, exotic meals, taking in of drugs, sex, illegal activities and so forth. Riley, Combs, Jordan, and Smith (2015:440) define sensation seeking as the deep seated need to find new, exciting and risky stimulation. Nicolaou *et al.* (2008:8) view people with this trait as those that thrive when choosing and delighting in occupations that cause them to bear risk in the pursuit of novelty.

1.5.2.2 Lack of premeditation

Riley *et al.* (2015:440) define lack of premeditation as the tendency to act without preparation or organisation or consideration of possible consequences of an act before even engaging in such acts; or acting without forethought or consideration of the desired consequences. Wiklund *et al.* (2017:8) describe this dimension as acting in the spur of the moment, without any consideration for prevailing circumstance or regard for consequences. This trait typically resembles impulsivity (Adams, Kaiser, Lynam, Charnigo & Milich, 2012: 848).



1.5.2.3 Lack of perseverance

Riley *et al.* (2015:440) define lack of perseverance as a tendency by individuals with this symptom to abandon or leave a task or project when it becomes challenging or uninteresting. Wiklund *et al.* (2017:8) define it as the incapacity to remain dedicated and persistent during a given task, or giving up easily when such task is considered not to be appealing or else difficult for such individuals with this predisposition to follow it through

1.5.2.4 Urgency

Billieux, Rochata, Carré, Ceschi, Offerlin-Meyer, Defeldre, Khazaal, Besche-Richard and Van der Linden (2012:610) define urgency as the tendency to feel strong effects, often under the condition of intensive distress. The negative urgency dimension is also defined as acting rashly when distressed. In the case of positive urgency, this relates to the tendency to act hastily when in an unusually upbeat mood (Riley *et al.* 2015:440), with lack of self-control (Wang, Wen, Cheng, & Li. 2017:1). Wiklund *et al.* (2017:8) refer to this as a tendency to experience negative emotions, then to act on these emotions. Cyders and Smith (2007:840) state that urgency occurs when one is linked to emotional affectivity.

1.5.3 Uncertainty

Uncertainty is defined as a thread that often complicates the process that has to do with decision-making; and coping with it is unavoidable (Warmink, Brugnach, Vinke-de Kruijf, Schielen, & Augustijn, 2017:4594). Marinacci (2015:1023) defines it as a form of limited knowledge about the possible realisation of possibilities that are relevant in order to make a decision: for example betting on a dice (what face will come up?). Comes, Hiete and Schultmann (2013:29) describe uncertainty as the lack of information about the prospect of a specific outcome.

1.5.4 Entrepreneurial Intention (EI)

Entrepreneurial intention (EI) is defined as “the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviours, such as starting a new business

and/or becoming an entrepreneur; and/or the desire to become an entrepreneur (Esfandiar *et al.*, 2019:173).

1.5.5 Entrepreneurial Action

Entrepreneurial action is a process that consists of opportunity recognition, evaluation and the act or decision taken to realise or achieve such opportunities (McMullen & Shepherd, 2006:134; Shane & Venkataraman, 2000:218). Baron (2007:167) defines it as a process that entails vigorous and persistent effort, leading to identification, evaluation and exploitation of opportunity. In the absence of such process, there would simply be no entrepreneurship (Swedberg, 2000: 26). Shane and Venkataraman (2000:218) and Baum *et al.* (2006:6) claim that the process includes all activities associated with pursuing the entrepreneurial opportunity, that give rise to the formation of a new business venture or investment into something that will expand or improve business processes (Shane, Locke & Collins, 2003:257). These activities entail an entrepreneurial opportunity process; aggregated in stages.

1.5.6 Stages of entrepreneurial action

Entrepreneurship is a field that studies the “what, how, whom and with what do opportunities arise to create future goods and services (Shane & Venkataraman, 2000:218). This process, according to McMullen, Plummer, and Acs (2007:273), is key to the central nervous system that entails the entrepreneurial action phase and consists of three behavioural actions: (a) the ability to discover, identify or recognise an opportunity; (b) the ability to review or assess an opportunity; and (c) the ability to successfully execute and realise the opportunity. These are defined underneath as follows.

1.5.6.1 Entrepreneurial Opportunity Discovery

Shane and Venkataraman (2000:217) define entrepreneurial opportunity identification as the main task that distinguishes an entrepreneur’s performance, which later translates into

a new venture being created. Hsieh, Nickerson and Zenger (2007:1255) view opportunity discovery as a deliberate search or recognition of a solution to a problem or a need.

1.5.6.2 Entrepreneurial Opportunity Evaluation

Hills and Shrader (1998:54) describe entrepreneurial opportunity evaluation as the key to differentiating an idea from an opportunity. Das and Teng (1997:70) define this as a process that entails judgements made under conditions of uncertainty and general intricacy to arrive at the best possible solution. Krueger (1993:5) defines opportunity evaluation as a forecast exercise by the decision-maker, assessing the attractiveness and practicality of whether the opportunity can be pursued or not, based on whether it is within their control and competence.

1.5.6.3 Entrepreneurial Opportunity Exploitation

Entrepreneurial opportunity exploitation is defined as an act of gathering and recombining required resources necessary to pursue opportunities that necessitate the creation of new ventures and the management thereof (Ren, Shu, Bao & Chen 2016:468).

1.5.7 Entrepreneurial intention-action gap

Adam and Fayolle (2015:36) define the intention-action gap as “the missing link between the entrepreneurial intention and behaviour”. Van Gelderen *et al.* (2015:655) define it as a critical vacuum caused by lack of EA in comparison to existing EI, where there is a lack of action despite ongoing intentions, resulting in potentially fruitful entrepreneurial ventures not being realised.

1.6 LITERATURE REVIEW

This section is intended to provide relevant literature supporting the broad concepts of the study: impulsivity, EI and the stages of EA stages. The literature review will rationalise the various relationships between these constructs in support of theories that inform these constructs.

1.6.1. Definitions and conceptualisations of impulsivity

Whiteside and Lynam (2001:669) submit that impulsivity plays an important role in identifying and diagnosing various forms of psychopathological behaviours that are key to the process of action-taking or decision-making (Eysenck & Levey, 1972). A range of definitions and conceptualisations on the subject have previously been offered, but there is now a broader acceptance that impulsivity is a multifaceted construct (Whiteside & Lynam, 2001:671). Impulsivity was previously associated with mainly negative nuances (Ainslie, 1975:463); such as acting without thinking, lack of planning; not being able to pay attention; or ignoring the consequences of decisions or actions taken (Cardinal, 2006:1277). Impulsivity is a complex human trait and often difficult to understand (Moeller *et al.*, 2001:1784). At a pathological level it amounts to a mental ailment (Wiklund *et al.*, 2017:7). Individuals with impulsivity tendencies react to internal or external stimuli without any regard for the consequences. In most instances these individuals are claimed to indulge in risky behaviours without any consideration of the possible consequences of their actions (Greco & Roger, 2001:530). They are also maladaptive and prone to taking action without filtering their thought processes (Bechara, Damasio, Tranel & Damasio, 1997:1293).

Recent data from the Attention Deficit and Hyperactivity Support Group of Southern Africa (ADHASA) claim that up to ten percent of the South African population suffers from impulsivity related disorder (Chiumia & Van Wyk, 2018:1). According to Walker *et al.* (2011:25), and Deon (2011: 5424), impulsivity amongst the global population is on the rise in recent years without any clear explanation for the possible cause of this phenomenon. However, despite all the negative connotations linked to impulsivity, there are some levels of positivity associated with this trait (Fürst, Ghisletta & Lubart, 2014:88). For example, individuals with impulsivity “disorder” are known to be creative and to thrive in taking action

under uncertainty. Research by Feist (1998:290) and Fürst *et al.* (2014:88) on the relationship between a large number of personality traits and creativity, concluded that in general individuals with impulsivity disorder are found to be creative despite the high level of uncertainties. Equally these individuals are known to thrive on taking action (Leland *et al.*, 2006: 726). This suggests a direct correlation between the level of uncertainty and that of impulsivity, as indicated in Figure 1.2 below (Marinacci, 2015:1023).

Despite the negative inferences associated with impulsivity, Wiklund *et al.* (2017) and Lerner *et al.* (2018) suggest that impulsivity may have attributes that may contribute to effecting EA. Eysenck and Zuckerman (1978:483) highlighted amongst other attributes creativity and taking action under uncertainty as positive attributes related to impulsivity. McMullen and Shepherd (2006:134) attest that these attributes are similar to the requirements needed to translate opportunities into entrepreneurial activity.

Uncertainty is arguably a fundamental and unavoidable feature of our daily life (Halpern, 2017:11). It is increasingly taking a centre stage in academic and public debates (Galesic, Kause & Gaissmaiera, 2016: 244). Entrepreneurial opportunities are engulfed by conditions of uncertainty and heightened pressure. Warmink *et al.* (2017:4594) state that uncertainty is a problem that complicates the decision-making process; coping with it is a minimal requirement for being able to clinch an opportunity.

Figure 1.2 highlights the fact that an individual who is not risk-averse, who does not mind taking action under uncertainty, is associated with impulsivity. Uncertainty is arguably a daily occurrence in an entrepreneurial environment (Wiklund *et al.*, 2017:37).

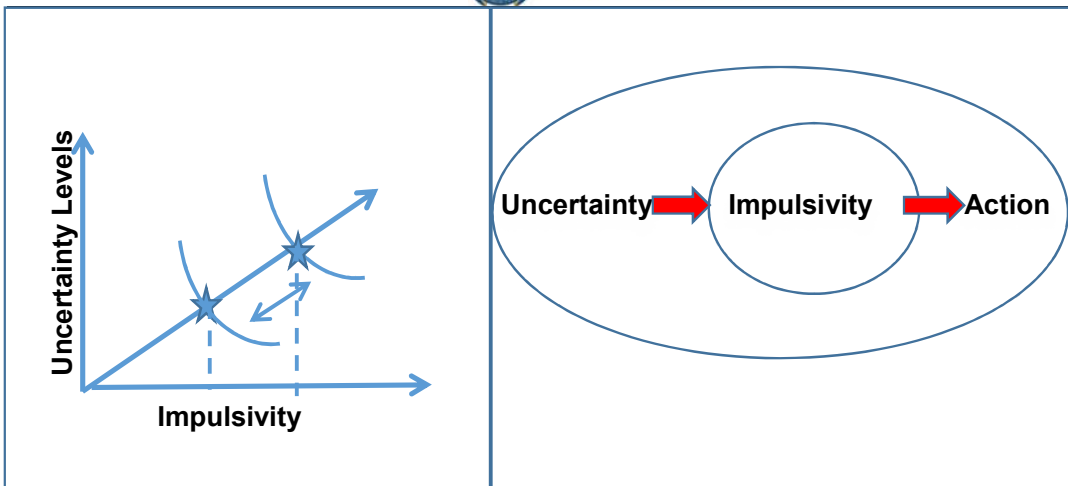


Figure 1.2: Relationship between uncertainty and impulsivity

Source: Own compilation

The left-hand side of Figure 1.2 indicates levels of uncertainty compared with those of impulsivity. An impulsive person will act, irrespective of uncertainties. This supports the statement by Tzagarakis, Pellizzer and Rogers (2012:33), suggesting that the more highly an uncertain situation is charged, the more impulsive individuals are prone to take action. On the contrary, less impulsive individuals will either be scared, or defer action, rather than just jumping into action (Van Gelderen *et al.*, 2015:658; Adam & Fayolle, 2015:41). This relationship is important, considering that entrepreneurial opportunities are often engulfed by levels of uncertainty yet require prompt action (Marinacci, 2015:1023). This creates a competitive advantage for entrepreneurs who are able to ride on uncertainty, which can be regarded as healthy competition amongst businesses that are chasing similar goals (Galesic *et al.* 2016:244).

1.6.2. Theories incorporating impulsivity

Literature presents a number of theories that incorporate the conceptualisation of impulsivity (Whiteside & Lynam, 2001:670). Eysenck, Pearson, Easting and Allsopp (1985:58), and Russell and Mehrabian (1977:274) hypothesise impulsivity broadly in terms of the Three Factor Theory of personality. This consists of neuroticism, extraversion, and psychoticism (Eysenck *et al.*, 1985:58; Russell & Mehrabian 1977:274). This theory subdivides impulsivity into four specific facets, namely narrow impulsiveness, risk-taking, non-planning, and

liveliness (Eysenck, & Eysenck, 1977:58). Rushton and Chrisjohn (1980:11) suggest that these four dimensions correlate differentially to extraversion, neuroticism and psychoticism.

Whiteside and Lynam (2001:685) conducted a study on the Big Five Factor Model (FFM) of personality, as a reference point drawn out of 17 different personality traits that suggest impulsivity as a super construct that indicates certain characteristics (Adams, Kaiser, Lynam, Charnigo & Milich, 2012:848). Through their extensive exercise, Whiteside and Lynam (2001) arrived at four facets of impulsivity that are considered to be, not in variation with the impulsivity construct, but rather unconnected psychological processes that lead to impulsive-like behaviours, which are discrete personality traits that do not necessarily co-vary within an individual per se.

Whiteside and Lynam (2001:685) grouped these together and arrived at four distinct impulsivity dimensions. These are Urgency, Lack of Premeditation, Lack of Perseverance, and Sensation Seeking. Each one of these traits was labelled to identify a different facet of the FFM model (Whiteside & Lynam, 2001:669).

1. Urgency refers to the predisposition to act rashly under extreme adverse emotions, such as anxiety, worry, sadness, fear, vulnerability, or anger. Thus, urgency is linked to emotionality, particularly negative affectivity. Positive urgency refers to tendencies of acting hastily under extreme positive emotions (Cyders & Smith 2007:840).
2. Lack of premeditation mainly applies to individuals with this “disorder” having difficulty with deliberate discernment of an idea before taking action; or considering the consequences of their actions before engaging in that act. Those who score high on this dimension act on the spur of the moment without regard for consequences (Adams *et al.*, 2012:848).
3. Lack of perseverance mainly speaks to the lack of ability to stay put and persist on an uninteresting or challenging opportunity or project. Those who score highest in this trait find it difficult to focus or complete a task under conditions that require resistance to disrupting ideas; they tend to give up easily (Whiteside, Lynam, Miller, and Reynolds, 2005:560).
4. Sensation seeking consists of two sub-dimensions. One is inclined towards enjoyment and pursuing actions that are thrilling and the second is that of novelty.

Individuals who score above others on this dimension enjoy engaging in new and dangerous activities (Dickman 2000:563).

These dimensions should be viewed as continuous variables ranging from low to high values (Zermatten, Van der Linden, d'Acremont, Jermann & Bechara, 2005:647). According to Wiklund *et al.* (2017:8), at a very high level of these dimensions impulsivity becomes pathological and constitutes aspects of mental disorders. For example, borderline personality disorder is associated with high urgency. For the purposes of this study, the study mainly focuses on non-pathological levels of impulsivity.

1.7 IMPULSIVITY IN RELATION TO THE ENTREPRENEURIAL CONTEXT

Impulsivity research has largely originated from the developed economies (Tustin, 2011:5424; Moeller *et al.*, 2001:1784). This trend is also seen in the developing nations such as SA, where Chiumia and Van Wyk (2018:1) reveal a growing number of individuals with impulsivity (Deon, 2011: 5424; Walker *et al.*, 2011:25). These individuals cannot be left outside economic activity, especially as research reveals that their personality is linked to attributes that can be key to effecting action (Eysenck & Zuckerman, 1978:483).

In addressing the dilemma of low EA, Naudé (2011:1) and Hartanto *et al.* (2017:1130) advocate for other personality traits to be investigated that could be useful in entrepreneurship. The opening of the net wider would have the benefit of including individuals with impulsivity to possibly participate in the economy and in turn improve entrepreneurial activity (Van Gelderen *et al.*, 2015; Wiklund *et al.*, 2017).

As stated, entrepreneurial activity is a function of translating EI into EA (McMullen & Shepherd, 2006:132; Bird & Schjoedt, 2017:1). The what, where, how and who of how this activity transpires is of interest to scholars. According to Van Gelderen *et al.* (2015:655), this mostly takes place at the invention level (Schumpeter, 1934:137), or at the entry into new markets or industries (Lumpkin & Dess, 1996:136), or at the establishment of a new business (Gartner, 1985:696). This activity entails creativity on a wider variety of activities and consequences, resulting from execution that is initiated by an entrepreneur (Stevenson & Jarillo, 1990:17).

1.7.1. Entrepreneurial Intention

Research interest since the 1980s has been to find factors suggesting entrepreneurial activity on the premise that intention leads to action. This led to theories such as the Theory of Planned Behaviour (TPB). What this theory postulates is that action is as a direct result of intention (Ajzen, 1991:179). This was found not to be the case. It resulted in TPB being augmented with other theories or factors in order to effect action. For example, TPB was integrated with Motivational Opportunity Ability (MOA) theory to explain the link to initiating action (Hui-Chen, Kuen-Hung, & Chen-Yi 2014:731). In terms of TPB, an individual's intentions are informed by one of three antecedents. The first is that of the individual's attitude; that is, personal evaluation. This relates to an individual's self-evaluation of personal interest leading to the desire to do something. The second is social pressure; this relates to what extent external forces play a role in shaping one's intent. For example, an individual desires to be entrepreneurial because of seeing a family business or circumstances. The third antecedent is the ability to perform the behaviour. This suggests that the process is driven by individual's capability (Hui-Chen *et al.*, 2014:727).

Kautonen *et al.* (2015:4) augmented TPB with MOA. MOA refers to one's readiness, willingness and interest to achieve the anticipated outcome (Hui-Chen *et al.* 2014: 728). These authors are of the view that a combination of both these theories, TBP and MOA, can have the effect of initiating action. Van Gelderen *et al.* (2015) state that even if one has great intentions and motivation, but does not follow up with deliberate action, this remains just an intention, thwarting the chances of EA taking place. The findings of Sniehotta *et al.* (2005:143) and Adam and Fayolle (2015:36) suggest that EI on its own is not sufficient to initiate action. Previous studies went so far as to investigate factors such as environmental, socio psychological and behavioural traits, in order to illustrate EA (McMullen & Shepherd, 2006:140; Adam & Fayolle, 2015:36).

The study by Esfandiar *et al.* (2019:172) investigated the effect of EI pertaining to EA. This was informed by the importance of the pre-venture stage. These authors found the entrepreneur's personality trait and state of mind critical to the effecting of action. Krueger, Reilly, and Carsrud, (2000:411) support this by advocating the inclusion of psychological

factors in intention models. To illustrate this, Figure 1.3 depicts individuals' planned behaviours in relation to factors that influence the intention to start a business.

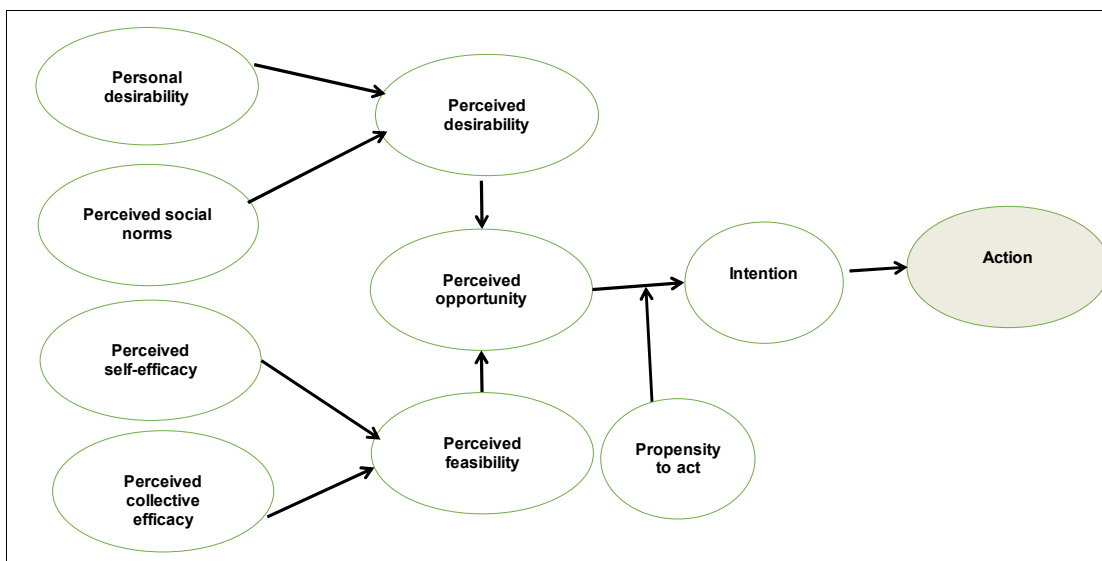


Figure 1.3: Model of entrepreneurial Intention

Source: Adapted from Esfandiar *et al.* (2019:173)

Figure 1.3 above depicts the process that informs EI that is aligned to Shapero's model of the entrepreneurial event (SEE) (Shapero & Sokol, 1982:72). In terms of this model the intention to initiate the entrepreneurial event or activity is informed by four factors; personal desirability, social norms, self-efficacy and collective efficacy.

These are aligned to TPB elements (Kautonen *et al.*, 2015:4), effecting three critical precursors: perception of desirability, feasibility and the tendency to act (Esfandiar *et al.*, 2019:173; Wiklund *et al.*, 2017). The perception of desirability and feasibility speaks of the opportunity recognition and evaluation; while tendency to act suggests the exploitation stage. Of note is that EI does not necessarily amount to action if there is a failure to develop a resolute mediation that translates such intentions to action (Esfandiar *et al.*, 2019:173). Such mediation addresses the gap between EI and EA, which may be enlarged or bridged by the individual's volition to pursue such EI in practice (Esfandiar *et al.*, 2019:173). Based on this argument, Esfandiar *et al.* (2019) recommend that intention models include psychological factors to allow for the translation of intention into action. The significance of EI in entrepreneurial activity cannot be underestimated, even if it is not sufficient to effect

action on its own (Sniehotta *et al.*, 2005:143; Adam & Fayolle 2015:37; Van Gelderen *et al.* 2018:924).

The section below offers an explanation on the conceptualisation of EA and how it relates to EI, leading to an entrepreneurial event taking place.

1.7.2. Entrepreneurial Action

The literature presents two distinct descriptions that inform entrepreneurship (Gorgievski & Stephan, 2016:437). The first is that of an entrepreneur as a key player to ensure that the entrepreneurial activity happens. This is informed by psychological traits and profession(s) (Van Praag & Versloot, 2008:65; Rauch & Frese, 2007:354). The second deals with entrepreneurial activity itself, in that without it there will not be an entrepreneurial event taking place. EA is a guarantee that the entrepreneurial activity takes place (Shane & Venkatraman, 2000:219). The process consists of deliberate actions that are taken in an environment that is often clouded by uncertainties (Davidsson, 2015:675).

The EA process is of great interest to scholars (Asante & Affum-Osei, 2019: 227; Van Gelderen *et al.*, 2015:655). Studies such as the one by McMullen and Shepherd (2006:133) conceptualised EA through the use of the Discovery Theory (DT) and the Creation Theory (CT). DT deals with the process of identifying and exploiting the entrepreneurial opportunity (Shane & Venkataraman 2000:218). On the other hand, CT looks at behavioural activities with regard to the evaluation and exploitation of opportunities (Schumpeter, 1934:137; Coase 1937:386). This is inferred through three theoretical assumptions: (i) that opportunities are subjective to the entrepreneur; (ii) that individuals who exploit opportunity are ordinary; and (iii) that entrepreneurs are custodians that deal with uncertainties. As stated, the entrepreneurial environment is one that is engulfed by uncertainty. Even with that in mind, for entrepreneurial activity to take place requires action and such action is taken under conditions that are uncertain (Obschonka & Stuetzer, 2017: 204). EA consists of three stages (Wiklund *et al.*, (2017), and these are explained below.

1.7.3. The stages of entrepreneurial action

The stages of EA are dynamic and multiplicative processes that are developed under conditions of uncertainty (Emami & Khajeheian, 2019:1). Swedberg, (2000:26) claims that in the absence of these, there would simply be no entrepreneurial event taking place. These stages consist of entrepreneurial opportunity discovery, evaluation and exploitation.

1.7.3.1. Entrepreneurial Opportunity Discovery

The literature postulates entrepreneurial opportunity identification as the key task in the stages of EA; as it distinguishes an entrepreneur's performance, in terms of identifying and converting creative ideas into opportunity (Shane & Venkataraman, 2000:217). Hsieh, Nickerson and Zenger (2007:1255) view opportunity discovery as a deliberate act of search or recognition; to solve a problem or need that has the potential to yield returns; that is an entrepreneurial event or profit,

1.7.3.2. Entrepreneurial Opportunity Evaluation

Hills and Shrader, (1998:54) describe entrepreneurial opportunity evaluation (EOEV) as a valuable process that is key to carving out an entrepreneurial opportunity from ideas. Das & Teng (1997:70) claim that EOEV is a process that entails the exercise of determining the best possible output in deciding whether to pursue the opportunity or not. The difficulty is the fact that in many instances the conditions under which this exercise is conducted are often influenced by uncertainty and the general intricacy required to be able to arrive at the best possible solution. Krueger (1993:5) claims that the entrepreneurial opportunity evaluation can be a suitable forecast tool for a decision maker assessing the attractiveness and practicality of whether the opportunity can be pursued or not, based on whether it is within their control and competence.

1.7.3.3. Entrepreneurial Opportunity Exploitation

Entrepreneurial opportunity exploitation is an important step that ensures EA is realised. This process consists of the decisions and actions to gather required resources needed to pursue opportunities for the creation of a new venture and management thereof (Ren *et al.*, 2016:468).

1.8 IMPULSIVITY AND THE STAGES OF EA

The literature on economic perspective put forward an argument that suggests the relevance of the relationship between impulsivity and economic activities, due to a substantial and rapidly growing number of individuals who present impulsivity-related disorders (Wiklund *et al.*, 2017). This suggests that successful entrepreneurs and managers might include individuals with an impulsivity disorder (Yu, 2018:41). This trait can no longer be ignored if its attributes are similar to those that can influence EA (Wiklund *et al.*, 2017:7; Lerner *et al.*, 2018:3).

As mentioned previously, EI levels are known to be high (Van Gelderen *et al.*, 2015:655; Adam & Fayolle, 2015:36); therefore the study focuses mainly on the impact of impulsivity on the EA side of the equation; when determining its mediation role in the relationship between EI and EA. This exercise is detailed below, bearing in mind that any significant contribution affecting EA has the potential to bridge and minimise the EI-EA gap.

In order to investigate impulsivity as a factor, the study merges insights from the literature on the effect of impulsivity dimensions in relation to the stages of EA, where hypotheses on the influence of impulsivity dimensions in mediating the relationship between EI and the stages of EA are posited.

1.8.1. Stage 1: Entrepreneurial Opportunity Discovery

Identification, selection and exploitation of the opportunity is key for the entrepreneurial event to take place (Ardichvilia, Cardozob & Rayc. 2003:107). The discovery phase is the elementary stage of EA; consisting of activities stemming from creativity (Stevenson & Jarillo, 1990:17), ideas generation (Cloninger, Svrakic & Przybeck, 1993:977), or crisis (Lins & Doktor, 2014:22) that may lead to the generation or the discovery of the entrepreneurial

opportunity. Entrepreneurial opportunities are birthed through the gap or knowledge, skills and traits possessed by an entrepreneur (McMullen & Shepherd, 2006:140), that singles out or recognises an opportunity (Esfandiar *et al.*, 2019:173).

The discovery process is mainly driven by an entrepreneur's ability to identify the need and clinch the opportunity (McMullen & Shepherd, 2006:140). The knowledge or expertise provides the entrepreneur with more detailed ways and means of understanding and describing what is at stake in order to clinch such opportunity (Foss & Foss 2008:193). The study by Ardichvilia *et al.* (2003:105) on the entrepreneurial opportunity discovery conceptualised this process through the use of Dubin's theory (Lynam, 2002:222). This theory highlights the significance of the entrepreneur's personality traits and prior knowledge as key antecedents for entrepreneurial opportunities (Esfandiar *et al.*, 2019:173). These emanate out of uncertainty (Wiklund *et al.*, 2017:17). At the opportunity discovery stage there is no sense of telling whether the process will come to fruition (Davidsson, 2015:675).

Entrepreneurial opportunities are predicated on uncertainties (McKelvie, Haynie & Gustavsson 2011:273) and influenced by affective experiences, which often arise from impulsivity rather than reflective processes (Evans, 2007:322). This forms the basis, which suggests that high levels of risk and uncertainty associated with entrepreneurship make this process a highly emotionally charged journey (Baron, 2008:328). Not all individuals respond in the same way to opportunities (Mitchell & Shepherd, 2010:138). Some individuals thrive on risky behaviours and noble ideas, while others shun away once confronted by uncertainties.

In the case of impulsivity dimensions, when coming to opportunity discovery, urgency and lack of perseverance are likely to have a negative effect on an entrepreneurs' experience regarding recognising the opportunity (Wiklund *et al.*, 2017:11). This is due to negative emotional experiences such as worry, fear and anxiety, activated by the imminence of uncertainty that is likely to cause either procrastination or deter the initiation of action (Van Gelderen *et al.*, 2015; McMullen & Shepherd, 2006:132). However, when coming to sensation-seeking individuals and lack of premeditation, these individuals tend to find opportunities exuberating, irrespective of risks or losses that such opportunity may yield (Zuckerman 1994:27). These individuals are mostly likely to act without giving consideration to the possible outcome that is presented by the opportunity.

Figure 1.4 depicts the role of impulsivity dimensions in bridging between EI and entrepreneurial opportunity discovery (Wiklund, Yu, & Patzel 2017:3).

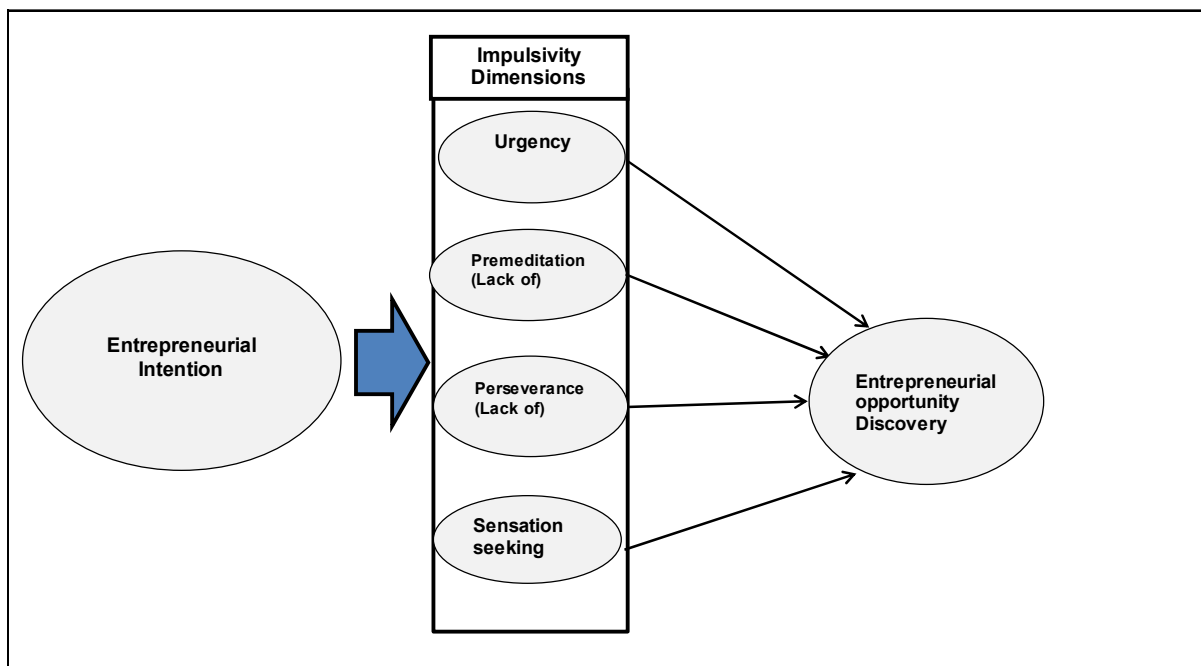


Figure 1.4: Impulsivity Dimensions and Entrepreneurial Opportunity Discovery

Source: Own compilation

Figure 1.4 indicates a possible relation between EI and entrepreneurial opportunity discovery that is necessitated by dimensions of impulsivity. The entrepreneurial environment is engulfed by negative effects which trigger immediate uncertainty (McMullen & Shepherd, 2006:132). This can deter the initiation of action, which is a common reaction to uncertainties. On the other hand, upbeat emotional experiences like enthusiasm, happiness and excitement can facilitate entrepreneurial action (Baron, 2008:169).

Urgency emotions evoke affective experiences of action aversion or action fear or action-doubt (Van Gelderen *et al.*, 2015:655). Individuals that lack fear of failure when assessing entrepreneurial opportunities are found to feel more favourable even when their potential value is relatively low (Ardichvilia *et al.*, 2003:107). This suggests that those who do not score highly in urgency are more sensitive to negative cues of uncertainty (Baron, 2008:169). People with high lack of perseverance and urgency are prone to high levels of anxiety, which may result in action aversion (Zermatten *et al.*, 2005:647). On the other hand, those who score high as sensation seekers tend to find the pursuit of activities exciting even

with prevailing potential losses in hand (Zuckerman, 1994: 27). When coming to sensation seeking and lack of premeditation, Whiteside and Lyman (2001:670) state that this behaviour triggers experiences of positive effects during opportunity discovery. People that are high in sensation seeking and lack premeditation tend to be irrespective of the possible negative results. They display very little or no fear and anxiety when weighing opportunities.

1.8.2. Stage 2: Entrepreneurial Opportunity Evaluation

The entrepreneurial opportunity evaluation stage is determining whether the opportunity is desirable and feasible (Keh, Foo & Lim 2002:126). The level at which the opportunity is desirable is subjective from person to person (Krueger 1993:6). This is based on the skills knowledge, interests and resources that an individual has (Shane & Venkataraman, 2000:218). Idea generation is common to entrepreneurs; however, the skill and ability to evaluate opportunities in order to exploit them remains an entrepreneur's key competitive advantage (Hills & Shrader, 1998:54).

Keh *et al.* (2002:126) regard the evaluation process as key; and an essential cognitive phenomenon stage of EA. Deciding on whether to act on the opportunity or not is a complex exercise (Allinson, Chell & Hayes 2000:31). In some instances there is not a reference point that can be used as a guide to whether the opportunity is feasible or not. In that regard the opportunity evaluation exercise is more of a gut feeling than a calculated exercise. When coming to impulsive individuals, especially those with sensation seeking and lack of premeditation, the result is that once their minds are made up, nothing else matters (McMullen & Shepherd, 2006:132). Therefore individuals high in sensation-seeking behaviour tend to find uncertainty rewarding and are more prone to act irrespective of the conditions. Naturally uncertainty triggers a greater striatal activation response, which provides greater salience. This enhances dopamine release, making the experience more exciting and rewarding both emotionally and psychologically (Whiteside & Lynam, 2001:670). Entrepreneurs that are high in sensation-seeking behaviour find uncertainty associated with opportunity evaluation more bearable than those lacking sensation-seeking behaviour (McMullen & Shepherd, 2006:133). Those who are high in lack of premeditation behaviour are inclined to ignore adverse results presented during the opportunity evaluation phase, such as potential financial failure or the social stigma of failure (DeYoung, 2010:486).

They are more likely to exploit the opportunity as desirable than those who consider the thought of failure more seriously. Individuals that lack perseverance might view entrepreneurship as positive, as they have the freedom to choose and design their own projects; in ways that are not possible in other jobs (Wiklund *et al.* 2017:632).

Urgency in relation to the feasibility and desirability tests is associated with the heightened charge of emotionality. Evaluating the desirability of pursuing an opportunity involves estimating the potential returns compared with the potential downsides of exploiting such an opportunity. Thus, it is a forward-looking process, which gives rise to anticipated emotions. Therefore those who are high in urgency typically experience these emotions more strongly than others, thus placing greater emphasis on anticipated emotions in their decision making. Anxiety and fear often influence those individual's willingness to take risks (Kaiser *et al.*, 2012:527).

In this regard Das & Teng (1997:70) view behavioural conduct and intuition as key approaches that separate entrepreneurs from non-entrepreneurs, based on their decision-making approach. The behavioural or trait approach suggests that entrepreneurs can be distinguished through behavioural conduct such as risk propensity, need for achievement and locus of control (Keh *et al.* 2002:126). Applying only the behavioural trait approach presents limited success when explaining entrepreneurial behaviour and perceptions (Keh *et al.* 2002:126). Therefore the trait approach should be augmented with a cognitive approach that deals with the entrepreneur's preferred way of gathering, processing and evaluating information (Allinson *et al.* 2000:32). Applying both the trait and cognitive approaches is more effective in evaluating the opportunity (Krueger, 2000:6).

The model below by Keh *et al.* (2002:126) presents the evaluation of opportunity using different cognitive processes to ascertain the feasibility or viability of the opportunity.

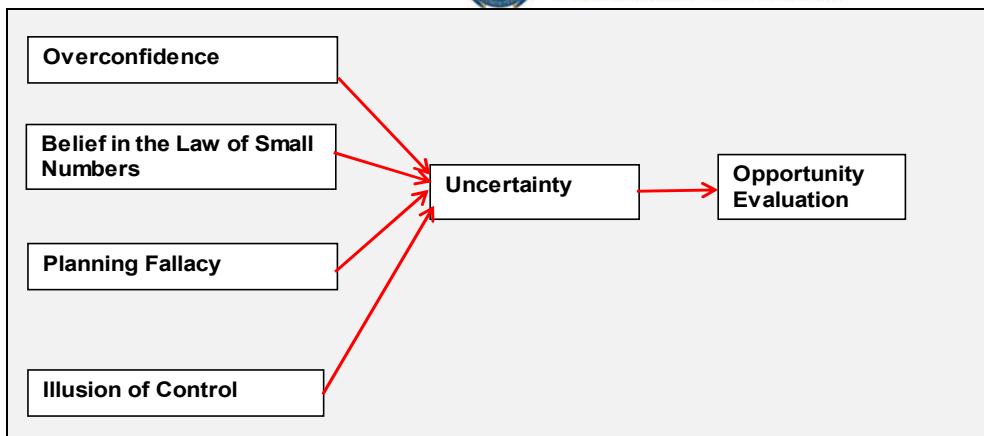


Figure 1.5: Entrepreneurial Opportunity Evaluation Model

Source adapted: Keh *et al.* (2002:128)

This model states independent variables that mediate opportunity evaluation as follows:

- *Overconfidence* is the inability to comprehend the shortcomings of one’s knowledge, resulting to misguided overestimation of one’s confidence (Zacharakis & Shepherd, 2001:313).
- *Belief in the law of small numbers*. This relies on limited information (such as small sample, attributes and observations) to arrive at a conclusion (Tversky & Kahneman, 1971:105).
- *Planning fallacy*. This refers to decision makers not considering past experiences on situations or matters of similar circumstances because of predictions. They are predisposed to treat prevailing circumstances or decisions as unique, robbing them of their ability to apply past learnings. This is known as the planning fallacy (Kahneman & Lovallo, 1993:17). The two above speak to a lack of premeditation behaviour.
- *Illusion of control*. This is a biased view in which individuals tend to exaggerate their skills; it can increase performance in situations where chance plays a large part and skill is not necessarily the deciding factor (Langer, 1975:312).

The above suggest that uncertainty has an effect on the decision-making process when dealing with the evaluation of opportunity (Simon, Houghton, & Aquino 2000:113).

Acquiring knowledge about the opportunity and one’s own abilities is prone to increase the feasibility of opportunity exploitation (McMullen & Shepherd, 2006:133). However, extensive

information gathering and analysis of data are likely to lead to insights about previously unpredicted hindrances. When more knowledge is acquired, this reduces the likelihood of uncertainty that could influence perceived feasibility of exploitation; either positively or negatively. Figure 1.7 below posits the effect of impulsivity dimensions in bridging between EI and entrepreneurial opportunity evaluation (Wiklund *et al.* 2017:3).

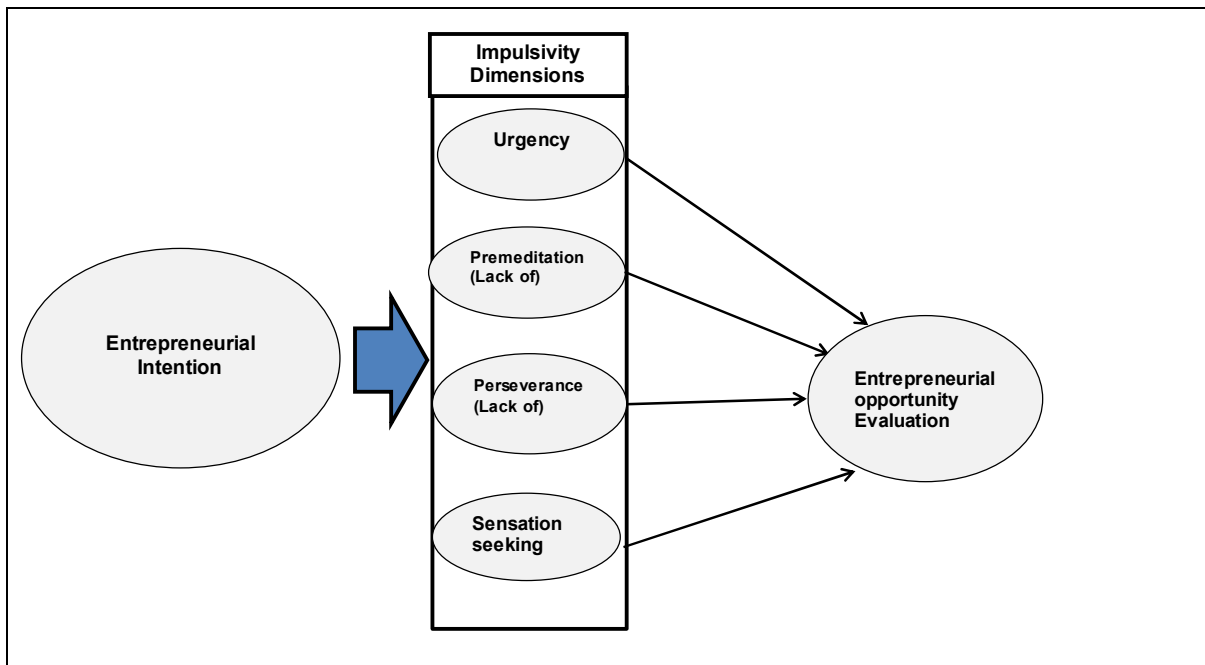


Figure 1.6: Impulsivity dimensions and entrepreneurial opportunity evaluation

Source: Own compilation

Figure 1.6 indicates a possible relation between EI and entrepreneurial opportunity evaluation that is necessitated by dimensions of impulsivity.

Individuals that are high in urgency mostly react on emotions and experiences when dealing with the opportunity at hand (Wiklund *et al.*, 2017). They focus on past success or failures, not really looking at the rationality of the opportunity at hand (Krueger, *et al.*, 2000:411). Individuals with lack of perseverance dimension shy away from an opportunity they deem hard or boring because they are drawn to activities considered to be more fun or less risky (Kaiser *et al.*, 2012:527).

The rashness associated with lack of premeditation influences the extent to which perceived feasibility is taken into account in an entrepreneurs' assessment of opportunity exploitation.

According to Wiklund *et al.* (2017:13), individuals with lack of premeditation do not necessarily use due diligence in evaluating a perceived opportunity.

As with sensation-seeking individuals, those with this condition tend to act without paying the necessary due diligence with regard to the opportunity. More than whether the opportunity is doable or not, the emphasis is put on the desirability.

Once the feasibility and or desirability of the opportunity is established, the next step is that of the opportunity exploitation (Wiklund *et al.*, 2017:28).

1.8.3. Stage 3: Entrepreneurial Opportunity Exploitation

The birth of a venture is associated with a successful process in developing and exploiting opportunities (Ardichvili *et al.* 2003:106). This phase refers to opportunity exploitation as the process of engaging in concrete actions: developing products, assembling resources, talking to potential customers, registering the new business; intentions are thus converted into actions (Van Gelderen *et al.* 2015:655). Entrepreneurs need to have skills, knowledge and in some instances a “personality” to be able to exploit entrepreneurial opportunities into business ventures (Holland & Shepherd, 2013:332).

In order to persist with an opportunity, the entrepreneur must be able to withstand challenges presented by focusing on the task of establishing a successful business (Billieux *et al.* 2012:610). As stated earlier, intentions alone proved not sufficient to effect action. Therefore the possible effect of impulsivity dimensions in the relationship between EI and entrepreneurial opportunity exploitation is illustrated in Figure 1.7 underneath.

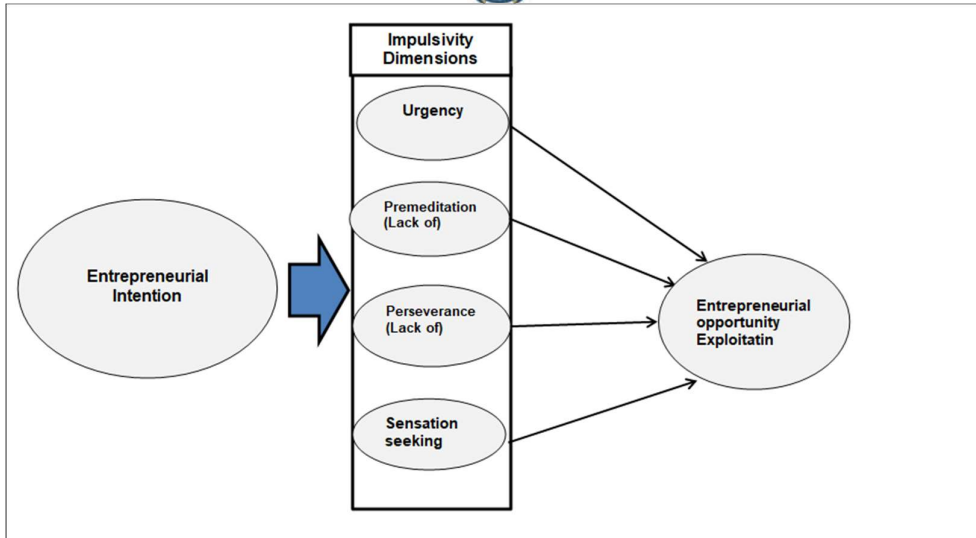


Figure 1.7 Impulsivity dimensions and entrepreneurial opportunity exploitation

Source: Own compilation

Figure 1.7 depicts a relationship between EI and entrepreneurial opportunity exploitation linked by impulsivity dimensions. Effects such as excitement, passion, and happiness are able to facilitate the initiation of action despite any uncertainty (Whiteside & Lynam, 2001:669) while negative emotions inhibit the opportunity from being exploited (Van Gelderen *et al.* 2015:655).

As stated, individuals high on urgency tend to experience anxiety and fear, which triggers avoidance responses and a higher probability of “chickening out” (McMullen & Shepherd, 2006:133; Cyders & Smith 2007:840). Similarly with those who lack perseverance who, according to Kaiser *et al.* (2012:527), are easily distracted from tasks that they regard boring. They are inclined to interrupt or delay tasks deemed hard or boring because they are drawn to activities considered to be more fun or less risky (Kaiser *et al.*, 2012:527).

The likelihood of individuals with high sensation-seeking behaviour experiencing fear and anxiety is less likely. They are more likely to experience excitement, as they are engaging in uncertain, risky activities. In fact, sensation seeking is measured in terms of the probability and frequency of engaging in such an action. Similarly with lack of premeditation; individuals with this tendency are prone to act without considering potential setbacks, thus being less intimidated with regard to the imminence of risk and uncertainty (Wiklund *et al.*, 2017:18).

The conceptual framework hypothesised the role of impulsivity dimensions in effecting the stages of EA, expanding on the work by Wiklund *et al.* (2017). The study further investigates the role which age, gender and years in business is likely to play in the relationship between EI and the stages of EA, as mediated by dimensions of impulsivity as discussed in the following section.

1.8.4 The moderation effect

The conceptual framework discussed above provided some insights into the effect of impulsivity dimensions on the stages of EA, studies such as that by Wiklund *et al.* (2017). Pieter and Botha (2021) also recommend the investigation of the contribution of factors such as age, gender, years in business in the relationship to affect EA. For example, the argument made suggests that impulsive men are more likely to act on entrepreneurial intentions than their women counterparts. Wilson, Kickul and Marlino, (2007) agree and found that women tend to have lower levels of self-efficacy than their male peers; as a result this lowers their entrepreneurial intentions. Similarly, regarding business knowledge and or experiences, individuals tend to differ on how they pursue entrepreneurial opportunities based on their business experiences (Wiklund *et al.*, 2017). For example, individuals that are less impulsive might pursue opportunities that are more related to their knowledge and experience as opposed to those that are impulsive, who thrive on novelty and risky opportunities (Nicolaou *et al.*, 2008). Shane (2000) suggests that age, gender, or business knowledge may have an effect on how individuals decide on entrepreneurial opportunities at their disposal. Figure 1.8 below graphically illustrates the influence of age, gender and years in business in the relationship between EI and the stages of EA mediated by dimensions of impulsivity.

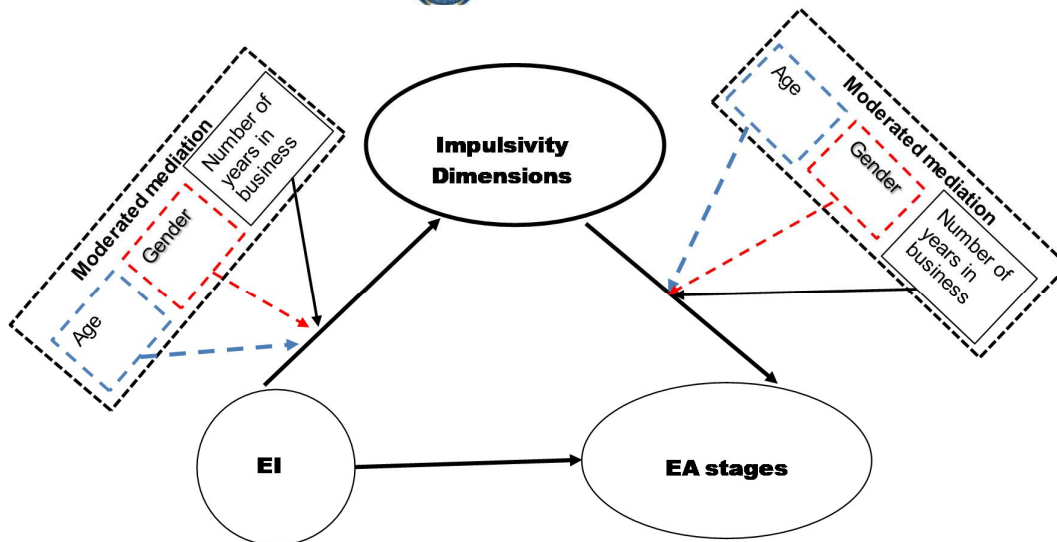


Figure 1.8 Moderated-moderated mediation

Source: Own compilation

Furthermore, Figure 1.8 depicts the likelihood of the strength of the association moderated by age, gender and number of years in the business between EI and stages of EA. BarNir, Watson, and Hutchins (2011) are of the view that a moderated variable on a mediated variable has a stronger influence resulting in a dependent variable positively being effected. The effect of this phenomenon will be further discussed Chapter 4.

1.9 THE RELATIONSHIP BETWEEN EI, IMPULSIVITY AND STAGES OF EA

An entrepreneur is essential for the entrepreneurial activity to take place (Casson, 1982:22). An entrepreneur is derived from the entrepreneurship construct, which is made up of the individual's intention, interests, skills, traits and actions (Hebert & Link, 1988:155; McMullen & Shepherd, 2006:134). A key requirement of being an entrepreneur is that you must be able to identify and seize entrepreneurial opportunities. This is congruent with an early theory of entrepreneur by Richard Cantillon (1755), describing an entrepreneur as a person who amongst other obligations identifies key opportunities by taking a decision to translate these opportunities into profit (Hebert & Link, 1988: 21). Schumpeter (1934:138) states that uncertainties do not thwart entrepreneurs from exploiting entrepreneurial opportunities. The assumption comes from the understanding that opportunities are bountiful and readily

recognisable for all prospective entrepreneurs possessing the necessary skills and traits to exploit for profit (Shane *et al.*, 2003:258; Ahuja & Lampert 2001:521).

Irrespective of the availability of opportunities, skills, and traits an entrepreneur may have (Casson, 1982:22), if these are not translated into goods, service or business ventures they remain just intentions, inferring that for the entrepreneurial activity to be realised is the function of EI translated into EA (Kautonen *et al.*, 2015:4; Esfandiar *et al.*, 2019:173). Krueger *et al.* (2000) and Adam and Fayolle (2015:36) advocated the inclusion of psychological factors to this effect. The Figure 1.9 below illustrates EI and EA linked by psychological factors.

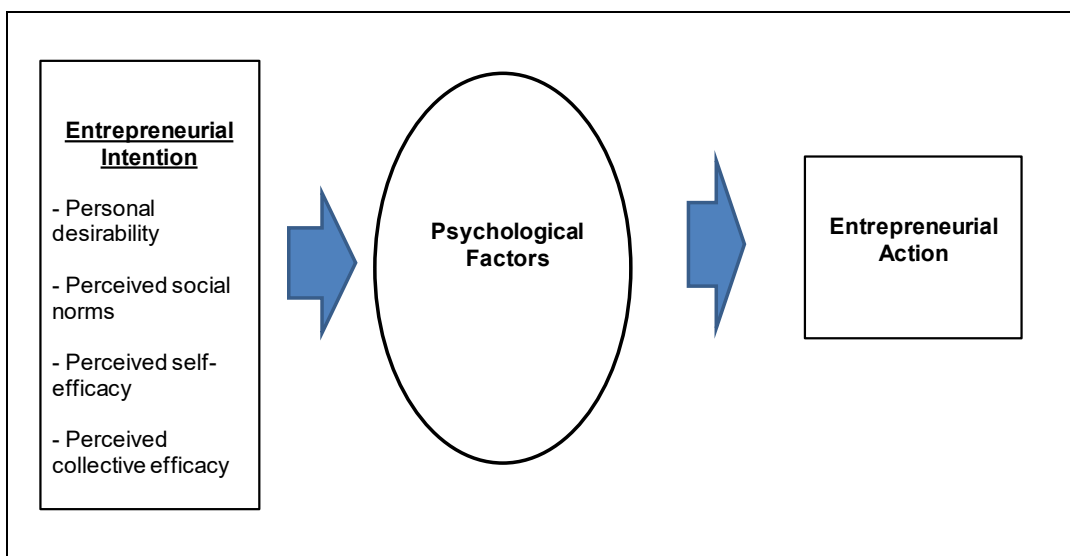


Figure 1.9 Impulsivity as a link between EI and EA

Source: Adapted from Esfandiar *et al.* (2019).

Figure 1.9 highlights EI as the initial stage of the entrepreneurial activity. Shapero and Sokol (1982:72) are of the view that EI is a key phase in the process of entrepreneurial activity. Without this, EA will not be possible (Ajzen, 1991:171; Sniehotta, *et al.*, 2005:143; Adam & Fayolle, 2015:36). EI process is informed by either one, or a combination of elements (personal desirability, social norms, self-efficacy and collective efficacy) from which EI is derived. EA is viewed as a process that is made up of phases suggesting an entrepreneurial action. The study by Wiklund *et al.* (2017) conceptualises impulsivity as a factor that is likely to affect EA. Equally EA will not be possible without EI in the equation (Sniehotta *et al.*, 2005:143; Adam & Fayolle, 2015:36). Therefore this study seeks to illustrate the role of

impulsivity in mediating the relationship between EI and EA stages by focusing on the contribution of the impulsivity dimension to effecting EA.

1.10 RESEARCH OBJECTIVES

The primary and secondary objectives of the study are presented below as follows.

Primary Objectives

The primary objective of this study is to develop the mediating role of impulsivity in the relationship between entrepreneurial intention and the stages of entrepreneurial action.

Secondary Objectives

- To develop the effect of EI on the entrepreneurial action stages
- To develop the mediating effect of the four impulsivity dimensions in the relationship between EI and entrepreneurial opportunity discovery
- To develop the mediating effect of the four impulsivity dimensions in the relationship between EI and entrepreneurial opportunity evaluation
- To develop the mediating effect of the four impulsivity dimensions in the relationship between EI and entrepreneurial opportunity exploitation
- To develop the moderating effect of age, gender and the number of years in business in the relationship between EI and the stages of EA mediated by impulsivity dimension

1.11 RESEARCH QUESTIONS

Does impulsivity mediate the relationship between entrepreneurial intention and the stages of the entrepreneurial action?

Does entrepreneurial intention affect the three stages of entrepreneurial action?

Do age, gender and number of years in business moderate the relationship between entrepreneurial intention and the stages of entrepreneurial action?

1.12 HYPOTHESIS DEVELOPMENT

A hypothesis is a statement regarding the targeted population or populations that may or may not be factually correct. It can take the form of a null hypothesis, which reflects the concept that this is a hypothesis of no difference and therefore includes a statement of parity, and an alternative hypothesis (research hypothesis), which is the complement of the null hypothesis. It is only the null hypothesis that can be dealt with; if it is rejected as being untenable we obtain indirect support for the corresponding alternative hypothesis. The aim of hypothesis testing is to examine whether a particular proposition concerning the population is likely to hold or not (Diamantopoulos & Schlegelmilch, 2000).

1.12.1 Hypothesis model

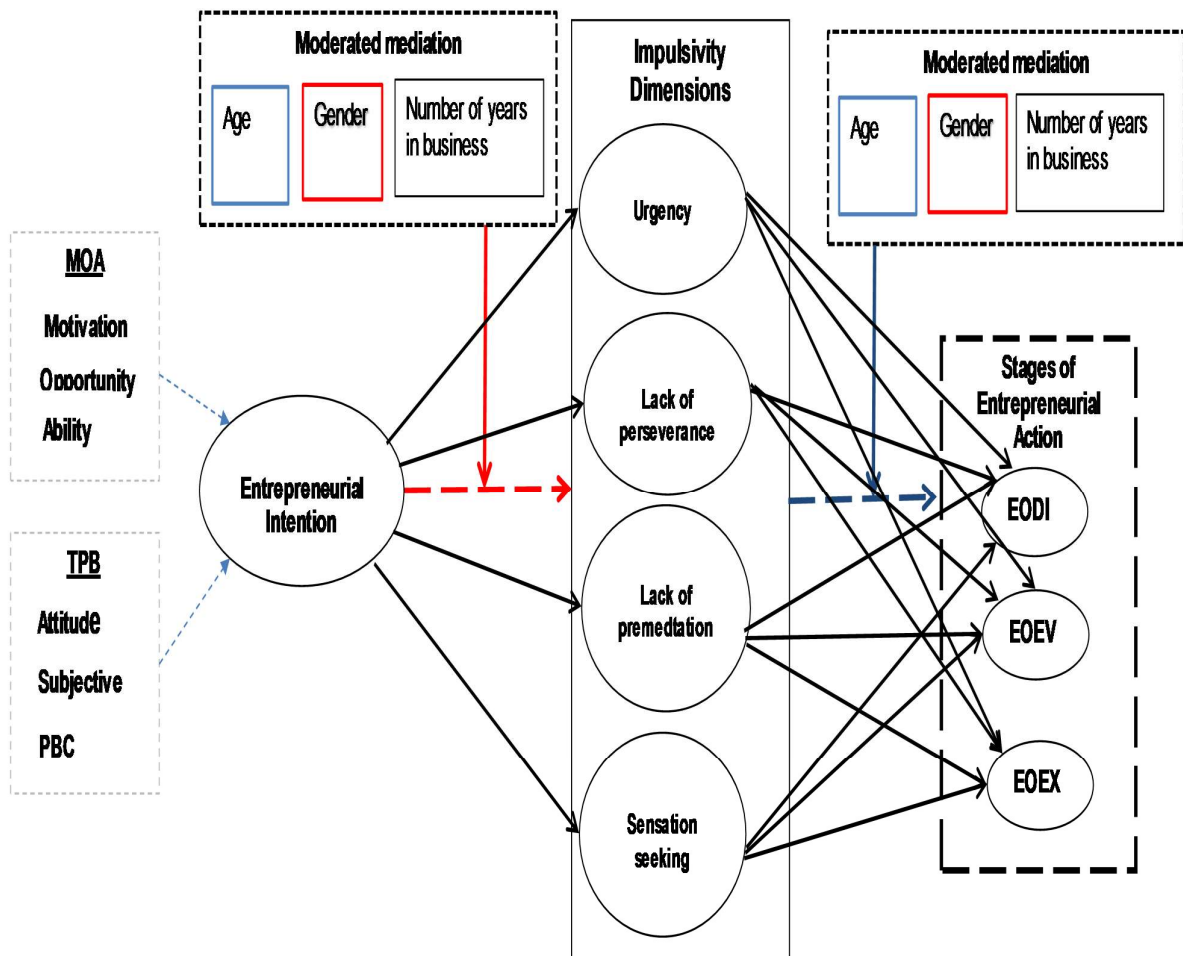


Figure 1.10: Hypothesised model (Moderated – mediation)

Source: As adapted from Wiklund *et al.* (2017)

Hypothesis 1: There is a positive relationship between entrepreneurial intention and the entrepreneurial action stages.

- **Hypothesis 1a:** There is a positive relationship between entrepreneurial intention and the entrepreneurial opportunity discovery.
- **Hypothesis 1b:** There is a positive relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation.
- **Hypothesis 1c:** There is a positive relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation.

Hypothesis 2: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.

- **Hypothesis 2a:** Urgency is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.
- **Hypothesis 2b:** Lack of perseverance is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.
- **Hypothesis 2c:** Lack of premeditation is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.
- **Hypothesis 2d:** Sensation seeking is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.

Hypothesis 3: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.

- **Hypothesis 3a:** Urgency is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.
- **Hypothesis 3b:** Lack of perseverance is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.
- **Hypothesis 3c:** Lack of premeditation is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.
- **Hypothesis 3d:** Sensation seeking is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.

Hypothesis 4: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation

- **Hypothesis 4a:** Urgency is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation.
- **Hypothesis 4b:** Lack of perseverance is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation.
- **Hypothesis 4c:** Lack of premeditation is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation.
- **Hypothesis 4d:** Sensation seeking is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation.

Hypotheses 5 to 7 test for moderated mediation of three demographic variables: age, gender and how long their business have been in operation, on the relationship

between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator. Firstly moderation was tested between entrepreneurial intention and impulsivity, and secondly between impulsivity and the stages of entrepreneurial action as depicted in Figure x and Figure y respectively

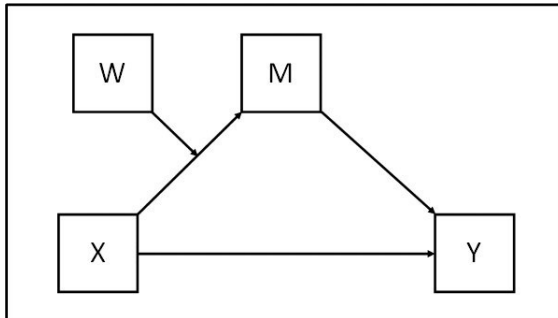


Figure X

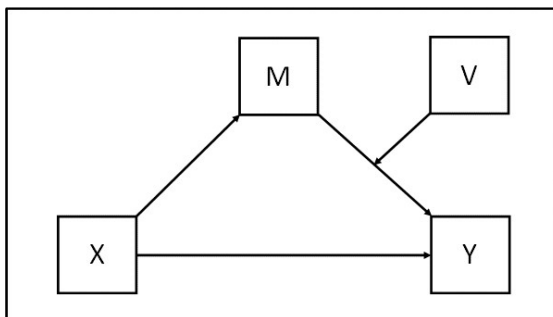


Figure Y

Hypothesis 5: Age has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator

- **Hypothesis 5a:** Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through urgency as a mediator.
- Hypothesis **5b:** Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of perseverance as a mediator,
- Hypothesis **5c:** Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of premeditation as a mediator.

- Hypothesis **5d**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through sensation seeking as a mediator.
- Hypothesis **5e**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through urgency as a mediator.
- Hypothesis **5f**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of perseverance as a mediator.
- Hypothesis **5g**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of premeditation as a mediator.
- Hypothesis **5h**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through sensation seeking as a mediator.
- Hypothesis **5i**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through urgency as a mediator.
- Hypothesis **5j**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of perseverance as a mediator.
- Hypothesis **5k**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of premeditation as a mediator.
- Hypothesis **5l**: Age has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through sensation seeking as a mediator.

Hypothesis 6: Gender has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator

- **Hypothesis 6a:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through urgency as a mediator.

- **Hypothesis 6b:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of perseverance as a mediator.
- **Hypothesis 6c:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of premeditation as a mediator.
- **Hypothesis 6d:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through sensation seeking as a mediator.
- **Hypothesis 6e:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through urgency as a mediator.
- **Hypothesis 6f:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of perseverance as a mediator.
- **Hypothesis 6g:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of premeditation as a mediator.
- **Hypothesis 6h:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through sensation seeking as a mediator.
- **Hypothesis 6i:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through urgency as a mediator.
- **Hypothesis 6j:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of perseverance as a mediator.
- **Hypothesis 6k:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of premeditation as a mediator.
- **Hypothesis 6l:** Gender has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through sensation seeking as a mediator.

Hypothesis 7: The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator.

- **Hypothesis 7a:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through urgency as a mediator.
- **Hypothesis 7b:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of perseverance as a mediator.
- **Hypothesis 7c:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through lack of premeditation as a mediator.
- **Hypothesis 7d:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity discovery stage through sensation seeking as a mediator.
- **Hypothesis 7e:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through urgency as a mediator.
- **Hypothesis 7f:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of perseverance as a mediator.
- **Hypothesis 7g:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through lack of premeditation as a mediator.
- **Hypothesis 7h:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity evaluation stage through sensation seeking as a mediator.
- **Hypothesis 7i:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through urgency as a mediator.

- **Hypothesis 7j:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of perseverance as a mediator.
- **Hypothesis 7k:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the entrepreneurial opportunity exploitation stage through lack of premeditation as a mediator.
- **Hypothesis 7l:** The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the EOEX stage through sensation seeking as a mediator.

1.13 RESEARCH DESIGN AND METHODOLOGY

Research design is a blueprint that describes the collection, measurement and analysis of data in an organised and structured manner. Key research designs constitute either exploratory, descriptive/explanatory or casual studies (Cooper & Schindler, 2011:140). This study is an explanatory research design whereby it describes the subject by creating a profile of a group of people or events through the collection of data, based on the research problem, objectives and stated hypotheses (Cooper & Schindler, 2011:708).

The design further specifies the method and procedure to be followed for collecting data, the analysis of such data and providing a useful framework for the research (Zikmund, Babin, Carr & Griffin, 2013:64; Creswell, 2012:340). This is a quantitative research method which comprises a structured research questionnaire in which data is collected, analysed, interpreted, findings of the study reported and recommendations and shortcomings are shared (Coopers & Schindler, 2011:142).

According to Creswell (2015:32), a quantitative research approach is ideal for testing objective theories whereby the relationships between variables are analysed. This method grouped impulsivity dimension variables to those of EI and EA. The purpose was to come up with a finding that would illustrate the mediating effect of impulsivity in the relationship between EI and the stages of the EA. Each specified variable had a unique number in order to process it, utilising the structural equation modelling (SEM). This technique is a multivariate statistical method ideal in analysing structural relationships with regard to the stated variables.

The causal relation amongst variables was stated and explained for easy understanding. The study was cross-sectional in that it involved the analysis of data collected at a particular time and that was psychological in nature.

The sample was collected randomly amongst entrepreneurs with close proximity to where decisions reside, in the nine provinces in SA. The researcher was of the view that participants would be able to respond to the questionnaire pertaining to EI, impulsivity dimensions and stages of EA. A measurement scale to illustrate impulsivity dimensions, entrepreneurial intentions and stages of entrepreneurial action was utilised for the pilot and statistical testing in conjunction with the SEM in order to establish relationships between constructs.

1.13.1 Description of overall design

This section depicts a snapshot of the whole study design.

1.13.1.1 Research Instrument

Since impulsivity is a well-documented construct, there are several reputable scales that are useful in measuring it, such as Barrat's Impulsivity Scale, Immediate and Delayed Memory Task, Balloon Analogue Risk Task and UPPS. This study uses the four-factor UPPS Impulsive Behaviour scale, which focuses on impulsivity dimensions (Whiteside & Lynam, 2001:670).

The study made use of a scale by Guerrero, Lavin and Alvarez (2009:8), consisting of five items that inform the EI variable. In terms of the stages of entrepreneurial action, the study utilised the scale of Kuckertz, Kollmann, Krell, & Stöckmann, (2017:86) to measure the entrepreneurial opportunity discovery and entrepreneurial opportunity exploitation. For the entrepreneurial opportunity evaluation the study used the scale of Haynie, Shepherd, and McMullen (2009:349). All these variables consist of five items that inform the variable, and a 5-Likert scale measurement was used for each of the questions.

The researcher measured the Cronbach Alpha of questions that would measure each of the factors with regard to the validity and reliability of the UPPS Impulsivity Behavioural Scale and those of the stages of entrepreneurial intention and action (Creswell, 2012:193).

1.13.1.2 Research Descriptors

In terms of identification of each source of information (Creswell, 2012:110), the study was empirical research, due to the nature of research whereby novel data is collected first hand from possible research participants. With the current low levels of entrepreneurial action and the increasing levels of individuals with impulsivity, the key aim of the study is to illustrate the possible effect of impulsivity in the relationship between entrepreneurial intention and the stages of the entrepreneurial action. The research expands the work by Wiklund *et al.*, (2017) that conceptualised a framework looking at the relationship between impulsivity and entrepreneurship. Their study theorised a positive contribution of impulsivity to this effect. Therefore the goal is to conduct an empirical study to this effect by ensuring stated objectives are aligned and predetermined within the available time and allocated budget.

The source data were collected to meet exact requirements of the research study aimed at contributing value to entrepreneurship. The secondary data were collected from existing journal articles, websites, and books. As indicated above, the study is a cross-sectional (snapshot) aimed at examining the mediating role of impulsivity in the relationship between EI and the stages of EA at a particular time. In terms of the descriptive research method, the ideal strategy for collecting data is to use a survey to describe characteristics of situations or individuals in order to answer questions such as “What?”, “Where?”, “How?”, “How much?” and “How many?”.

Therefore the quantitative method is suggested for data collection, using structured surveys or questionnaires.

1.13.2 Data Sourcing and Sampling

According to Field (2009:34) and Memon *et al.* (2017:3), data is gathered from the minor section of the population known as a sample, as researchers rarely have access to every

member of a population. With regard to the impulsivity trait: as it cut across a wide spectrum of individuals and in different circumstances, the random sampling method was used to collect the data for this study.

1.13.2.1 Population the Study

In dealing with the target population the following questions must be satisfied: Those are **who** are these people targeted, secondly **what** are they doing, thirdly located **where** and in what period which is **when**?

Who?

The targeted population was selected through a random sample selected amongst nascent, start-up and established entrepreneurs in the Small and Medium size Enterprise (SME) organisations across different industries and across the nine provinces in SA. Nascent entrepreneurs are those individuals who are starting a business and have been less than a year in operation. The start-up entrepreneur's phase relates to those individuals who have run their ventures from a year to three and a half years; while the established phase is anything above the three and a half years (Hartanto *et al.*, 2017:1131; Alcalde *et al.*, 2002:27).

A sample size of 600 individuals was intended to be collected across the nine provinces in SA, amongst those who commanded some level of responsibility and accountability in those ventures.

Doing what?

The study is targeted at individuals who are involved in the entrepreneurial activities in one way or the other.

Located where?

To achieve a fair representation of sample, data was collected from participants located mostly in business across the nine provinces in South Africa across different industries.

When?

The collection of data was anticipated to take four months and the researcher was intending to commence with data collection as from the 01 February 2021 up until the 30 June 2021. In case of any delay, July/August 2021 was reserved as a buffer for any possible hindrances that might cause a delay.

1.13.2.2 Units of Analysis

Aiming at achieving the goal of the study, respondents were selected at random across different industries amongst SME organisations throughout the nine provinces of South Africa. The study aimed at measuring the participants' personality traits utilising the Impulsivity behavioural scale UPPS to ascertain impulsivity dimensions of these individuals as indicated by their profiling, in conjunction with their entrepreneurial processes or action stages (in terms of intention, discovery, evaluation, and exploitation of entrepreneurial opportunity).

1.13.2.3 Sources where data will be collected

The measuring instrument was informed by supporting literature on stated variables sourced from amongst other relevant source material. Journal articles, books, research reports and official Internet sites were utilised as sources of data to be harvested. As for the primary data, this was collected utilising the structured questionnaires that would be distributed widely amongst nascent entrepreneurs across all industries in South Africa.

1.13.2.4 Approaches for selecting data sources

While a probability sampling method is argued to be ideal in research, the vast majority of studies in the social sciences research prefer a non-probability sample method (Rowley, 2014:309). With regard to the probability sampling method, each participant knows that he or she can be chosen, whereas with regard to the non-probability method, the chances of

being selected are unknown. Memon *et al.* (2017:3) suggest the inclusion of individuals in non-probability sampling, maybe based on purposive selection, opportunity or expert judgement.

Respondents were sourced through approaching the Small Enterprise Development Agency (SEDA) for their database of entrepreneurs, or also approaching business incubators across different industries situated in all nine provinces in SA.

1.13.2.5 The collection of data

Data collection method entails the gathering of both secondary and primary data. The approach followed to collect primary data for this study was based on structured survey targeted at entrepreneurs across SA. Primary data were collected in order to enable the researcher to evaluate each level of impulsivity dimension in relation to each stage of entrepreneurial action and entrepreneurial intention in order to illustrate the effect of impulsivity in the stages of the entrepreneurial intention-action gap.

Secondary data was gathered to identify and ascertain elements that inform impulsivity dimensions and those of stages of entrepreneurial action.

According to Saunders, Lewis, and Thornhill (2007:163), it is important to identify factors that hinder access to the required sources of data. These factors, amongst others, include physical access, participation and cooperation. This is planned ahead so that appropriate measures and strategies can be allocated in order to limit any possible obstacles that may hinder the study from meeting research objectives.

1.13.2.6 The method of collecting data

In the case of the secondary data, data is collected from a multiple number of sources that amongst others includes literature from academic journals, articles, books, electronic journals and other research material.

Primary data was, however, gathered through using the quantitative data collection method through self-administered questionnaires that rate and rank different questions, as well as closed questions. The questionnaire to be used was an existing instrument that was approved for use and that was tested for validity and reliability. The researcher engaged the services of an independent provider that would design an electronic survey. The researcher captured data collected.

1.13.2.7 Pre / Pilot-Testing

An adapted questionnaire with approvals was received that focused on the targeted audience of the study. The questionnaire was initially piloted on 10% of the 600 targeted entrepreneurs that were part of the target population required. Thereafter those entrepreneur/businesses surveyed during the pilot study were not included with subsequent data collected, to avoid duplication. Experts in the field of the study were engaged to comment on the questionnaire used in terms of validity and structure, in order to ensure that participants did not find it difficult to comprehend and respond to stated questions.

1.13.2.8 The analysis of data

Cooper & Schindler (2006:90) describe data analysis as a process that entails the reduction of data collected to a manageable size that can assist with summaries, diagrams to deduce or make inferences. In terms of investigating and summarising research constructs a descriptive and inferential statistical method was utilised to do so. Structural Equation Modelling (SEM) was applied to observe the outcome of the stated hypotheses and to facilitate pattern recognition view of the conceptual model.

In order to systematically examine the significance of impulsivity in the relationship between entrepreneurial intention and the stages of entrepreneurial action, the study used SEM. According to Bagozzi & Yi (2012), SEM is used to examine the theoretical model to conduct one- and two-way path analyses that square multiple correlations that are used to measure item reliability. This was done together with the Confirmatory Factor Analysis (CFA) that

allows the analysis and evaluation of stated hypotheses to measure observed co-variances (Kline, 1998:343). A CFA was applied to illustrate whether hypothesised structure provided a good fit for the data – that is, also whether a relationship exists between the observed variables and the underlying latent or unobserved constructs.

1.13.3 Data Sourcing and Sampling

In order to ascertain the quality and rigour of the proposed research design, the sources of error or bias were considered along with the appropriate criteria and methods

1.13.3.1 Criteria and methods of assessing the quality and rigour of the study

In terms of the reliability there are four threats that the researcher should guard against. These are (1) participant or subject error, (2) participant bias, (3) observer error, and (4) observer bias. Then when coming to the validity, the following are the threats that the research must be mindful of (1) instrumentation, (2) testing, (3) history, (4) mortality and (5) maturation. Of critical importance to the researcher is that he or she must be alert of these and find ways to eradicate them in order that they do not adversely influence the research results.

1.14 RESEARCH ETHICS

Creswell (2012:279) states that the main purpose of research ethics is that the research should be done in such a way that it honours right or wrong conduct. Therefore research ethics is nothing else but the correctness and aptness of the researcher's conduct in relation to the rights of the participants affected by the research work. In this study any potential ethical concerns were acknowledged and carefully pondered upon and considered from the start of the research and any time during each stage of the project. Key ethical issues that would be addressed on an ongoing basis, amongst others, were the privacy of the participants. Participants were informed of their rights: that their participation was completely

without an attachment, in the sense that individuals had the right to withdraw partially or completely from the research process at any time they felt like doing so and that their input would be excluded from the study without any consequence to them.

Data received from participating individuals was at all times treated strictly with the confidentiality and anonymously it deserved. The researcher pledged to remain transparent and objective at all times during the research process.

1.15 SIGNIFICANCE AND BENEFIT OF THE STUDY

In fact, risky or not, decision-making is an essential part of the entrepreneurial action and may be possible to teach, particularly in young adults where higher risk taking is likely and age-appropriate. Additionally, from previous studies we know that drugs can be used to manipulate dopamine levels, leading to changes in risky decision-making. Therefore our findings also raise the question of whether one could enhance entrepreneurship pharmacologically (Sahakian, 2008).

The quote by Sahakian (2008) resonates with the statement that entrepreneurship is nothing else but an act of taking action or making decisions to exploit entrepreneurial opportunities timeously before the window of opportunity closes (Wiklund *et al.* 2017:2).

With a growing number of individuals in the world with impulsivity (Chiumia & Van Wyk, 2018:1), given the right opportunity, entrepreneurship may be a suitable career choice for some individuals with impulsivity disorder (Lerner *et al.* 2018:3). If more individuals are encouraged to participate, this could yield a positive spinoff to improve EA and subsequently minimise the EI-EA gap. Any positive improvement to entrepreneurial activity will lead to the creation of new business ventures (Herrington *et al.*, 2017:7). Hence the elevated interest of the researcher on this study that could facilitate the acceleration of EA (Zampetakis, Kafetsios, Bouranta, Dewett, & Moustakis, 2009:596). This would be achieved by identifying, understanding and recommending factors that could improve or accelerate entrepreneurial action (Klotz & Neubaum, 2016:7).

As mentioned, the aim of this study was to expand the work by Wiklund *et al.* (2017), through conducting an empirical research of their conceptual framework. These authors propose that impulsivity dimensions at certain levels may have a positive effect on EA. The findings

of such a study will have a significant effect on the contribution of impulsivity to affecting EA, as EA levels are known to be low compared to those of corresponding EI.

Therefore the study on the role of impulsivity as a factor to mediate in the relationship between EI and the stages of EA would not only add to the body of knowledge but also have the potential to minimise the EI-EA gap. From the stated literature it is evident that individuals with impulsivity disorder are on the rise globally (Chiumia, & Van Wyk, 2018:1). This is also compounded by high levels of unemployment (Schüssler, 2019:1). This suggests that studies such as this one will aid scholars and policy makers to formulate curricula and programmes capable of responding to the current state of poor EA levels (Lerner *et al.*, 2018:3). This might result in more ventures being created (Van Gelderen, et al. 2015:655; Welter, Baker, Audretsch, & Gartner 2017:318).

This study will also provide useful guidelines in which education and training of entrepreneurship programmes can be expanded to incorporate traits that were not necessarily considered, but are now known to be a possible asset to influence current low EA levels.

1.16 FRAMEWORK OF THE STUDY

The study consists of the following chapters as its framework:

Chapter 1: Introduction and background of the research study

Chapter 1 mainly gives the background and introduction of the study. It defines the research problem and states the research objectives and hypotheses. The significant key constructs of the study are defined and discussed. The prevailing literature with regard to the effect of impulsivity in the relationship between EI and the stages of EA is discussed briefly. The chapter ends by presenting assumptions of the study and outlines the framework of the research design and methodology.

Chapter 2: Impulsivity within an entrepreneurial context

With regard to the second chapter, the study discusses in detail the literature pertaining to impulsivity and the surrounding theories that inform this construct. This chapter also outlines the conceptual framework around impulsivity dimensions. Furthermore, in this chapter the work by Wiklund *et al.* (2017) and their conceptual framework is expanded on by

investigating how impulsivity effects EA in terms of how each of the dimensions of impulsivity effect each of the stages of EA.

Chapter 3: Entrepreneurial intention (EI) and the stages of entrepreneurial action (EA)

This chapter discusses in detail the literature that informs entrepreneurial intention and the stages of the entrepreneurial action (discovery, evaluation and exploitation). The literature, models and theories that informs these two key constructs EI (in-dependable variable) and stages of EA (dependable variable) are presented.

Chapter 4: The role of impulsivity in the relationship between EI and the stages of EA

This chapter discusses the main constructs (EI, stages of EA and impulsivity dimensions) of the study upon which the theoretical framework is built. The chapter discusses how each of these constructs relate to each other in terms of the stated hypotheses. It provides the theoretical framework to which the empirical evidence is compared against.

Chapter 5: The research methodology

This chapter expands in details on the design and methodology used for the study. The research objectives and hypotheses are given unique numbering and presented. The validity and reliability of the study, and the adapted questionnaire to be used to collect data are dealt with in detail and the final section of this chapter deals with the processing and analysis of data by means of statistical techniques methods.

Chapter 6: Data analysis and findings

This chapter reports the empirical results by the way of in-depth analysis of the data. After describing the profile of the respondents by the way of descriptive statistics. It further discusses the findings and their implications in terms of the problem statement, research questions, research objectives and hypothesis testing.

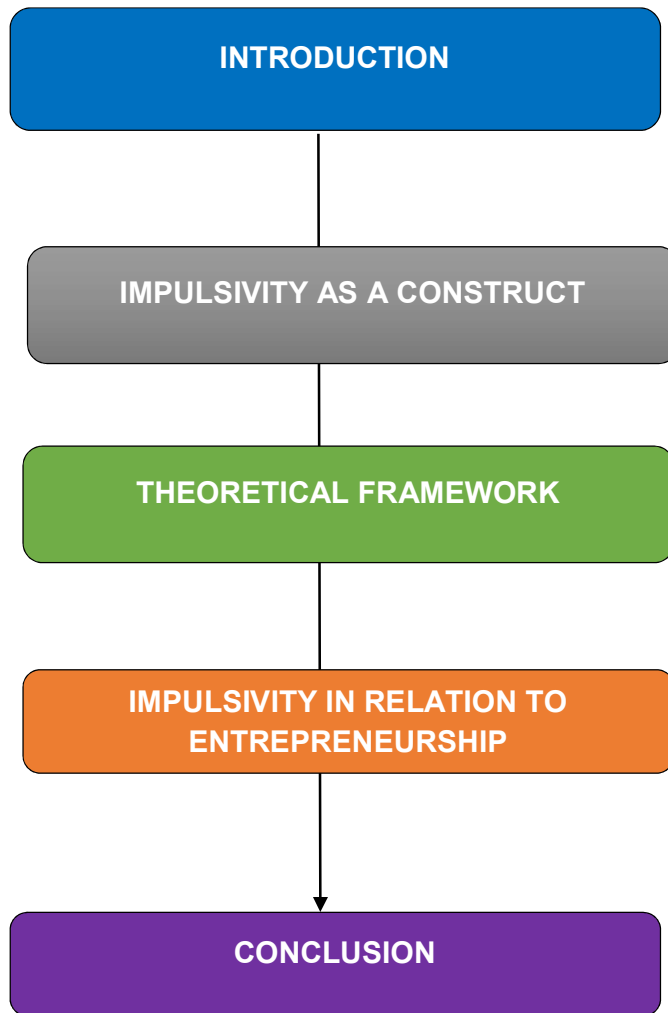
Chapter 7: Conclusions and recommendations

This is the last chapter of the study. It highlights shortcomings of the study, its contribution, and offers recommendations and suggestions for future research that could expand this study. It ends with a summary of the main findings of the study and conclusion.



CHAPTER 2

LITERATURE REVIEW: IMPULSIVITY WITHIN THE ENTREPRENEURIAL CONTEXT



2.1 INTRODUCTION

Individuals with impulsivity predisposition in most cases act without applying thoughtfulness (Dickman, 1990:100; Greco & Roger, 2001:530), or without consideration of possible consequences from their actions (Moeller *et al.*, 2001:1784). Impulsivity is a common construct in the psychological and clinical fields, referring to risky behaviour (Bakhshani, 2014).

Previous research on the characteristics that suggested the entrepreneurial behaviour mainly focused on attributes that are considered to be positive, such as risk taking, motivation, locus of control (Baum, Frese, Baron, & Katz, 2007:2; Klotz & Neubaum, 2016:8). However, in reality not all individuals have the same traits; some people have traits with negative psychological implications (Miller, 2015:1), such as ADHD or impulsivity (Wiklund *et al.* 2017). Research is now arguing for the inclusion of impulsivity to help illustrate entrepreneurial behaviour (Omoredede *et al.*, 2015; Tucker *et al.*, 2017:627). Wiklund *et al.* (2017); Lerner *et al.* (2018) are of the view that impulsivity may be the reason why some individuals have the courage to pluck up the courage to act on opportunities leading to the entrepreneurial event taking place, while others do not.

Much as there is a growing interest in the possible inclusion of impulsivity to entrepreneurship, more research in this regard is still needed to be conducted (Antshel, 2018). Wiklund *et al.* (2017) and Pietersen and Botha (2021) recommended an empirical study to measure the effect of impulsivity in entrepreneurship, in particular how impulsivity may contribute to effecting EA, as impulsivity has attributes similar to those required to effect EA (Wiklund *et al.*, 2017:18).

This chapter aims at discussing impulsivity based on the relevant literature pertaining to relevant theories underpinning this construct by looking at previous work on impulsivity, in relation to its relevance to the field of entrepreneurship.

2.2 IMPULSIVITY AS A CONSTRUCT

Impulsivity is an old behavioural construct dating back to the myth of Adam and Eve (Ainslie, 1975:463). That has to do with individuals' conduct when faced with choices. In the case of Adam and Eve, when faced with a choice of either following their "instinct" by partaking from the forbidden, they opted to eat the apple despite the instruction not to do so and its ramifications. This story exemplifies the extent to which an impulsive individual is willing to engage in risky behaviour. This story is nothing short of what impulsivity is all about, being characterised by a desire for instant gratification and lack of consideration for consequences, as long as such individuals feel good about their behaviour (Dickman, 1990:100; Greco & Roger, 2001:530; Moeller *et al.*, 2001:1784).

Irrespective of which definition is applied, there is still a strong connotation that associates impulsivity with negativity (Ainslie, 1975:463). As much as impulsivity is regarded as negative, Fürst *et al.* (2014:88) found some elements of impulsivity to be positive; such as creativity and taking action irrespective of uncertainties. When these elements are applied in entrepreneurship they are likely to have positive outcomes (Dimov & Pistrui, 2019).

2.2.1 The dimensionality of impulsivity

Research on impulsivity is wide and it has attracted the interest in almost all psychological fields (Bakhshani, 2014:e20428; Whiteside & Lynam, 2001:671). As a result, there are vast definitions and theories that inform impulsivity; scholars are in agreement that impulsivity is a multifaceted construct (Whiteside & Lynam, 2001), consisting of a number of independent dimensions that do not necessarily co-vary (Wiklund *et al.*, 2017:14).

Wiklund *et al.* (2017) presented a study suggesting the dimensions of impulsivity by isolating each of the attributes and labelling them appropriately to develop their dimensionality that informs the definition of impulsivity adopted for this study as depicted on Figure 2.1 below.

Table 2.1 The dimensionality of impulsivity

Urgency	Perseverance (Lack of)	Premeditation (Lack of)	Sensation Seeking
<p>Related Personality Traits Examined in Previous Literature</p> <p>High neuroticism, low conscientiousness, low agreeableness (Settles <i>et al.</i>, 2012), risk taking (Cyders <i>et al.</i>, 2015), poor distress tolerance (Weitzman <i>et al.</i>, 2011), intolerance for uncertainty (Pawluk & Koerner, 2016)</p>	<p>Related Personality Traits Examined in Previous Literature</p> <p>Low conscientiousness (Whitside & Lynam, 2001), procrastination (Dewitte & Schouwenburg, 2002)</p>	<p>Related Personality Traits Examined in Previous Literature</p> <p>Low conscientiousness (Whitside & Lynam, 2001), low impulse control, risk taking (Rogers <i>et al.</i>, 2013)</p>	<p>Related Personality Traits Examined in Previous Literature</p> <p>Arousal or stimulation seeking (Zuckerman, 1994), risk taking (Zuckerman, 1994), openness to experience, low agreeableness boredom susceptibility (Zuckerman, 1994)</p>
<p>Biological characteristics</p> <p>Deficits in executive functioning, such as deficits in propotent response inhibition (Bechara & Van der Linden, 2005); low 5HT serotonin receptor and high DA (dopamine) levels in the amygdala-OFC pathway (Cyders & Smith, 2008)</p>	<p>Biological characteristics</p> <p>Deficits in executive functioning, such as difficulties in resisting thought unrelated to the task at hand (Cyders & Smith, 2008)</p>	<p>Biological characteristics</p> <p>Deficits in executive functioning, such as deficits in anterior ventromedial prefrontal cortex (Zematten <i>et al.</i>, 2005) and in the orbitofrontal cortex (Franken <i>et al.</i>, 2008), indicating impaired somatic markers for emotionbased decision making</p>	<p>Biological characteristics</p> <p>Lower cortisol release to stressors (Netter <i>et al.</i>, 1996); increased activity in the dopaminergic system (Norbury & Husain, 2015); higher levels of testosterone, estrogen, and androgen (Daitzman & Zuckerman, 1980)</p>
<p>Risk (Uncertainty) Perception and Appraisal*</p> <p>Intolerance for uncertainty (Pawluk & Koerner, 2016)</p>	<p>Risk (Uncertainty) Perception and Appraisal*</p> <p>Lack of perseverance is generally not found to be significantly related to risk perception or appraisal or risky behaviors (Pawluk & Koerner, 2016)</p>	<p>Risk (Uncertainty) Perception and Appraisal*</p> <p>Lower level of perceived risk (Zimmermann, 2010), higher level of tolerance for uncertainty (Pawluk & Koerner, 2013)</p>	<p>Risk (Uncertainty) Perception and Appraisal*</p> <p>Typically appraise risky activities as less risky than others (Horvath & Zuckerman, 1993), view the environment as less threatening (Franken <i>et al.</i>, 1992)</p>
<p>Emotional Expressions</p> <p>More general anxiety and worry (Pawluk & Koerner, 2013)</p>	<p>Emotional Expressions</p> <p>More worries about time pressure and unattained outcomes (Cyders & Smith, 2008) general anxiety, and depression (Billieux <i>et al.</i>, 2012)</p>	<p>Emotional Expressions</p> <p>Less general anxiety and worry (Pawluk & Koerner, 2013)</p>	<p>Emotional Expressions</p> <p>Less fear, anxiety, and stress to stressors (Roberti, 2004)</p>
<p>Example Behavioral Expressions</p> <p>Substance use (Adams <i>et al.</i>, 2012), binge eating (Fischer <i>et al.</i>, 2003), gambling (Cyders & Smith, 2008)</p>	<p>Example Behavioral Expressions</p> <p>Inattention and greater occurrence of irrelevant thoughts (Bechara & Van der Linden, 2005)</p>	<p>Example Behavioral Expressions</p> <p>Substance use, risky sexual activities rapid anticipatory responses for risky and time-sensitive rewards (Miller <i>et al.</i>, 2003)</p>	<p>Example Behavioral Expressions</p> <p>Alcohol use, substance use, risky sexual activities, gambling (Roberti, 2004), choosing stimulating careers and jobs (Kish & Donnenwerth, 1969), mastery goal orientation (O'Connor & Jackson, 2008)</p>

Source: Adapted from the dimensionality table by Wiklund *et al.* (2017)

Table 2.1 depicts facets of impulsivity: urgency, lack of perseverance, lack of premeditation and sensation seeking (Wiklund *et al.*, 2017). This was as a result of a factor analysis applied to the Big Five model, drawn out of 17 different personality traits. This landed with four core facets that inform impulsivity. The exercise focused on five key elements informing the dimensionality of the impulsivity (a) Personality traits based on available literature; this was based on investigated literature on personality traits suggesting impulsivity, supporting the work by Whiteside and Lynam (2001); (b) The biological characteristics; this column indicates each of the attributes under each of the impulsivity dimensions; (c) Risk posed by uncertainty; this examines how, under each of the dimensions individuals deal with risk; (d) Emotional expressions; this examines each of the dimensions in terms of how individuals

react when confronted by uncertainties;(e) Example behavioural expressions – This typifies examples of behaviours possible under each dimension.

The exercise supported the work by Whiteside and Lynam (2001) in arriving at four facets of impulsivity that are considered, not in variation with the impulsivity construct, but are rather unconnected psychological processes that lead to impulsive-like behaviours, suggesting impulsivity as not a unitary but a multidimensional construct (Sharma, Markon, & Clark, 2014:374). These dimensions are found to be: Urgency, Perseverance (lack of), Premeditation (lack of) and Sensation seeking; shortened as UPPS (Whiteside & Lynam, 2001).

2.2.2 The significance of impulsivity

Whiteside and Lynam, (2001:669) submit that impulsivity plays a key role in various forms of psychopathological behaviour. In most psychology literature, impulsivity is mainly associated with negative nuances (Ainslie, 1975:463); such as acting without thinking, lack of planning, not being able to pay attention, ignoring the consequences of decisions or actions taken (Cardinal, 2006:1277), and a lack of self-control (Van Gelderen *et al.*, 2015:658).

It is a complex human trait that is often difficult to understand (Moeller *et al.*, 2001:1784). At a pathological level it amounts to a mental ailment (Wiklund *et al.*, 2017:7), whereby individuals with this condition are known to indulge in risky behaviours and without consideration of the consequences of their actions (Greco & Roger, 2001:530). They are also maladaptive and act without filtering their thought process (Bechara *et al.*, 1997:1293). Pietersen and Botha (2021) regard lack of thoughtfulness as a non-reasoned pathway of doing things.

The impulsivity phenomenon is said to be on the rise globally and with very little understanding of what could be the possible cause of this phenomenon (Walker *et al.*, 2011:25; Deon, 2011: 5424). Data from the Attention Deficit and Hyperactivity Support Group of Southern Africa (ADHASA) reveals that almost 10% of South Africans suffer from some impulsivity-related disorder (Chiumia, & Van Wyk, 2018:1). However, despite the negative connotations linked to impulsivity (Kreek *et al.*, 2005:1450; Berry *et al.*, 2014:1),

there are some positive reactions associated with this trait (Fürst *et al.*, 2014:88). For example, a meta-analysis study on the relationship between a large number of personality traits and creativity concluded that in general individuals with impulsivity disorder are creative (Fürst *et al.*, 2014:88), and are not intimidated by uncertainties (Feist, 1998: 290). Instead they thrive in taking action under uncertain circumstances (Leland *et al.*, 2006: 726).

As much as the literature on impulsivity is widely available across a variety of contexts (Daniel *et al.*, 2018:52), its relevance to entrepreneurship is only recent but is gaining momentum (Wiklund *et al.*, 2017:3; Lerner *et al.*, 2018:7). Pietersen and Botha (2021); and Antshel (2019) are calling for more empirical studies to be carried on the possible positive contribution of impulsivity in entrepreneurship. That may offer a plausible explanation as to why certain individuals but not others are likely to take the leap of faith to engage in entrepreneurial activities (Wiklund *et al.*, 2017:4).

2.2.3 Definitions of Impulsivity

There are inconsistencies over definitions and techniques that inform and measure impulsivity (Bakhshani, 2014:e20428). This is considered to be the main reason that makes the formation of a comprehensive theory on impulsivity and its role in psychopathology impossible (Antshel, 2014:243). Bakhshani (2014:2043) holds the view that this construct is important in research and clinical fields concerning risky behaviours and some mental disorders. Impulsivity is defined based on its behavioural and characteristic perspective. Bakhshani (2014) refers to behavioural and characteristic in terms of characterological and biological perspectives.

2.2.3.1 Characterological Perspective

In terms of the characterological perspective, impulsivity is defined as unplanned risky behaviours characterised by quick decision making (Eysenck, 1972), inability to wait, insensitivity to consequences, acting without forethought (Dickman, 1990), inability to inhibit inappropriate behaviours and deficient tolerance of delayed gratification (Mobini *et al.*, 2007:1527). Barratt (1994) distinguished impulsivity in terms of the three dimensions that inform impulsive behaviour: (i) motor – acting without thinking. This is regarded as a

psychological state of involuntary inclination to act without adequate forethought, irrespective of prevailing circumstances (Greco & Roger, 2001:530); (ii) cognitive – that is, quick-cognitive decision-making, maladaptive and prone to taking action without filtering their thought process (Bechara *et al.*, 1997:1293); and (iii) non-planning – relates to a decrease in their orientation towards the future. This relates to the predisposition towards rapid unplanned reaction to internal or external stimuli, driven by uncertainty, without consideration for what consequence may be derived from such actions (Moeller *et al.*, 2001:1784).

2.2.3.2 Biological and psychopathological perspective

From the behavioural perspective, Bakhshani (2014) views impulsivity as behavioural tendencies that are presented on the level of immature decisions which are dangerous, inappropriate to the situation and done without consideration, which usually bring about negative consequences. Individuals with this disorder are seduced by risky situations. Moeller *et al.*'s (2001) perspective of impulsivity is informed by bio-psycho-social aspects that incorporate various cognitive-social and characterological elements. Therefore their comprehensive definition of impulsivity suggests (a) decreased sensitivity to negative consequences of behaviour; (b) immediate and unplanned reaction to stimuli before processing the information thoroughly; (c) a lack of regard for long-term consequences of their behaviour; (d) fast reaction without thinking; and (e) a predisposition to act with less thinking than do others who have similar levels of knowledge and ability.

Cloninger *et al.* (1993:977) view impulsivity as involuntary responses to novelty that occur at a preconscious level due to some biological tendencies. Greco and Roger (2001:530) regard impulsivity as a psychological state of involuntary inclination to act without adequate forethought irrespective of prevailing circumstances.

From the discussions above it is evident that there are a range of definitions that support the notion that impulsivity is not a unitary construct, leading to a general agreement that impulsivity represents a multifaceted perspective (Whiteside & Lynam, 2001:671). From stated definitions key elements emerge that inform impulsivity as depicted on Table 2.1.

Table: 2.2 Impulsivity themes

Theme	Grouping	Literature
UNCERTAINTY	<ul style="list-style-type: none"> irrespective of prevailing circumstances internal or external stimuli driven by uncertainty 	<ul style="list-style-type: none"> - Fürst et al. (2014:88) - Lather et al. (2017:49) - Leland et al. (2006: 726) - Moeller et al. (2001:1784)
CREATIVITY	<ul style="list-style-type: none"> involuntary responses to novelty 	<ul style="list-style-type: none"> - Cloninger et al. (1993:977) - Greco and Roger (2001:530) - McMullen and Shepherd (2006:132) - Warmink et al. (2017:4594)
ACTION	<ul style="list-style-type: none"> rapid unplanned reaction inclination to act 	<ul style="list-style-type: none"> - Eysenck and Levey (1972:207) - Wiklund et al. (2017: 4) - Mobini et al. (2007:1527) - Amabile (1997:18)

Source: Own compilation

Table 2.2 above depicts pertinent themes deduced from stated definitions that inform impulsivity. Eysenck and Zuckerman (1978:483) regard them as functional impulsivity. These themes represent a non-pathological impulsivity. According to Fürst *et al.* (2014:88) and McMullen and Shepherd (2006:133), these are key elements for the entrepreneurial action to take place. Both these commentators claim that these are similar elements to effecting action. Wiklund *et al.* (2017: 4) are of the view that these elements are crucial in order for the entrepreneurial activity to take place.

2.2.4 Impulsivity themes

Creativity, action and uncertainty are key themes emerging from positive impulsivity (Obschonka & Stuetzer, 2017:204; Wiklund *et al.*, 2017:37; Marinacci, 2015:1023) as depicted in Figure 2.2. Fürst *et al.* (2014:88) view these elements in the light of their proximity to action.

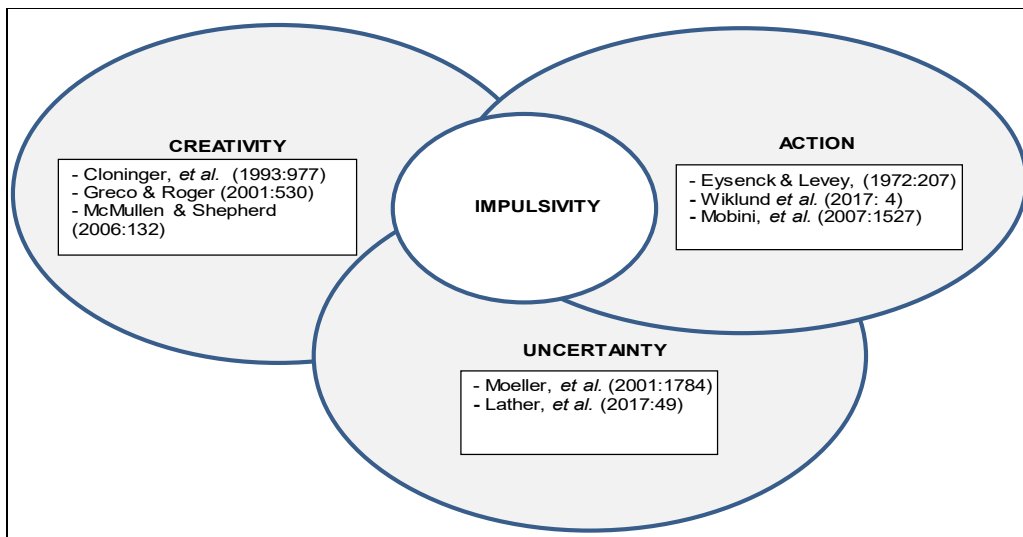


Figure 2.1 Impulsivity - uncertainty, creativity and taking action

Source: Own compilation

Figure 2.1 depicts key non-pathological elements that inform the impulsivity construct (Marinacci, 2015:1023). According to Fürst *et al.* (2014:88) and McMullen and Shepherd (2006:133), these are similar elements to those required to effect EA. Lather *et al.* (2017:429) and Wiklund *et al.* (2017: 4) profess a crucial need for the combination of these elements for the EA to be effected.

2.2.4.1 Impulsivity – uncertainty

Uncertainty is the thread that complicates the decision-making process; coping with it is unavoidable (Warmink *et al.*, 2017:4594). It appears in a form of limited knowledge about the possible realisation of possibilities that are relevant in order to make a decision (Marinacci, 2015:1023). For example, betting on a dice as to what face will come up is anyone’s guess. Comes *et al.*, (2013:29) describe it as the lack of information about the prospect of a specific outcome. Uncertainty is an unavoidable feature of our daily life (Halpern, 2017:11) that is increasingly taking the centre stage in academic and public debates (Galesic, *et al.*, 2016:244).

Tzagarakis *et al.* (2012:33) and Fürst *et al.* (2014:88) found a correlation between uncertainty and impulsivity. In an entrepreneurial context, dealing with uncertainty can be a

source of competitive advantage (Galesic *et al.*, 2016:244; McMullen & Shepherd, 2006:133). Equally, uncertainty is a hurdle to overcome in order to translate EI into EA (Wiklund, *et al.*, 2017:2). Hence the reluctance to bear with it can thwart entrepreneurial prospects (McMullen & Shepherd, 2006:133). The presence of uncertainty in entrepreneurship is unavoidable (Shane & Venkataraman, 2000:217) but breeds creativity (Dahl, Meeraus & Zenios, 2002:3; Fürst *et al.*, 2014:88).

Figure 2.2 below highlights the relationship between taking action and uncertainty.

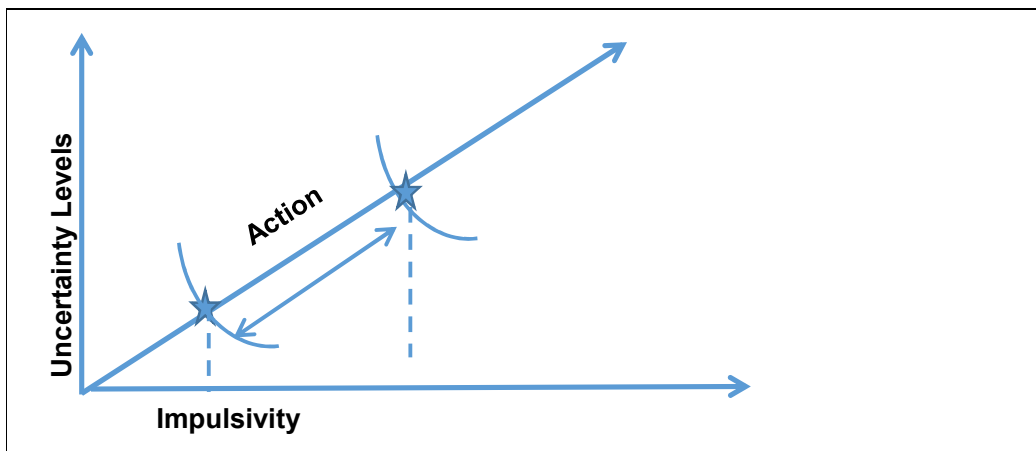


Figure 2.2: Relationship between uncertainty and impulsivity

Source: Own compilation

Figure 2.2 indicates levels of uncertainty compared with those of impulsivity. Tzagarakis *et al.* (2012:33) suggest that the more highly an uncertain situation is charged, the more impulsive individuals are prone to take action. The less impulsive an individual is, the lower the chance that the individual will take the risk to act (Adam & Fayolle, 2015:41). This relationship is important, considering that entrepreneurial opportunities are often engulfed by levels of uncertainty that require prompt action to exploit (Marinacci, 2015:1023). This creates a competitive advantage against other entrepreneurs that are chasing similar goals (Galesic *et al.*, 2016:244).

2.2.4.2 Impulsivity – creativity

Creativity is widely researched (Fürst *et al.*, 2014:88). Research found impulsive individuals are ranked more highly creative than their peers who do not have this disorder (Feist, 1998). McMullen and Shepherd (2006:134) are of the opinion that without creativity there will simply be fewer entrepreneurial opportunities created.

The study by Fürst *et al.* (2014:88) that incorporates personality traits across a wide spectrum mentions three high-order personality factors. These are (a) Plasticity – high openness, extraversion, and inspiration; (b) Divergence – low agreeableness and conscientiousness, and high nonconformity and impulsivity; and (c) Convergence – high ambition, precision, persistence and critical sense. They put creativity under divergence. They argue that divergence offers individuals the ability to find many and various ideas. Their study suggested two processes of extracting ideas, one being generation and the other being selection (Fürst *et al.*, 2014:88). Under the generation process, this consists of quantity and originality of the novel idea. The selection process refers to a minimum requirement for quality of ideas, mainly useful for the evaluation, formalisation and elaboration of ideas.

Since creativity is a key component in the production of novel and useful ideas, its relevance can only be realised once action is taken (Amabile, 1997:19).

2.2.4.3 Impulsivity – action

The ability to act or take action irrespective of levels of uncertainty is a key attribute associated with impulsivity. Table 2.3 is a summary of impulsivity definitions in which action with regard to impulsivity is evident.

Table 2:3 Impulsivity – Action

Source	Definition
Mobini <i>et al.</i> (2007:1527)	Impulsivity is the inability to wait or tendency to <u>act</u> without forethought.
Greco and Roger (2001:530)	Impulsivity is the mental state of involuntary inclination to <u>act</u> irrespective of prevailing circumstances.
Fürst <i>et al.</i> (2014:88)	Impulsivity is about <u>generating</u> ideas that produce and synthesise opportunities.
Moeller <i>et al.</i> (2001:1784)	Suggest impulsivity as tendencies towards rapid unplanned <u>reaction</u> , informed by internal or external stimuli derived from such actions
Eysenck and Zuckerman (1978:483)	Taking <u>action</u> is key attribute of impulsivity

Source: Own compilation

From the Table 2.3 above it is evident that impulsive individuals are prone to taking action (Bechara, *et al.* 1997:1293). The action is not limited only to the generating of ideas but also to the gathering and recombination of necessary resources with the primary aim of pursuing a certain end (Ren *et al.*, 2016:468). Themes from the table above suggest a link between impulsivity and action.

The following sections discuss theories that inform impulsivity, expanding the Wiklund *et al.* (2017) study in order to establish the link of impulsivity to entrepreneurship.

2.3 THEORETICAL FRAMEWORK

The literature suggests several impulsivity theories based on behavioural or characteristic approach. The behavioural approach, according Bakhshani (2014), is based on observable behaviours that an individual displays in the course of their normal engagement. While the personality one suggests impulsivity as a character trait that one possesses which influences the person's behaviour (Whiteside & Lynam, 2009:70), impulsivity is a complex construct to comprehend and measure (Bakhshani, 2014).

2.3.1 Impulsivity theories

Eysenck *et al.* (1985:58) and Russell and Mehrabian (1977:274) suggest impulsivity in terms of the Three Factor Theory of personality traits. That consists of Psychoticism, Extraversion and Neuroticism (P-E-N). (a) Psychoticism reflects aggressiveness and interpersonal hostility; (b) extraversion refers to liveliness and sociability and (c) neuroticism refers to low self-esteem exhibited by anxiety, worry, fear, frustration, depressed mood and loneliness. This theory is informed by the inclusion of impulsivity under extraversion. However, in recent times this theory was revised to consist of four specific dimensions: narrow impulsiveness, risk-taking, non-planning and liveliness (Eysenck & Eysenck, 1977:58). Narrow impulsiveness correlates with psychoticism; while risk taking, non-planning and liveliness correlate with extraversion (Whiteside & Lynam 2001:671).

Buss and Plomin (1975) also conceptualised impulsivity by looking at what they termed Interactive Theory (Revelle, 1976:341). Interactive theory concludes impulsivity as an inborn predisposition, by looking at four multidimensional temperaments underlying each person's personality traits. The first dimension refers to inhibitory control, which is the ability of individuals to delay the performance of their behaviour in terms of its core aspect. The second is tendency, which refers to a disposition to seek out alternatives as a precursor for taking action or making a decision. The third is general stamina and/or ability to remain focused at the task in hand despite competing alternatives that may be tempting at times. The last refers to an individual's inclination to get easily bored if a task is not stimulating or the individual is constantly craving for new stimuli (Whiteside & Lynam, 2001). From these theories it is evident that personality traits are key in human capital management and organisational behaviour. Widiger (2017:381) states that "human traits" are what makes us who we are. Each one of us differs from another in terms of motivation, emotions, intellect and behaviour.

Research on personality traits is handicapped by a lack of a congruent taxonomy of constructs to represent individuals' differences (Livesley, Jang & Vernon 2003:59). Zukerman *et al.* (1991:929) brought congruence in the taxonomy of trait concepts, leading to the evolution of the Five Factor Model (FFM). The Five Factor Model (FFM), also known as the Big Five, is the most widely accepted theory that conceptualises and provides a

measurement tool for personality traits. This model is based on the lexical theory that suggests that traits can be described either using adjectives or descriptive words. That is when individuals on a more frequent basis display behavioural tendencies; by then no terms exist to describe such a trait. A term is created so that the behavioural or personality trait may be considered and encrypted in language (Seibert & De Geest, 2017:381). The FFM method consists of five domains as depicted in Table 2.4.

Table 2.4 Five Factor Model

Domains	Descriptors
Openness	Imaginative, creative, perceptive, curious
Conscientiousness	Organised, orderly, goal-orientated
Extraversion	Assertive, enthusiastic, open minded
Agreeable	Co-operative, altruistic
Neuroticism	Anxious, over-thinking

Source: Own compilation

According to Whiteside and Lynman (2001:673), the Big Five consist of five domains as indicated in Table 2.4. Each of these domains comprises six sub-factors known as dimensions. Whiteside and Lynman (2001) reviewed FFM domains. Through this extensive exercise they arrived at key facets of impulsivity that are considered to be not in variation from impulsivity, but rather discrete psychological processes that lead to impulsive-like behaviours. Wiklund *et al.* (2017:27) expended Whiteside and Lynman's (2001) study by positing a theory that suggests favourable aspects of impulsivity dimensions with regard to the EA, including a higher tendency to experience stronger positive and weaker negative emotions when recognising uncertain opportunities: a potentially positive effect on opportunity exploitation, and a potentially positive effect on persistence with completing entrepreneurial activities. Wiklund *et al.*'s (2017) conceptualisation framework proposes that certain dimensions of impulsivity are effective in some phases of the entrepreneurial action but less so in some others (Wiklund *et al.* 2017:27).

2.4 IMPULSIVITY IN RELATION TO ENTREPRENEURSHIP

Research by Chiumia and Van Wyk, (2018:1) reveals a growing number of individuals with impulsivity related disorder. These figures are on the rise year on year (Deon 2011: 5424; Walker *et al.*, 2011:25). With this number increasing, this suggests that these individuals cannot be left outside economic activity, especially when impulsivity attributes are linked by similarity to those required to effect action (Eysenck & Zuckerman, 1978:483).

Hartanto *et al.* (2017:1130) advocate that the definition of the entrepreneurial personality trait should be opened wider in order to capture other traits that were not necessarily regarded as useful to entrepreneurial activities but have been found to be similar to those required to effect EA (Fürst *et al.*, 2014:88; McMullen & Shepherd, 2006:133).

Gorgievski and Stephan (2016:437) suggest that what informs the entrepreneurship connection consists of two distinct descriptions. The first deals with the entrepreneur, as a key player in ensuring that entrepreneurial activity takes place. This is informed by the psychological traits and profession(s) from which this construct is derived (Van Praag & Versloot, 2008:65; Rauch & Frese, 2007:354). The second description deals with entrepreneurial activity, in that without it no entrepreneurial event will take place (Shane & Venkatraman, 2000:219).

The role of impulsivity to entrepreneurship is a subject of a conceptualisation framework to illustrate the contribution of impulsivity to effect EA. Wiklund *et al.* (2017) are of the opinion that certain facets of impulsivity are likely to bring about the stages of the EA as indicated in Figure 2:3. The theoretical framework will investigate each of the dimensions of impulsivity in relation to their contribution to effect each of the stages of EA. The stages of EA (entrepreneurial opportunity discovery, entrepreneurial opportunity evaluation and entrepreneurial opportunity exploitation) will be discussed in detail in the following chapter.

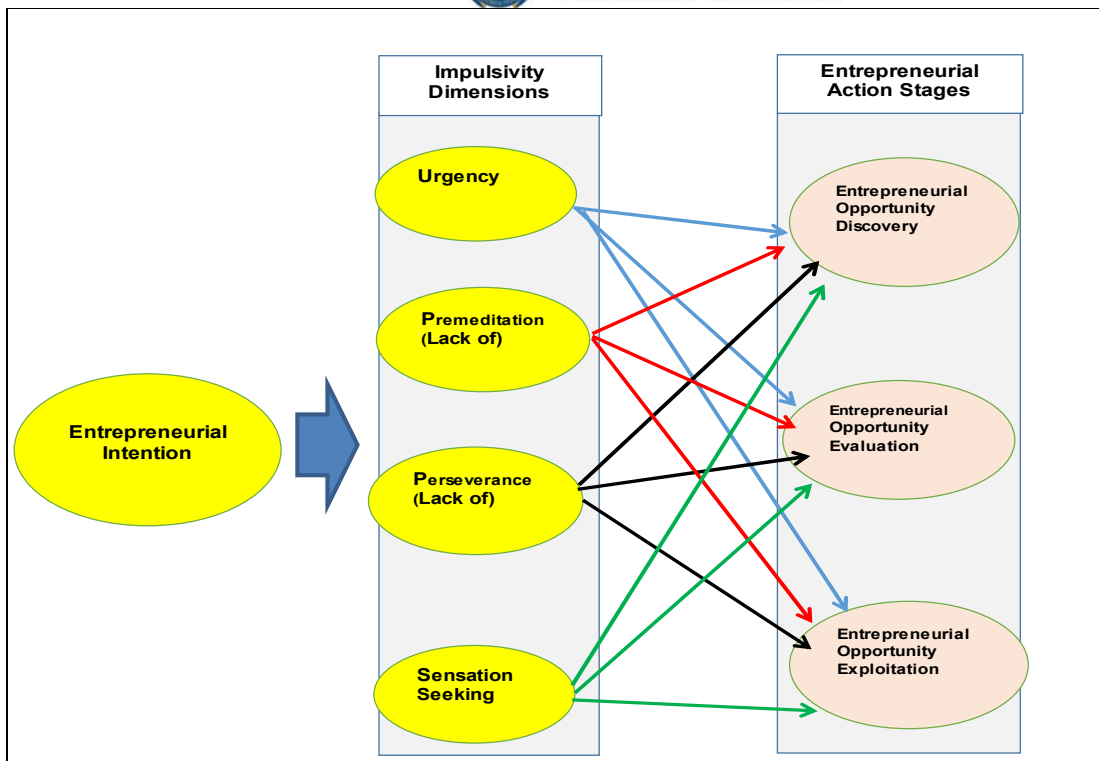


Figure 2.3 The relationship between impulsivity and entrepreneurship

Source: As adapted from Wiklund *et al.* (2017)

Figure 2.3 depicts the relationship between impulsivity dimensions, EI and stages of EA Antshel (2018). Supporting Shane *et al.* (2010:1154), who advocated that behavioural traits should also be considered to bridge the gap between EI and EA, Wiklund *et al.* (2017:9) assert that some dimensions of impulsivity may be instrumental to translate entrepreneurial intentions into action that may result in an entrepreneurial event taking place. This framework suggests a multifaceted approach to each of the phases of EA (discovery, evaluation and exploitation).

As stated, entrepreneurial activities operate under conditions engulfed by uncertainties (Marinacci, 2015:1023). Such conditions are likely to trigger an immediacy of uncertainty or the contemplation of future uncertain outcomes. These can deter the initiation of action, or doubt, and/or procrastination (Van Gelderen *et al.*, 2015), which are common phenomena when dealing with uncertainty (McMullen & Shepherd, 2006:132). On the other side of the coin, upbeat emotional experiences like enthusiasm, happiness and excitement can facilitate action despite uncertainties (Baron, 2008:169). How each of the dimensions of

impulsivity relate to each of the stages of EA is explained in the following section. The discussion regarding this relationship is expounded in Chapter 4.

2.4.1 Impulsivity dimensions in relation to opportunity discovery

The identification and selection of the right opportunity is the key elementary phase leading to the entrepreneurial activity taking place (Ardichvilia *et al.*, 2003:107). This phase is birthed through the knowledge, expertise or traits of the entrepreneur (McMullen & Shepherd, 2006:140). Ardichvilia *et al.*, (2003:105) and Esfandiar *et al.* (2019:173) are of the view that entrepreneur's personality traits and/or prior knowledge are antecedents for entrepreneurial alertness to business opportunities. Wiklund *et al.* (2017:8) state that entrepreneurial opportunity discovery arises from individuals' reaction to uncertain situations. At the discovery stage there is no way of telling whether the process constitutes a genuine objective opportunity and if the individual is capable of bringing that opportunity to fruition or not (Davidsson, 2015:675).

Entrepreneurial opportunities centre around uncertainties (McKelvie *et al.*, 2011:273). This forms the basis, which suggests that high levels of risk and uncertainty associated with entrepreneurship make this process a highly emotionally charged journey (Baron, 2008:328) and one influenced by affective experiences, which often arise from impulsivity rather than reflective processes (Evans, 2007:322). This suggests that not every individual responds in the same way to opportunities (Mitchell & Shepherd, 2010:138). Some individuals thrive on risky behaviours and noble ideas whilst others chicken out in the face of uncertainties (McMullen & Shepherd, 2006:133; Cyders & Smith 2007:840) Figure 2.4 graphically conceptualises this relationship as follows:

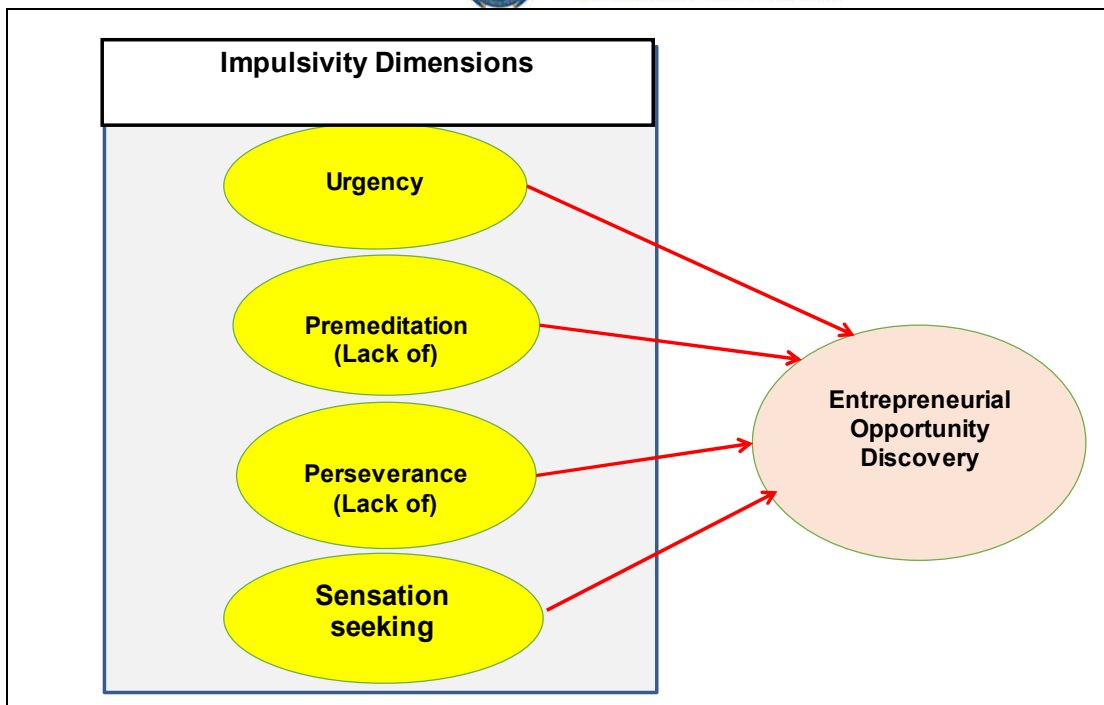


Figure 2.4 Impulsivity dimensions in relation to opportunity discovery

Source: Own compilation

Figure 2.4 depicts impulsivity dimensions and the entrepreneurial opportunity discovery stage. Urgency, when it comes to opportunities, evokes affective experiences owing to uncertainties and as a result leads to action aversion, action fear, and action doubt (Van Gelderen *et al.*, 2015:655). This suggests that those high in urgency are normally more sensitive to negative cues of uncertainty (Baron, 2008:169). As stated, individuals that lack perseverance tend to abandon tasks when they find such tasks to be difficult or boring. This may result in action aversion, suggesting that individuals with lack of perseverance may abandon the opportunity when they find the process cumbersome or boring (Zermatten *et al.*, 2005:647). This is not the case with individuals that are low in fear of failure when assessing entrepreneurial opportunities; they judge these more favourably even when their potential value is relatively low (Ardichvilia *et al.*, 2003:107). For example, individuals that are high in sensation seeking and lack of premeditation tend to find the pursuit of activities exciting. This is due to rewards inherent in a high level of uncertainty, under which they thrive (Zuckerman, 1994: 27).

2.4.2 Impulsivity dimensions in relation to opportunity evaluation

Entrepreneurial opportunity evaluation is an important stage of the EA: to illustrate whether the opportunity is worthwhile to be pursued or not (Keh *et al.*, 2002:126). Deciding on whether to act on the opportunity discovered is rather a complex exercise (Allinson *et al.*, 2000:31) and is subjective from person to person (Krueger, 1993:6). The entrepreneur's cognition (Keh *et al.*, (2002:126), competencies (Hills & Shrader, 1998:54) and willingness (Shane & Venkataraman, 2000:218) play a significant role in the determination of whether the opportunity is desirable and feasible for the entrepreneur to pursue. According to McMullen and Shepherd (2006:132), this exercise is more of a psychological one than anything else. For example, as discussed in the previous section, individuals that are high in sensation-seeking behaviour find uncertainties rewarding. Uncertainties to sensation-seeking individuals trigger greater striatal activation response than is salient (Whiteside & Lynam, 2001:670), thus making the experience more exciting and rewarding both emotionally and psychologically (Whiteside & Lynam 2001:670). Similarly, like those with a lack of premeditation, they are inclined to ignore adverse results presented by the opportunity, such as potential financial failure or the social stigma of failure (DeYoung, 2010:486). They are more likely to view the opportunity as desirable (Kuckertz *et al.*, 2017) than those who consider the thought of failure more seriously. With regard to individuals that lack perseverance, they might view entrepreneurship as positive, as they have the freedom to choose and design their own projects; if they find their current project difficult or boring (Wiklund *et al.* 2017:632). Finally, urgency in relation to the evaluation exercise: these individuals tend to compare opportunities in the light of the anticipated emotions. Therefore those who are high in urgency typically experience these emotions more strongly than others, thus placing greater emphasis on anticipated emotions in their decision making. Anxiety and fear often influence those individuals' willingness to take risks (Kaiser *et al.*, 2012:527).

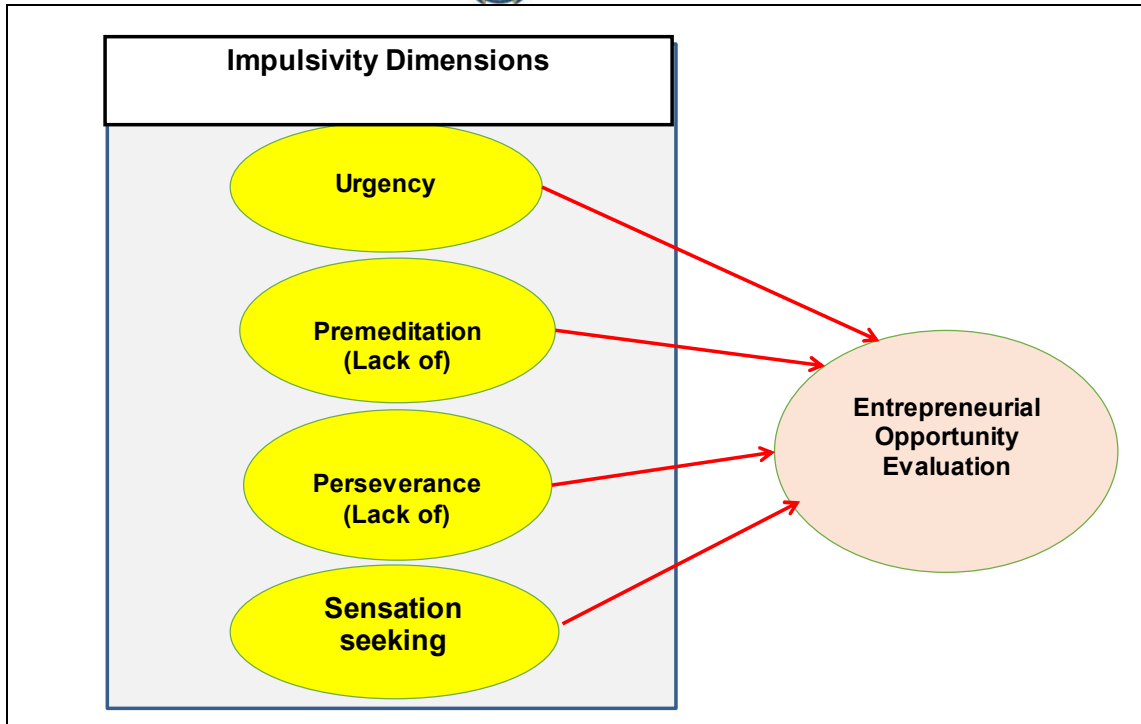


Figure 2.5 Impulsivity Dimensions in relation to opportunity evaluation

Source: Own compilation

Figure 2.5 depicts impulsivity dimensions and the entrepreneurial opportunity evaluation stage. Generally, impulsive individuals are known to engage when the opportunity presents itself without carefully considering possible consequences of their choices (Wiklund *et al.* 2017). Deciding on whether to pursue the opportunity or not is a complex exercise (Allinson *et al.*, 2000:31). How each of these dimensions affects the evaluation of the entrepreneurial opportunity is discussed as follows.

Individuals with sensation seeking tend to act without gathering and analysing information as long as it is in their pursuit for novelty (Nicolaou *et al.*, 2008:8). On the other hand, individuals that lack premeditation do not necessarily do due diligence in evaluating whether the opportunity is viable or not. Once they have made up their minds about the opportunity they go for it (Wiklund *et al.*, 2017:13). With regard to individuals that lack perseverance: as mentioned these individuals reflect the inability to persevere when tasks are difficult or boring (Whiteside & Lynam, 2001). This is likely to hinder them from performing the task to evaluate the opportunity (Wiklund *et al.*, 2017)

Wiklund *et al.* (2017:28) are of the opinion that individuals with sensation seeking, lack of premeditation, and a lack of perseverance directly focus on perceptions about whether the opportunity is desirable, while those with urgency tend to put emphasis on past emotions when dealing with evaluation. They focus on a system that puts emphasis on past successes or failures, not really looking at the rationality of the opportunity (Krueger, *et al.*, 2000:411).

2.4.3 Impulsivity dimensions in relation to opportunity exploitation

The enterprising part of EA is achieved through opportunity exploitation (Ahmad & Hoffman, 2007:1; Ardichvili *et al.* 2003:106). This stage refers to the decision on whether to engage in concrete actions, such as developing products, assembling resources, talking to potential customers, registering the new business (Wiklund *et al.*, 2017:18) – whereby intentions are translated into actual action, leading to the creation of a business venture (Van Gelderen *et al.* 2015:655).

Similarly to with other stages of EA, also with the entrepreneurial opportunity exploitation, emotions can play a significant role to effect or inhibit EA. For example, reactions such as fear, worry, aversion, anxiety, doubt, and hesitancy result in uncertainty and can contribute to procrastination; which inhibits the entrepreneurial action (Van Gelderen *et al.*, 2015:655). On the other side positive affectivity, such as excitement, passion, and happiness; are able to facilitate the initiation of action despite any uncertainty and can thus aid to a decision to pursue the opportunity (Whiteside & Lynam, 2001:669).

Therefore individuals high in urgency tend not to act on opportunity when they experience anxiety and fear, which triggers avoidance responses and a higher probability of “chickening out” due to uncertainties (McMullen & Shepherd, 2006:133; Cyders & Smith 2007:84). According to Kaiser *et al.* (2012:527), there is no direct correlation between lack of perseverance and initiating entrepreneurial action, because these individuals do not necessary abandon their opportunity but only those they either perceive as difficult or boring (Kaiser *et al.*, 2012:527; Riley *et al.*, 2015:440). The likelihood of experiencing fear and anxiety in individuals with high sensation-seeking behaviour is less likely. On the contrary, these individuals are more likely to experience excitement, as they are engaging in uncertain, risky activities (Dickman 2000:563). In fact, sensation seeking is measured in terms of the probability and frequency of engaging in such an action. This is the same with

those individuals lacking premeditation. They are prone to act without considering potential setbacks, thus being less intimidated with regard to the imminence of risk and uncertainty (Wiklund *et al.*, 2017:18).

Figure 2.6 depicts the relation between impulsivity dimensions and the entrepreneurial opportunity exploitation stage.

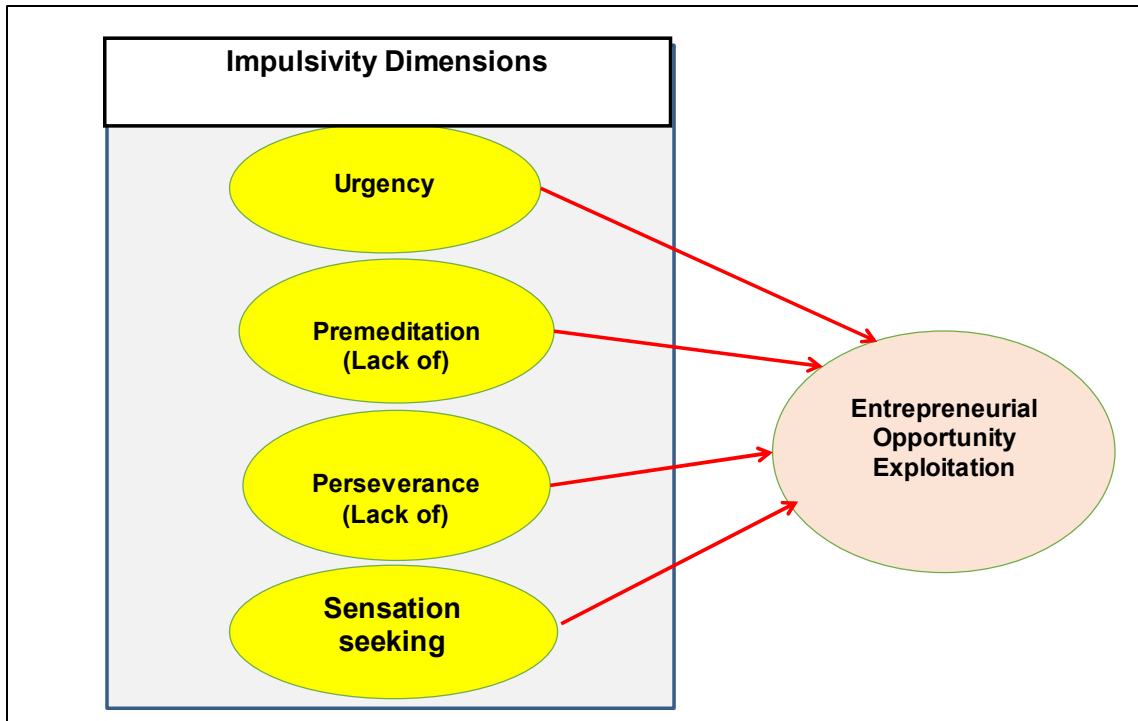


Figure 2.6 Impulsivity Dimensions in relation to opportunity exploitation

Source: Own compilation

Figure 2.6 depicts impulsivity dimensions and the entrepreneurial opportunity exploitation stage. As stated above, sensation seeking individuals are more prone to positive than negative information, as well as optimistic outcome attributions, which result in persistence in getting what they want (Wiklund *et al.*, (2017:20). Entrepreneurs lacking premeditation are likely to persist with opportunities when facing activities that seem challenging. Lack of perseverance might be a serious threat to entrepreneurial action, since those who lack perseverance are easily distracted from boring tasks. They have a tendency to interrupt or delay tasks deemed hard or boring because they are drawn to activities considered to be more fun or less risky (Kaiser *et al.*, 2012:527). With regard to urgency, entrepreneurs high

in urgency are not likely to attend to negative feedback associated with challenges and setbacks of establishing their venture, rather than positive information about success (Whiteside & Lynam, 2001:669).

Rather they are informed by their convictions once they have made up their minds (Bechara, *et al.* 1997:1293). For example, individuals that are high in sensation seeking usually fail to pause and reflect; instead they have a general bias towards action of risky activities, considering them as not so risky (Horvath & Zuckerman, 1993:44).

The same arguments apply for entrepreneurs who lack premeditation. These individuals are also known for their bias towards taking action. Lack of premeditation relates to reduced sensitivity to negative information and an inability to correctly interpret negative feedback information, leading to the tendency to forge ahead in a set course of actions without response flexibility (Whiteside & Lynam, 2001:669).

Individuals who lack perseverance are less likely to actually absorb information from challenges and negative feedback when pursuing entrepreneurial opportunities. Because of their inability to remain focused in situations they find boring or difficult, those who lack perseverance are likely to shy away from opportunity if they feel overwhelmed or bored.

People high in urgency are attuned to their environments and experience environmental cues very strongly (Byrom & Murphy, 2013:346). The causing point of this is neuroticism, which as a trait is closely related to urgency and is associated with attentional bias to negative cues, and those high in neuroticism are thus more likely to maintain negative information in memory (Derryberry & Reed, 1994:1128). This may disable urgency in such people for pursuing the opportunity further, due to the negative cues emanating from uncertainties.

From the above discussions it is evident that certain dimensions of impulsivity are likely to play a role to effect certain stages of EA leading to the creation of new business ventures, whilst others may have the negative effect (Wiklund *et al.*, 2017). This discussion will be expounded in chapter 4.

2.5 CONCLUSION

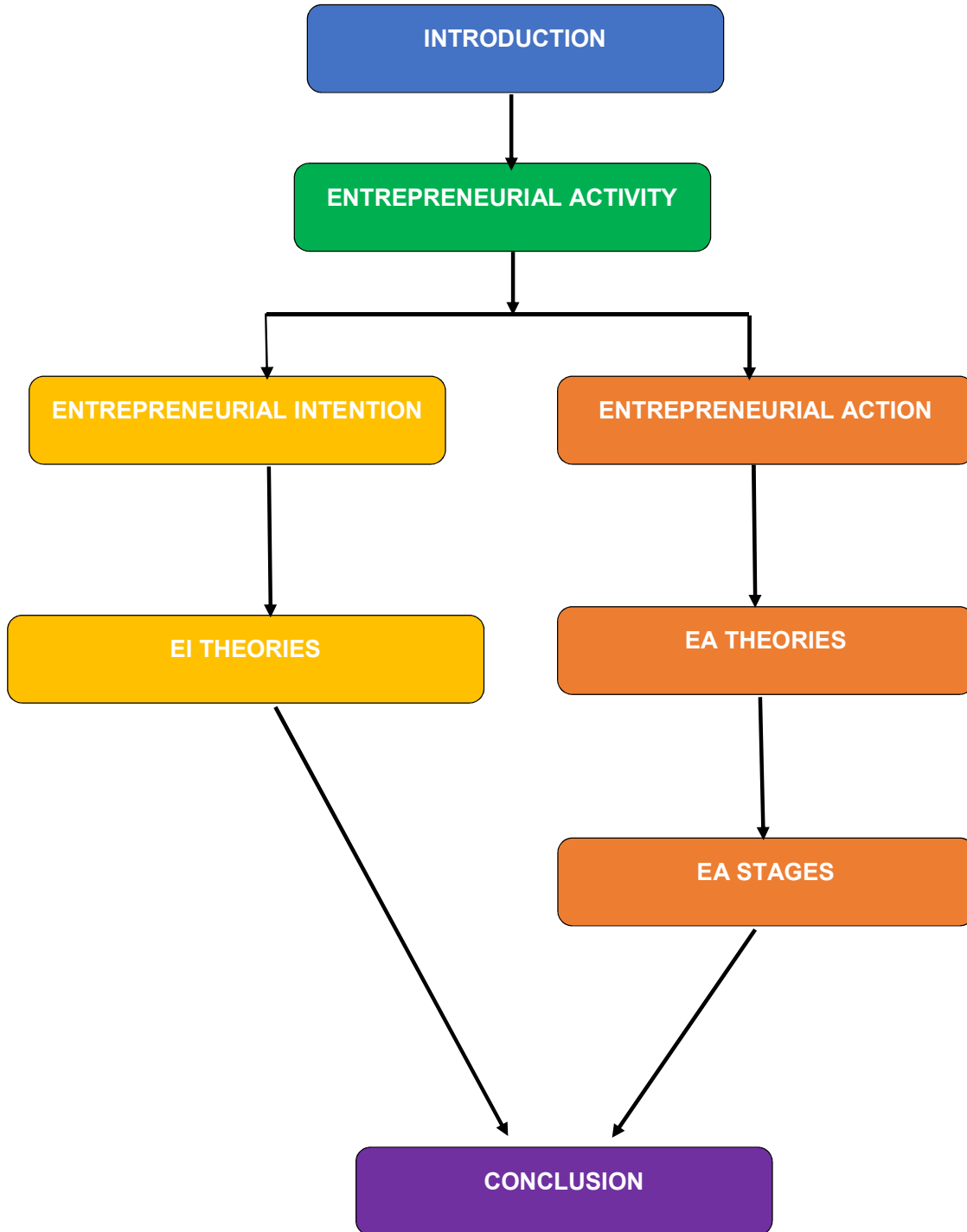
Entrepreneurial activities evolve around the creation of something new and unknowable at the time of action (Gartner, 1985:704). Baum *et al.* (2006:3) found that entrepreneurial activities are dominated by a high level of uncertainty, time pressures, and often accompanied by the shortage of resource. Hence the idea of effecting the entrepreneurial action is a cumbersome process (Wiklund *et al.*, 2017:5).

Like any other social science, entrepreneurship's legitimisation is mainly dependent on individuals' efforts to make it happen. Baum *et al.* (2006:3) stated that behavioural traits such as impulsivity have the potential to contribute to this effect. Other than the dysfunctional side, there is also the functional side of impulsivity that includes elements such as creativity, risk taking, and being prone to take action even under conditions of uncertainty. That is why and how some of the greatest entrepreneurs like Richard Branson (Virgin Group) and Steve Jobs (Apple), who are known to be extremely impulsive individuals, acted on their entrepreneurial opportunities while others did not (Shane & Venkataraman, 2000:218). Wiklund *et al.* (2017:9) suggest the possible relationship between impulsivity and entrepreneurship, in that there are aspects of EA that are likely to be affected by impulsivity. The recent research by Antshel (2018:243) suggests a possible link between impulsivity and the stages of entrepreneurial action. However, Pietersen and Botha (2021) are of the opinion that in order to validate the possible positive contribution of impulsivity to entrepreneurship more empirical studies need to be conducted to this effect.

The role in which each of the four of the impulsivity dimensions affect the stages of the entrepreneurial action will be discussed in detail in subsequent chapters that look at the entrepreneurial activity in its entirety.

CHAPTER 3

ENTREPRENEURIAL INTENTION AND THE ENTREPRENEURIAL ACTION STAGES



3.1 INTRODUCTION

Low entrepreneurial action (EA) levels despite high levels of entrepreneurial intentions (EI) is a source of concern (Herrington, *et al.*, 2017:7). All along entrepreneurship research cited EA as direct result of EI, stemming from TPB that suggested intentions as a predictor for action (Ajzen, 1991:179; Kautonen *et al.*, 2015:4). Subsequent research found no direct correlation between EI and EA (Van Gelderen *et al.*, 2015:655; Oliviera & Lima-Rau, 2018:38; Adam & Fayolle, 2015:36). The relationship between EI and how it can influence EA is the subject of many studies, due to its importance in entrepreneurship (Van Gelderen *et al.*, 2015:655; Herrington *et al.*, 2017:7; Klotz & Neubaum, 2016:7). As much as EI is prevalent, however, in most cases it does not always translate into action (Meoli, Fini, Sobrero & Wiklund, 2019:1; Van Gelderen *et al.*, 2015). This therefore results in a gap between EI and EA (Sniehotta *et al.*, 2005:143; Adam & Fayolle 2015:37; Oliviera & Lima-Rua, 2018:508; Van Gelderen *et al.*, 2018:924, caused by the lack of action when entrepreneurial intentions are not fully exploited (Asante & Affum-Osei, 2019: 227; Van Gelderen *et al.*, 2015:655; Wiklund *et al.*, 2017:3).

This chapter seeks to deliberate on these pillars of entrepreneurial activity; EI and EA stages (entrepreneurial opportunity identification (EODI), entrepreneurial opportunity evaluation (EOEV) and entrepreneurial opportunity exploitation (EOEX)). The chapter starts by discussing the entrepreneurial activity, then expounds on EI and EA in terms of theories and models that inform these concepts. Then the chapter concludes by providing a summary of these concepts, which paves the discussion for the next chapter that looks at the relationship between EI and EA stages.

3.2 ENTREPRENEURIAL ACTIVITY

The entrepreneurial activity is a process that entails the conceptualisation and the creation of a new or unique good or services, as a result of novel entrepreneurial endeavour(s) unknown and unknowable at the time of action (Gartner, 1985:704). It is a process dominated by levels of uncertainty (Baum *et al.*, 2006:3), because of the entrepreneurial environment that requires judgement to be exercised on whether to act on the opportunity or the course of action to be taken to exploit the opportunity (Wiklund *et al.*, 2017:5). Entrepreneurial activity is dynamic and entails initiatives that lead into the wider variety of

action and outcomes (Stevenson & Jarillo, 1990:17), driven by an entrepreneur identifying and acting on such opportunity (McMullen & Shepherd 2006:133).

The entrepreneurial activity starts from when an idea is formulated, then converted into an entrepreneurial opportunity that results in goods or services created (Schumpeter, 1934:137) or establishment of new venture (Gartner, 1985:696). McMullen and Shepherd (2006); Bird and Schjoedt (2017:1) state that the entrepreneurial activity rests upon two pillars; EI and EA as depicted in Figure 3.1 below.

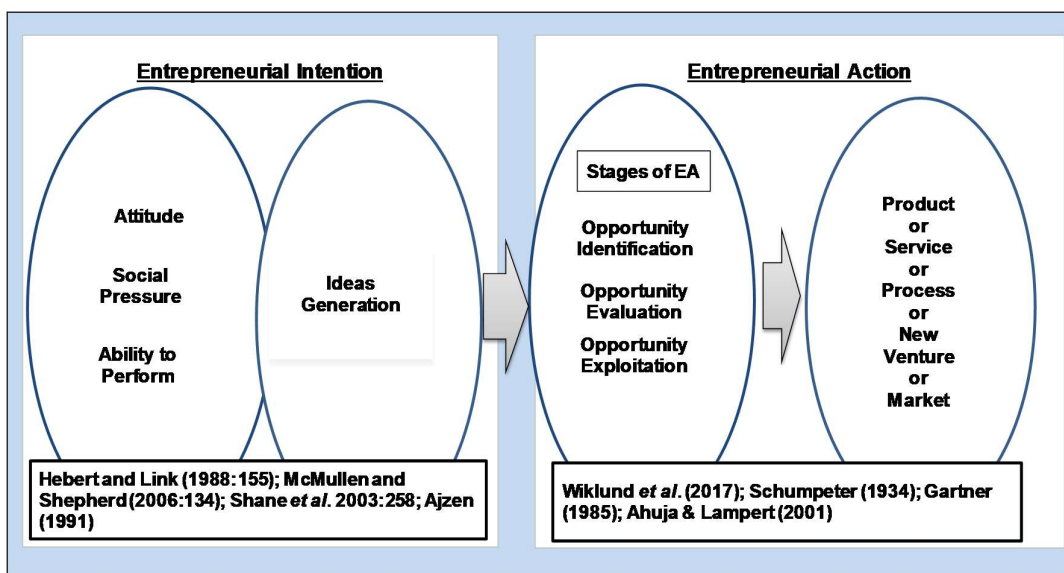


Figure 3.1: The entrepreneurial activity process

Source: Own Compilation

Figure 3.1 depicts EI and EA as the function of the entrepreneurial activity (Van Gelderen *et al.*, 2015:655; McMullen & Shepherd, 2006:132; Bird & Schjoedt, 2017:1). This entails activities that take place either at invention level (Schumpeter, 1934:137), entry into new markets or industries (Lumpkin & Dess, 1996:136), or the establishment of new businesses (Gartner, 1985:696). These stem from a single activity, or a combination of a variety of activities and consequences resulting from such execution (Stevenson & Jarillo, 1990:17).

Previous research on the conceptualisation of the entrepreneurial activity suggested EA as a direct consequence of EI. However, intentions only accounted for less than 30% as a direct input leading to EA (Adam & Fayolle, 2015:45; Oliveira & Lima-Rua 2018:508). Thus it was discovered that EA was not simply a consequence of EI, as previously assumed. Over the

years, despite high levels of EI recorded, EA levels remained relatively low (Herrington, *et al.*, 2017:7). This mismatch between high EI levels compared to low EA levels resulted in a lost opportunity of exploiting entrepreneurial opportunities.

3.2.1 Entrepreneurial Intention (EI)

EI is the conscious state of mind that precedes action and directs attention toward entrepreneurial behaviours such as starting a new business and becoming an entrepreneur or having the desire to become one (Esfandiar *et al.*, 2019:173). Earlier research identified EI as the key process leading to the entrepreneurial activity (Ajzen, 1991:179; Kautonen *et al.*, 2015:4). The significance of the pre-formation of the business venture cannot be diluted or underestimated, given the fact that intentions hold a key role in the preformation of action. As much as there is a reasonable correlation suggested between intentions and subsequent action, this is not however found to be properly explained in entrepreneurship (Meoli *et al.*, 2019:3). This could be the reason for high levels of EI recorded to date compared with the correspondingly lower EA levels (Herrington *et al.*, 2017:7).

The essence of entrepreneurship is translating intentions into business ventures. Unless opportunities are translated, they remain at intention level subsequently as lost opportunity (Oliviera & Lima-Rau, 2018:38). Hence the growing interest in models and theories that conceptualise the translation of EI into business start-ups (Ariton, 2013; Kautonen *et al.*, 2015; Esfandiar *et al.*, 2019). Previous theories on EI mainly assumed the relationship between entrepreneurs' perceptions and their intention as a precursor for action. However in reality this has proved as not to be the case: that EA was as a result of EI. This assumption failed to take into account the cognitive or psychological contribution that could configure such perceptions into reality (Meoli *et al.*, 2019:3).

Intentions are not borne out of a vacuum, but are a result of influences driven by internal or external stimulus (Eid, Badewi, Selim & El-Gohary, 2019). For example, Meoli *et al.* (2019:1) found that the social context which is embedded under the social norm in TPB has the effect in the process by which an entrepreneur can decide to create a new venture. Application of TPB in business context has been limited to the explanation of the formation of intentions, based on past literature that assumed the significance of EI to effect action (Kautonen *et al.*,

2015:2). Esfandiar *et al.* (2019) is but an example of an EI model conceptualising the relationship between EI and EA.

3.2.1.1 Entrepreneurial Intention – Theories

EI is a widely researched concept in entrepreneurship (Van Gelderen *et al.*, 2015, Meoli *et al.*, 2019:2). The prevailing interest in the conceptualisation of EI has by no means increased the importance of theories that explain and anticipate the tendency among individuals to start a new business venture. The Theory of Planned Behaviour (TPB) by Ajzen (1991) over the years is regarded as the most proximal prognosticator of intentions to behaviour (Luqman, Masood & Ali, 2018), in that action is as a result of intention (Ajzen, 1991:179). TPB theory is made up of three elements incorporating intentional behaviour as depicted on Figure 3.2 below.

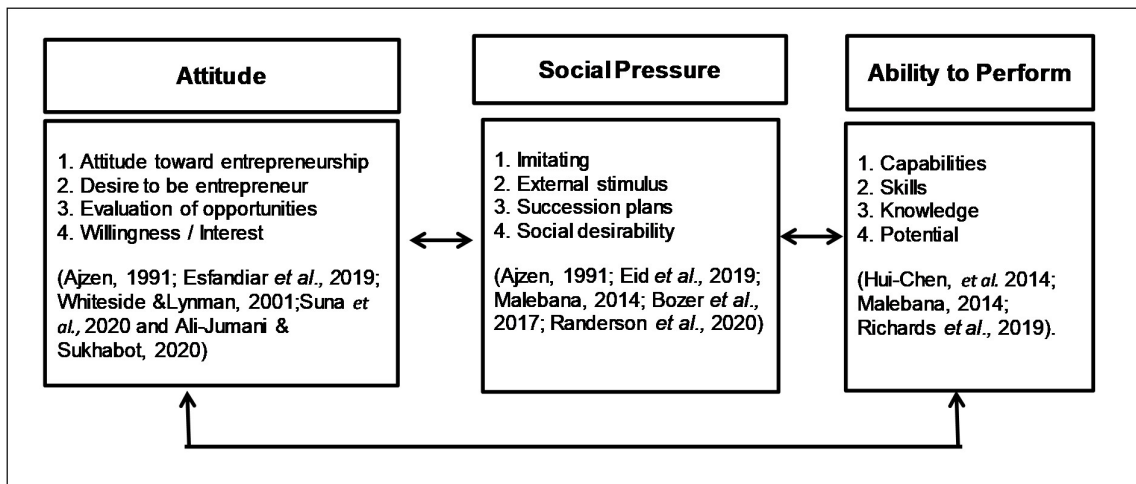


Figure 3.2: Elements of TPB

Source: Own compilation

Figure 3.2 reveals elements of TPB that inform intention (Ajzen, 2001). This suggests that in some instances intention can be influenced by one or more of these elements.

The first is that of the individual's attitude towards behaviour – this is the individual's evaluation when coming to the opportunity. It relates to a person's self-evaluation of personal interest leading to the desire to do something. Suna, Law and Schuckert (2020:2) state that once an individual has shown interest in a particular thing, the behavioural attitude

of that individual plays a significant role in their decision-making process. Ali-Jumani and Sukhabot (2020) posit that the attitude is a key stimulus in determining behavioural intentions. These authors found attitude to be significant in the decision-making process, leading to appetite for action to be taken.

The second element relates to social norms. The entrepreneur's behavioural traits, perception and motivation are said to be modelled by external influences (Eid *et al.*, 2019:234), for example desiring to be entrepreneurial by emulating either a family member or business or being forced by a circumstance. External pressure can play a significant role in internalised commitments and perceived expected responses of others to an individual's behaviour (Randerson, Seaman, Daspit, & Barredy, 2020:2). Malebana's (2014) study found that the majority of students from Venda University responded positively in their quest to start their own business based on peer pressure from one another. Supporting how social pressure plays a role in succession in a case of family business, socialisation is found to be a positive determinant of success in terms of one's commitment to assume a leadership position (Bozer, Levin & Santora, 2017:753). Meoli *et al.* (2019:1) found social context to have the effect in the process by which aspirant entrepreneurs decide to create a new venture.

The last element relates to the ability to perform the behaviour. This suggests that the process is driven by the individual's capability (Hui-Chen *et al.*, 2014). Malebana (2014) perceived control behaviour (PCB) as equivalent to "self-efficacy": the individual's judgement of his or her capabilities to organise and execute the course of action. According to this author, there is a significant correlation between self-efficacy and EI. The issue of willingness versus the ability is real dilemma when coming to EI. A mere desire to start a business venture is not sufficient to turn intentions into action (Richards, Kammerlander & Zellweger, 2019; Van Gelderen 2015).

So the application of TPB has mainly been limited to detailing the formation of intentions (Kautonen *et al.*, 2015). Most studies relied on TPB in assuming action (Esfandiar *et al.*, 2019 and Meoli *et al.*, 2019). In terms of the notion that suggests that intentions by themselves lead to business start-up, there has been limited evidence suggesting such an effect (Meoli *et al.*, 2019). In the last 25 years since the inception of TPB, there have been only three meta-analysis entrepreneurship studies published that have applied TPB for the

intention-action relationship (Kautonen *et al.*, 2015). The link between intention and action is not so obvious. This is the shortcoming of TPB theory, because it assumes a perfect scenario between intentions leading to action (Kautonen *et al.*, 2015). There are many factors that can thwart action from happening, even with good intentions in place. Time lags, doubts, aversion or uncertainties can contribute to intention not being translated into action. Mere intentions by themselves do not necessary guarantee action in its entirety (Van Gelderen *et al.*, 2015). EI, to be effective, must be beyond thoughts or wishes but rather a deliberate and conscious state of mind (Esfandiar *et al.*, 2019).

Research found that behaviour can be predicted with a considerable amount of accuracy (Malebana, 2014). Kautonen *et al.* (2015) interrogated the relevance of TPB in the business start-up formation. Hui-Chen *et al.* (2015) integrated TPB with MOA to inform EI. The availability of opportunities coupled with the individual’s level of motivation are good predictors of the individual’s being propelled to want to engage in action (Baum *et al.*, 2017:2; Klotz & Neubaum, 2016:8; Syed Zwick, 2019), provided the individual has the capabilities to exploit such opportunities (Hui-Chen *et al.*, 2015). The following section discusses MOA elements integrated with those of TPB depicted in Figure 3.3 below. Hui-Chen *et al.* (2014:728) are of the view that integrating MOA elements to those of TPB can affect EI to initiate EA.

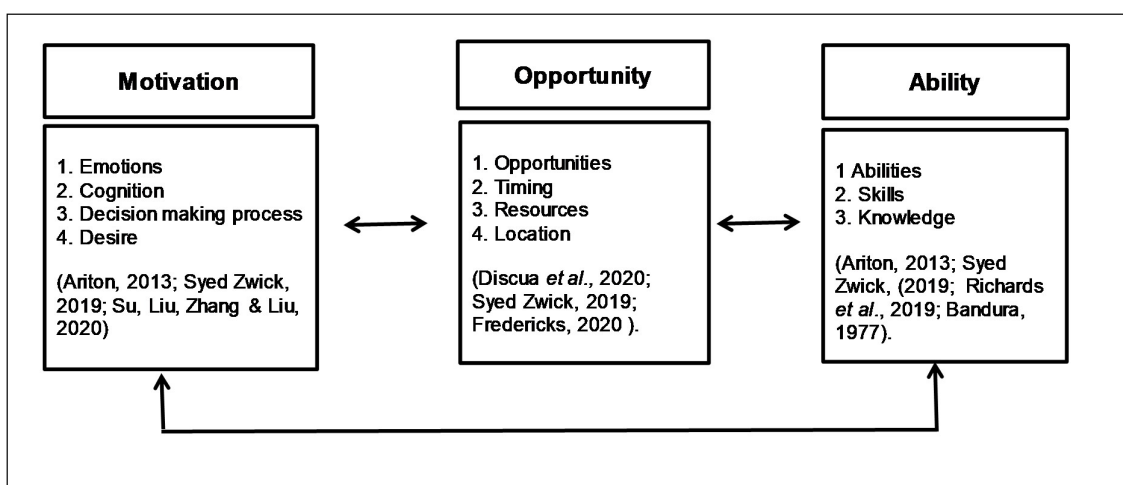


Figure 3.3: Elements of MOA

Source: Own compilation

Figure 3.3 reveals elements that inform MOA that can be a precursor to influencing EI (Olander & Thøgersen, 1995). Like the TPB elements that can effect intention, each of the MOA or elements of MOA combined can have the effect, in the elements of TPB, to effect the EI as indicated in Figure 3.4 below (Hui-Chen *et al.*, 2014:728). These elements are argued across all three elements of the TPB to establish the EI. The elements are discussed based on the available literature and thereafter the discussion expands to the integration based on Fig 3.4.

Motivation is the first element of the MOA approach which plays a role in the decision-making process. Arifon (2013) is of the view that there is a relationship between levels of motivation leading to individuals acting on their intentions. Motivation affects the occurrence of individual behaviours, in terms of intensity and direction (Syed Zwick, 2019). Research suggests that emotions play a key role in entrepreneurial cognition, which explains how emotions can positively affect entrepreneurial behavioural intention (Su, Liu, Zhang & Liu, 2020). As in any other process, emotions play a role, either positive or negative. Positive emotions such as happiness in entrepreneurial behaviour are instrumental to establish a desire leading to the formation of EI that could result in EA (Su *et al.*, 2020).

The second element of the MOA is opportunity. Opportunity is key in entrepreneurship theory (Discua Cruz, Hamilton & Jack, 2020). Hui-Chen *et al.* (2014:731) assert that opportunity is positively associated with any entrepreneurial venture. Entrepreneurship is mainly about exploiting opportunities for profit. As much as an individual may have intentions to be entrepreneurial, without an opportunity in place such desire remains a mirage. Opportunities may be physical or social (Syed Zwick, 2019). Physical opportunity entails time, location and resources, while opportunities afforded by social factors stem from cultural norms or social cultures (Fredericks, 2020).

The third element of the MOA theory relates to ability. Syed Zwick (2019) defines it as behavioural decisions that are under the constraints of available resources and knowledge. An individual should have an appropriate set of skills and knowledge in order to be able to perform in the relevant area of behaviour (Richards *et al.*, 2019). The literature measures ability through self-efficacy, which is referred as the perceived capability of the individual's self to perform the behavioural act that can lead to desired outcomes (Bandura, 1977).

Integrating MOA and TPB results in an intention-based model. The intention-based model's approach offers direct analysis of entrepreneurship behaviour. According to Esfandiar *et al.* (2019:173), intention-based models provide insights into how one's decisions for a new venture are made before examining practical opportunities on the part of the individual. The following section looks at how TBP–MOA and the integrated intention model deals with EI.

3.2.1.2 Integrating TPB with MOA

Hui-Chen *et al.* (2014) through their model integrated MOA with TPB to conceptualise EI. These authors posit that motivation, opportunity, and ability are key to effecting entrepreneurial intentions through personal attitude, subjective norms, and perceived behavioural control. These authors are of the view that motivation, opportunity and ability have the effect of suggesting an EI that can lead to new business being created. Their model brings structure, aiding in the analysis on the formation of EI by incorporating MOA elements into those of TPB to formulate EI as depicted in Figure 3.4 below.

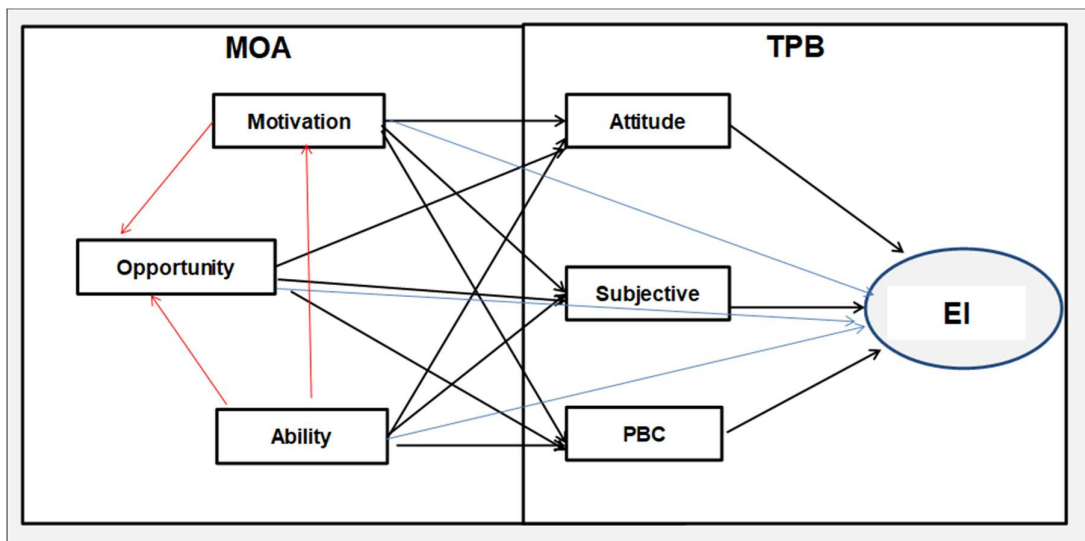


Figure 3.4: Entrepreneurial process integrated model

Source: Adapted from Hui-Chen *et al.* (2014)

Figure 3.4 incorporates elements of MOA with those of TPB. The model conceptualises a relation between MOA elements to those of TPB to affect EI. For example: (i) motivation has a positive effect on entrepreneurial intentions through personal attitude and PBC; (ii) there

is a direct positive relation between ability and EI through PBC; (iii) subjective norms affect EI through attitude and PCB.

If EI as stated is a process entailing deliberate and conscious intentions in pursuing entrepreneurial opportunity (Esfandiar *et al.*, 2019), Van Gelderen *et al.* (2015) argue that even if one has great intentions to form a business, if this is not intentionally followed up it will result in entrepreneurial opportunity thwarted. EI on its own does not carry sufficient weight to translate into action (Sniehotta *et al.* 2005:143; Adam & Fayolle, 2015:36). The question is, if EI does not necessarily translate to EA, then which other factors should be considered to this effect?

Meoli *et al.* (2019:6) found that context plays an important role in explaining why people do or do not act on their intentions. Esfandiar *et al.* (2019:172) conceptualised EI factors pertaining to business start-ups. Their study suggested cognitive and psychological factors to be key in leading to the creation of business venture. These authors are of the view that the inclusion of personality traits or information on the entrepreneur's state of mind is critical in the EI of models to make them effective. This supports Krueger *et al.* (2000), who posited that psychological factors can act as precursors to this effect. Figure 3.5 depicts an EI model leading to the creation of a business venture.

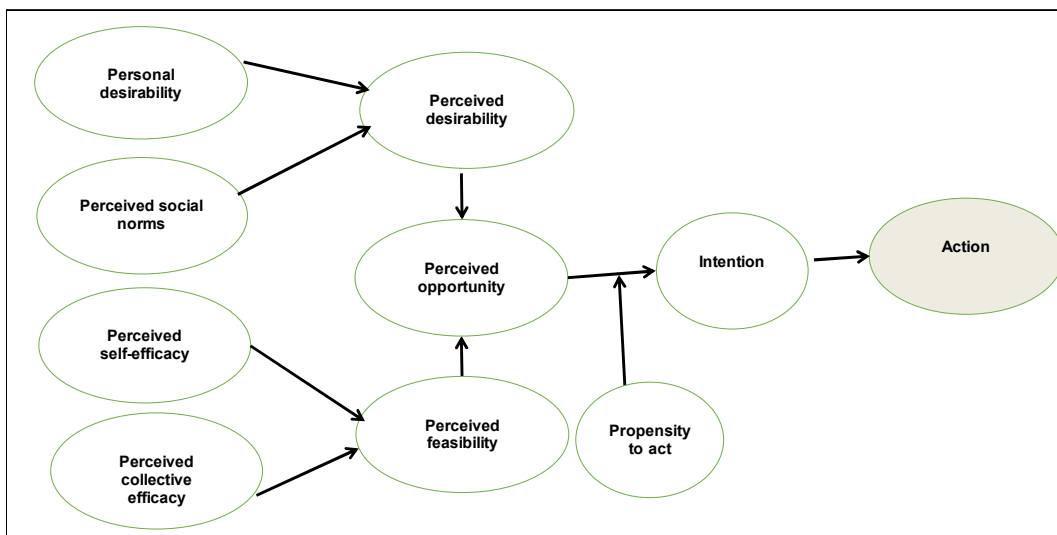


Figure 3.5: Model of entrepreneurial Intention (EI)
Source: Adapted from Esfandiar *et al.* (2019:173)

Figure 3.5 shows a process aligned to Shapero's model of the entrepreneurial event (SEE) (Shapero & Sokol, 1982:72). Shapero's model consists of four factors: personal desirability, social norms, self-efficacy and collective efficacy. These factors are similar to those that inform TPB (Kautonen *et al.*, 2015:4).

Key to this model is the perceived desirability and feasibility of the opportunity to initiate EI formulation (Esfandiar *et al.*, 2019:173). According to this model, EI does not necessarily amount to action if there is a failure to develop a resolute mediation that translates such intentions to action. This mediation addresses the gap between EI and EA.

The following section discusses EA in terms of supporting literature.

3.2.2 Entrepreneurial Action (EA)

Entrepreneurial action (EA) is one of the key pillars of entrepreneurship activity (Dimov & Pistrui, 2019:2). EA consists of activities that unfold over time and are dominated by uncertainties (Baum *et al.*, 2006:3), that entail vigorous and persistent effort leading to the identification, evaluation and exploitation of entrepreneurial opportunities (Baron, 2007:167; Venkataraman, 1997; McMullen & Shepherd, 2006:132).

The absence of EA in the entrepreneurial process will simply lead to no entrepreneurial activity or event taking place (Swedberg, 2000: 26). EA consist of stages that involve the pursuing of the entrepreneurial opportunities; that give rise to business start-up (Shane *et al.*, 2003:257; Wiklund *et al.*, 2017; Lerner *et al.*, 2018): entrepreneurial opportunity discovery (EODI), entrepreneurial opportunity evaluation (EOEV) and entrepreneurial opportunity exploitation (EOEX) (McMullen & Shepherd, 2006; Shane & Venkataraman, 2000).

EA for this study is built on discovery and creative theories as discussed below.

3.2.2.1 The theories supporting EA

The conceptualisation and modelling of EA is of great interest to scholars (Asante & Affum-Osei, 2019: 227; Van Gelderen, *et al.*, 2015:655). EA entails the discovery and exploitation of opportunity (McMullen & Shepherd, 2006:134; Shane & Venkataraman, 2000:217; Hsieh

et al., 2007:1255; Ren et al., 2016). The question is, are entrepreneurial opportunities existing or are they created? There is vast entrepreneurship literature available with regard to entrepreneurial opportunities (McKelvie *et al.*, 2011; Marinacci, 2015:1023; Emami & Khajeheian, 2018).

Alvarez and Barney (2007) conceptualised entrepreneurial opportunities through the Discovery Theory (DT) and Creation Theory (CT). George Mallory, when asked the reason for his persistent desire to climb Mount Everest, answered that it was because the mountain was there to be explored (Alvarez & Barney 2007:13). Using George Mallory’s example on whether entrepreneurial opportunities exists or not, one school of thought argues that entrepreneurial opportunities are readily available to individuals who are quick to spot them. Another school of thought suggests that not all opportunities are available, therefore require one to create them to address the need in the market.

Opportunity formation is easier said than done; hence the approach of an entrepreneur in this regard is of paramount importance. DT and CT approaches are formulated in this regard (Alvarez & Barney, 2007). In both these approaches the ultimate goal is for the opportunity to be identified and eventually exploited. Discovery theory suggests opportunities are readily available to all, whilst Creation theory assumes that an opportunity comes from a novel idea. The Table 3.1 highlights central assumptions of DT and CT theories with regard to action.

Table 3.1: Key assumptions of DT and CT theories of action

	Discovery Theory	Creation Theory
Nature of Opportunities	Opportunities exist independent of entrepreneurs. Applies a realist philosophy.	Opportunities do not exist independent of entrepreneurs. Applies an evolutionary realist philosophy
Nature of Entrepreneurs	Differ in some important ways from Non-entrepreneurs, ex ante.	May or may not differ from Non-entrepreneurs, ex ante. Differences may emerge, ex post.
Nature of Decision-making Context	Risky	Uncertain

Source: Alvarez and Barney (2007:13)

According to Table 3.1, the nature of opportunities presented by both theories is that under DT, opportunities are static and not dependent on the entrepreneur, in the sense that opportunities result from an exogenous situation, mainly as a result of external influences such as market, technology and political changes. For example, the digitisation of cameras forced photo-printing ventures out of business. Since the era of the first digital camera there have been many entrepreneurial opportunities being exploited in this terrain, to an extent that this technology also ventured on the mobile phone (Kahn, 1997). The entrepreneur in a case of DT spots a gap in an existing product, and only introduces some improvements or modifications. The nature of decision making in this regard is risky.

Using the same example of the digital camera in a case of the CT theory: for example Sasson, in 1975 while working for Kodak invented the first digital camera; today in almost every phone, car and closed-circuit television there is a digital camera (Aldred, 2016). Sasson (1975) was the first to create the opportunity by introducing the first digital camera technology.

The opportunity formation with regard to the CT theory is that the opportunity is endogenous, stemming from the actions, reactions and enactment of entrepreneurs exploring ways to introduce new products or services. In terms of the nature of an entrepreneur, this could be anyone, including just an ordinary person that might come up with a novel idea. Sometimes these ideas come from chance, as in the case of Facebook that was created by Zuckerberg in 2003 with his university friends in order to communicate with one another digitally. Their digital communication idea turned into a billion-dollar opportunity (Bellis, 2020).

3.2.2.2 Convergence of theories – EA

McMullen and Shepherd (2006:133) combined both these theories, DT and CT, to conceptualise EA. Their approach is supported by Alvarez and Barney (2007:17), who are of the view that certain actions are more likely to be effective in DT than CT or vice versa. McMullen and Shepherd (2006) are of the opinion that both DT and CT are the most appropriate approaches to entrepreneurial opportunities, in terms of the formulation of opportunities (Murphy, 2011), evaluation (McMullen & Shepherd, 2006:133) and exploitation (Hills & Shrader, 1998:54).

Deciding whether to act on the opportunity is a complex exercise (Allinson *et al.*, 2000:31), owing to uncertainties (Obschonka & Stuetzer, 2017:204). Wiklund *et al.* (2017) congregated both approaches in support of McMullen and Shepherd (2006) and concluded that these stages equate to entrepreneurial action, as discussed in the following section.

3.3 STAGES OF EA

The stages of EA are dynamic and multiplicative in nature (Emami & Khajeheian, 2019:1), and assume the action leading to the entrepreneurial event taking place (Swedberg, (2000: 26). Figure 3.6 below depicts stages of EA (Wiklund *et al.*, 2017; Ren, Shu, Bao & Chen, 2016:465).

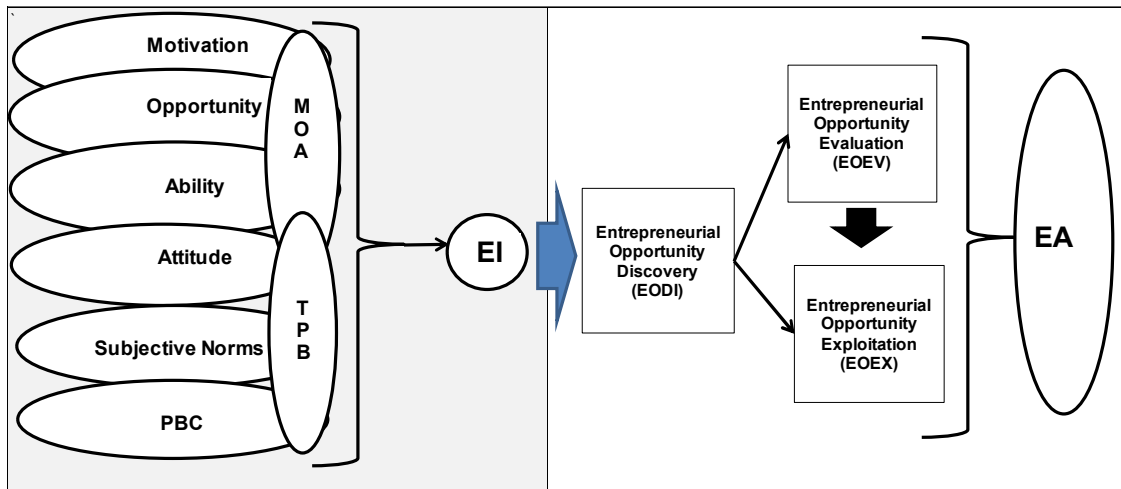


Figure 3.6: Entrepreneurial Activity process – EA Stages

Source: Adapted from Wiklund *et al.* (2017:49)

Figure 3.6 depicts entrepreneurial activity standing on two pillars; EI and EA. EI was discussed in the previous section. This section discusses EA which is the second pillar that is made of made of EODI, EOEV and EOEX (Wiklund *et al.*, 2017:9).

EODI is the first stage of EA. It is defined as a deliberate search or recognition of a solution for a problem or a need that can be converted for profit (Hsieh *et al.*, 2007). The second stage is EOEV. This stage considers the opportunity in terms of its feasibility and desirability (Das & Teng, 1997:70). The last stage is EOEX. This is the critical stage in term of execution;

without it no goods, service or new business venture creation will be realised. This entails the gathering and recombining of required resources necessary to pursue opportunities that involve the creation of new ventures (Ren *et al.*, (2016:468).

Much as the figure reveals a chronological relation amongst the three stages, in some instances the relationship can only be found only between EODI and EOEX. This is common normally in instances when there is not sufficient information to be able to evaluate the opportunity by the best accepted processes; for example, with regard to a “virgin” product or services where there is not available information to assess the viability of such an opportunity. Here the entrepreneur mainly relies on gut feeling with regard to such opportunity (Huang & Pearce, 2015:634).

EA is informed by three brought ideologies (Wiklund *et al.*, 2017:49). The first ideology suggests that action is embodied, in that EA is a behavioural action happening under conditions of uncertainty with regard to possible opportunities. Their second ideology links action to a broader entrepreneurial journey that transpires over time and unfolds in unpredictable ways. The last ideology suggests that action occurs in a context that influences it, by shaping in an implicit way the perceptions, aspirations, and possibilities of the entrepreneurial agent. These stages are discussed further in the following section.

3.3.1 Entrepreneurial Opportunity Discovery (EODI)

A question was posed to Timmons (1989) to clarify his understanding of entrepreneurial opportunity. His response was “that the Chinese characters for crisis and problem, when combined mean opportunity” (Lins & Doktor, 2014:22). Say (1826) on the other hand, in Lins and Doktor (2014:22), posits opportunities as a means of production arranged to produce goods or services that will yield a profit. From these descriptions it is evident that opportunities are driven from crisis or need. The entrepreneurial opportunity discovery stage is the process of how these opportunities are discovered or recognised. According to Lins and Doktor (2014), EODI is a cognitive process undertaken by innovative individuals as they engage in knowledge creation through a recombination of resources in response to environmental information available at their disposal. Entrepreneurial opportunities are available to everyone, but not everyone has the knowhow or is cognitively inclined to

discover these. Lins and Doktor's (2014) study utilised the Bayesian model in suggesting the decision making taken. Under this model the decision-making process taken by an entrepreneur is crucial, in terms of how they recognise an unexploited or under-exploited opportunity that when executed results in profit and or a new business venture created. More often than not entrepreneurial opportunities require action to be taken under uncertainty. Uncertainty affects all stages of EA, in particular this first stage (Lins & Doktor, 2014). Therefore the entrepreneurs' intuition or decision making under these conditions is key to their success or competitive advantage (Galesic *et al.*, 2016).

3.3.1.1 EODI process

The entrepreneurial opportunity concept is central to entrepreneurship theory (Discua Cruz *et al.*, 2020). This assumes that opportunities are objective and open to everyone in the industry (Alvarez & Barney, 2007:13). This further suggests that anyone can be entrepreneurial in one way or another (Lins & Doktor, 2014). The separation in terms of those who are entrepreneurial versus non entrepreneurial occurs afterwards, in the sense that only those that acted on the opportunity are regarded as entrepreneurial, and not the ones that were thinking about the opportunity but failed to act on it. The failure to identify and exploit entrepreneurial opportunity is a clear sign of not being entrepreneurial (Alvarez & Barney, 2007:16).

EODI is the key, fundamental stage of EA that entails deliberate search to solve a problem or need that has the potential to yield returns (Hsieh *et al.*, 2007:1255). Figure 3.8 below depicts EODI in terms of the process that informs this stage.

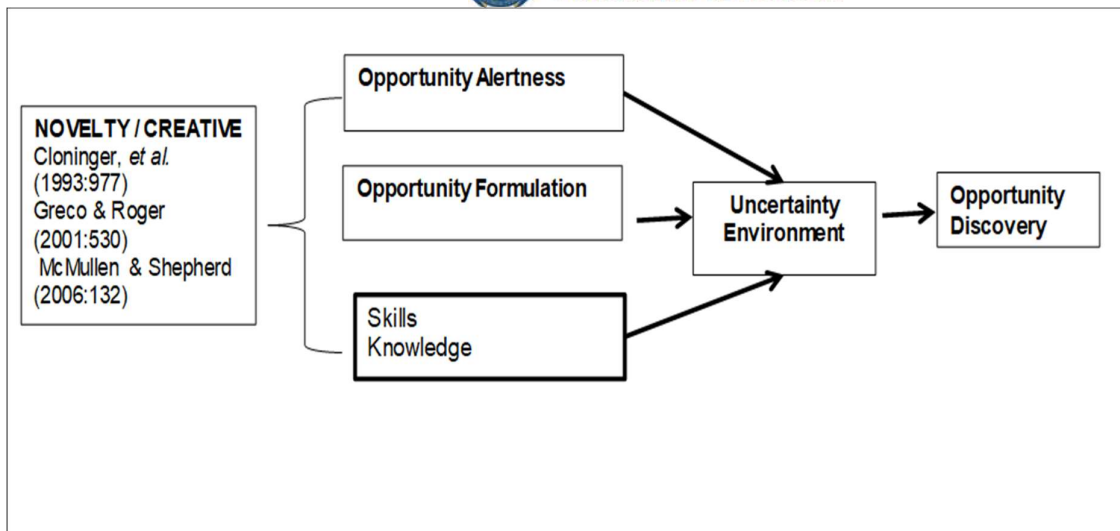


Figure 3.8: Entrepreneurial Opportunity – Action discovery

Source: Adapted from Kuckertz *et al.* (2017:85)

Figure 3.8 shows elements that suggest EODI. Entrepreneurial opportunity identification is also referred to as discovery or recognition (Khin & Lim, 2018). This stage consists of elements which when applied lead to opportunity discovery (Kuckertz *et al.*, 2017). These are i) opportunity alertness, ii) search for markets, iii) opportunity formulation, iv) skills & knowledge and v) uncertainty.

The first element in measuring entrepreneurial opportunity discovery, according to Kuckertz *et al.* (2017:85), has to do with the alertness to entrepreneurial opportunities by entrepreneurs. This can be informed by exogenous opportunities that are created by shock in the market or system, or endogenous ones that are informed by efforts, actions, reactions and enactment of entrepreneurs creating new product or services (Alvarez & Barney, 2007).

The formulation of opportunities may be as a result of deliberate search or chance (Murphy, 2011). Opportunities according to Emami and Khajeheian (2018) and Lins and Doktor (2014) are a process of discovery or creation by entrepreneurs. Informed by the DT and CT theories, the ultimate goal is for the opportunity to be identified and eventually exploited. As mentioned in the previous section, according to DT theory opportunities are readily available for all entrepreneurs to spot, while the CT suggests opportunities are created (Alvarez & Barney, 2007). Baron (2007:167) and Esfandiar *et al.* (2019:173) state that opportunity identification is effected through a vigorous and persistent action.

In terms of the skills and knowledge required, this element focuses on the entrepreneur's skills and knowledge in order to formulate or to discover an entrepreneurial opportunity (Kuckertz *et al.*, 2017:85). The process to identify entrepreneurial opportunity is driven by entrepreneur's capability (Hui-Chen *et al.*, 2014:727), in terms of his or her decisions that are made under the constraints of available resources and knowledge (Syed Zwick, 2019). An aspirant entrepreneur stands a good chance if he or she possesses an appropriate set of skills and knowledge to formulate entrepreneurial opportunity (Richards *et al.*, 2019). The literature measures ability through self-efficacy, which is defined as the perceived capability of the individual's self to perform the behavioural act that can lead to desired outcomes (Bandura, 1977).

Entrepreneurial opportunities happen in an environment that is engulfed with high levels of uncertainty (Marinacci, 2015:1023; Wiklund *et al.*, 2017:37). It has been stated often in the previous chapter that uncertainty is the thread that complicates the decision-making process (Warmink *et al.*, 2017:4594), especially on novel ideas or opportunities, mostly due to the limited knowledge about the possible realisation of possibilities that are relevant in order to make a decision (Marinacci, 2015:1023). Essential is regular scanning of the environment for business opportunities informed by political, environmental, societal, technological, economical and legal (PESTEL) aspects (Kuckertz *et al.*, 2017:85; Rastkhiz, Dehkordi, Farsi & Azar, 2019:69).

Once an opportunity is formulated the next logical step is whether such an opportunity can be pursued. Krueger (1993:5) views this stage as key in terms of the forecast exercise by the decision maker, assessing the attractiveness and practicality of such opportunity. The next section discusses EOEV.

3.3.2 Entrepreneurial Opportunity Evaluation (EOEV)

When entrepreneurial opportunities are spotted with a possibility of pursuing them, the question is which one – as not all the opportunities will end up exploited. The exercise to evaluate opportunities accurately is not only necessary but also key to its success (Rastkhiz *et al.*, 2019:67).

Once the opportunity is discovered, the question is whether there is a desire and means to convert the opportunity into goods or services. Should the decision be not to continue with the opportunity any more, then that opportunity logically ceases to exist. Whether to continue with the opportunity or not informs a decision. This exercise ascertains the feasibility and desirability of the opportunity and suggests the next step regarding it (Haynie *et al.*, 2009:349). Smith, Kickul and Wilson (2010:121) regard the role of this stage as a key determinant of the exploitation stage. How this process unfolds is significant in entrepreneurship (Smith *et al.*, 2010:121; Autio, Dahlander & Frederiksen, 2013:1348). Therefore, the exercise to ascertain the viability of the opportunity accurately is not only important (Rastkhiz *et al.*, 2019:67) but also a consideration should be made whether there is also a desire to pursue the opportunity (Keh *et al.*, 2002:126). The state in which the opportunity meets the desirability and feasibility levels is arguably subjective from person to person (Krueger 1993:6). According to Shane and Venkataraman (2000:218) the entrepreneurial opportunity consists of an abundance of resources that can be converted and/or exchanged at a higher price than they originally cost.

Keh *et al.* (2002:126) regard the evaluation process as crucial and an essential cognitive phenomenon phase of EA. Deciding whether to act on the opportunity is a complex and psychological exercise (Allinson *et al.*, 2000:31). Hills and Shrader (1998:54) view EOEV as the stage in which ideas are carved into an entrepreneurial opportunity; thereafter the entrepreneur needs to determine whether to pursue the opportunity or not (Das & Teng, 1997:70). Krueger (1993:5) links this stage to a tool for decision makers to assess the attractiveness and practicality of the opportunity, based on whether it is within the entrepreneur's interest, control and competence.

3.3.2.1 EOEV process

Idea generation is not only limited to entrepreneurs but can be from non-entrepreneurs as well. However, there are very few individuals who are able and keen to translate these ideas into goods and services (Van Gelderen *et al.*, 2015). The ability to translate ideas into goods and services remains an entrepreneur's key competitive advantage (Hills & Shrader, 1998:54). The how, by whom and with what consequence opportunities are available to produce future goods and services are key questions in the entrepreneurship fraternity (Van

Gelderen *et al.*, 2015:655; Herrington *et al.*, 2017:7; Klotz & Neubaum, 2016:7). EA stage commentators place a significant role on the questions of who, how and what, leading to the creation of goods and services (Shane & Venkatraman, 2000:219). For example, Alvarez and Barney (2007:17) revealed the difference between opportunities that are discovered and those that are created. The way the opportunities are formulated in terms of discovery or created to evaluate them may require appropriate competencies in order to arrive at the best possible outcome. This exercise is not “one pot fits all”. Hence Rastkhiz *et al.* (2019:67) advocate competence and accuracy of the entrepreneur for this exercise to guarantee success. How entrepreneurial opportunities are evaluated remains largely of interest (Haynie *et al.* 2009:338; Lins & Doktor, 2014). Research has tried to understand how entrepreneurial opportunities are evaluated and to date there has not been a single approach or one that supersedes the other. Instead there are different approaches, which led to fragmentation in opportunity evaluation criteria (Rastkhiz *et al.*, 2019:67).

Das & Teng (1997:70) suggest a behavioural and intuition approach. With the behavioural approach, entrepreneurs can distinguish through their inclination risk, need for achievement and locus of control behavioural tendencies. Applying only the behavioural approach presents limited success when explaining entrepreneurial behaviour to ascertain the feasibility of the opportunity (Keh *et al.*, 2002:126). For this reason Allinson *et al.* (2000) advocate the inclusion of the cognitive approach to effect acceptance. Applying both the trait and cognitive approaches supports Krueger (2000) and Rastkhiz *et al.* (2019), who deem this approach as effective.

As the entrepreneurship environment is the one that is surrounded by uncertainties, therefore the decision to select an appropriate opportunity under such conditions, with limited and inaccurate information, is the challenge that entrepreneurs face every time. Unfortunately, uncertainty is a contender that entrepreneurs should get used to (Keh *et al.*, 2002:128), which has a huge effect on the decision making (Simon *et al.*, 2000:113). Thus equipping oneself with sufficient knowledge does not just improve accuracy but also provides the best possible outcomes presented by the opportunity and increases the feasibility of exploitation (McMullen & Shepherd, 2006:133).

Figure 3.09 depicts elements to evaluate an opportunity in terms of whether it is feasible or not.

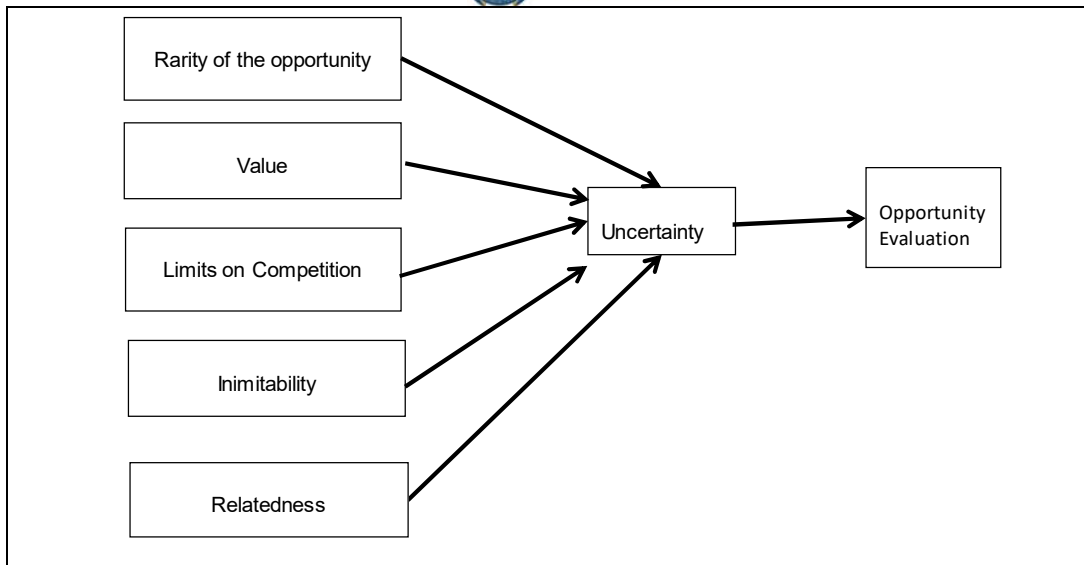


Figure 3.09: Entrepreneurial Opportunity – Action evaluation

Source: Adapted from Haynie, Shepherd and McMullen (2009:349)

Figure 3.09 highlights elements that are key when undertaking the evaluation. These elements aid in the question on how does the entrepreneurial opportunity get evaluated? This is a key question according to Smith *et al.*, (2010:121). Haynie *et al.* (2009:349) recommend five key elements in evaluating the entrepreneurial opportunity that must be taken to account. These are discussed as follows:

Rarity refers to uniqueness or superiority of the product or service compared with what is already available or as a substitute product (Rastkhiz *et al.*, 2019:69). This mainly speaks to the competitive advantage the product presents compared with a similar or substitute product in the market. In terms of the opportunity that is available to the entrepreneur, whether or not it is widely available to others with the same interest (Haynie *et al.*, 2009). Rarity is a critical part that addresses the main purpose of launching goods or services, in accordance with whether it is to address a need or resolve a crisis (Lins & Doktor, 2014:22)

Value refers to the economic benefits of introducing goods or services. From the economic perspective the exercise is to ascertain the value of the opportunity in relation to cost (Shane & Venkataraman, 2000:218; Baum *et al.*, (2006:6). Opportunities with brilliant economic prospects are of great interest to entrepreneurs (Rastkhiz *et al.*, 2019). To ascertain the value there are several accounting or financial instruments available to compute the value of the opportunity. The most commonly used is the capital return on investment (ROI),

internal rate of return (IRR) and/or costs such as research and development (R&D). The value element focuses on efficiencies and effectiveness derived from opportunities (Haynie *et al.*, 2009:349).

Limits on Competition, this refers to how a business that controls valuable and scarce resources possesses competitive advantage (Haynie *et al.*, 2009:343; Galesic *et al.*, 2016). This element consists of scarce resources to which the future market position for the opportunity is defensible. The more defensible the market position for the goods or services opportunity, the more such opportunity is attractive.

Inimitability refers to the extent in which others can imitate or introduce a substitute product (Haynie *et al.*, 2009:344), in which a barrier can be introduced to prevent the potential for others to imitate or develop substitutes for the opportunity. It is a common course that organisations invest heavily to protect their opportunity from falling prey to being imitated. This can serve as a barrier to entry by limiting possible entrance of possibly imitated products. Most firms, especially those who spend a lot in R&D, turn to register patents and copyright that protects them against possible imitations and generics.

Relatedness relates to the extent to which the resources of the firm and its capabilities can stretch to new customers and or markets. This involves the organisation's human capital and external environmental factors (Haynie *et al.*, 2009:345). Khin and Lim (2018) are of the view that the entrepreneur's prior knowledge is a valuable asset with regard to opportunity formulation and evaluation. External environmental factors have a potential to influence the opportunity evaluation exercise and consequently EA (Rastkhiz *et al.*, 2019:70). Things such as the entrepreneur's existing knowledge, skills, and abilities, regional or localised expertise (Farinha, Balland, Morrison & Boschma, 2019:988) and externally, technological changes, environmental or conditional and/or automation, have a bearing on the outcome of this exercise and the decision whether to exploit the chance or not.

Once the opportunity evaluation phase is completed, the next step is the entrepreneurial opportunity exploitation phase or process. Ren *et al.* (2016:468) refer to this stage as the important step that ensures EA is realised. This process consists of the act of gathering and recombining the required resources needed to pursue opportunities (Ren *et al.*, 2016:468).

3.3.3 Entrepreneurial Opportunity Exploitation (EOEX)

Subsequent to the discovery and evaluation, the entrepreneur must then decide what to do with the opportunity: whether to abort or exploit it (Shane & Venkataraman, 2000). Khin and Lim (2018) are of the view that at some point entrepreneurs should shift their focus from evaluating the viability and the feasibility of their opportunities into determining how exactly on how to exploit the discovered opportunity.

Opportunity exploitation has gained substantial recognition in entrepreneurship in recent years (Khin & Lim, 2018; Haynie *et al.*, 2009). This is the key stage in actualising entrepreneurial opportunities to meet a specific need (Emami & Khajeheian, 2018). The EOEX stage consists of activities that give rise to the formation of a new product, business venture, or investment into something that will expand or improve business processes (Shane & Venkataraman, 2000:218; Shane *et al.*, 2003:257; Baum *et al.*, 2006:6). The role of an entrepreneur is pivotal at this juncture (McMullen & Shepherd 2006:132; Dimov & Pistrui, 2019:2). As much as other stages of the EA are important, EOEX assures EA is effected (Khin & Lim, 2018; Davidsson, 2015:675).

Drawing upon creation theory, the EOEV stage is pivotal in terms of the process leading to decisions to act on the opportunity or not (Allinson *et al.*, 2000:31). This, according to Keh *et al.* (2002:126), is driven by an entrepreneur's cognitive behaviour. Entrepreneurial mind-set and the entrepreneur's traits are key in making this stage realisable (Alvarez, 2005:13). Without the opportunity being exploited into an entrepreneurial event taking place, there will simply be no entrepreneurship happening (Schumpeter, 1934:137; Coase, 1937:386; Khin & Lim, 2018). How the process unfolds is discussed in the following section.

3.3.3.1 EOEX process

Entrepreneurship research advocates more investigation leading to EA phenomena (Ren *et al.*, 2016:467). As stated, that exploitation stage is crucial, yet studies that conceptualise the EOEX concept are limited (Ren *et al.*, 2016:467). EOEX stage entails gathering required resources necessary to translate opportunities to new ventures (Kuckertz *et al.*, 2017:85). The EOEX process is depicted in Figure 3.10.

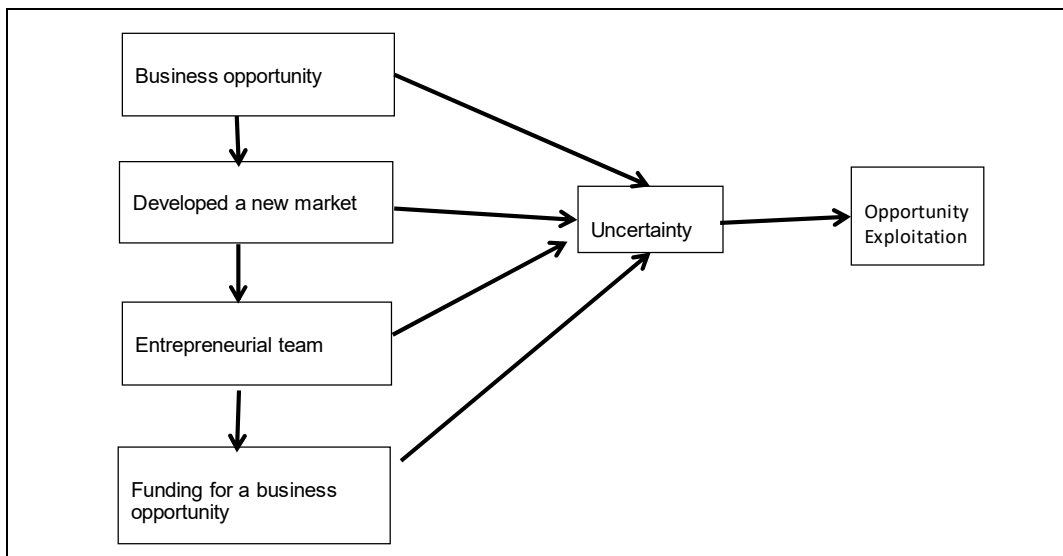


Figure 3.10: Entrepreneurial Opportunity Action – Exploitation

Source: Adapted from Kuckertz *et al.* (2017:85)

A key question entrepreneurs face in the light of perceived entrepreneurial opportunities is which opportunity is reasonable to pursue. Should the new business establish focus on introducing a new product or service based on an unmet need? Should the venture select an existing product or service from one market and offer it in another where it may not be available? Also does the organisation have human capital and other resources to meet the requirements presented by the opportunity? Kuckertz *et al.* (2017:85) reveal four key elements of the process leading to exploitation of entrepreneurial opportunity depicted in Figure 3.10; that are discussed below.

Business opportunity:

Entrepreneurial opportunity exploitation is deliberate action that an entrepreneur engages in in translating entrepreneurial opportunity to meet human needs, consequently building wealth (Porter & Kramer, 2019:4). There are factors that influence opportunity recognition and development leading to business formation, such as entrepreneurial alertness, information asymmetry and prior knowledge, social networks, personality traits (optimism, self-efficacy and creativity) and type of the opportunity itself (Ardichvilia *et al.*, 2003:106). A study by Boudreaux, Nikolaev and Klein (2019:178) singles out self-efficacy and alertness as keys leading to action to exploit an entrepreneurial opportunity. Entrepreneurial alertness

entails scanning and searching for relevant information to establish the profitability of the opportunity. The entrepreneurial alertness exercise is not only about gathering and evaluating information on business opportunities, but the actual action linking willingness to act on the business opportunity (Kuckertz *et al.*, 2017:85). The self-efficacy mainly refers to the entrepreneur's ability to translate entrepreneurial opportunities into actual business (Esfandiar *et al.*, 2019:173).

Develop new market:

To be able to develop a product or services required for the market is among the most important abilities of a successful entrepreneur (Ardichvilia *et al.*, 2003:105). This is attributable to the entrepreneur's personality traits, social networks, and prior knowledge that are prerequisite for being able to exploit entrepreneurial opportunities into business ventures. The creation of any successful venture is preceded by an effective opportunity development process. That entails thorough investigation of the market in terms of their needs, as well as the ability to eye opportunities and deploy required resources that will develop an opportunity to meet the market requirements.

Entrepreneurial team:

Lazar, Miron-Spektor, Agarwal, Erez, Goldfarb and Chen (2020:2) state that entrepreneurial ventures, rather than being initiated by a solo founder, are most usually founded by entrepreneurial teams, defined as two or more individuals who pursue a new business idea, are involved in its subsequent management, and share ownership.

This suggests entrepreneurial ventures are not a one-man's-band but consist of a team put together in pursuance of entrepreneurial opportunities. The study by Lazar *et al.* (2020) reviewed 834 scholarly articles published on how entrepreneurial teams are formed. Their study, amongst others, reviewed why the teams were formed (purpose), secondly how an entrepreneur intends putting the team together (method), thirdly when must this be in place (timing) and where is the venture going to be operational (location). This, according to the same authors, was that it has significant implications in terms of the calibre of the team to be selected and also in terms of the expected outcome from them and business success. It is evident that the entrepreneur's role is that of gathering, mobilising a team and transmitting the team's knowledge to a new venture (Agarwal, Campbell, Franco & Ganco, 2016:1060). Key benefits of having an entrepreneurial team is that teams are known to play a key role in

investment decisions, growth trajectories, and overall venture success (Agarwal *et al.*, 2016).

Once a team has been identified, another key step is how the exploitation or translation of the entrepreneurial opportunity into goods or services will be funded. Funding is a key and delicate step in translating entrepreneurial opportunity into goods and services, subsequently leading into a new venture being established.

Funding for business opportunity:

Funding of entrepreneurial opportunity remains the most important step in launching any new venture or expanding an existing one. Funding can be structured in many ways, either by the entrepreneur putting in his or her own funding, or through external funders or a combination thereof. Investors and funders are keen first to see a business plan that will inform them whether to invest or not. However there are shortcomings when coming to business plans. For example, some institutions mainly focus on financial aspects of the proposal, with very little emphasis paid to the entrepreneur, market and other issues that may be the reason for why the opportunity exists (Mason & Stark, 2004:227). As we saw in the case of creation theory, where opportunity formulation is as a result of endogenous reasons (stemming from the actions, reactions and enactment of entrepreneurs), in this regard opportunities do not exist independently of entrepreneurs (Alvarez & Barney, 2007:13). Due to the novelty of opportunity, a business plan may only be feasible post facto, leaving very little to offer funders who mainly rely on business plans without giving emphasis to the potential of the opportunity to the market.

3.4 CONCLUSION

This chapter identified and discussed entrepreneurial activity, including the two pillars of entrepreneurial activity. The entrepreneurial activity process is a phenomenon within the entrepreneurship field comprising EI and EA. The literature reveals that despite high levels of EI, EA levels remain low (Herrington *et al.*, 2017:7). This results in an '*entrepreneurial intention-action*' (EI-EA) gap (Sniehotta *et al.*, 2005:143; Adam & Fayolle 2015:37; Oliviera & Lima-Rua, 2018:508; Van Gelderen *et al.*, 2018:924). The role of EA is regarded as

significant in suggesting the entrepreneurial activity leading to business ventures, products or new processes created.

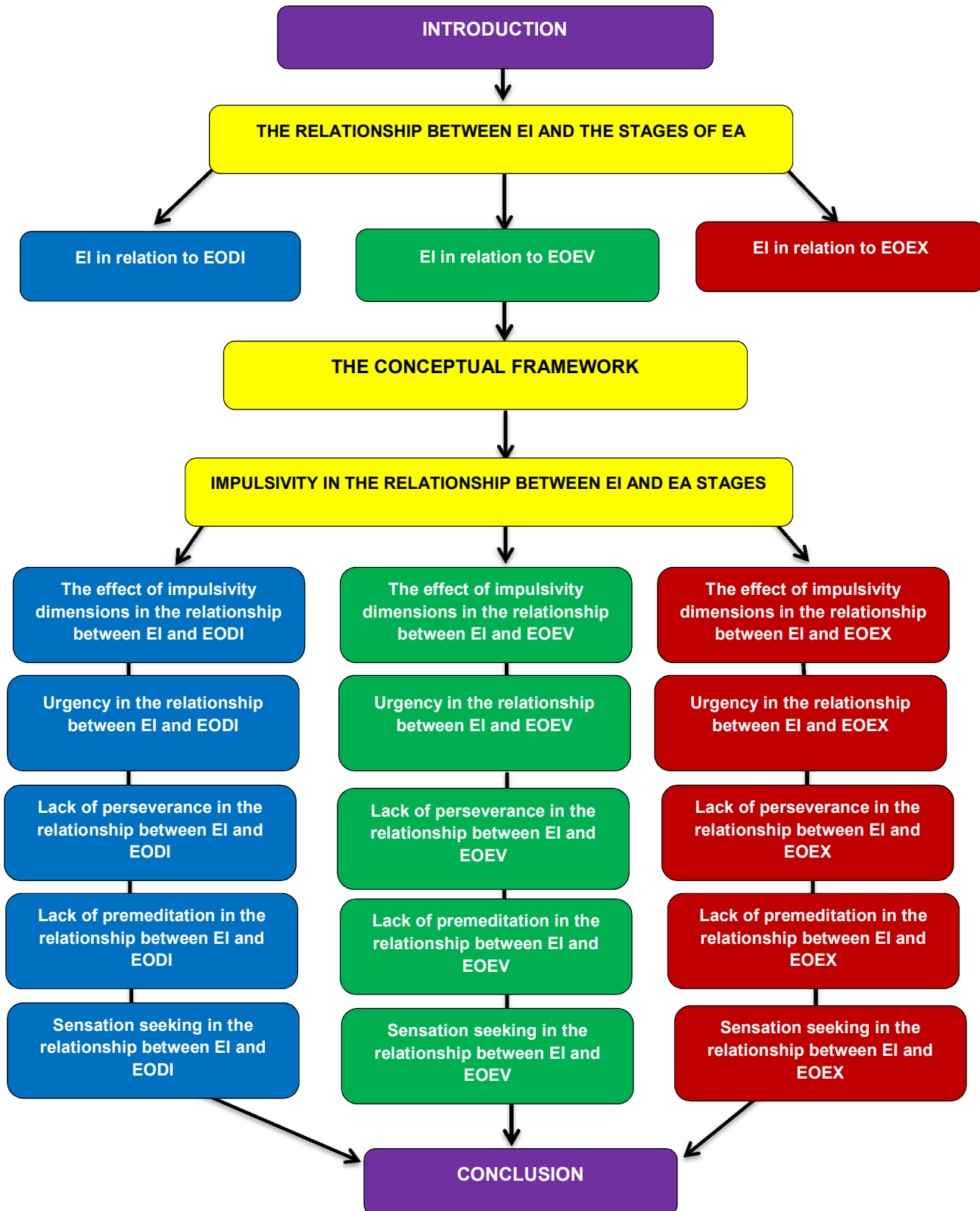
The chapter focused on EI and EA and theories that inform these constructs. In terms of the EI concept, this study utilised TPB and MOA as theories contributing to the formation of EI. Initially the literature was of the view that EI played a significant role in effecting EA, however subsequent literature has held that the contribution of EI to effect EA only accounts to approximately 30%, suggesting that there may be other factors that are to be considered to effect EA. Impulsivity in this regard was discussed in the previous chapter and its possible contribution to the relationship between EI and EA is discussed in the next chapter.

The study also investigated the formation of EA, which consists of three stages (discovery, evaluation and exploitation). The study borrowed from discovery theory and creation theory to aid in detailing how entrepreneurial opportunities are discovered, evaluated and thereafter exploited, leading to new business ventures.

How these constructs relate is discussed in the following chapter, which will look at the relationship between EI and each of stages of the EA, as well as introducing the role of impulsivity as a mediator in this relationship.

CHAPTER 4

THE ROLE OF IMPULSIVITY IN THE RELATIONSHIP BETWEEN EI AND EA STAGES



4.1 INTRODUCTION

The preceding chapters dealt with the key constructs that formulate this study, namely impulsivity, entrepreneurial intention (EI) and the stages of entrepreneurial action (EA). Chapter 2 discussed the impulsivity construct within the entrepreneurial context, by detailing literature pertaining to theories that suggest impulsivity but from the non-pathological level. It was revealed that impulsivity is not a “super” construct but is said to be made up of four key dimensions: urgency; lack of perseverance; lack of premeditation; and sensation-seeking (Whiteside & Lynman, 2001). The chapter concluded by outlining the conceptual framework that suggests the possible contribution of impulsivity to affecting stages of the EA. This supports the view of Wiklund *et al.* (2017) that impulsivity is likely to contribute positively towards entrepreneurship by influencing EA. Chapter 3 discussed EI and EA as the key pillars of entrepreneurial activity. The discussions expounded on theories and models that conceptualise these constructs. The study relied on the theory of planned behaviour (TBP), incorporated with the motivation opportunity ability (MOA) theory, as a process that informs EI. With regard to the stages of the entrepreneurial actions, the study relied on discovery and creative theories.

Chapter 4 expands from the previous chapter that dealt with EI and the stages of EA. The ontological assumption is that EI can enable EA. In addition, the epistemological assumption made is that EI and EA relate to mental or cognitive states (Bux & Van Vuuren 2019:5). If that is the case, then the likelihood of psychological factors is likely to have an effect on the relationship between intentions and actions (Tucker & Marino, 2017:627). This chapter includes impulsivity as a factor that is likely to have an effect on the relationship between EI and the EA stages. This is done by presenting how each of the dimensions of impulsivity relates independently to each of the stages of EA, as depicted in Figure 4.7. This figure depicts the conceptual framework by postulating the mediating effect of impulsivity dimensions in the relationship between EI and each of the stages of EA. The chapter concludes by estimating the possible effect of impulsivity in the relationship between EI and the EA stages.

4.2 THE RELATIONSHIP BETWEEN EI AND EACH OF THE STAGES OF EA

Entrepreneurial intention and action continue to receive attention in entrepreneurship (Khin & Lin, 2018). Given the significance of this relationship in entrepreneurship literature, there is constant research that explores the relationship between EI and EA. The argument forwarded is that the effect of this relationship may contribute to the formation of new business ventures (Esfandiar *et al.*, 2019:171). This relationship between EI and EA is fundamental in the process leading to the entrepreneurial activity taking place (Dimov & Pistrui, 2019:2), even though prior research found the correlation between EI and EA insignificant. This insignificance could be explained by the notion that intentions that lead to actual EA only account for 30%, leaving up to 70% of intentions unaccounted for (Sniehotta *et al.*, 2005:143; Adam & Fayolle, 2015:36). Meoli *et al.* (2019) are of the opinion that the insignificant correlation between EI and EA could be because the correlation between EI and EA is not properly explained in entrepreneurship. These authors reckon that the figure could even be higher than that recorded. Their argument stems from the notion that supports Ajzen's (1991) view regarding the theory of planned behaviour, which implies that intentions are a proxy for action.

If this narrative is followed, the ontological assumption is that EI has an effect on EA. In order to provide insights into how intentions translate into decisions for a new venture creation, Figure 4.1 below expounds on the relationship between EI and the stages of EA. The following section investigates the effect of EI in relation to each of the stages of EA, starting with the entrepreneurial opportunity discovery, then opportunity evaluation and lastly the entrepreneurial opportunity exploitation.

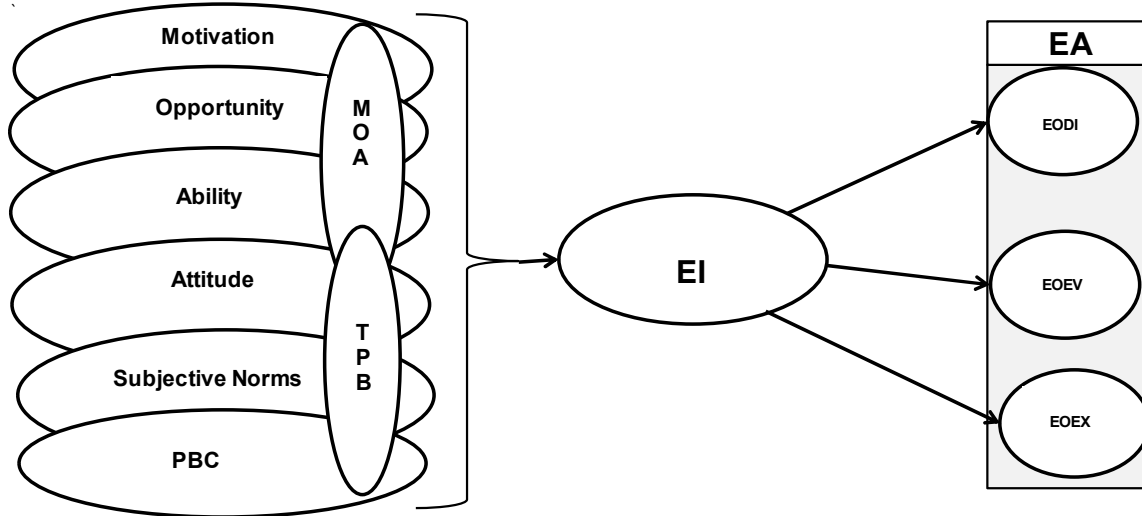


Figure 4.1: The relationship between EI and the EA stages

Sources: Adapted from Esfandiar *et al.* (2019:173)

Figure 4.1 depicts EI and the EA stages; each of these constructs were discussed in Chapter 3. EI relates to pre-venture activities that influence the entrepreneur’s state of mind in directing his or her attention toward action (Esfandiar *et al.*, 2019:173). EA, on the other hand, consists of vigorous and persistent activities that may lead to an entrepreneurial event (Swedberg, 2000: 26): discovery, evaluation and exploitation (Baron, 2007:167).

The following section links EI to each of the stages of EA as depicted on Figure 4.1.

4.2.1 EI in relation to EODI stage of EA

EI and opportunity discovery are significant constructs in entrepreneurship literature (Karimi, Biemans, Lans, Chizari, & Mulder, 2016:187), that play a key role in initiating the entrepreneurial activity (Galesic *et al.*, 2016; Kautonen *et al.*, 2015; Lins & Doktor, 2014). Autio *et al.* (2013:1349). Opportunity discovery is a virtually instantaneous construct driven by intentions and capabilities (Hui-Chen *et al.*, 2014:727). McMullen and Shepherd (2006:140), Lins and Doktor (2014), and Galesic *et al.* (2016) are of the opinion that in order for the entrepreneurial opportunities to be realised, the entrepreneur should be intentional. Kautonen *et al.* (2015:4) support this by stating that intentions are predictors for the

behavioural outcome and not just luck. Even when opportunity discovery is argued to be virtually instantaneous (Autio *et al.*, 2013:1349), this, according to Hui-Chen *et al.* (2014:727), is a process that requires an entrepreneur to be intentional about it. This suggests the proximity of EI to opportunity discovery (Khin & Lin, 2018; Motvaseli & Lottizadeh, 2013:188; Meoli *et al.* (2019:9) claim such correlation to be reasonable and justifiable.

Once the opportunity is discovered, the question is whether such an opportunity makes sense to the entrepreneur to pursue further (McMullen & Shepherd, 2006). As not all opportunities meet the criterion of being pursued further, this then leads to the second stage: the evaluation of the entrepreneurial opportunities. This helps to ascertain whether the entrepreneurial opportunity is viable and desirable to be exploited. The following section discusses the relationship between EI and entrepreneurial opportunity evaluation (EOEV).

4.2.2 EI in relation to EOEV stage of EA

A decision on whether to exploit or abandon the opportunity is dependent on perceived desirability and feasibility presented by the discovered opportunity (McMullen & Shepherd, 2006). As stated, the perceived desirability denotes the extent to which an individual finds the prospect of pursuing the opportunity rewarding based on the potential returns (Wiklund *et al.*, 2017:13). The opportunity evaluation process is a complex exercise (Keh *et al.*, 2002:126, Allinson *et al.*, 2000), due to uncertainties that surround entrepreneurial opportunities (Mises, 1949:7). Given the level of these uncertainties, the willingness of an entrepreneur to deal with uncertainties is a key puller towards exploitation (McMullen & Shepherd, 2006:132). Impulsive individuals are prone to act under uncertainty situations (Tzagarakis *et al.*, 2012:33).

In terms of the perceived feasibility, an entrepreneur has convinced himself or herself that he or she can successfully carry out the activities required in order to exploit the opportunity to the fullest (Wiklund *et al.*, 2017). For this exercise to be effective, the entrepreneur must have the necessary knowledge, skills, intuition and to some extent investment as well (Das & Teng, 1997:70; Souitaris, Zerbinati & Al-Laham, 2007:566; Rastkhiz *et al.*, 2019). In some cases, the evaluation exercise is more of a gut feeling than a calculated exercise, especially when dealing with novel opportunities (Keh *et al.*, 2002:126).

Sniehotta *et al.* (2005:143); and Adam and Fayolle (2015:36) argue that the opportunity evaluation exercise is an intentional exercise, driven by past knowledge, skills and sometimes driven by self-efficacy. The extent to which the opportunity is desirable cannot be established easily, as is the case with the feasibility (Keh *et al.*, 2002:126), when the entrepreneur can rely on past skills or knowledge to measure the prevailing opportunity. With regard to desirability this is not the case, as desirability is subjective from person to person. Therefore, past experiences cannot be antecedent to establish whether the opportunity is desirable or not (Krueger, 1993:6). The desirability exercise is driven more by an entrepreneur's emotions than anything else. Su *et al.* (2020) argue that emotions play a role in establishing a desire that can result in EA. This implies that even with the greatest of intentions, coupled with entrepreneurial opportunities, if the perceived desirability and feasibility is not established, then that opportunity will cease to exist (Esfandiar *et al.*, 2019:173; Suna *et al.*, 2020:2).

Key to the evaluation exercise is the feasibility and desirability of the entrepreneurial opportunity to be exploited (Williams & Shepard, 2016:366; Alvarez & Barney, 2007:12). The following section discusses the last stage of EA, which is the entrepreneurial opportunity exploitation (EOEX).

4.2.3 EI in relation to EOEX stage of EA

Subsequent to the evaluation of the entrepreneurial opportunity, the next stage is whether such opportunity can be exploited for commercial purposes or not (Shane & Venkataraman, 2000). Porter and Kramer (2019:4) regard the exploitation stage as the apex of the entrepreneurial activity. This is where decisions are made or action is implemented which may result in the creation of new business ventures (Lins & Doktor, 2014). Without this stage there will simply be no entrepreneurship being realised (Schumpeter, 1934:137; Coase, 1937:386; Khin & Lim, 2018).

As mentioned in the previous chapter, the role of entrepreneurial intentions and action, in the process leading to the entrepreneurial activity taking place, cannot be underestimated (Esfandiar *et al.*, 2019:173; McMullen & Shepherd, 2006; Bird & Schjoedt, 2017:1); hence the reason for why these constructs continue to receive attention in entrepreneurship (Khin & Lin, 2018; Dimov & Pistrui, 2019:2).

The assumption is that EI is fundamental to initiate EA. This implies that at some point there is a correlation between EI and EOEX. The extent of this correlation is the one that studies have found not to be significant (Adam & Fayolle, 2015:45; Oliveira & Lima-Rua 2018:508). However, it is a common understanding that action starts as a result of something (Kautonen *et al.*, 2015). Is this why studies such as Wiklund *et al.* (2017); Hmieleski *et al.* (2013:140) and Lerner *et al.* (2018) endorsed the inclusion of psychological factor in this relationship, as EI on its own is not very significant to effecting EA (Oliveira & Lima-Rua 2018:508)? The following section discusses the effect of impulsivity in the relationship between EI and EA stages. The discussion starts by expounding on the relationship between impulsivity and entrepreneurship.

4.3 IMPULSIVITY IN ENTREPRENEURSHIP

Entrepreneurship studies continue to investigate factors to influence EA (Sniehotta *et al.*, 2005:143; Adam & Fayolle, 2015:36; Van Gelderen *et al.*, 2018:924). The psychological perspective is one of the building blocks to the study of entrepreneurship. As a quest for positive characteristics of aspiring and accomplished entrepreneurs, it defines what data are relevant for empirical examination and inevitably overlooks seemingly irrelevant data. For example prominent entrepreneurs such as Richard Branson of Virgin Group have all been claimed to have ADHD (Wiklund, Patzelt & Dimov, 2016:14). Previous research on the inclusion of psychological factors to effect EA mainly focused only on the positive attributes such as risk taking, locus of control, motivation and perseverance (Baqutayan, 2016:51). However, not all persons possess the same behavioral traits (Wiklund *et al.*, 2017). Yet it can be argued that some individuals have attributes with “negative” psychological or pathological attributes (Miller, 2015:1), such as those traits that were regarded as negative but have now led to the emergence of current conversations that investigate the possible contribution of “dark pathological” influences such as ADHD and impulsivity (Wiklund *et al.*, 2016).

Impulsivity was found to be a multifaceted construct (Whiteside & Lynam, 2001:671). Fürst *et al.* (2014:88) and McMullen and Shepherd (2006:133) cite similar elements to those required to effect action. Impulsive individuals respond spontaneously to new ideas. This, according to Cloninger *et al.* (1993:977), occurs and is motivated at a preconscious level

because of the individual's biological predisposition. As such, impulsive individuals are prone to taking action once they have made up their minds regarding the opportunity (Bechara, *et al.* 1997:1293). They also have an elevated level of creativity compared to individuals without impulsivity predispositions (Cloninger *et al.*, 1993:977) and are not easily unsettled by uncertainties (Warmink *et al.*, 2017:4594). Uncertainties, creativity and action are daily occurrence in entrepreneurship, and are common elements associated with "positive" impulsivity (Obschonka & Stuetzer, 2017:204; Wiklund *et al.*, 2017:37). Therefore genetic factors affect the probability that people will have an endowment of differences that, in interaction with environmental stimuli, increase their likelihood of becoming entrepreneurial (Nicolaou *et al.*, 2008:7). Lerner *et al.* (2018:2) are of the opinion that impulsivity elements may play a role in entrepreneurship. This is supported by Canits, Bernoster, Mukerjee, Bonnet, Rizzo and Rosique (2020:1093), who found that there is a body of literature that links impulsivity and its symptoms to entrepreneurial manifestations. This implies that impulsivity is likely to contribute positively to entrepreneurship (Wiklund *et al.*, 2017). The following section investigates impulsivity dimensions in the relationship between EI and EA.

4.3.1 Impulsivity in relation to EI and the stages of EA

The broader entrepreneurship research finds EA levels low compared with EI levels that are high (Van Gelderen *et al.*, 2015:655; Oliviera & Lima-Rau, 2018:38; Adam & Fayolle, 2015:36) creating an "*intentions-action gap*" (Oliviera & Lima-Rua, 2018:508; Van Gelderen *et al.*, 2018:924), which is a missed opportunity due to no entrepreneurial event taking place (Asante & Affum-Osei, 2019: 227). This is a global phenomenon also observed here in South Africa (Herrington *et al.*, 2017:7).

To mitigate against this, Wiklund *et al.* (2017) and Esfandiar *et al.* (2019) recommended the inclusion of psychological traits in the relationship between EI and EA. These authors are of the opinion that impulsivity is likely to affect EA, since impulsivity possesses attributes similar to those crucial to affecting EA (Fürst *et al.*, 2014:88; McMullen & Shepherd, 2006:133).

The relationship of impulsivity to EI and the stages of EA are illustrated in Figure 4.2 below.

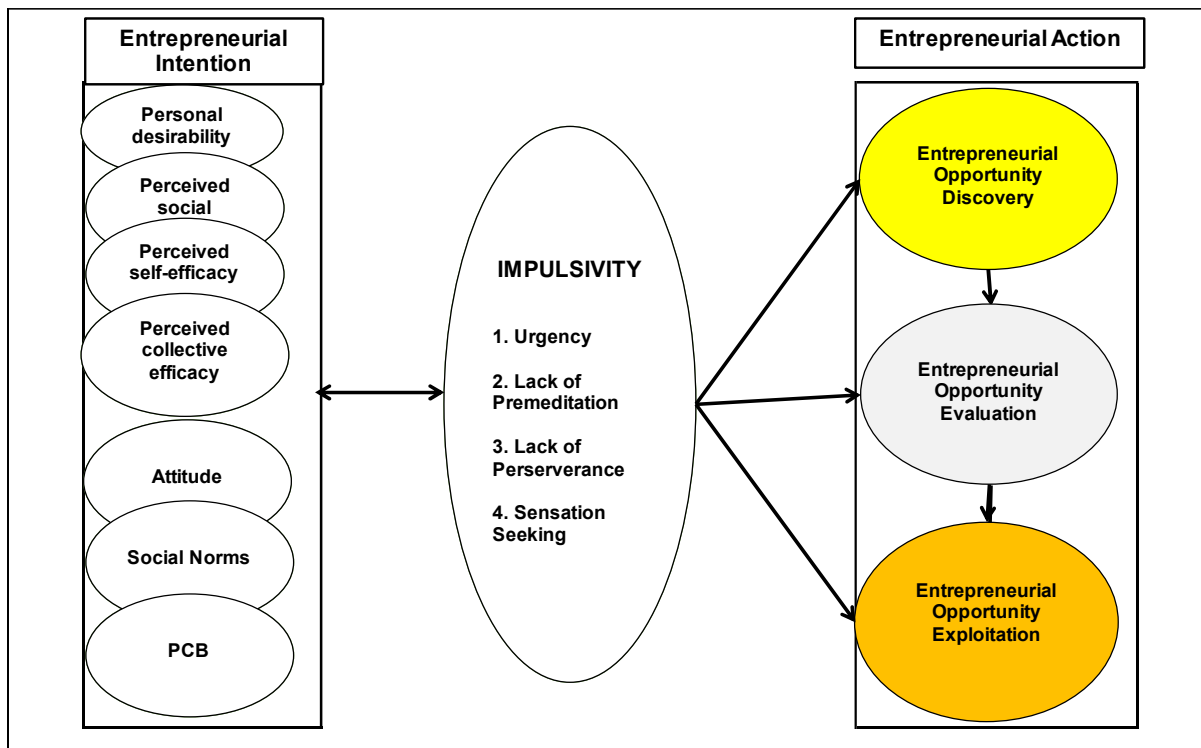


Figure 4.2: Impulsivity in the relationship between EI and stages of EA

Source: Own compilation

Figure 4.2 graphically illustrates EI and the stages of EA linked by impulsivity. These constructs were discussed in detail in previous chapters. Chapter 2 dealt with the impulsivity trait in relation to entrepreneurship, in which the Big Five theory was used to interpret the impulsivity trait in relation to this study (Seibert & De Geest, 2017:381). From the discussions it was established that impulsivity is not a super construct. Whiteside and Lynman (2001) narrowed its definition from the 17 elements that suggest this construct. These authors arrived at the four facets of impulsivity that are closely associated with the entrepreneurial behavioural outcome: urgency, lack of perseverance, lack of premeditation and sensation seeking. From Figure 4.2 it is also evident that a bidirectional relationship is suggested between EI and impulsivity, which suggests that whether an individual is impulsive or not does not preclude him or her from having intentions to engage in business activities, as opportunities and having intentions are open to anyone (Alvarez & Barney, 2007:13).

Chapter 3 investigated EI and the stages of EA in terms of the theories and models that inform these constructs. The study relied on the Theory of Planned Behaviour (TPB), in

conjunction with the motivation opportunity ability theory (MOA), with regard to elements that posit EI. It is suggested that a combination of the elements may be key to stimulating action (Kautonen *et al.*, 2015:4). In terms of the stages of EA, the discovery theory (DT) and creative theory (CT) are key to unearthing the activity that suggests a process and behavioural outcome. EA is a dynamic and multiplicative construct (Emami & Khajeheian, 2019:1) that entails discovery, evaluation and exploitation of the entrepreneurial opportunity stages (Shane & Venkataraman 2000:218).

The discussions below expound on the possible relationship between EI and the stages of EA linked by impulsivity. The following section investigates impulsivity in relation to EI.

4.3.2 EI and impulsivity

Research reveals a growing number of individuals with impulsivity-related disorder (Chiumia & Van Wyk, 2018:1). With those numbers increasing, this implies that individuals with impulsivity can no longer be left outside economic activities (Deon 2011: 5424; Walker *et al.*, 2011:25), especially since certain attributes of impulsivity are likely to affect EA (Eysenck & Zuckerman, 1978:483, Wiklund *et al.*, 2017). The assumption made with regard to intentions is that they are key to initiating entrepreneurial activity to take place (Van Gelderen *et al.*, 2015). However, this assumption failed to take into account the psychological factor that aligns such perceptions with reality (Meoli *at al.* 2019:3); not every intention translates into action.

Of significance is that any person can have the intention to engage in business activities, whether impulsive or not. Impulsivity does not preclude nor disadvantage any person from participating in economic activities (Alvarez & Barney, 2007:13). Instead, if more individuals, including those with impulsivity, participate in economic activities, this may make a positive contribution to entrepreneurship (Hartanto *et al.*, 2017:1130). This suggests that any person can be entrepreneurial as long as there are clear opportunities that are being identified and exploited into business ventures (Lins & Doktor, 2014).

Shapero's model of the entrepreneurial event reveals that intentions are the result of external and internal stimuli (Shapero & Sokol, 1982:72), which in this case include amongst other elements creativity. Creativity is regarded as a fundamental requirement to generate,

amongst others, a business opportunity (Eysenck & Zuckerman, 1978:483). Feist (1998:290) found a correlation between impulsivity and creativity. This is supported by a meta-analysis research on the relationship between a large number of personality traits and creativity, which concluded in general that individuals with impulsivity disorder are creative (Fürst *et al.*, 2014:88).

Creativity, as one of the attributes of non-pathological impulsivity, is fundamental to generating an opportunity, which is an elementary requirement for starting a business (Alvarez & Barney, 2007:13). This suggests a link between EI and impulsivity (Wiklund *et al.*, 2017; Lerner *et al.*, 2018:3). This notion is supported by Pietersen and Botha (2021:2), linking impulsivity to elevated levels of EI. The following discussions expound on the effect of impulsivity dimensions in the relationship between EI and the stages of EA.

4.3.3 Impulsivity dimensions in the relationship between EI and EODI

The previous chapter discussed entrepreneurial opportunities in terms of how they are conceived or discovered. Emami and Khajeheian (2018) and McKelvie *et al.* (2011:273) are of the opinion that entrepreneurial opportunities are predicated by uncertainties, which place a great deal on the entrepreneurs' willpower to obtain what they desire (Van Gelderen *et al.* 2015:655). Evans (2007) argues that how individuals react under conditions of uncertainty is influenced by affective experiences arising from impulsivity rather than reflective processes. The risk and uncertainty make the process of discovering entrepreneurial opportunity a highly emotionally charged journey (Baron, 2008:328), propelled by internal and/or external stimuli (Esfandiar *et al.*, 2019). The following section investigates the effect of the dimensions of impulsivity in the relationship between EI and EODI, as illustrated in Figure 4.3.

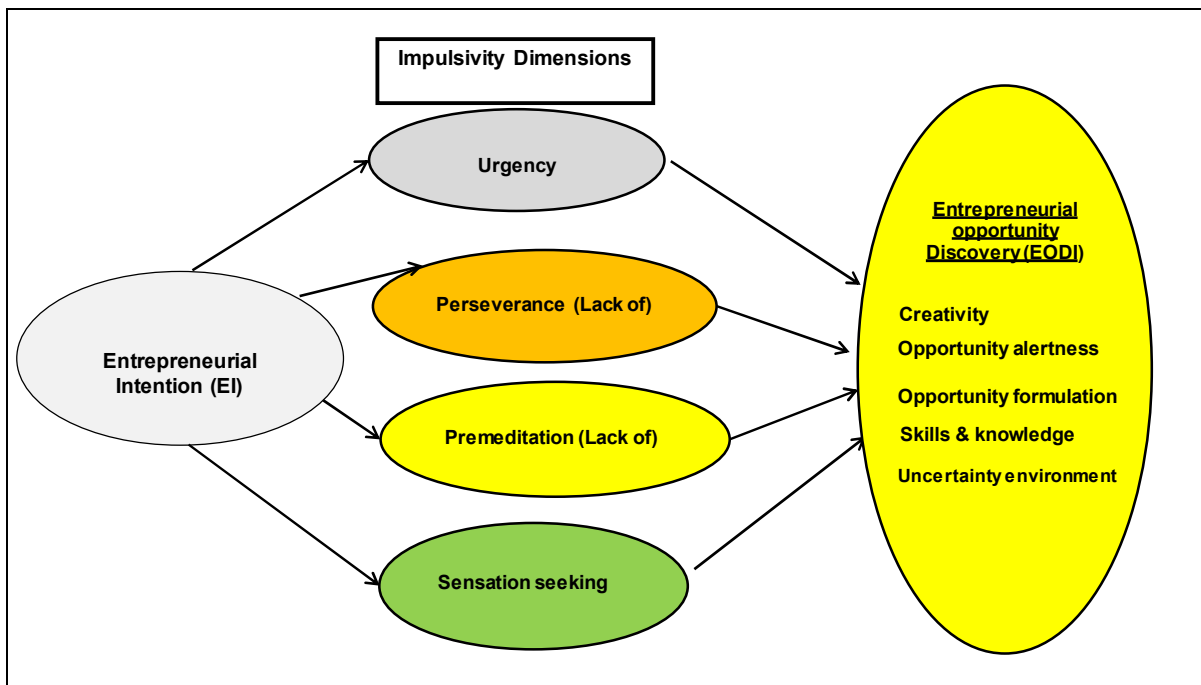


Figure 4.3: Impulsivity dimensions in the relationship between EI and EODI

Source: Own compilation

Figure 4.3 above depicts that EI and EODI can be linked by impulsivity dimensions. Elements that suggest opportunity discovery in terms of this study were discussed in Chapter 3 and these are: creativity, opportunity alertness, opportunity formulation, knowledge and skills, and the ability to operate in uncertainty (Ardichvilia *et al.*, 2003; Esfandiar *et al.*, 2019:173).

The following section investigates each individual impulsivity dimension (i.e. urgency, lack of perseverance, lack of premeditation, sensation-seeking) in the relationship between EI and EODI.

4.3.3.1 Urgency in the relationship between IE and EODI

As stated, the entrepreneurial environment is associated with high levels of uncertainties (McMullen & Shepherd, 2006:132) that make entrepreneurship a highly emotionally charged process (Baron, 2008:169). Uncertainties create an emotional thread (Wiklund *et al.*,

2017:10) that more often than not complicates the entrepreneur's decision-making process (Warmink *et al.*, 2017:4594). This is a common phenomenon with the urgency trait (Whiteside & Lynam, 2001; Cyders & Smith 2007)

Individuals that score high in urgency are argued to be sensitive to negative cues caused by uncertainties (Baron, 2008:169) that are likely to hinder their pursuance of entrepreneurial opportunities (Wiklund *et al.*, 2017), as a result of distress or anxiety (Riley *et al.* 2015:440) or self-doubt (Wang *et al.*, 2017:1)

Emotions such as anxiety, worry, sadness, fear, vulnerability, or anger can influence action independently of the cognition input (Billieux *et al.*, 2012:610; Wiklund *et al.*, 2017:11) and result in aborting the attempt to pursue the opportunity further (McMullen & Shepherd, 2006). Therefore, the effect of urgency in the relationship between EI and EODI is likely to be negative due to negative affections that are triggered by the immediacy of uncertainties to entrepreneurial opportunities (McMullen & Shepherd, 2006:132). This supports Wiklund *et al.* (2017) and Yu (2018), that this is likely to deter the initiation of action. Van Gelderen *et al.* (2015) claim that such uncertainties evoke affective experiences of action aversion, action fear and action doubt.

4.3.3.2 Lack of perseverance in the relationship between IE and EODI

Individuals with a lack of perseverance have the inability to remain focused when performing tasks that they perceive as uninteresting or cumbersome (Whiteside & Lynam 2009:70; Riley *et al.*, 2015:440). Individuals that score high in lack of perseverance find it difficult under conditions that require resistance to distracting stimuli; they tend to give up easily when they perceive the opportunity to be boring or difficult (Zermatten *et al.*, 2005:647). This indicates an adverse relation between lack of perseverance and EODI (Wiklund *et al.*, 2017; Riley *et al.*, 2015:440), which makes them sensitive to the negative cues (Baron, 2008:169) that are likely to be an inhibitor for action (Paulus, 2007:602), leading to the abandoning of entrepreneurial opportunities (Zermatten *et al.*, 2005:647).

Although the lack of perseverance does not preclude an inspiring entrepreneur from being drawn to other opportunities which they consider more fun or less difficult, compared with

the ones discarded (Kaiser *et al.*, 2012:527), the entrepreneurial environment is engulfed by negative effects which are triggered by the immediacy of uncertainties (McMullen & Shepherd, 2006:132). Therefore lack of perseverance is likely to be negative in the relationship between the EI and EODI stages (Wiklund *et al.*, 2017; Riley *et al.*, 2015:440

4.3.3.3 Lack of premeditation in the relationship between IE and EODI

Entrepreneurial opportunities are associated with high risk and uncertainties which make it a highly emotional process (McMullen & Shepherd, 2006:132; Baron, 2008:169). Entrepreneurs with lack of premeditation find it difficult to ponder and consider possible outcomes presented by the opportunity before engaging further (Adams *et al.*, 2012:848; Whiteside & Lynam, 2009:70). Individuals that lack premeditation are likely to have high levels of emotion when they discover the opportunity and they pay less attention to information that suggests any probability of failure (Adams *et al.*, 2012:848). In contrast to those with urgency and lack of perseverance, individuals with lack of premeditation experience very little fear or anxiety (Pietersen & Botha 2021) in the face of prevailing opportunity, irrespective of uncertainties or potential downsides (Wiklund *et al.*, 2017).

Key to these individuals with a lack of premeditation are high levels of positive emotion, irrespective of possible consequences (Tzagarakis *et al.*, 2012:33; Zuckerman, 1994: 27) and a number of opportunities from which they can choose (Mitchell & Shepherd, 2010). As a result, lack of premeditation is likely to trigger experiences of hopefulness with regard to identified opportunities (Whiteside & Lyman, 2001:670; Yu, 2018). This suggests that lack of premeditation is likely to have a positive effect to in the relationship between EI and EODI (Lerner *et al.*, 2018; Wiklund *et al.*, 2017).

4.3.3.4 Sensation seeking in the relationship between IE and EODI

Not every person deals with uncertainties and opportunities in the same way (Wiklund *et al.*, 2017:12). Some individuals are less prone to anxieties (Tzagarakis *et al.*, 2012:33) and have a deep-seated need for exciting and risky stimulations (Riley *et al.*, 2015:440) that may

trigger experiences of positive affect (Whiteside & Lyman, 2001:670; Nicolaou *et al.*, 2008; Zuckerman 1994:27). This is the case with sensation-seeking individuals that find the pursuit of activities in uncertain contexts exciting (Riley *et al.*, 2015:440). This suggests that the more uncertain the situation is, the more sensation seekers are likely to take action (Tzagarakis *et al.*, 2012).

Entrepreneurs with a sensation-seeking predisposition display very little or no fear and anxiety in pursuing the opportunity once they make their intentions known (McMullen & Shepherd, 2006:132). This is due to their higher arousal for bearing risk in pursuit of novelty (Nicolaou *et al.*, 2008:8). This supports Mitchell and Shepherd (2010), who found that entrepreneurs low in fear of failure assess entrepreneurial opportunities more favourably, even when their potential returns are comparatively low. This suggests that sensation-seeking is likely to have a positive effect in the relationship between EI and EODI, because of sensation-seeking individuals' quest to act on their opportunities, irrespective of the risk associated with their novel ideas and possible negative results (Whiteside & Lyman, 2001:670; Wiklund *et al.*, 2017).

4.3.4 Impulsivity dimensions in the relationship between EI and EOEV

In order to decide whether action should be taken to exploit the opportunity is the subject of the evaluation exercise that determines the desirability and feasibility presented by the opportunity (McMullen & Shepherd, 2006:134; Shane & Venkataraman, 2000:218). Perceived desirability equates to the extent to which an individual finds the prospect of pursuing the discovered opportunity attractive or not, whereas the perceived feasibility reflects the extent to which an individual is convinced that he or she can successfully carry out the activities required for successful opportunity exploitation (Loewenstein *et al.*, 2001:267).

Evaluation stage is a key process of the EA in order to ascertain the viability and desirability presented by the opportunity (Keh *et al.*, 2002; Hills & Shrader, 1998:54). For the evaluation exercise to be effected, past knowledge and skills play a significant role in this regard (Hills & Shrader, 1998:54). However, in some instances the individual's personality plays a key role in determining whether the opportunity is desirable and/or feasible (Shane *et al.*, (2010)

especially in those cases of novel opportunities that do not come with a manuscript to ascertain their viability (Klotz & Neubaum, 2016).

Given that entrepreneurial opportunities are carried out under uncertainty, therefore the willingness of an entrepreneur to bear uncertainty is fundamental and in a case of impulsivity this can exert a pulling force (McMullen & Shepherd, 2006) towards exploitation (Leland *et al.*, 2006: 726; Marinacci, 2015:1023). In determining whether the entrepreneurial opportunity is feasible, there is no systematic relationship regarding engaging in risky activities and impulsivity (Llewellyn & Sanchez, 2008:413). As such, it is unlikely for impulsivity to influence perceived feasibility (Wiklund *et al.*, 2017:17). Individuals with impulsivity are propelled by their motions in terms of whether they find the discovered opportunity desirable, rather than paying attention to whether the opportunity is feasible or not (Hofmann, Friese & Strack, 2009:162).

The following section investigates the effect of the dimensions of impulsivity in the relationship between EI and EOEV, as illustrated in Figure 4.4 underneath.

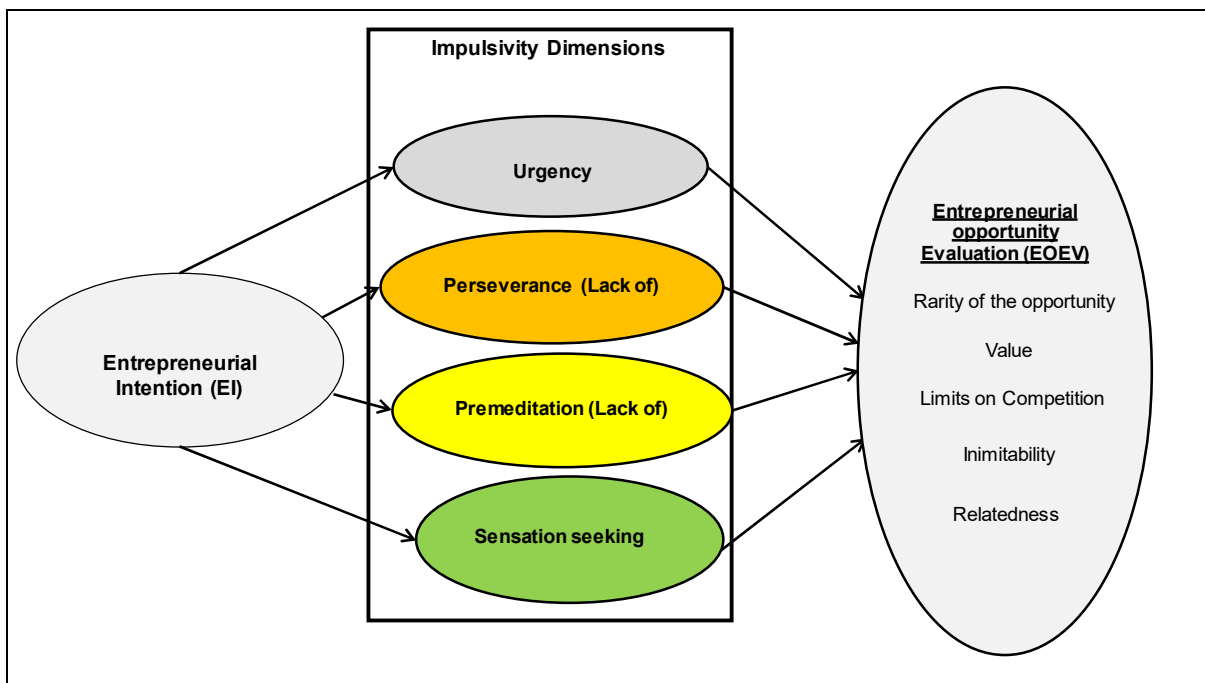


Figure 4.4: Impulsivity dimensions in the relationship between EI and EOEV

Source: Own compilation

Figure 4.4 above depicts that EI and EOEV can be linked by impulsivity dimensions. Elements that suggest opportunity evaluation in terms of this study were discussed in Chapter 3 and these are: rarity of the opportunity, the value brought by the opportunity, limits on competition, inimitability and relatedness (Haynie *et al.*, 2009:349; Keh *et al.*, 2002).

The following section investigates each individual impulsivity dimension (i.e. urgency, lack of perseverance, lack of premeditation, sensation-seeking) in the relationship between EI and EOEV.

4.3.4.1 Urgency in the relationship between IE and EOEV

As indicated, urgency is associated with negative emotions (Wiklund *et al.*, 2017:15), Individuals high in urgency experience emotions more strongly than others, since they place greater emphasis on their emotions (Van Gelderen *et al.*, 2015). So urgency plays a stronger influence (Baron, 2008) on the decision on whether the opportunity should be exploited or not, based on the entrepreneur's perceived desirability (Hartanto *et al.*, 2017:1131).

Individuals with urgency have low distress tolerance and little faith in their own ability to tolerate negative emotions (Kaiser *et al.*, 2012:527), and place greater emphasis on anticipated emotions in their decision-making process (Wiklund *et al.*, 2017:16). Such decisions informed by urgency are propelled by heightened emotions, often of negative affectivity (Cyders & Smith, 2007).

Such decisions informed by urgency are likely to reduce the desire for the entrepreneurial opportunity to be exploited (March & Shapira, 1987:1404). Therefore urgency is likely to be negative in the relationship between IE and EOEV (Wiklund *et al.*, 2017:49), due to individuals with urgency's inability deal with uncertainties or to tolerate negative emotions (Kaiser *et al.*, 2012).

4.3.4.2 Lack of perseverance in the relationship between IE and EOEV

Individuals with a lack of perseverance predisposition leap from one opportunity to another when they find the first opportunity boring or difficult (Riley *et al.*, 2015:440). This does not

mean, as they leap from one opportunity to pursue another, that the opportunity is completely thwarted. In some instance these individuals rush to the next project, especially in the case when they have team members that can continue with the current opportunity at the same time (Wiklund *et al.*, 2017). This kind of behaviour is not in conflict with entrepreneurship, which advocates recognition of an abundance of entrepreneurial opportunities (Shane & Venkataraman, 2000). As a result, individuals who lack perseverance can switch from one task to the next before getting bored and are likely to find it desirable to engage further when the opportunity presents itself without their paying consideration to possible consequences of their choices (Moeller *et al.*, 2001; Greco & Roger, 2001; Wiklund *et al.*, 2017).

As mentioned, when coming to individuals with impulsivity, whether the opportunity is feasible or not has no effect in terms of the decision taken regarding it. Therefore, lack of perseverance is likely to be positive in the relationship between IE and EOEV if several opportunities are at stake, owing to deviations that are likely to be desirable to someone who lacks perseverance because it allows them to switch from one task to the next before getting bored (Wiklund *et al.*, 2017:49).

4.3.4.3 Lack of premeditation in the relationship between IE and EOEV

Can the lack of premeditation affect the entrepreneurial opportunity evaluation process, given the fact that those with this tendency are prone to act without forethought and disregard for possible outcomes (Greco & Roger, 2001; Moeller *et al.*, 2001)? Individuals with this tendency tend to put less effort to gathering and analysing information, and uncertainties are not a factor in terms of whether the opportunity is viable or not (McMullen & Shepherd, 2006). Instead, individuals who lack premeditation are inclined to ignore any potential negative consequences of an opportunity, such as potential financial failure or the social stigma of failure (DeYoung, 2010:486).

Lack of premeditation is likely to be positive in the relationship between EI and EOEV (Wiklund *et al.* 2017; Leland *et al.*, 2006), as the lack of premeditation elevates the optimism leading to the likelihood of the entrepreneurial opportunity being exploited (Lowe & Ziedonis, 2006).

4.3.4.4 Sensation seeking in the relationship between IE and EOEV

Entrepreneurs with sensation-seeking tendencies are known to thrive at pursuing opportunities that are thrilling, novel, and risky (Dickman 2000; Riley *et al.*, 2015). These individuals do not regard the gathering and analysing of information regarding the discovered opportunity as key; rather their emphasis is more on the perceived desirability than whether the opportunity is feasible to be exploited (Nicolaou *et al.*, 2008). This is because they find uncertainties and novelty rewarding (Tzagarakis *et al.*, 2012:33).

Therefore sensation seeking is likely to be positive in the relationship between EI and EOEV due to the positivity of perceived desirability of the opportunity, and no influence in terms of whether the opportunity is viable or not (Wiklund *et al.*, 2017:49). Those high in sensation seeking find it more desirable to bear with the uncertainty associated with opportunities than those who lack sensation seeking tendencies (Leland *et al.*, 2006).

The following section investigates each individual impulsivity dimension (e.g urgency, lack of perseverance, lack of premeditation, sensation-seeking) in the relationship between EI and EOEX.

4.3.5 Impulsivity dimensions in the relationship between EI and EOEX

The exploitation stage relates to a process that inculcates the translation of entrepreneurial opportunities into concrete actions (Wiklund *et al.*, 2017; Yu, 2018; Lerner *et al.*, 2018).

The assumption that suggests that prospective entrepreneurs automatically translate their intentions into actual businesses is far from the reality, as not all intentions and opportunities get translated into the entrepreneurial event (Van Gelderen *et al.*, 2015). Immediacy of the action triggered by emotional responses plays a significant role (Wiklund *et al.*, 2017) either to effect or inhibit the entrepreneurial action (McMullen & Shepherd, 2006).

In a case of negative affectivity such as fear, anxiety, dread of risk and uncertainty, such affectivity may trigger emotions that may result in action aversion, procrastination or aborting the process (Van Gelderen *et al.*, 2015). This is opposed to positive emotions derived from

the initial assessments of desirability and feasibility (Loewenstein et al., 2001:267) that were likely to lead to action (Whiteside & Lynam, 2001).

Figure 4.5 graphically illustrates impulsivity in the relationship between EI and EOEX.

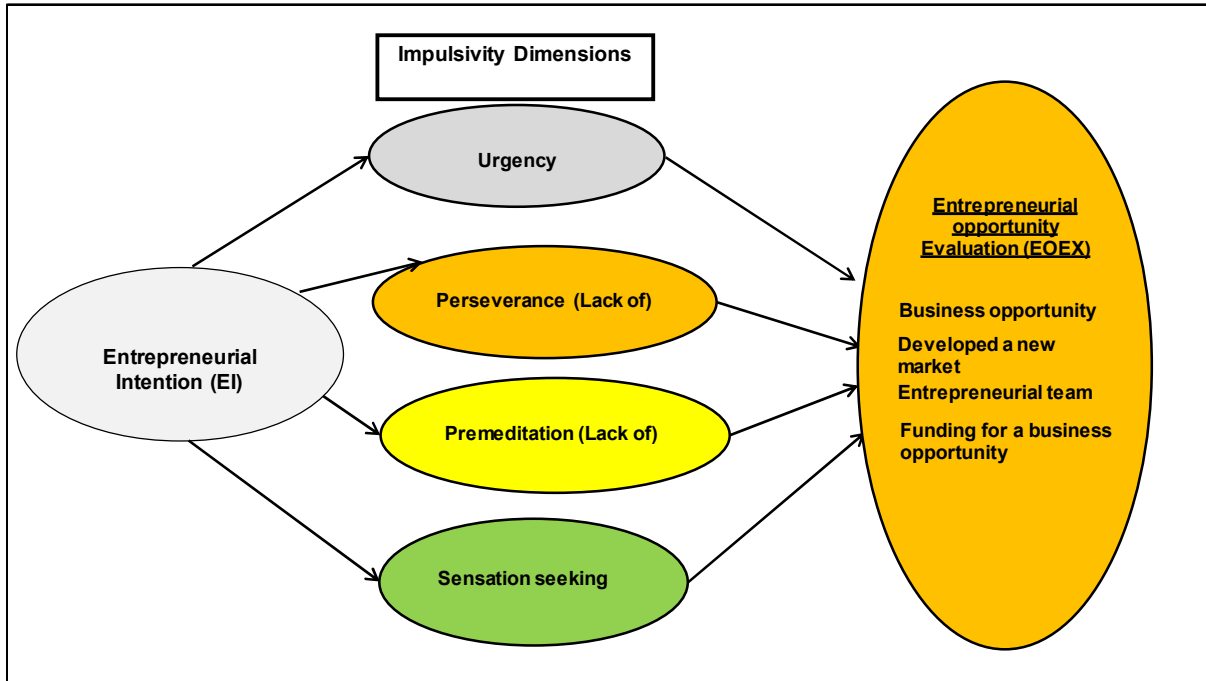


Figure 4.5: Impulsivity dimensions in the relationship between EI and EOEX

Source: Own compilation

Figure 4.5 above depicts that EI and EOEX can be linked by impulsivity dimensions. Elements that suggest opportunity exploitation in terms of this study were discussed in Chapter 3 and these are: business opportunity, development of new markets, entrepreneurial team and funding for the business opportunity (Kuckertz *et al.*, 2017:85).

The following section investigates each individual impulsivity dimension (urgency, lack of perseverance, lack of premeditation, sensation-seeking) in the relationship between EI and EOEX.

4.3.5.1 Urgency in the relationship between IE and EOEX

Ascertaining the desirability of the opportunity gives rise to emotions that may affect the decision regarding the discovered opportunity (Krueger & Day, 2010:321) on whether to exploit it or not (Ren *et al.*, 2016:468). As stated, the reason why prospective entrepreneurs abstain from action is the immediacy of the action, which often triggers affective responses (Wiklund *et al.* 2017:18). Emotions such as fear, worry, aversion, anxiety, doubt, and hesitancy can inhibit entrepreneurial action (McMullen & Shepherd, 2006).

Individuals high in urgency are argued to experience anxiety and fear that triggers avoidance reactions and a higher likelihood of abandoning any risky or uncertain activities (Loewenstein *et al.*, 2001). As a result of this negativity the desirability of acting on entrepreneurial opportunity is reduced (Fitzsimmons & Douglas, 2011). This may result in action regarding the entrepreneurial opportunity being deferred or abandoned (Wiklund *et al.*, 2017). Therefore the effect of urgency on entrepreneurial action is likely to be negative in the relationship between the EI and EOEX (Wiklund *et al.*, 2017), because those high in urgency tend to experience anxiety and therefore pull out before engaging in action (McMullen & Shepherd, 2006:133; Cyders & Smith 2007:840).

4.3.5.2 Lack of perseverance in the relationship between IE and EOEX

Those individuals high in lack of perseverance tend to be easily distracted from boring tasks; as a result they tend to set aside tasks or opportunities they do not enjoy to start activities they consider to be more fun or less risky (Wiklund *et al.*, 2017). Opportunities per se can be stimulating and evoke positive affect, however, due to the number of tasks required to exploit the opportunity, it is likely that entrepreneurs lacking perseverance will find some of these tasks to be tedious and boring, making it hard for them to persist with the opportunity overall (Kaiser *et al.*, 2012:527). This notion is supported by Riley *et al.* (2015:445), who found in their study of university students that those with lack of perseverance tendencies tended to quit quickly once they perceived their course as being difficult or uninteresting, as compared with the rest of the students.

4.3.5.3 Lack of premeditation in the relationship between IE and EOEX

As the entrepreneurial environment is the one engulfed with uncertainty (Davidsson, 2015:675), these individuals are inclined to act without considering potential setbacks, thus being less intimidated by the imminence of risk and uncertainty (Whiteside & Lynam, 2001). Instead, these individuals become extremely focused when pursuing profitable opportunities, and insensitive to any negative feedback once they have decided on forging ahead in the direction chosen (Whiteside & Lynam, 2001:669).

Therefore, lack of premeditation is likely to be positive in the relationship between EI and EOEX (Wiklund *et al.*, 2017:49). This is due to the notion that those that are high on lack of premeditation have a bias towards persistent action, with no consideration for negative information (Kuckertz *et al.*, 2017).

4.3.5.4 Sensation-seeking in the relationship between IE and EOEX

Individuals that are high in sensation-seeking are prone to action (Tzagarakis *et al.*, 2012:33), drawn to risky activities (Horvath & Zuckerman, 1993:44), and enjoy engaging in new and dangerous activities (Dickman 2000:563).

Once the entrepreneurial opportunities are discovered, sensation-seekers are likely to complete activities related to establishing a new venture, irrespective of obstacles that they may face (Wiklund *et al.*, 2017). These individuals are attentive to potential rewarding outcomes, while paying less sensitivity to outcomes that are punitive (Dickman 2000:563). Therefore, sensation seeking is likely to be positive in the relationship between EI and EODI (Yu, 2018; Lerner *et al.*, 2018), due to their predisposition to act and be less sensitive to the immediacy of risk and uncertainty (Wiklund *et al.*, 2017:49).

4.3.6 Moderated mediation between EI and the stages of EA

Even though the Wiklund *et al.* (2017) framework, as presented in Chapter 1, provided some insights into the effect of the impulsivity dimensions on EA, these authors indicated that there are some contextual influences that may play a role in influencing the effect on the

stages of EA. Their argument is based on the effect of age, gender and how long the individual's being in business can affect an impulsive individual and how this translates into entrepreneurial activities. For example, men are argued to be more impulsive and likely to act on entrepreneurial intentions than their female counterparts (Wiklund et al., 2017). Wilson et al. (2007) support this view that men are more impulsive than women, also regarding knowledge and experience women are argued to generally have lower levels of self-efficacy compared to that of their male counterparts. An early study by Eysenck (1985:615) also confirmed that males' impulsiveness is slightly higher than that of the females. The same regarding business knowledge and or experiences: individuals tend to differ in terms of how they pursue entrepreneurial opportunities based on their worldview (Wiklund et al., 2017). For example, individuals with high levels of impulsivity are found to be drawn to novel and risky opportunities (Nicolaou et al., 2008:8). Previous studies also found age to have an effect on the propensity of an individual to start a business (Brockhaus, 1982). This thus suggest that gender, age and number of years in the business (experience and knowledge) are likely to affect how individuals pursue and exploit entrepreneurial opportunities (Shane, 2000).

The following section expounds on the adapted conceptual framework by Wiklund et al. (2017) by incorporating age, gender and the number of years in business to moderate the mediation effects of the impulsivity dimensions in the relationship between EI and the stages of EA.

4.4 CONCEPTUAL FRAMEWORK

EI and EA are key pillars for the entrepreneurial activity to take place (Van Gelderen *et al.*, 2015:655; McMullen & Shepherd, 2006:132; Bird & Schjoedt, 2017:1). The importance of EI and EA in entrepreneurship studies has led to a number of models that conceptualise the effect of this relationship that is key for the entrepreneurial event to take place (Stevenson & Jarillo, 1990:17; Esfandiar et al., 2019:172). For example, Shapero's model of the entrepreneurial event investigated the EI-EA relationship in terms of the precedence that affects intentions to initiate the entrepreneurial activity. Shapero and Sokol (1982:72) regard desirability and feasibility as key drivers to propel intentions to initiate action. Hui-Chen *et al.*'s (2014:728) integrated model suggests elements of the theory of planned behaviour, augmented with motivation or ability or opportunity, as fundamental to initiate EA. Esfandiar

et al. (2019) argued for the entrepreneurial goal intention (EGI) as key to translate EI into business start-ups. Meoli *et al.*'s (2019) model proposes contextual influences as drivers affecting entrepreneurial intentions to initiate business ventures.

As highlighted, studies that investigated the models pertaining to the relationship between EI and EA recommended the inclusion of psychological factors to this effect (McCarthy *et al.*, 1993:9; Baron, 2007:168). Their argument is that any exclusion of psychological factors may render intention/action models and theories incomplete (Adam & Fayolle, 2015:36). Other than prior research that focused on “positive” psychological factors (Omoredede *et al.*, 2015), currently research is investigating the possible contribution of psychological factors from those that were regarded as pathological or negative (Pietersen & Botha, 2021), such as impulsivity (Yu, 2018:103). The argument forwarded is that impulsivity may effect EA and lead to the entrepreneurial event taking place, indirectly also addressing the EI-EA gap that is caused by the absence of action despite high levels of EI recorded (Herrington, *et al.*, 2017:7). This study is also likely to improve the theory that investigates the effect of negative traits in the relationship between EI and EA (Nicolaou *et al.*, 2008:8).

The Figure 4.7 below graphically illustrates the theoretical framework that informs this study as adapted from Wiklund *et al.* (2017).

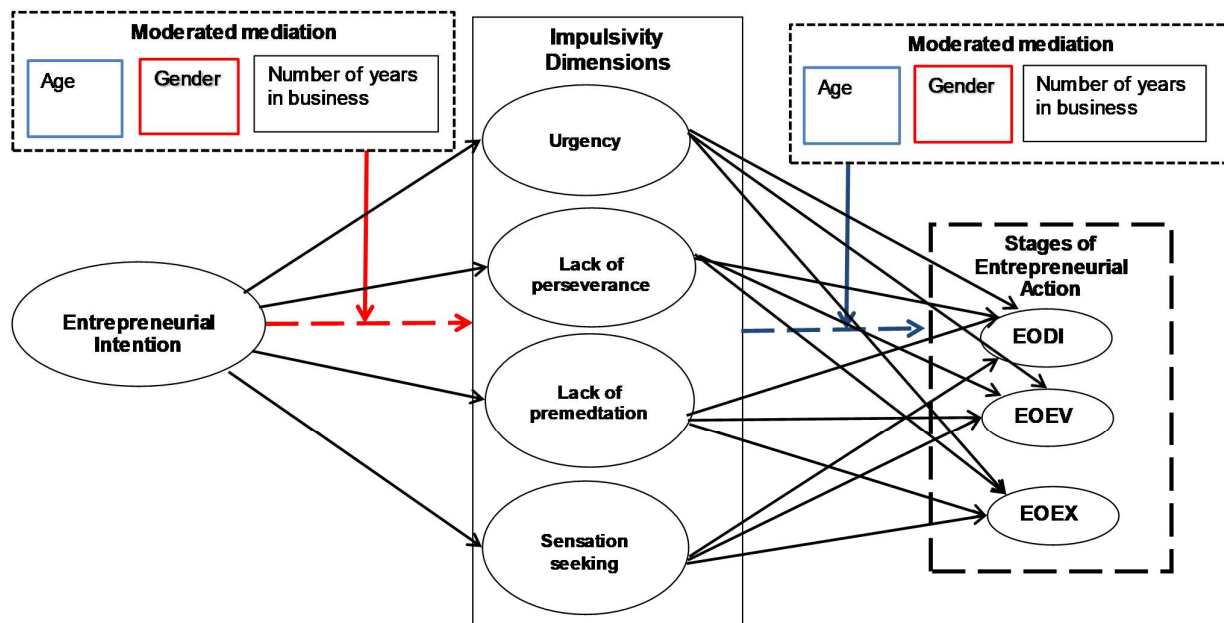


Figure 4.7: The conceptual framework (Moderated moderation)

Source: As adapted from Wiklund *et al.* (2017)

Figure 4.7 is the conceptual framework adapted from Wiklund *et al.* (2017), depicting impulsivity dimensions linking entrepreneurial intentions and the stages of entrepreneurial action being moderated by age, gender and number of years in business. As stated, previous studies that investigated the relationship between EI and EA suggested the inclusion of psychological factors to effect EA (Esfandiar *et al.*, 2019; Fayolle, 2015:36; Krueger *et al.*, 2000:411). However, their focus was mainly on factors considered positive (Omoredede *et al.*, 2015). Only now with the emergence of current research has the focus shifted to include factors that were previously deemed negative (Lerner *et al.*, 2018). McMullen and Shepherd (2006:134) link impulsivity attributes to those attributes required to effect action. However, there is a need for research to investigate the effect of impulsivity in the relationship between EI and the stages of EA (Wiklund *et al.*, 2017), supported by Pietersen and Botha's (2021:1) opinion that the contribution of impulsivity as a mediator between EI and EA remains to be empirically explored further.

The conceptual framework suggests the inclusion of impulsivity in the relationship between EI and the stages of EA. The argument forwarded is that certain dimensions of impulsivity

are likely to mediate in the relationship between EI and the stages of EA and result in the creation of new business ventures (Wiklund *et al.*, 2017). The contribution of the dimensions of impulsivity in the relationship between EI and the stages of EA were discussed in preceding sections and are summarised as follows.

An individual's affectivity can be the predictor for the behavioural outcomes (Adam & Fayolle, 2015:37). For example, impulsivity in general is regarded as a lack of reasoning or applying a forethought when engaging in behavioural activities. A casing point in this regard may be individuals with ADHD disorder (Yu, 2018), who are "known" to act more on their affectivity than following any reasonable judgement for their behavioural output (Pietersen & Botha, 2021). However, the empirical studies to validate the possible positive contribution of impulsivity to impel EA still need to be established (Pietersen & Botha, 2021). The following section summarises the contribution of impulsivity in the relationship between EI and the stages of EA as explained in preceding sections.

The first stage, entrepreneurial opportunity discovery (EODI), which deals with the creativity and/or the eye to recognise or discover entrepreneurial opportunities, transpires in terms of the framework is that can be summarised as follows in the framework:

- The effect of urgency in the relationship between EI and EODI is probably negative (Zermatten *et al.*, 2005:647). Individuals with urgency have lower entrepreneurial preferences due to their poor tolerance for distress and risk (Wiklund *et al.*, 2017), which may result in action aversion (Zermatten *et al.*, 2005:647).
- The effect of the lack of perseverance in the relationship between EI and EODI is probably negative (Wiklund *et al.*, 2017). Individuals with the lack of perseverance tendencies struggle to remain focused when encountering difficult or boring tasks (Whiteside and Lynam (2001). On the contrary, they tend to experience anxiety regarding whether they can correctly assess challenging contexts (Pietersen & Botha, 2021:6), stemming from entrepreneurial conditions that are uncertain (Obschonka, & Stuetzer, 2017:204).
- The effect of lack of premeditation and sensation seeking in the relationship between EI and EODI is likely to be positive. Lack of premeditation and sensation seeking tendencies trigger experiences of positive affect during opportunity discovery (Whiteside & Lyman, 2001:670). Therefore, individuals that lack premeditation and

possess sensation seeking find the pursuit of risky and novel entrepreneurial opportunity exciting and rewarding (Zuckerman, 1994: 27).

The second stage, the entrepreneurial opportunity evaluation (EOEV), which deals with the assessment of the attractiveness and practicality presented by the opportunity, can be summarised as follows in the framework:

- The relationship between urgency and EOEV is likely to be negative when coming to desirability (Wiklund *et al.*, 2017). Individuals with urgency are sensitive to negative cues of uncertainty (Baron, 2008:169) that adversely affect their willingness to take risks (Kaiser *et al.*, 2012:527) and result in action aversion (Zermatten *et al.*, 2005:647).
- The relationship between lack of perseverance and EOEV is likely to be positive (Wiklund *et al.*, 2017), in as much as the lack of perseverance tendency has been associated with a lack of inner will to deal with challenging, boring tasks (Pietersen & Botha, 2021). However, individuals with lack of perseverance may find exploiting an opportunity desirable because being entrepreneurial may allow them to switch from one task to the next before getting bored (Wiklund *et al.*, 2017:16). They may also employ other people (Lazear, 2004:208) to exploit the discovered opportunity, or delegate tasks that they find less enjoyable.
- The relationship between lack of premeditation, sensation-seeking and EOEV is likely to be positive (Wiklund *et al.* 2017:632). Lack of premeditation and sensation seeking tendencies are likely to enhance the salience placed on the desirability of exploiting an opportunity rather than on whether the opportunity is feasible to be exploited or not (Pietersen & Botha, 2021:8), due to these individuals finding uncertainty bearable (McMullen & Shepherd, 2006:133). As a result, they tend to ignore any adverse results presented during evaluation, such as potential financial failure or the social stigma of failure (DeYoung, 2010:486) and pay attention to the possible rewards (Pietersen & Botha, 2021:8).

The last stage, opportunity exploitation (EOEX), which consists of the decisions and actions required to pursue the opportunities leading to the creation of a new venture (Ren *et al.*, 2016:468), is summarised as follows in the framework:

- The relationship between urgency and EOEX is likely to be negative. This is due to those high on urgency tending to experience anxiety and “chickening out” before engaging in action (McMullen & Shepherd, 2006:133; Cyders & Smith 2007:840).
- With regard to the lack of perseverance and initiating entrepreneurial action there is no relationship (Kaiser *et al.*, 2012:527). If they find the task difficult or boring they cease to pursue that opportunity (Riley *et al.*, 2015:440).
- There is positive likelihood in the relationship between lack of premeditation, sensation-seeking and EOEX. Individuals with these tendencies act irrespective of potential setbacks (Wiklund *et al.*, 2017:18). Sensation-seeking individuals are more prone to positive than negative information, as well as optimistic outcome attributions, which result in persistence in getting what they want (Wiklund *et al.*, (2017:20). With regard to entrepreneurs with the lack of premeditation, they are thus likely to persist with opportunities when facing activities that seem challenging. They are known to forge ahead irrespective of the difficulties presented by the opportunity (Whiteside & Lynam, 2001:669).

These discussions emanated from the conceptual framework depicted in Figure 4.7, in order to break it down into a model that will facilitate the model’s empirical testing to examine the likelihood of impulsivity in the relationship between EI and EA. Figure 4.8 below illustrates the hypotheses that inform this study.

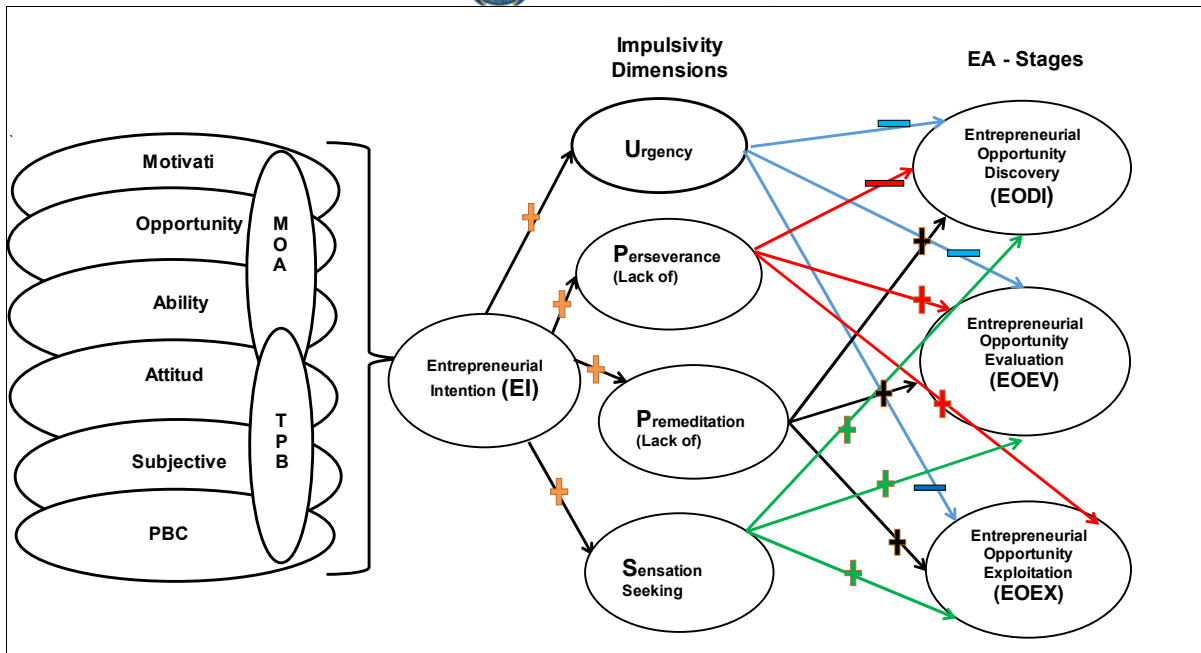


Figure 4.8: Theoretical framework

Source: As adapted from Wiklund *et al.* (2017)

Figure 4.8 depicts the theoretical framework as adapted from Wiklund *et al.* (2017): entrepreneurial intention (independent variable), impulsivity dimensions (mediating variables), and the stages of entrepreneurial action (dependent variable).

4.5 CONCLUSION

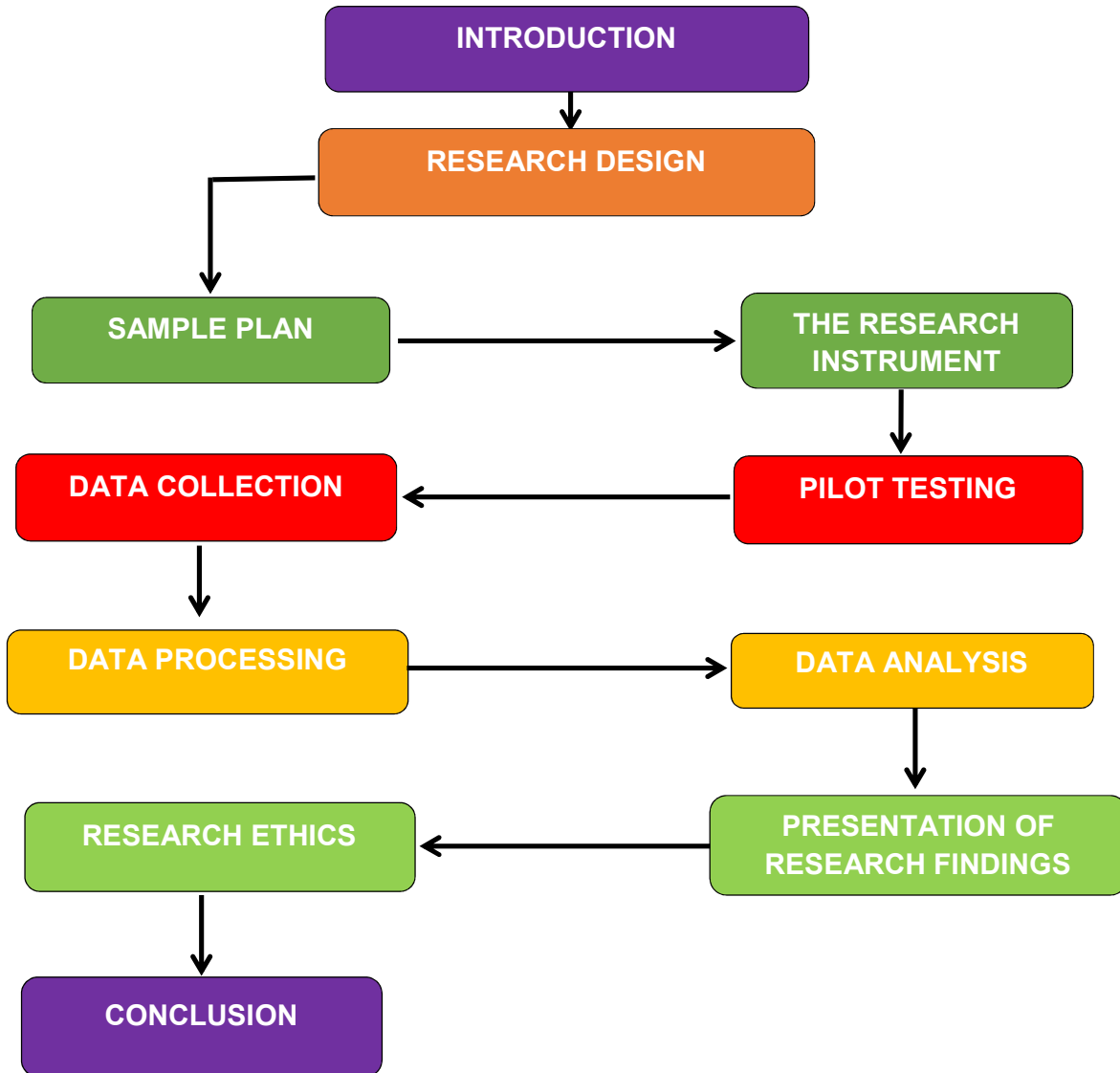
Chapter 4 continued from the previous chapter that discussed EI and EA in terms of theories and models that conceptualised these constructs. This chapter expanded on these discussions by looking at the relationship between these two constructs. Much as some literature found reasonable correlation between EI and EA, the contribution of EI in this relationship was found not to be significant or not clearly explained (Meoli *et al.*, 2019:9). Therefore, research suggested the inclusion of impulsivity as a factor to stimulate EA (Sniehotta *et al.*, 2005:143; Adam & Fayolle, 2015:36).

This study adapted the conceptualisation framework from Wiklund *et al.* (2017) that recommended the possible role that impulsivity dimensions were likely to play in the relationship between the EI and EA stages. The chapter continued by discussing the impact of each of these dimensions (urgency, lack of perseverance, lack of premeditation and

sensation-seeking) with regard to their effect in the relationship between EI and each of the stages of EA. From these discussions we postulated that certain dimensions of impulsivity are likely to have an effect on certain stages of EA. The hypotheses will be tested through the empirical study that will be conducted as per the methodology prescribed in the following chapter that will either accept or reject the theoretical framework that suggests the mediation of impulsivity in the relationship between EI and the stages of EA to effect EA.

CHAPTER 5

RESEARCH DESIGN AND METHODOLOGY



5.1 INTRODUCTION

The first four chapters contained the literature review, in which the fourth chapter laid the theoretical and conceptual foundation that informs this study. This chapter discusses the research methodology by providing information required to carry out the proposed empirical study in order to answer the research dilemma that was presented in the first chapter. This chapter therefore details the process followed to carry out a scientific research: research design, sampling plan, measurement instrument and data collection, data processing and data analysis in order to respond to research objectives and stated hypotheses. This chapter postulates a theoretical framework on the effect of impulsivity, its structural relationships and operationalises all the constructs of interest. The chapter also provides the basis for assessment of both the measurement and structural model components. The chapter concludes by highlighting the research ethics principles followed and provides the overview of the following chapters (chapters 6 and 7).

The outline of the study is depicted in Figure 5.1.

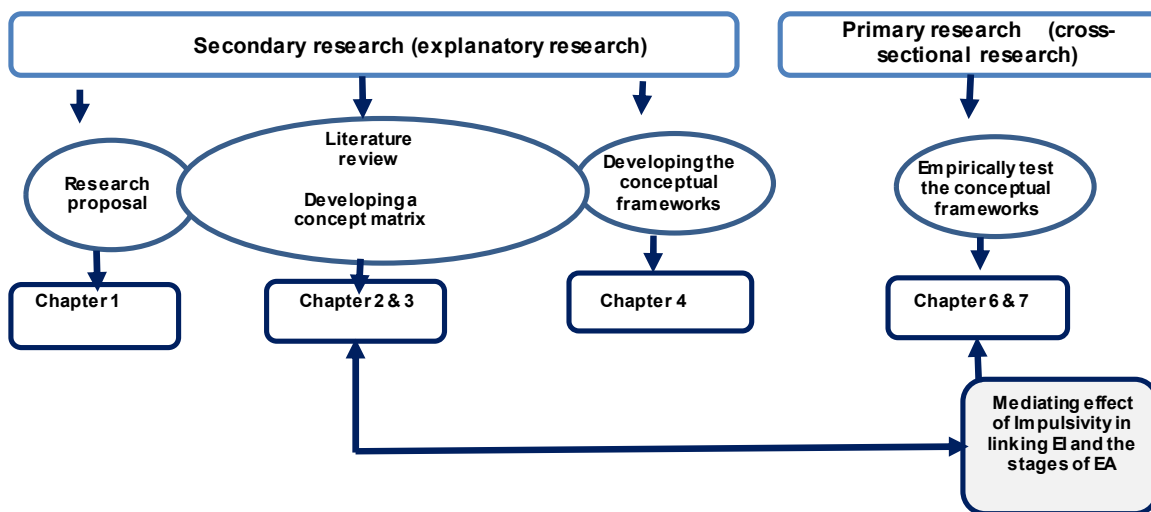


Figure 5.1: Methodological procedure of this study (including chapter outline)

Source: Own compilation

Figure 5.1 graphically illustrates the format which the study followed. Chapter 1 detailed the background, aims, objectives and the benefit of the study. It also defined and discussed

briefly the key constructs and outlined the framework followed for the study. Chapter 2 investigated literature pertaining to impulsivity, in terms of theories that inform this construct and its link to entrepreneurship. Chapter 3 discussed literature on EI and the stages of EA in terms of the theories and models that suggest these constructs. Chapter 4 commenced by discussing the relationship between EI and the stages of EA, then proceeded to discuss the theoretical framework of the study.

This chapter discusses the research methodology adopted for this study in terms of what constitutes a valid research. The controls that the researcher adopted are designed to provide maximum control over factors that could interfere with the validity of the research outcomes. The chapter expands on the philosophical assumptions and design paradigms underpinning this study in line with methodologies and research design employed (Taljaard, 2020:221). Each of the steps followed are explained in the following section starting with the research design.

5.2 THE RESEARCH DESIGN

Research design (Step 1 in the research process) caters for the collection, measurement and analysis of data in an organised or structured manner. The type of approach with which a research can be undertaken can either be exploratory and or explanatory (Cooper & Schindler, 2011:140). A research inquiry can either be qualitative or quantitative or a mixed-method approach (Creswell, 2015). This depends on the philosophical orientation about the worldview and the nature of research that the researcher brings to a study (Creswell, 2015:41).

This study adapted Tobi and Kampen's (2018:1212) research design, as presented in Figure 5.2.

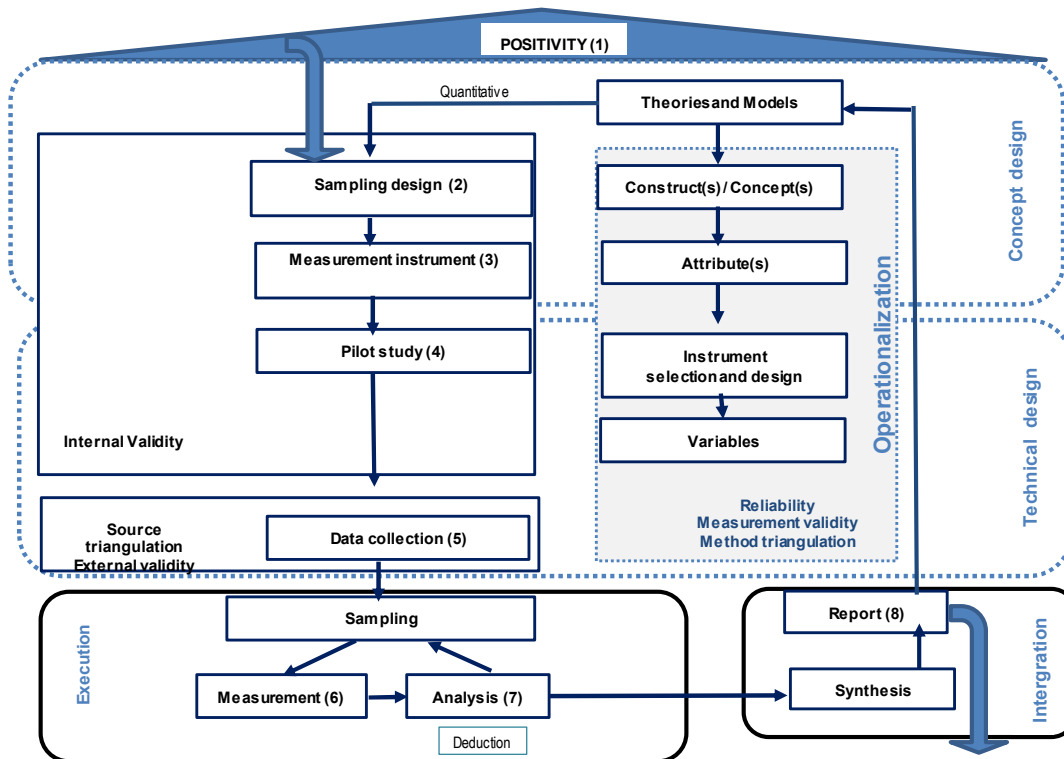


Figure 5.2: The research design

Source: Adapted from Tobi & Kampen, 2018:1212

The Figure 5.2 illustrates the methodology followed for this study, which is underpinned by a positivity worldview. From the ontological viewpoint this suggests the world out there is real and measurable, and it exists independently of our subjective perception (Creswell & Creswell, 2017). As such this research is conducted from a positivistic worldview aimed at providing an objective reality against which the researcher can compare claims to ascertain certain truths, with the assumption that there are general patterns of cause and effect that can be used as a basis for predicting and controlling natural phenomena (Creswell & Creswell, 2018). In line with this view, the study was sanctioned to confirm the effect of impulsivity in the relationship between EI and the stages of EA. The study follows the reductionist approach, whereby research goals are broken down into small discrete sets or variables (Creswell, 2015:36) derived from the existing body of knowledge (Refer to chapters 2 to 4). Thus deductive conclusions can be drawn from the results of the study.

The method followed for this research study is the quantitative research method. Key to this method is the frequency, quantity or magnitude of a phenomenon investigated (Schindler,

2018:76), through identifying variables to be tested in order to indicate the causality with some degree of probability. This is achieved by testing the relationship between variables in order to establish the correlation caused by the effect of such relationship (Creswell, 2015:32). These tests are not as simple as comparing the two variables, but in some instances where they deal with multi-variables this makes the measurement of such relationships cumbersome. The more complex these relationships turn out to be, the more they stretch into more variables. Therefore the structural equation modelling (SEM) technique was employed to deal with complex relationships among variables. Each variable was presented with a unique number in order to process it through SEM procedure. The study was cross-sectional, not experimental or longitudinal. This means the collection and analysis of data was carried out at a particular time (snapshot) and is psychological in nature.

Therefore, the process followed is outlined as follows:

- The research design for this study is underpinned by literature, to give an overview of this chapter as explained in the preceding paragraph.
- The primary data-collection techniques related to the survey method are provided and discussed: questionnaire, sample, sampling technique used, why a chosen sample, and questionnaire administration.
- The research hypotheses are outlined and a justification for each hypothesis adopted.
- The measurement for reliability and validity of this study was also discussed, in terms of SEM technique or procedures engaged to analyse the data; through goodness-of-fit indices, CFA and EFA.
- The ethical issues in order to protect the rights of the researcher and respondents are defined and provided.

The sampling design methodology is discussed first, in the following section.

5.3 SAMPLING DESIGN

Sampling Design (Step 2 in the research process) is not always practically possible for a researcher to have access to every member of the population in order to conduct a study (Field, 2009:34; Memon *et al.*, 2017:3). Therefore a sample is selected, as a representation of a population from which statistical inferences can be made (Cooper & Schindler, 2011). The research sample should be chosen carefully so that it represents all characteristics of

the population, as if the population itself is the one that is examined (Cooper & Schindler, 2008:374).

For this study the sample was collected by field workers that collected data randomly amongst the nascent and existing entrepreneurs in all provinces of South Africa. Data was collected through structured self-administered questionnaires. The questionnaire was administered to a database of 1000 entrepreneurs which was obtained from Small Enterprise Development Agency (SEDA). From this database, a net of 597 respondents completed the survey.

The researcher is of the view that respondents were able to respond to the questionnaire pertaining to EI, impulsivity dimensions and the stages of EA. The demographical requirements were that the respondents must be:

- above 18 years of age
- male, female and those who prefer not to state their gender
- nascent or existing entrepreneurs

Cooper and Schindler (2011:338) state that a sample frame is but a representation of the elements of the target population that the study purports to represent, in order to make it a good sample of the represented population. In terms of this study the sample frame was cordoned around the nascent and existing entrepreneurs. The questions were structured in such a way that any entrepreneurial person would be able to have an opinion. Therefore any participant that could not complete the questionnaire was disqualified from participating.

In terms of the method used to select the sample initially, the online service was suggested as being ideal during the Covid-19 lockdown. However, due to the low response received, the strategy turned to face-to-face data collection. The researcher decided to follow a censor's approach by allowing all the potential respondents in the sampling frame to complete the survey. Respondents could not complete the survey more than once as the tool that was used to collect the data (KOIOS) generated a unique identifier of each respondent.

In order to perform an acceptable statistical analysis it is recommended for a study to determine the minimum sample size (McQuitty, 2004:167). The rule of thumb suggested by Schreiber, Nora, Stage, Barlow and King (2006:326) in terms of the sample size is that 10

participants for every element of the survey is ideal. However, Hoelter (1983) and Kline (2015) recommend a minimum of 200 participants for SEM purposes. For this study the data collected equalled 597 respondents; therefore this number is suitable to be considered for the SEM input. The research instrument is discussed in the following section.

5.4 THE RESEARCH INSTRUMENT

The research instrument (Step 3 in the research process) is the key tool that is used to collect the data required to answer the research objectives and aim of the study, and to form the basis for the research outcomes and conclusion (Kumar, 2019). The measurement instrument (questionnaire) was developed to measure the variables for this study as discussed in the following subsection.

5.4.1 Measures for the measurement instrument

The questionnaire was developed to measure the three main variables that inform this study, namely EI, impulsivity dimensions and the stages of EA.

The full questionnaire (Appendix A) consisted of 68 items which were divided into three sections (Sections A, B and C). The first section (Section A) consisted of demographic data such as gender, age, geographical area, years in business; Section B deals with EI and the stages of EA, and Section C consist of impulsivity dimensions.

Table 5.1 summarises the constructs EI, Impulsivity dimensions and the stages of EA, section B and C in the questionnaire, number of items and measuring scale.

Table 5.1 Determination of EI, Impulsivity dimension and the stages of EA literacy questionnaire

Research Constructs	Section of Questionnaire	Number of items	Measuring Scale
Entrepreneurial Activity Pillars	B	19	
1. Entrepreneurial Intention		5	Adopted from Guerrero <i>et al.</i> (2013)
2. The Stages of Entrepreneurial Action		14	
• Opportunity discovery		5	Kuckertz <i>et al.</i> (2017)
• Opportunity evaluation		5	Haynie <i>et al.</i> (2009)
• Opportunity exploitation		4	Kuckertz <i>et al.</i> (2017)
3. Impulsivity Dimensions	C	45	Whiteside and Lynam, (2001)
• Urgency		12	
• Lack of Perseverance		10	
• Lack of Premeditation		11	
• Sensation Seeking		12	
Total		64	

The questionnaire was developed from the past measuring instruments that were discussed in the literature review (see chapters 2 and 3) The measuring instrument for this study was adapted from reputable and well-cited studies, which renders the instruments valid and reliable.

As discussed in Chapter 2, the impulsivity construct has several reputable scales that are useful to measure it. For this study the measurement instrument adopted is the UPPS scale that encompasses all four dimensions of impulsivity (Whiteside *et al.*, 2005; Wiklund *et al.*, 2017). The approval to use the scale was granted by the originators of the instrument (Refer to Appendix B). With EI and the stages of EA, the study also made use of existing measuring instruments. For EI the study adapted the Guerrero *et al.* (2009) measurement scale consisting of five items. The Guerrero *et al.* (2009) scale was utilised due to its impact in examining the antecedents of entrepreneurs' intention to start a business by extending the

Theory of Planned Behaviour in conjunction with the Motivation, Opportunity and Ability theory. With regard to the EODI and EOEX stages, the study adapted the scale of Kuckertz *et al.* (2017:86), owing to how this scale measures its content domains, and items that inform EODI and EOEX concepts. For the EOEV scale the study adapted the Haynie *et al.* (2009:349) measuring scale. This is due to this scale being able to integrate the Resources Base View theory (RBV) and human capital theories regarding the entrepreneurial opportunity leading to the understanding of how and why entrepreneurs exploit or dismiss an entrepreneurial opportunity. EODI and EOEV have five items each and EOEX has four items.

- **Questionnaire Section B and C: Measurement of EI, the stages of EA and impulsivity dimensions**

The chosen data-collection instrument should be able to measure all the constructs and the latent constructs and assigned numbers to empirical events, objects or activities in terms of a set of fixed rules suggested for the research under review (Cooper & Schindler 2008: 279). Although the measurement instruments for this study came from reputable and well-cited authors, nevertheless the Cronbach-alpha coefficients of composite reliability and discriminant validity were conducted to confirm the validity and reliability of these measurement instruments. Section B consisted of EI (five items) and the stages of EA (14 items) (EODI =five items, EOEV = five items and EOEX four items). Section B consists of five Likert-scale measurements whereby respondents needed to indicate how much they agreed or disagreed with each of the statements regarding EI and the stages of EA. The last section, Section C, was the UPPS scale consisted of 45 elements made up of Urgency (12 items), Lack of Perseverance (10 items), Lack of Premeditation (11 items) and Sensation Seeking (12 items). Respondents were required to indicate their agreement or disagreement pertaining to statements' impulsivity. Disagree Strongly = 1, Disagree Somewhat = 2, Agree Somewhat = 3, and Agree Strongly = 4.

5.5 PILOT STUDY

A pilot study (Step 4 in the research process) is a fundamental part of the instrument construction to ensure face validity in order to assess the general understanding of the instrument by the targeted respondents (Kumar, 2019). For the purpose of this study the following approach was followed.

5.5.1 Pilot testing of the research instrument

Key to any questionnaire is that it meets the purposes which it was designed to measure. In putting together a questionnaire there is a possibility that some of the questions and the structure may cause a problem for the respondents. Therefore the testing of the measuring instrument is key in order to identify and eliminate any possible problems before the study is carried out on the rest of the targeted population (Sudman & Blair, 1998).

The questionnaire for this study is made up of previously used instruments, such as the one to measure EI, the stages of EA and the dimensions of impulsivity, in which the content and face validity are confirmed. According to Nunnally and Bernstein (1994), a face test on the measuring instrument evaluates whether the questionnaire measures what it intends to measure. The test on the content validity deals with the issue of whether the content of the measuring instrument accurately evaluates all key aspects of the topic in line with the proposed theoretical framework (Rattray & Jones, 2007).

The questionnaire for the pilot study was sent to 30 entrepreneurs via email or hard copies. Each questionnaire had a letter of introduction and cover letter explaining how it must be completed and by when. The results from the pilot study, in terms of the face validity, revealed that the instrument was generally understood and there were no changes required. For the content validity, especially when coming to the UPPS scale, the respondent could not understand why the bulk of the questions/statements (66%) were psychological instead of leaning more towards the entrepreneurial questions. The introduction letter was updated to explain the objectives of the study and the result of the pilot study confirmed that the instrument was fit for use as intended.

The following section discusses the data-collection method followed.

5.6 DATA COLLECTION

After the pilot testing, the next step is the data collection (Step 5 in the research process) to collect the primary data from the participants, which, according to Schindler (2018:78), can be collected in person or impersonally. A questionnaire was the research instrument used to gather empirical data. A questionnaire can either be structured or unstructured. A structured questionnaire contains closed questions, whereas an unstructured questionnaire has open-ended questions (Cooper & Schindler, 2008:336). For this study data was collected through a structured self-administered questionnaires.

Due protocol was followed to obtain the necessary authorisation for data collection. As entrepreneurship is a minority phenomenon (Davidsson, 2004), finding a sample with reasonable entrepreneurial preferences is key. In this regard due protocols were followed to obtain the necessary authorisation for data collection. This facilitated the granting of an ethical clearance certificate by the University of Pretoria for data collection. The questionnaire was administered on the selected sample by physical and email distribution between April 2021 and August 2021 in all the nine provinces of SA. The net total of 597 responses were captured in KOIOS mobile application, after the discarding of incomplete data. KOIOS is a digital data collection tool that is geo tagged to collate and provide information and dashboard.

5.6.1 Limitations of the data-collection method used

Web-based surveys are ideally good for large samples that otherwise would have been inaccessible and they also provide rapid data collection (Cooper & Schindler, 2011:225). However, we experienced slowness in receiving Web responses, which thus necessitated the engagement of physical data collectors across the nine provinces in South Africa. The challenge with physical data collection during the Covid-19 was restrictions that made this exercise difficult to administrate. To mitigate against this the telephone services were employed to augment the data-collection exercise.

5.6.2 Data Processing

Data processing (Step 6 in the research process) entails editing, coding and capturing of the data collected (Cooper & Schindler, 2011). Key to this exercise entailed the examination of all completed questionnaires for completeness, identification and elimination of all possible errors. Data coding, on the other hand, included the assigning of receptive codes to categories; Cooper and Schindler (2014:379) suggest that these should be built into the design of the questionnaire. Data for this study was captured in the KOIOS system and automatically converted into the medium suitable to be exported into the university SPSS 25.0 statistical computer package. The statistical data analysis is discussed in the following section.

5.7 THE ANALYSIS OF DATA

Data analysis (Step 7 in the research process) entails the reduction, organising, categorising and manipulating of the data by applying statistical techniques to explore relationships amongst variables to ascertain if the stated hypotheses are supported (Sekaran & Bougie 2013:24; Cooper & Schindler, 2006:90).

The statistical analysis for this study is outlined as follows:

- Descriptive statistics
- The validity and reliability of the research instrument
- Statistical methods used for this study

5.7.1 Descriptive statistics

Descriptive statistics provide descriptive information about a set of data collected. This depends on the scale of measures; the mode, and the semi-interquartile, standard deviation or variances with the view to understanding how the participants in the study have reacted to the items of the questionnaire (Sekaran & Bougie, 2013:282). For this study the frequency, regression and effect were used to describe characteristics of the data. Tables

and graphs were created and interpreted in Chapter 6. The validity and reliability of the research instrument are discussed in the following section.

5.7.2 Validity and reliability of the research instrument

In order for the instrument (questionnaire) to be regarded as useful, it should be able to measure that which it was purported to measure. Reliability and validity are ways of demonstrating and communicating the rigour of research processes and the trustworthiness of research findings. For the research to be regarded as trustworthy depends on a number of features associated with the research in question, namely, the initial research question, how data are collected including when and from whom, how they are analysed, and what conclusions are drawn (Roberts & Helena, 2006:41).

For the research instrument to be regarded as useful it must meet the validity and reliability test of such instrument (Cooper & Schindler, 2011). Validity is a statistical manipulation of data in order to determine that which the instrument is supposed to measure (Cooper & Schindler, 2011:280). There are various forms of validity that can be distinguished, namely content validity, construct validity and criterion-related validity (Cooper & Schindler 2008:290-291; Bordens & Abbott, 2011:276).

- *Content validity* – refers to the data collection instrument which should be composed of items that collect information in such a way that information is accurate and comprehensive, in order that it will respond to the research question (Cooper & Schindler, 2008:290).
- *Construct validity* – is met when the research instrument can confirm the theory or advanced hypotheses that are forwarded (Bordens & Abbott 2011:276).
- *Criterion-related validity* – refers to the success of measures used for estimations and or predictions (Cooper & Schindler, 2006:319).

For this study content analysis and statistical evidence were employed to illustrate the trustworthiness of the results from the data collected. In order to establish construct validity with statistical evidence, factor analysis was conducted to this effect. According to Diamantopoulos and Winklhofer (2011) and Creswell (2012), factor analysis is a measurement used to describe the variability amongst variables in terms of latent variables that emerge from the main variables. Factor analysis was performed per each main variable

as contained in the questionnaire. For that reason the confirmatory factor analysis (CFA) for each section of the questionnaire was conducted.

Reliability has to do with accuracy and precision of the measurement instrument to ensure that the instrument is stable and consistent (Creswell, 2012:159), to the extent that the research can be repeated while obtaining consistent results (Quinlan, Babin, Carr & Griffin, 2019:93). This research used internal consistency whereby the items of the research instrument used are homogeneous to measure reliability (Cooper & Schindler 2006). Internal consistency comes about when the scale's items are highly intercorrelated (DeVellis, 2003:9). Key to any measuring instrument is its reliability that tests both consistency and stability. There are a number of tests that can be used to measure internal consistency; Cronbach alpha coefficient of reliability is but one of them. The accepted threshold for the coefficient alpha is ≥ 0.70 for the established instrument (Hair *et al.*, 2014). The Cronbach alpha value was established for the results of factor analysis conducted for each construct.

Dependent on the test chosen, acceptable reliabilities lower than the 0.70 threshold may be acquired when the model fit is achieved, according to Bagozzi and Yi (2012). For complex models that derive many latent variables and indicators, the satisfactory model fitting could even load as low as 0.50, provided the focus should be placed more on the hypotheses under test and goodness-of-fit (Bagozzi & Yi 2012:17).

This study incorporated SEM to measure reliability in terms of factor loadings, standardised regression and multiple correlations. Therefore Cronbach alpha was used to confirm the instrument's reliability.

5.7.3 Statistical method used

The primary objective of statistical technique is to estimate the probability that emerges from the data collected, as it could have occurred by chance rather than by the causes suggested by the theory being tested (Lowry & Gaskin, 2014:123).

Structural Equation Modelling (SEM) is the statistical technique that was employed to analyse correlations and regressions amongst factors that incorporate EI, stages of EA and dimensions of impulsivity. This is because SEM is able to predict a series of separate, yet interdependent multiple regression equations simultaneously (Hair *et al.*, 2006:711) and

also provides the ability to incorporate latent constructs in causal models (Lowry & Gaskin, 2014:125). The statistical methods employed for this study; CFA, EFA and SEM, are discussed below.

a. Confirmatory factor analysis

CFA is a statistical technique used in research to verify the factor structure of a set of observed variables, by enabling the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists (Brown & Moore, 2012).

In the case of this study the CFA was employed to confirm fit of the models that inform EI, the stages of EA and the dimensions of impulsivity. In order to ascertain the CFA for constructs that inform this study, the SPSS 25.0 statistical software was employed for the statistical measurement. For the model to be considered appropriate or aligned to the data collected there are number of goodness-to-fit indices that must be met (Hair *et al.*, 2014).

The following paragraphs present indices that were tested for this study, namely:

- **Chi Square value (CMIN)** is a statistic non-parametric tool designed to analyse groups' differences when the dependent variable is measured at a nominal level (Alarcón, Sánchez & De Olavide, 2015). This is to illustrate the relationship between two nominally scaled variables (Sekaran & Bougie 2013:289) that inform the goodness-of-fit model employed to test the null hypothesis in order to determine if the tested model fits covariances matrix adequately or not.
- **Root Mean Square Error of Approximation (RMSEA)** is an absolute fit index in that it assesses how far a hypothesised model is from a perfect model. It is a parsimony-adjusted index whereby values closer to 0.05–0.08 represent a good fit and any value above 0.10 is regarded as poor fit (Hair *et al.*, 2014:579).
- **Standardised Root Mean Residual (SRMR)** is the statistic test to measure the difference between the observed correlation and the model implied correlation matrix. By assessing the average magnitude of the discrepancies between observed and expected correlations as an absolute measure of (model) fit criterion, SRMR of less than 0.08 is considered a good fit (Hu & Bentler, 1999:4).

- **Comparative Fit Index (CFI)**, this index analyses the model fit by examining the discrepancy between the data and the hypothesized model, while adjusting for the issues of sample size inherent in the chi-squared test of model fit, and the normed fit index. CFI values range from 0 to 1, with larger values indicating better fit. Ideally a CFI greater than 0.90 is regarded a good fit (Wisting, Wonderlich, Skrivarhaug, Dahl-Jørgensen & Rø, 2019:3).
- **Discriminant Validity**, is the degree to which two or more measures designed to measure similar yet conceptually different constructs, in which a low to moderate correlation is considered as evidence of discriminant validity (Netemeyer, Bearden & Sharma, 2003:9). This measure is of utmost importance in research that involves latent variables along with the use of several items or indicators for representing the construct (Alarcón *et al.* 2015:9; Sekarana & Bougie 2013:227). Therefore the discriminant validity for this study was evaluated using the following indices:
 - **Heterotrait-Monotrait Ratio (HTMT)**, is considered key to assess discriminant validity (Roemer, Schuberth & Henseler, 2021). This is due to its good performance and straightforward application; the HTMT has found widespread application and dissemination in terms of measuring measures with thresholds of less than 0.850 for strict discriminant validity and less than 0.900 for liberal discriminant validity.
 - **Tucker-Lewis Index (TLI)**, is one of the numerous incremental fit indices widely used in linear mean and covariance structure, modeling particularly in exploratory factor analysis (Cai, Chung & Lee, 2021). The TLI ideal should be greater than 0.9 to be regarded an acceptable fit.
 - **Average variance extracted measure (AVE)**, is a measure of the amount of variance that is captured by a construct in relation to the amount of variance due to measurement error (Dos Santos & Cirillo, 2021). An AVE of less than 0.5 indicates that on average more error remains in the items than variance held in common with the latent factor upon which they load.

b. Exploratory factor analysis

Exploratory factor analysis (EFA) is a statistical tool that can be employed in the evaluation of theories and the validation of measurement instruments, such that factors or latent factors

can be identified to parsimoniously explain the covariation (Watkins, 2018:219). EFA analysis is a complex technique commonly employed in information systems in the social science, education and psychology fields. According to Hair *et al.* (2014:603), factors are derived from the statistical results and not from theories. Key objectives of EFA are: (i) Reduction of number of factors; (ii) Unidimensionality of construct evaluation; (iii) Evaluation of construct validity in a survey; (iv) Development of theoretical constructs; and (v) Proving of proposed theories.

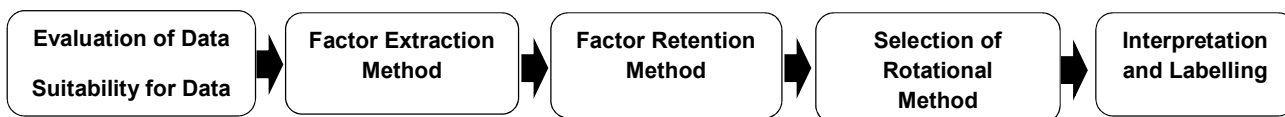


Figure 5.3. Exploratory Factor Analysis Implementation Steps

Source: Adapted from (Taherdoost, Sahibuddin & Jalaliyoon, 2020:376)

The steps followed in performing EFA for this study are presented in Figure 5.4. The first step is to do with the suitability of the data to perform factor analysis. The rule of thumb in terms of the suitability of data is that the bigger the sample size the better the factorisation of data (Pallant, 2011:18). The sample size for this study stood at 597 respondents, therefore this number was deemed good enough to perform factor analysis. Other statistical tests such as the Kaiser-Meyer-Olkin measurement (KMO) that must exceed the minimum value of 0.6 and the Bartlett's test of sphericity ($p < 0.001$) were utilised to test the factorability of the correlation matrix.

The second step deals with the extraction procedure that should be chosen to determine the method to decide the number of factors to retain (Taherdoost *et al.*, 2020:376).

The third step is a factor retention method: Once the extraction is completed the researcher must decide how many factors to retain for rotation (Taherdoost *et al.*, 2020:376). There are a number of measurements that are available in terms of making a decision as to which factor to retain. However, according to Thompson and Daniel (1996), such decisions may not necessarily lead to the same or even similar results. For example, the factor retention method used for this study is Kaiser's criteria (eigenvalue > 1 rule).

The fourth step relates to the researcher's decision in terms of how many constructs to utilise to analyse the data in order to ascertain whether a variable might relate to more than one factor (Taherdoost *et al.*, 2020:380).

The last step relates to the interpretation and the labelling of variables. This relates to a process of examination to select variables which are attributable to a construct and allocating a name for that construct. The labelling of constructs is a theoretical subjective and inductive process. For example models for this study are labelled by a name/number to differentiate them from others. The results of EFA are provided in Chapter 6.

a. Structural Equation Modelling (SEM)

To test the extent to which a hypothesised model provides an appropriate characterisation of the collective relationships among its variables, researchers must assess the "fit" between the model and the sample's data. For that reason most researchers use the structural equation modelling (SEM) that has been defined as the combination of latent variables and structural relationships (Cepeda-Carrion, Cegarra-Navarro & Cillo, 2019). SEM is a statistical technique or procedure to analyse series of multiple interrelated dependence relationships between constructs represented by multiple measured variables and incorporated into intergraded models (Hair *et al.*, 2014:547; Hair, Ringle, & Sarstedt, 2011). There are two conceptually different approaches followed in SEM, factor-based or composite-based (Hwang, Sarstedt, Cheah & Ringle, 2020:219). In factor-based, SEM is strongly influenced by the psychometric or psychological measurement tradition, while composite-based SEM is influenced by traditional multivariate statistical techniques such as principal component analysis and canonical correlation analysis (Hwang *et al.*, 2020).

The key purpose of SEM is to estimate the probability emerging from the pattern of data collected, as it could have occurred by chance rather than by the causes proposed by the theory that is being tested (Lowry & Gaskin, 2014:1223). Models that are analysed in SEM generally assume probabilistic causality, which allows for changes to occur in the outcome at some probability < 1.0 (Taljaard, 2020:272). SEM is a powerful alternative to other multivariate techniques, limited only to a single relationship between the dependent and independent variables (Coopers & Schindler, 2006:584).

There are basically two forms of SEM, namely covariance-based SEM (CB-SEM) and the partially least-square path modelling (PLSPM-SEM) (Lowry & Gaskin, 2014:130). This study

employed the CB-SEM for the following reasons: (i) It allows for the comparison between observed and proposed covariance matrices, which enables assessment of the overall good-fit indices of the proposed causal model. (ii) It seeks to model the co-variation of all the indicators to demonstrate that the suggested research model (the null hypothesis) is insignificant, meaning that the complete set of paths as specified in the model that is being analysed is plausible, given the sample data. (iii) It is useful to test well-established theories that are empirically validated, as it can be used for confirmatory analysis in which well-established theoretical arguments can be used to overrule competing explanations.

Basically this approach (CB-SEM) followed will assess how well the theory fits reality as represented by the data of the study (Hair *et al.*, 2014:565). The process that was followed in performing CB-SEM in this study is illustrated in Figure 5.4.

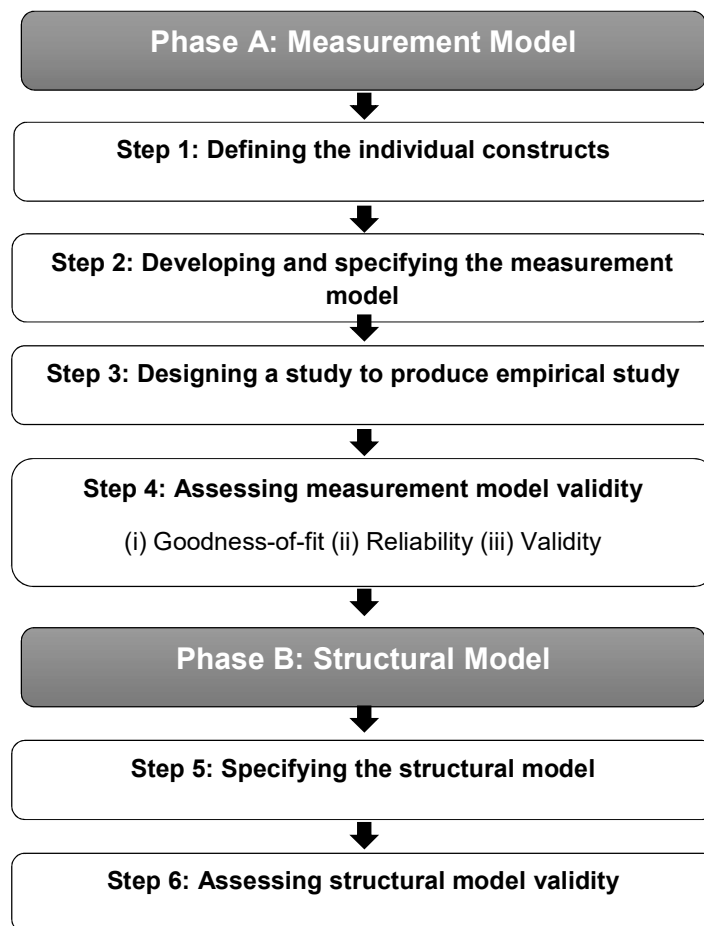


Figure 5.4. The SEM Process

Source: Own compilation

Figure 5.5 illustrates procedural steps followed when employing SEM for statistical analysis. This process is divided into two elements; one is the measurement model part and the second is the structure model. These are explained in the following paragraphs.

Phase A: Measurement Model

Measurement model refers to the specification or formal statement of the model's parameters. This study employed the Covariance Based–Structural Equation Modelling (CB-SEM). Cheah, Memon, Richard, Ting and Cham (2020:218) are of the opinion that this aids researchers to investigate the moderation or mediation effect and latent interaction effects. For this study the researcher is interested to investigate the mediating effects of impulsivity in the relationship between EI and the stages of EA. The following SEM protocol was followed.

Step 1: Defining the individual constructs. Chapters 2 and 3 expounded on the variables associated with the conceptual framework that informs this study. As such the variables were then operationalised by adopting from previous scales' items and the scale type. Although the scales adopted are from reputable studies where their validity and reliability can be confirmed, the CFA and EFA for the current study was also conducted. Only once the constructs were defined and operationalised was the measurement model developed and specified, as explained in the next step.

Step 2: Developing and specifying the measurement model. It is almost impossible to create an absolutely universal measurement model (Krizanova, Gajanova & Nadanyiova, 2018), however the latent constructs that emerge from such a model should be identified and be supported by elements (items) that inform those latent constructs or factors (Hair *et al.*, 2014). The latent constructs for this study were identified as reflected in the questionnaire.

Step 3: Designing a study to produce an empirical study: A key consideration that was taken for this study was to employ the existing scales that can yield maximum output to test the Wiklund *et al.* (2017) conceptual framework that purports to depict the contribution of impulsivity to effect EA. To this regard the UPPS scale by Whitesland and Lynman (2001) was utilised to test dimensions of impulsivity in the relationship between EI and the stages of EA. The sample size received came to 597 after the data was cleaned out. It was then

concluded that the sample size was appropriate to conduct SEM to test the conceptual framework.

Once the measurement model is developed and can be tested empirically, the key question is how reliable or valid is the measurement model to be regarded as trustworthy. The next step in the process seeks to respond to the validation and reliability of the measurement model.

Step 4: Assessing measurement model validity. It is of the utmost importance that the measurement model is valid and reliable in order for the measurement model to be considered trustworthy (Sekaran & Bougie 2013:225). There are number of procedures to verify the validity of the measurement model (Franke & Sarstedt, 2019). For this study the CFA and the goodness-of-fit indices were employed in order for the model to be considered adequate fit. RMSEA of (≤ 0.08), SRMR of (< 0.08), CFI (≥ 0.90), TLI (≥ 0.90) and IFI (≥ 0.90) are acceptable levels.

Phase B: Structural Model

Phase B relates to the structural model. For this study the structural model was operationalised by following the last two steps of the process of SEM.

Step 5: Specifying the structural model. As stated, the primary purpose of statistical techniques is to estimate the probabilities that emerge from the pattern of data collected, as it could have occurred by chance, rather than by the causes proposed by the theory being tested (Lowry & Gaskin, 2014:123). The structural model offers the path diagram displaying the relationship amongst the factors. Therefore SEM is the statistical tool employed for modelling.

The hypothesised model for this study, shown in Figure 1.9 in Chapter 1, is based on the conceptual framework as presented in Chapter 4, Figure 4.7. The model depicts the hypothesised theoretical relationships. The research hypotheses for the conceptual model are presented in the next section.

Table 5.3. The summary of the research hypotheses

Hypothesis 1: There is a positive relationship between entrepreneurial intention and the entrepreneurial action stages.
Hypothesis 2: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity discovery.
Hypothesis 3: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation.
Hypothesis 4: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation.
Hypothesis 5: Age has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator.
Hypothesis 6: Gender has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator.
Hypothesis 7: The number of years in business has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator.

Chapter 6 is devoted to the findings of the study which will illustrate whether the hypotheses presented on Table 5.3 above are either supported or not supported. The chosen level of significance (0.05) illustrates statistical significance; where the null hypotheses would be rejected if the calculated significance probability is <0.05 (Cooper & Schindler, 2011). In terms of this study all the hypotheses are directional, which means that the hypotheses are stated in such a way that they represent a relationship amongst variables. For this study, each hypothesis describes a positive relationship between two or more constructs. This is achieved through using the regression analysis.

Step 6: Descriptive statistics provide descriptive information about a set of data collected. This depends on the scale of measures; the mode, and the semi-interquartile, standard deviation or variances with a view to understanding how the participants in the study have reacted to the items of the questionnaire (Sekaran & Bougie, 2013:282). For this study the frequency, regression and effect were used to describe characteristics of the data. Tables

and graphs were created and interpreted in Chapter 6. The validity and reliability of the research instrument are discussed in the following section.

The final stage in the SEM process entails the testing of the validity of the proposed theoretical structural model. The goodness-of-fit indices that were discussed under step 4 were also utilised to test the acceptability of structural models in order to confirm their validity.

a. Testing mediation effects

Mediation indicates that the effect of an independent variable on a dependent variable is transmitted through a third variable, namely a mediator. Intermediary variables are extra variables which can have an effect on the dependable variance. They are linked with dependent and independent variables and can cause spurious association (Kaliyada & Kulkarni, 2019:82). For example, a simple mediation model as depicted on Figure 5.6 below, which consists of independent variable (X) that is linked to a dependent variable (Y) through an (or mediator) variable.

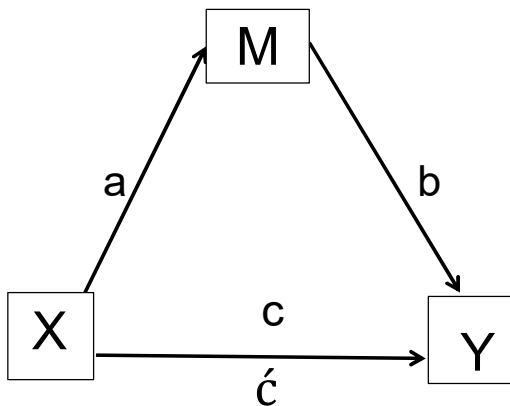


Figure 5.5. Mediation effect

Source: Adopted from Meule, 2019:2.

The Figure 5.6 depicts a simple mediation model, in which X denotes the independent variable, M denotes the intermediary variable and Y denotes the dependent variable. The directional errors represent the relationship between X and M, in which b represents the relationship between M and Y when controlling for X, c' represents the relationship between

X and Y when controlling for M (direct effect). Therefore the indirect effect is the product of $a \times b$. The total effect is the sum of the direct and the indirect effect

Meule (2019) explains this relationship as follows:

- The relationship between the independent variable and the dependent variable while controlling for the mediator is called the direct effect.
- The indirect effect is the relationship between the independent variable and the mediator and between the mediator and the dependent variable when controlling for the independent variable.
- The total effect is the sum of the direct and indirect effect.
- Thus, the statistical significance of both the total and the direct effect is irrelevant for the existence of an indirect effect.

Once all the conditions are met, but the effects of the independent variable on the dependent variable continue to be statistically significant in the presence of the mediator, therefore the partial mediation can be assumed to be in place (Meule, 2019). The determination of whether the mediating variable partially or fully mediates the influence of the predictor and the outcome variable is based on the 95% bias-corrected confidence interval of the direct effect (Choi, Wen, Chen, & Yang 2021:12).

b. Moderated Mediation effects

Further to the mediation effect exercised by impulsivity, this study also investigated the moderation effects of age, gender and number of years in business in the relationship between EI and the stages of EA. This exercise was conducted through bootstrapping, that, according to Braitman (2010:1), entails creating one's own sampling distribution, whereby the sample is from one's own sample that gets replaced over and over again in order to create a set of subsamples that get analysed. The moderated mediation model is graphically depicted in Figure 5.7.

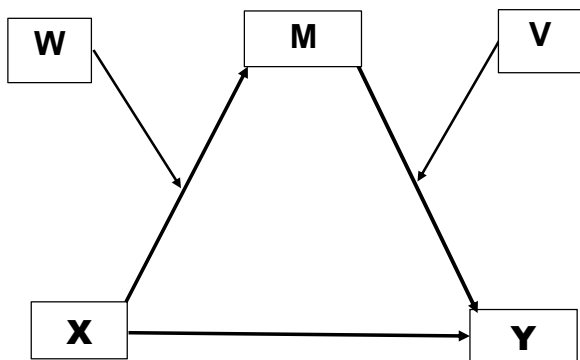


Figure 5.6. Moderated mediation effect

Figure 5.7 depicts X = variable as the independent variable (EI), Y = dependent variable (the stages of EA), M = mediating variable (impulsivity dimensions) and W and V = moderating variables (age, gender and number of years in business). Moderated mediation, also known as conditional indirect effects, occurs when the treatment effect of an independent variable X on an outcome variable Y via a mediator variable M differs, depending on levels of a moderator variable W. Specifically, either the effect of X on Y, and/or the effect of M on Y depends on the level of V (Khan, Yang, Shaf, & Yang, 2019:11).

5.8 PRESENTATION OF RESEARCH FINDINGS

The last step in the research process is the presentation of findings. Research findings are presented in Chapter 6, thereafter conclusions and recommendations coming from this study are provided and discussed in Chapter 7.

5.9 RESEARCH ETHICS

Creswell (2012:279) states that the main purpose of research ethics is that the research should be done in such a way that honours right or wrong conduct, by instilling principles and standards that will avoid any potential harm that may be caused to individuals or environment in the process of conducting a study (Kent, 2007:38). The research ethics is nothing else but the correctness and aptness of research's conduct in relation to the rights of the participants affected by this research work. As part of doctoral studies, an application

for the ethical clearance was submitted and subsequently approved by the University of Pretoria (Protocol EMS193/20) (Refer to Appendix A for the approval letter attached).

The clearance included the approved title of the study topic, the research instrument and the completion of the research proposal. The letter informed participants of their rights: that their participation was completely without any attachment in that individuals had the right to withdraw partially or completely from the research process at any time they wished and that their input would be excluded from the study without any consequence to them. Participants' data would at all times be treated strictly with the confidentiality and anonymity it deserved. The researcher pledged to remain transparent and objective at all times during the research process. A summary of study findings would be made available on request. The participants were given the study leader's contact details if they had any questions and comments regarding the study.

5.10 CONCLUSION

This chapter discussed the research methodology employed for this study. This entailed the eight steps that were followed in this scientific study. A quantitative research method was employed to test the conceptual framework, based on the theories that inform entrepreneurial intention, entrepreneurial action and non-borderline impulsivity. A cross-sectional survey was employed whereby a self-administered questionnaire was developed to collect the data.

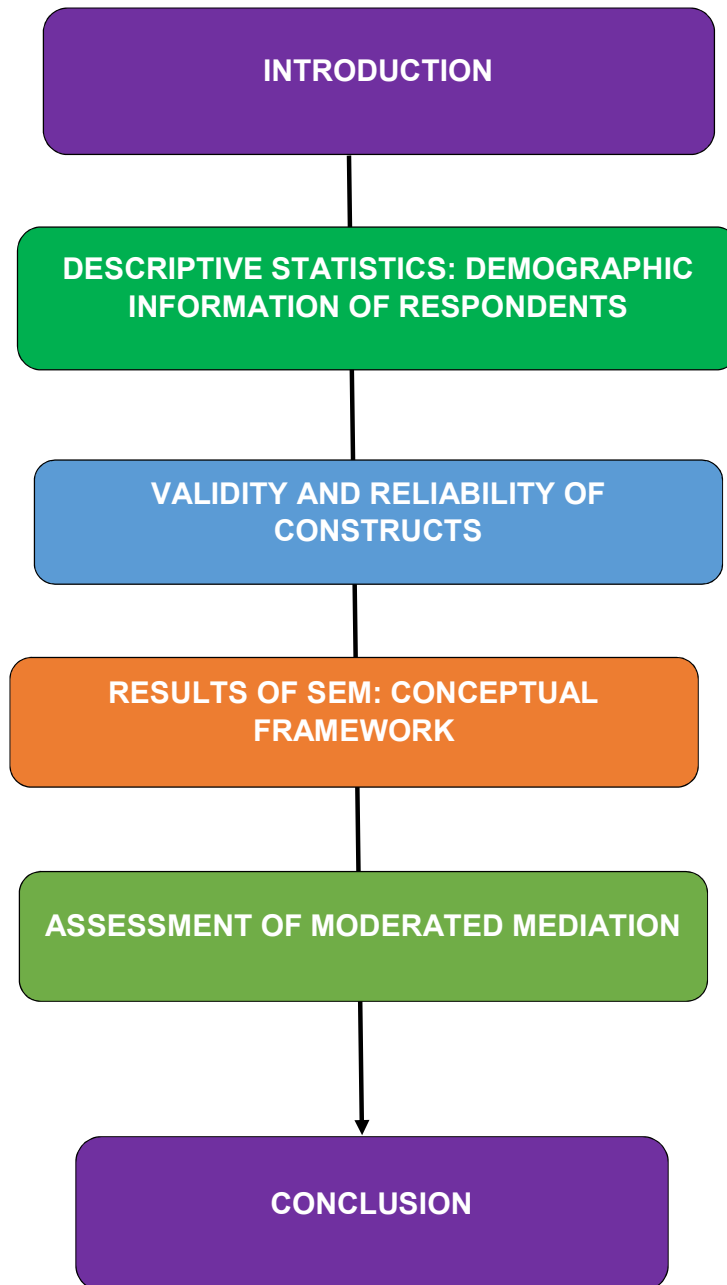
Section A of the questionnaire dealt with demographics. Section B was a five-point Likert response format that investigated EI and the stages of EA. Section C was a four-point Likert scale used to test the respondents' impulsivity levels based on four dimensions per the UPPS scale. The chapter further explained the method and procedure followed to collect data.

Data was received from 597 entrepreneurs based in South Africa. The research instrument used consisted of previous scales from reputable sources in which their validity and reliability were confirmed, but for this study Cronbach alpha-coefficients, composite reliability and discriminant validity were also conducted in order to confirm its validity and reliability. Data analysis techniques used for this study were also presented. The statistical methods used in this study, namely CFA, EFA and SEM, were presented and brief discussion offered. The



research was conducted in line with the ethics certificate as approved by the University of Pretoria Ethics Committee. Chapter 6 will outline the data analysis resulting from data received, while the last chapter represents conclusions, shortcomings of the study and offers recommendations for future studies.

**RESEARCH FINDINGS: DESCRIPTIVE STATISTICS, FACTOR ANALYSIS, SEM AND
FINDING DISCUSSIONS**



6.1 INTRODUCTION

The theoretical framework that was discussed in Chapter 4 revealed that certain dimensions of impulsivity are likely to have an effect on the stages of EA. Chapter 5 explained the research methodology followed for this; this chapter presents the findings of the study in response to the research questions, objectives and postulated hypotheses. The findings are based on the data collected from the respondents that participated by completing a quantitative research survey. All the figures and tables presented in this chapter are produced from the findings of the study and thus are the researcher's own compilation.

The flow of the results is arranged in accordance with the three stages used to analyse the data. The first stage dealt with descriptive statistics that provided information on the demographical profile of the respondents – consisting of entrepreneurs – and EI, the stages of EA and the impulsivity dimension. The second stage employed factor analysis in order to determine the validity and reliability of the constructs employed in this study. The final stage employed Structural Equation Modelling (SEM) to test structural models EI, stages of EA and UPPS. Lastly, the analysis was concluded by testing and discussing the effect of the mediation contributed by each of the dimensions of impulsivity and moderation by age, gender and years in business. Approvals to use the UPPS was acquired (Lynam, 2020) (Annexure A). The findings are discussed and interpreted, which leads to the final chapter where recommendations, conclusions and future research avenues are presented.

6.2 DESCRIPTIVE STATISTICS

6.2.1 Demographics of respondents

Demographic data such as gender, age, geographical area, years in business and statements that describe ways in which South African entrepreneurs act and think was obtained. The sample was collected randomly amongst the nascent and existing entrepreneurs in all the nine provinces of South Africa. The participants responded to the questionnaire pertaining to EI, impulsivity dimensions and the stages of EA. The data was collected from participants between April and September 2021. Results are presented in Table 6.1.

TABLE 6.1 Demographic profile of respondents

Demographics Variables	N	Percent %
Gender		
Female	281	47.0
Male	296	49.6
Prefer not to indicate	20	3.4
Total	597	100
Age group (in years)		
18–24	154	25.8
25–34	180	30.2
35–44	180	30.1
Older than 45	83	13.9
Total	597	100
Geographical areas of the business		
Eastern Cape	96	16.1
Free State	34	5.7
Gauteng	308	51.6
Kwa-Zulu Natal	4	0.7
Mpumalanga	2	0.3
Northern Cape	1	0.2
North West	116	19.4
Western Cape	36	6.0
Total	597	100
Status of the business		
Nascent entrepreneurs	249	41.7
Existing entrepreneurs	348	58.3
Total	597	100

Table 6.1 indicates that of the 597 respondents, the percentage of male respondents (49.6%) is very similar to that of the female respondents (47.1%) represented in this study. The results of the Global Entrepreneurship Monitor South Africa (GEM SA) 2019/2020, revealed that female entrepreneurs are still underrepresented in most entrepreneurship studies (Bowmaker-Falconer & Herrington, 2020). Therefore this is a positive finding in that an almost equal percentage of both genders are included in a study. Specifically, male entrepreneurs (60.4%) were more represented than female entrepreneurs (39.6%) in 2017. However, the 2020/2021 GEM report revealed a positive rise of female entrepreneurs (46.9%) in South African in comparison to that of their male counterparts (53.1%)

(Bowmaker-Falconer *et al.*, 2020). The rise is also in contrast to that of the global Total early-stage Entrepreneurial Activity (TEA) rates by gender, which found the ratio of female to male entrepreneurship had decreased for the year 2020/2021 report (Bosma, Hill, Ionescu-Somers, Kelley & Guerrero, 2021).

Regarding the respondents' age, the majority (60.4%) of respondents were between 25 and 44 years old. The age results are similar to those found in 2019/2020 GEM report, which found the highest prevalence of entrepreneurial activity among the individuals between the ages of 25–34 and 35–44 years, across all three business development phases (Bowmaker-Falconer *et al.*, 2020).

The respondents were well represented in all of the provinces in South Africa except Limpopo, which had no respondents. The results indicated that three provinces accounted for 87.1% of the results of the data collected, Gauteng having the majority at 51.6%, followed by North West, 19.4%, then Eastern Cape, 16.1%; the balance of 12.9% of the respondents were received from five other provinces. The status of the business was indicated by the age of the business with the option of almost started (41.7%) and those who already had existing businesses (58.3%). Businesses that were “almost started” refers to the nascent phase, which consists of entrepreneurial individuals who were about to start their business ventures or those who had started and operated their businesses for less than a year. The “existing businesses” refers to ventures that have been in existence for longer than one year and onwards (Hartanto *et al.*, 2017:1131).

6.2.2 Constructs in this study

The descriptive statistics are based on the constructs that are tested and measured in this study as presented in sections 6.2.2.1 and 6.2.2.3. The constructs that were measured in this study were EI, the three stages of EA (entrepreneurial opportunity discovery, entrepreneurial opportunity evaluation and entrepreneurial opportunity exploitation) and the four impulsivity dimensions (urgency, lack of perseverance, lack of premeditation and sensation seeking).

This section links the primary and secondary objectives of this study in order to illustrate the role played by impulsivity in mediating the relationship between EI and the stages of EA. In order to assess the reliability of factors, the Cronbach Alpha coefficient of reliability was

employed for this study. Generally, the accepted threshold for the coefficient alpha is ≥ 0.70 for the established instrument. However, depending on the test chosen, reliabilities lower than the 0.70 threshold may be accepted when the model fit is achieved (Hair *et al.*, 2014). For complex models that derive from many latent variables and indicators, satisfactory model fitting could even load as low as 0.50, provided the focus should be placed more on the hypotheses under test and goodness-of-fit (Bagozzi & Yi, 2012:17). Table 6.2 summarises the number constructs and items included in the study.

Table 6.2: Research constructs and items

Research Constructs	Section of Questionnaire	Number of items
El and the stages of EA	B	19
1. Entrepreneurial intention		5
2. The stages of entrepreneurial action:		
• Opportunity discovery		5
• Opportunity evaluation		5
• Opportunity exploitation		4
3. Impulsivity dimensions	C	45
• Urgency		12
• Lack of perseverance		10
• Lack of premeditation		11
• Sensation seeking		12
Total		64

The research constructs that inform this study were discussed in the literature review (refer to Chapters 1–3). Descriptive statistics for each of the constructs are presented in the following section.

6.2.2.1 Results with respect to Entrepreneurial intention (EI)

Entrepreneurial intention is a well-researched construct with models and valid measuring instruments in place to measure it (Esfandiar *et al.*, 2019; Kautonen *et al.*, 2015; Meoli *et al.*, 2019). The measuring instrument used to measure EI for this study is adapted from Guerrero *et al.* (2009), whereby the elements in this instrument ascertain the likelihood of

EI. The results of EI are presented in Figure 6.1. A five-point Likert-type response scale was used, with 1 indicating strongly disagree and 5 strongly agree.

For graphic purposes only, elements that were found to strongly agree and agree are grouped together and labelled as Agreement. Those that were marked as strongly disagree and disagree are labelled as Disagreement.

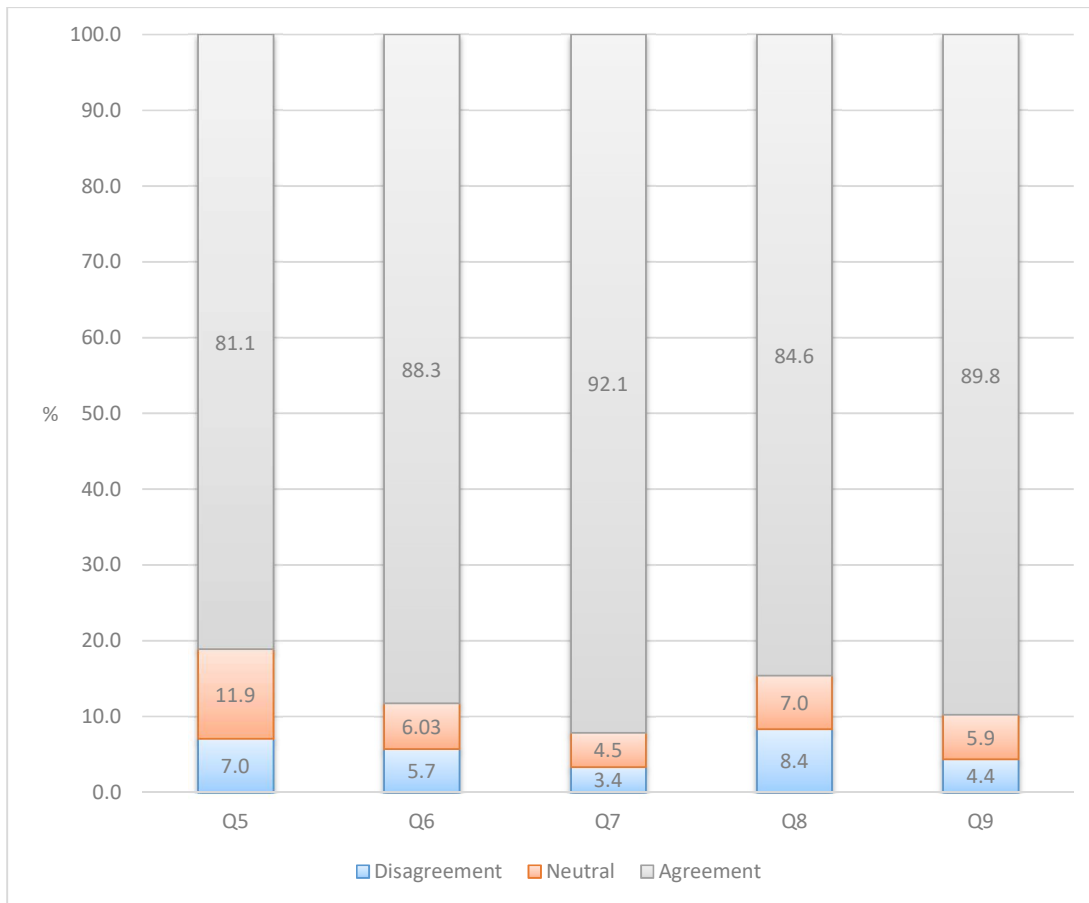


Figure 6.1: Descriptive statistics of entrepreneurial intention

Figure 6.1 above illustrates that a large majority, more than 80% of respondents, indicated agreement with all five statements regarding EI. The highest level of agreement (92.1%) was indicated for the statement regarding “their determination to create their businesses in the future”. The highest level of disagreement, only 8.4%, was indicated for the statement regarding “their professional goal is to be an entrepreneur”.

6.2.2.2 Results with respect to the stages of Entrepreneurial action (EA)

In order to measure the stages of entrepreneurial action, for the entrepreneurial opportunity discovery and exploitation the instrument that had been developed and validated by Kuckertz *et al.* (2017:86) was used; for the entrepreneurial opportunity evaluation the instrument by Haynie *et al.* (2009:349) was utilised.

6.2.2.2.1 Results with respect to the entrepreneurial opportunity discovery

The descriptive statistics in respect of the entrepreneurial opportunity discovery stage depicted in Figure 6.2.

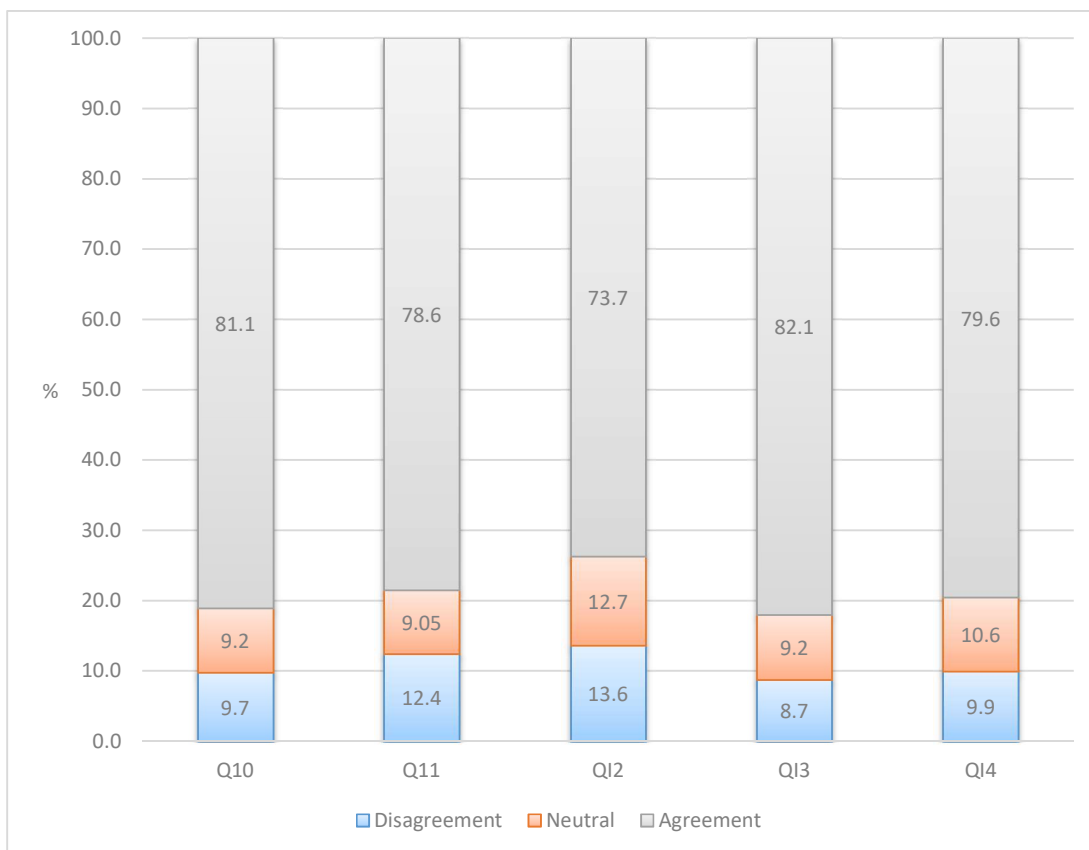


Figure 6.2: Descriptive statistics of the entrepreneurial opportunity discovery stage

Figure 6.2 above illustrates that the majority, over 70% of the respondents, indicated agreement with all of the statements regarding entrepreneurial opportunity discovery. The

highest level of agreement (82.1%) was indicated for the statement regarding their “looking for information about new ideas on products or services” and an almost similar percentage of respondents, 81.1%, “indicated their alertness regarding business opportunities”. The highest level of disagreement, 13.6%, was indicated for the statement regarding their “systematic search for business opportunities”.

6.2.2.2 Results with respect to the entrepreneurial opportunity evaluation

The descriptive statistics in respect of the entrepreneurial opportunity evaluation stage depicted in Figure 6.3.

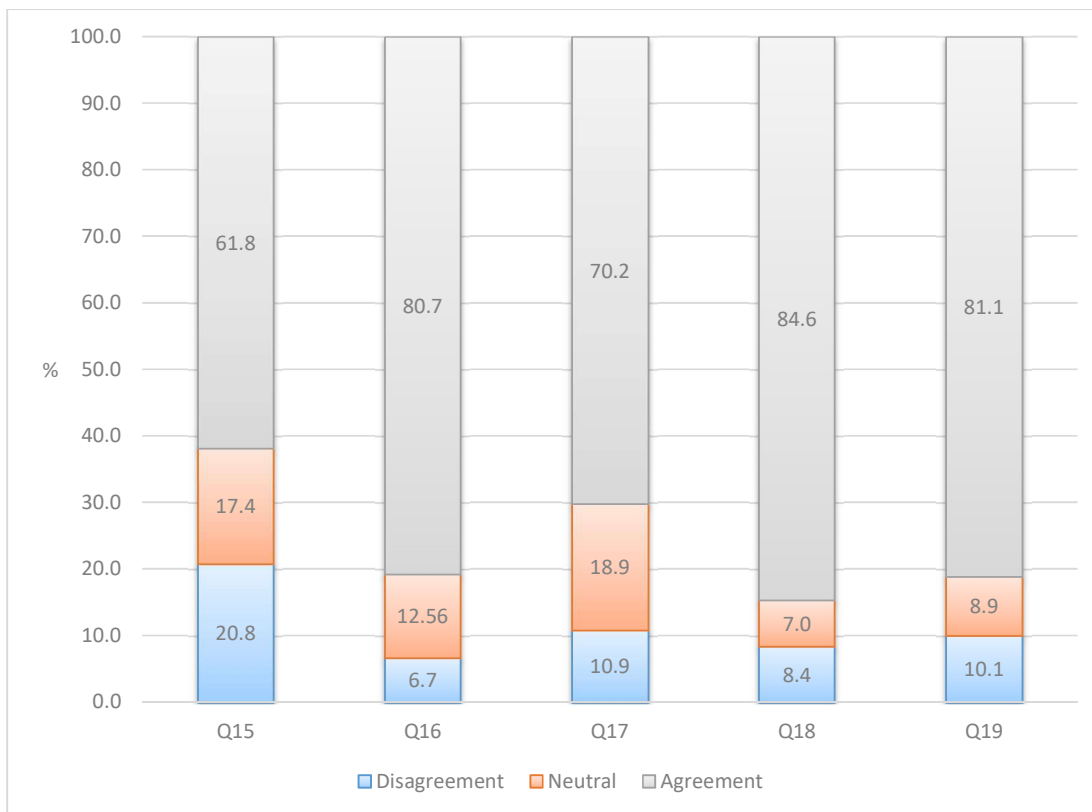


Figure 6.3: Descriptive statistics of the Entrepreneurial Opportunity Evaluation Stage

Figure 6.3 illustrates that at least 60% of respondents indicated agreement with all of the statements regarding entrepreneurial opportunity evaluation. The highest level of agreement (84.6%) was indicated for the statement regarding “inimitability; consideration for the

potential in which others are able to imitate or develop a substitute”. The highest level of disagreement, 20.8%, was indicated for the statement regarding “that is, the information about the business opportunity is not widely available to others”.

6.2.2.2.3 Results with respect to the entrepreneurial opportunity exploitation

The descriptive statistics in respect of the entrepreneurial opportunity exploitation stage depicted in Figure 6.4.

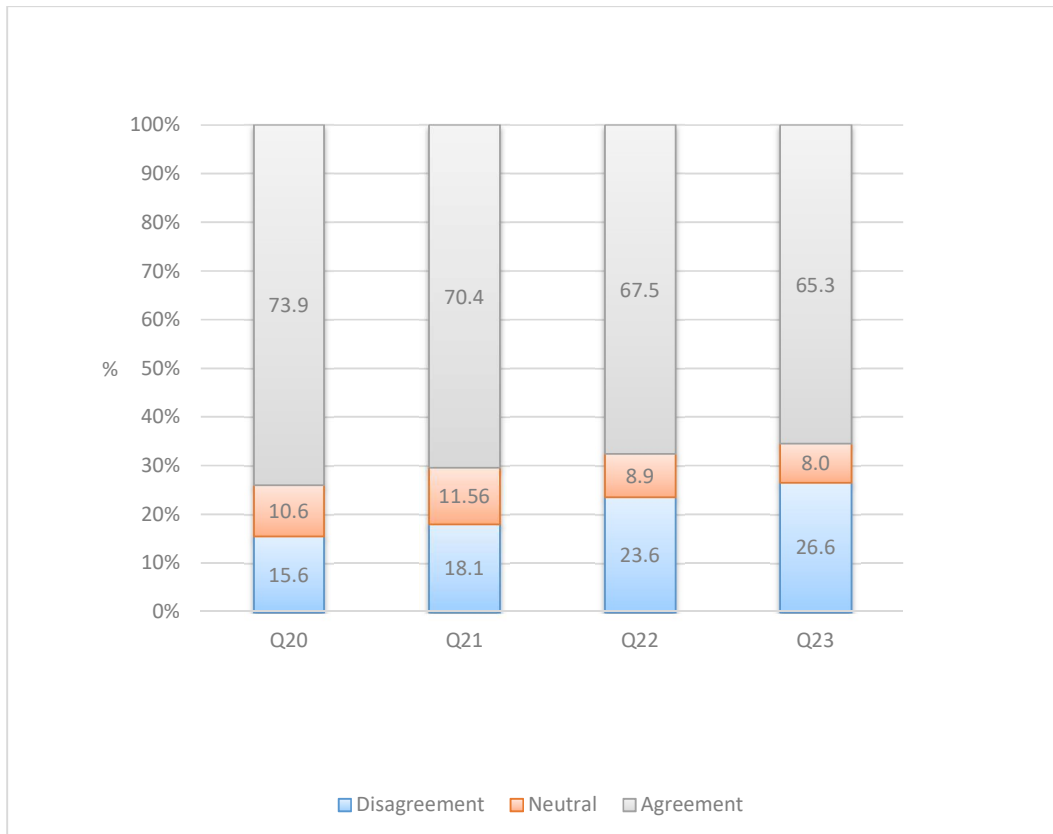


Figure 6.4: Descriptive statistics of the entrepreneurial opportunity exploitation stage

Figure 6.4 illustrates that the majority, at least 65% of respondents, indicated agreement with all of the statements regarding entrepreneurial opportunity exploitation. The highest level of agreement (73.9%) was indicated for the statement regarding “having set up an organization to pursue a business opportunity they perceived”. The highest level of

disagreement (26.6%), was indicated for the statement regarding “approaching investors to acquire funding for their business opportunities”.

In summary, the above results indicate that the majority of the respondents are in agreement with the statements that inform their entrepreneurial intention and action. This suggest their likelihood to engage in activities leading to the entrepreneurial activity taking place.

6.2.2.3 Results with respect to the dimensions of impulsivity

In order to measure impulsivity, the UPPS instrument was used. A number of statements describe ways in which individuals act and think, which illustrates the four dimensions of impulsivity. The UPPS instrument consists of 45 statements which list Urgency (12 statements), Lack of Perseverance (10 statements), Lack of Premeditation (11 statements) and Sensation Seeking (12 statements). The instrument uses a four-point Likert-type response scale ranging from 1, indicating strongly disagree to 4, strongly agree, with no neutral point. According to the UPPS instrument, several items have to be reverse-scored. The UPPS scale originates from different scales that run in different directions, therefore a recommendation is made that the correct items be reverse-scored, to ensure that scales run in the direction such that higher scores indicate more impulsive behaviour (Lynam *et al.*, 2006). Items that were reverse coded are:

Urgency (1 item) – 65 (I always keep my feelings under control),

Lack of perseverance (8 items) – 27 “I generally like to see things through to the end”, 35 “Unfinished tasks really bother me”, 39 “Once I get going on something I hate to stop”, 43 “I concentrate easily”, 45 “I finish what I start”, 49 “I am able to pace myself so as to get things done on time”, 53 “I am a person who always gets the job done”, 57 “I almost always finish projects that I start”

Lack of premeditation (11 items) – 24 “I have a reserved and cautious attitude toward life”, 28 “My thinking is usually careful and purposeful”, 32 “I am not one of those people who blurt out things without thinking”, 36 “I like to stop and think things over before I do them”, 40 “I don't like to start a project until I know exactly how to proceed”, 46 “I tend to value and follow a rational, ‘sensible’ approach to things”, 50 “I usually make up my mind through careful reasoning”, 54 “I am a cautious person”, 58 “Before I get into a new situation I like to

find out what to expect from it”, 62 “I usually think carefully before doing anything”, 66 “Before making up my mind, I consider all the advantages and disadvantages”

Sensation seeking – None

The analysis of the characteristics of the sample and measurement of each of the four dimensions of impulsivity is presented in the following section.

6.2.2.3.1 Results with respect to the Urgency dimension

Figure 6.5 presents a proportion (percentage) of entrepreneurs that indicated their agreement with statements that suggest the Urgency dimension.

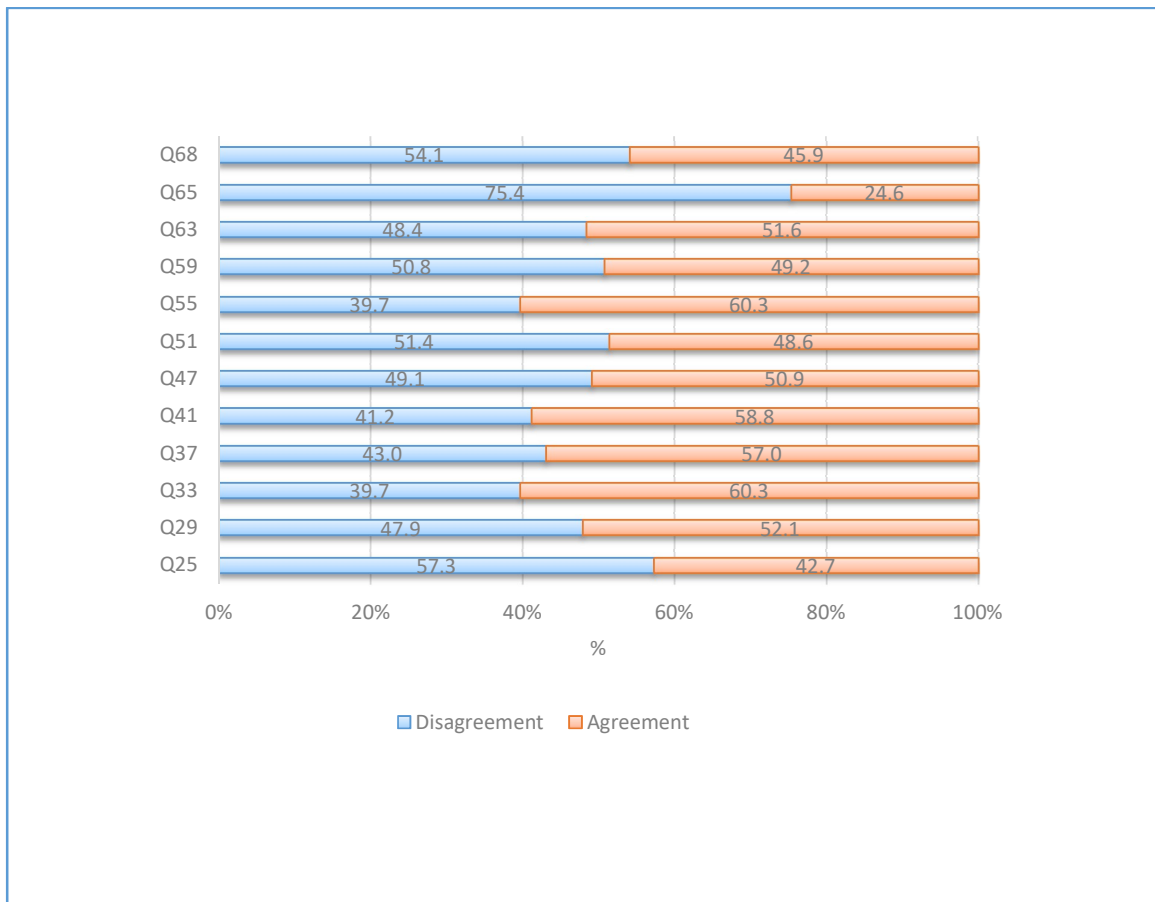


Figure 6.5: Urgency dimension

Figure 6.5 illustrates a split between those who agree and those who disagree with the statements regarding urgency. The highest level of disagreement (75.4%) was indicated for the statement regarding that “they always keep their feelings under control” and (57.3%) indicating disagreement with the statement regarding “they have trouble in controlling their impulses”. The highest level of agreement regarding Urgency was 60.3% on two statements, indicating that (Q33) “they often get involved in things that they later wish they could get out of” and (Q55) “that it is hard for them to resist acting on their feelings”.

6.2.2.3.2 Results with respect to the lack of perseverance dimension

Figure 6.6 presents a major proportion (percentage) of entrepreneurs that indicated their disagreement with statements that suggest the lack of perseverance.

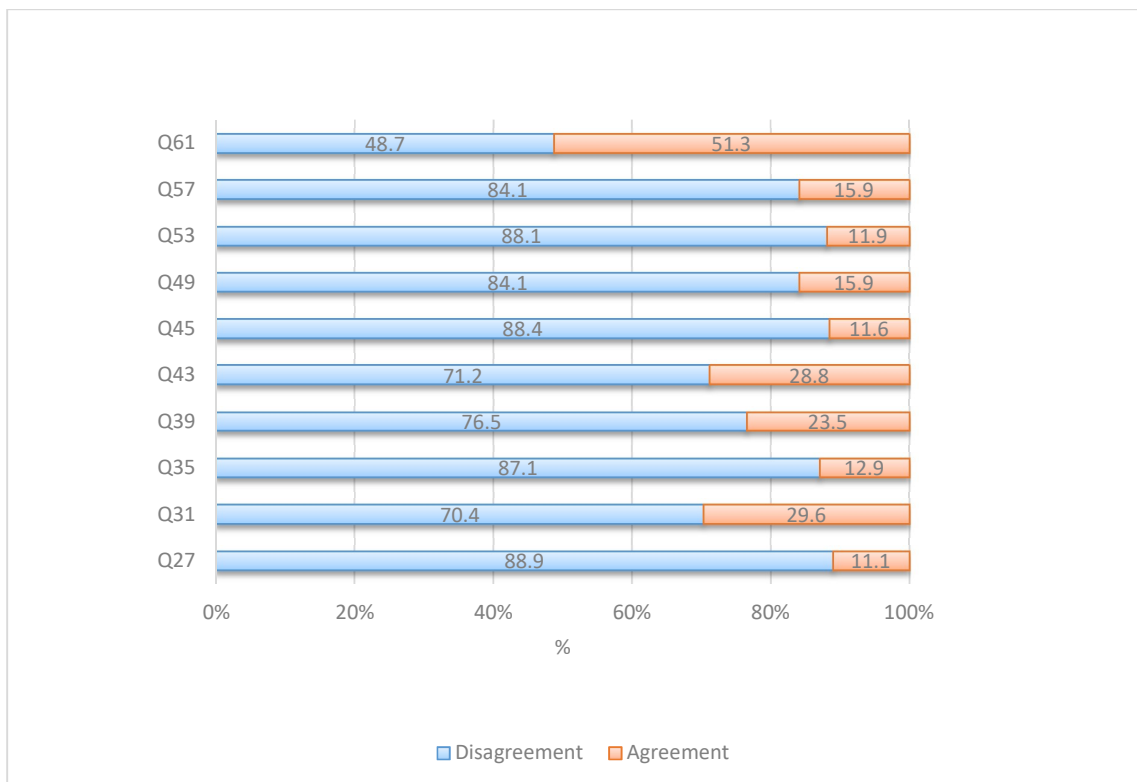


Figure 6.6: Lack of perseverance dimension

Figure 6.6 illustrates that the majority, at least 70% of respondents, indicated disagreement on all of the statements regarding the lack of perseverance, except for Q61. The highest level of disagreement (88.9%) was indicated for the statement that “they generally like to see things through to the end” followed by 88.4% that “they finish what they have started” and 88.1% disagreed with the statement that “they always get the job done”. There is almost a split between those who agree (51.3%) and those who disagree (48.7%), indicated for the statement that “sometimes there are so many little things to be done that they just ignore them all”.

6.2.2.3.3 Results with respect to the lack of premeditation dimension

Figure 6.7 presents a major proportion (percentage) of entrepreneurs that indicated their disagreement with statements that suggest the lack of premeditation.

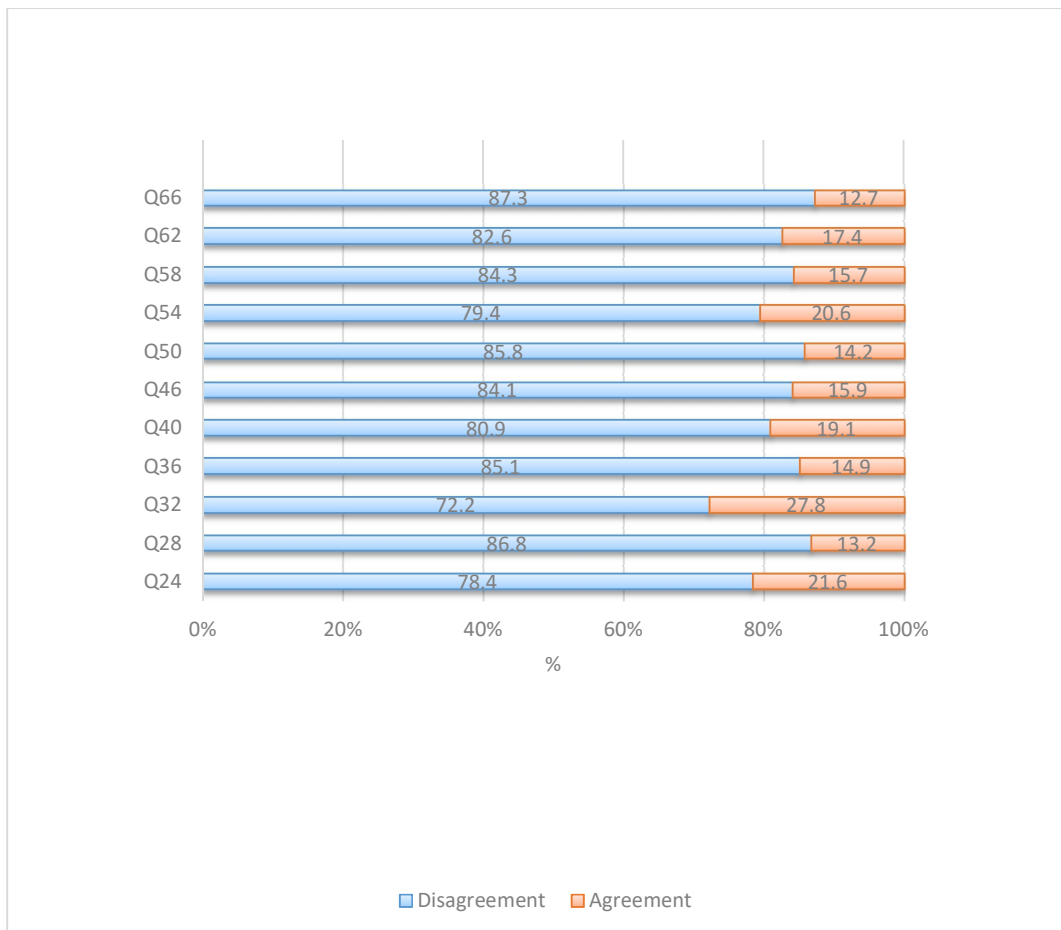


Figure 6.7: Lack of premeditation dimension

Figure 6.7 illustrates that above 70% of respondents indicated disagreement on the statements regarding the lack of premeditation. The highest level of disagreement (87.3%) was indicated for the statement regarding that “before making up my mind, I consider all the advantages and disadvantages” and 86.8% indicated “their thinking is usually careful and purposeful”. The highest level of agreement, only 27.8%, was indicated for the statement regarding that “they are not one of those people who blurt out things without thinking”.

6.2.2.3.4 Results with respect to the sensation-seeking dimension

Figure 6.8 presents a major proportion (percentage) of entrepreneurs that indicated their agreement with statements that suggest sensation seeking.

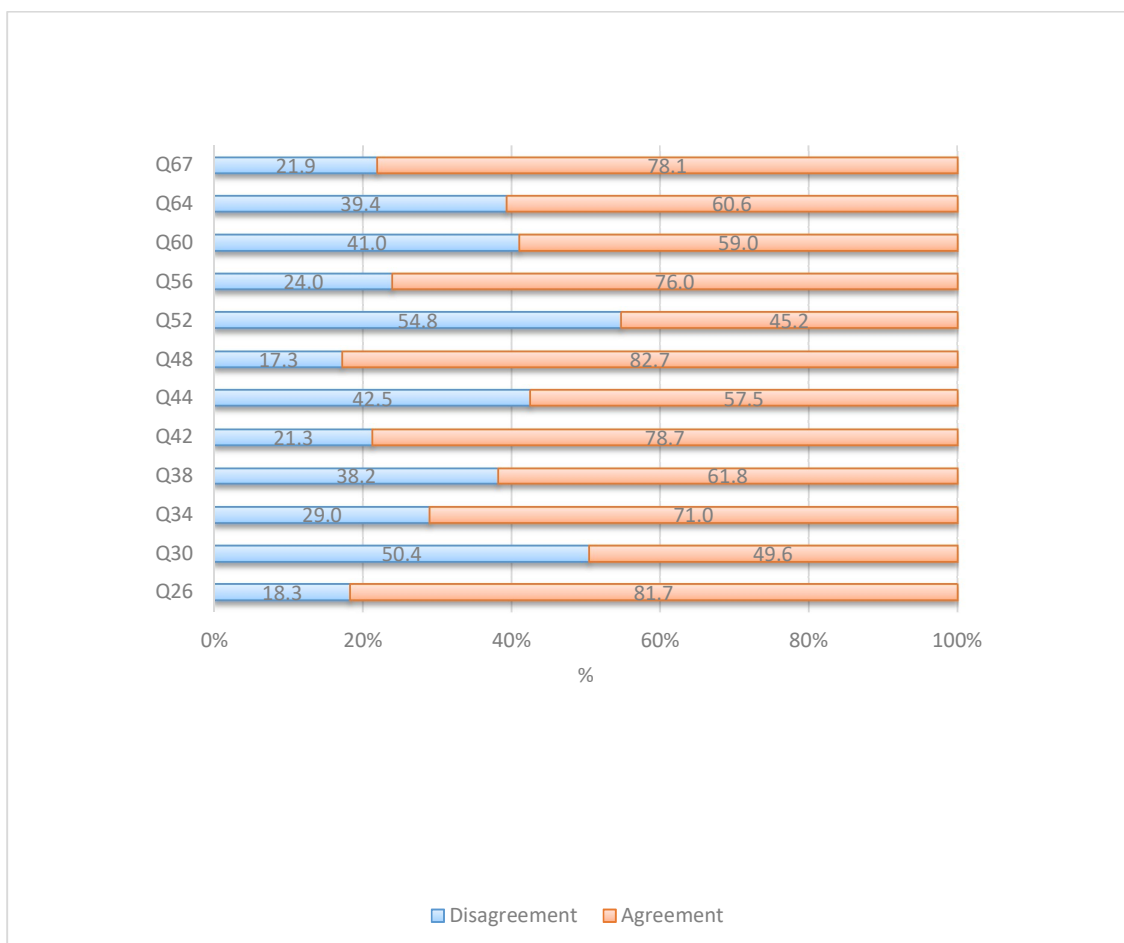


Figure 6.8: Sensation seeking dimension

The highest level of agreement (82.7%) was indicated for the statement regarding “they welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional” and 81.7% indicated that “they generally seek new and exciting experiences and sensations”. The highest level of disagreement, 54.8%, was indicated for the statement regarding that “they would like to learn to fly an airplane” and 50.4% that “they will try anything once”.

In summary, the above results indicate a split between respondents with statements that inform Urgency. The results also indicate that the majority of the respondents disagree with statements that inform their Lack of perseverance, Lack of premeditation and agree with statements that suggest their Sensation seeking element.

6.3 VALIDITY AND RELIABILITY OF THE MEASURING INSTRUMENT

The validity and reliability of the measurement instrument should be established and confirmed (Sekaran & Bougie 2013:225) prior to measuring and presenting the inferential statistics of the constructs. Reliability and validity are key in demonstrating and communicating the rigour of research processes and the trustworthiness of research findings (Roberts & Helena, 2006:41). Confirmatory factor analysis (CFA) was employed to test whether each of the impulsivity constructs discussed in the literature could be confirmed in this study in terms of the pre-specified relationships between the measurement items and underlying constructs. Exploratory factor analysis (EFA) was conducted on the EI and EA scales, since the measuring instruments used for these scales were adapted. Thus the EFA was employed since there were changes in wording. For example in the original instrument pertaining to EI and the stages of EA, participants were required to answer the questionnaire in the order of importance in line with the five Likert scales. In the adapted version employed in this study, participants were required to answer by choosing 5 for ‘strongly agree’, 4 ‘agree’, 3 ‘neutral’, 2 ‘disagree’ and 1 ‘strongly disagree’ with the statements.

The CFA for the impulsivity measuring instrument will be discussed first. Thereafter the EFA for EI and the stages of EA is presented in order to determine the construct dimensionality. Lastly, the full measurement model for all the constructs included in the Structural Equation

Model (SEM) is presented. Convergent and discriminant validity statistics, based on the measurement model, are subsequently calculated.

As a preliminary analysis, the researcher investigated whether the two entrepreneurial distinct groups, those who are in the process of starting their businesses (nascent entrepreneurs) and those who had already started their businesses (existing entrepreneurs), would result in different CFA models to be considered, due to metric invariance. Metric invariance is a statistical property of measurement that indicates that the same construct is being measured across specified groups. Ho (2020) confirms that metric invariance can be used to study whether the constructs in the UPPS instrument are interpreted in a conceptually similar manner by the two entrepreneurial groups.

Thus subsequently a multi-group analysis was conducted to establish whether metric invariance can be concluded for the groups under investigation. The table below indicates the results. The nested model comparison, assuming the unconstrained model to be correct, indicated a p-value of 0.157 for the structural weights, therefore indicating no statistical significance, as the value is above 0.05. Thus, metric invariance between the two groups can be accepted. Structural covariances also showed no statistical significance. Only measurement residuals showed statistical significance. Thus metric invariance can be assumed for the analysis, as indicated by Ho (2020). Ho (2020) stated that if subsequent analyses use the measure as a latent variable, differences in measurement residual variances will not impact on inferences about group differences in prediction, as long as the loading is equal across groups.

Table 6.3: The metric invariance

Model	DF	CMIN	P
Measurement weights	41	50.063	0.157
Structural covariances	51	58.09	0.216
Measurement residuals	94	151.349	0.000

The following section presents the CFA, based on the total sample, for this study.

6.3.1 Confirmatory factor analysis: UPPS

CFA was employed to test whether the individual UPPS factors, consisting of urgency, lack of perseverance, lack of premeditation and sensation seeking, could be confirmed in this study. Figure 6.9 illustrates the UPPS model with respect to the underlying factors.

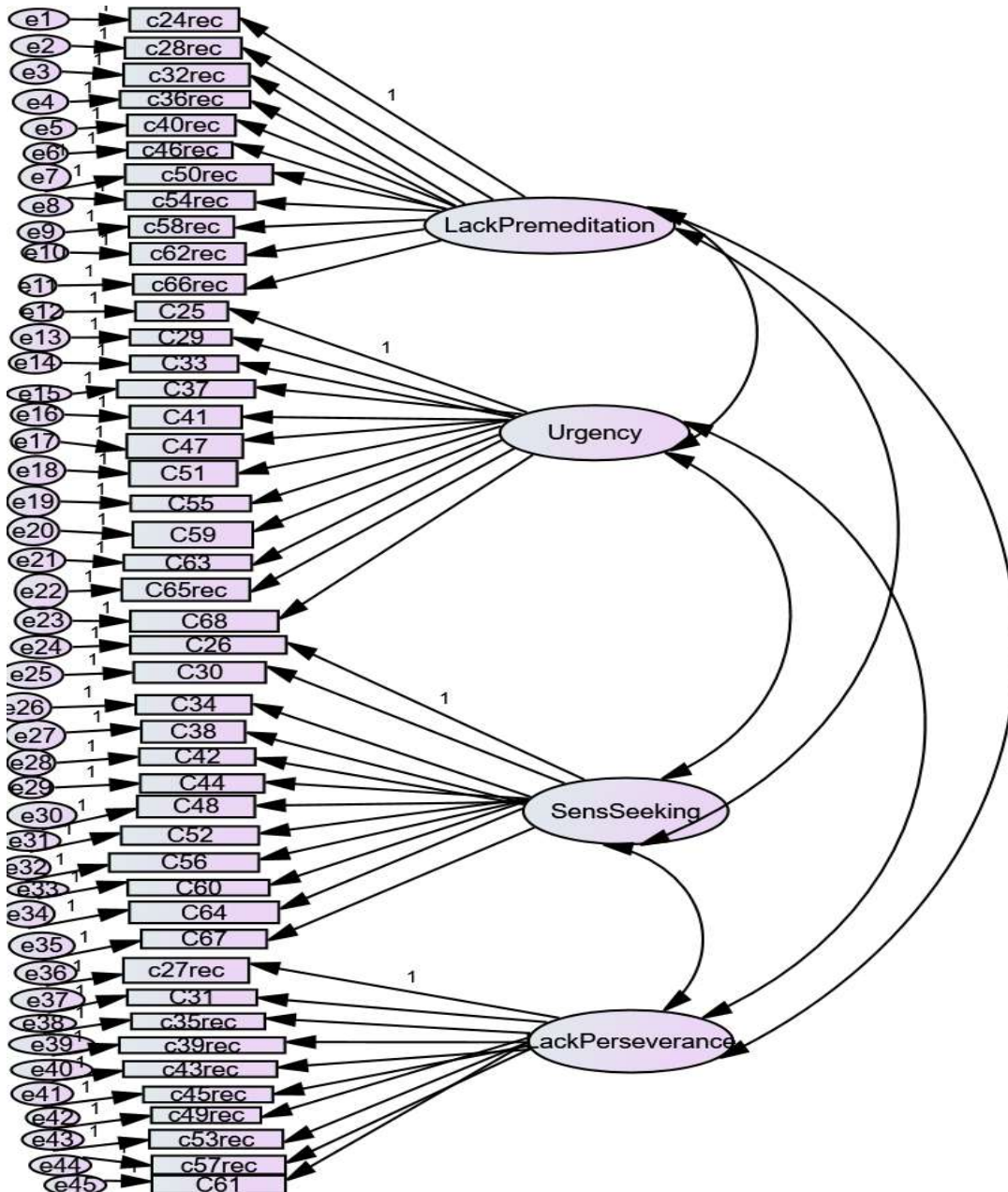


Figure 6.9: Model with respect to the underlying factors UPPS

In Figure 6.9, the measurement model was presented for the four dimensions of impulsivity, namely: Urgency (Q25, Q29, Q33, Q37, Q41, Q47, Q51, Q55, Q59, Q61, Q65rec), Lack of perseverance (Q27, Q31, Q35rec, Q39rec, Q43rec, Q45rec, Q49rec, Q53rec, Q57rec, Q61), Lack of premeditation (Q24rec, Q28rec, Q32rec, Q40rec, Q46rec, Q50rec, Q54rec, Q58rec, Q62rec, Q66rec) and Sensation seeking (Q26, Q30, Q34, Q38, Q42, Q44, Q48, Q52, Q56, Q60, Q64, Q67).

The model was tested for consistency with the observed data using SEM analyses in order to establish whether the current data fits the UPPS model of Whiteside and Lynam (2001). It is necessary to confirm the fit of the model by means of a set of generally accepted fit indices. A model with the following goodness-of-fit indices indicates acceptable fit: RMSEA values between 0.05 and 0.08; CFI, IFI and TLI above 0.9; and the CMIN/df value smaller than 3 (Hair *et al.*, 2014:579).

Table 6.4 reveals the goodness-of-fit indices of the measurement model representing the UPPS.

Table 6.4: Goodness-of-fit indices of the CFA model for UPPS

Model	CMIN (x^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	2717.224	941	0.000	2.888	0.059	0.642	0.623	0.646	0.064
Acceptable levels	-	-	-	< 3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The model (1) indicated that the CMIN/df (2.888), RMSEA (0.059) and SRMR (0.064) are below the recommended thresholds and thus indicate acceptable fit. However, the CFI (0.642), TLI (0.623) and IFI (0.646) were far below the 0.90 acceptable level. Thus the model cannot be considered as an adequate fit. The results of the standardised regression weights and correlations between the four sub-dimensions of UPPS are presented in Appendix 1. The results revealed several low loadings of the items. These were considered for deletion in order to improve model fit.

The model was conservatively modified by only excluding items that loaded below 0.4, given that the general threshold for exclusion is stated in the literature as either 0.4 (Hatcher, 1994) or 0.5 (Hair, Anderson, Tatham & Black, 1998). This was done as the result of a very large number of item loadings that were below 0.5 (refer to Appendix 1). The modified CFA model

(after deleting items c24rec, c32rec, c46rec and c50rec, c25,c29 and c65rec, c26,c30,c34,c42,c52 and c67, c31,c39rec and c61)) is presented in Figure 6.10.

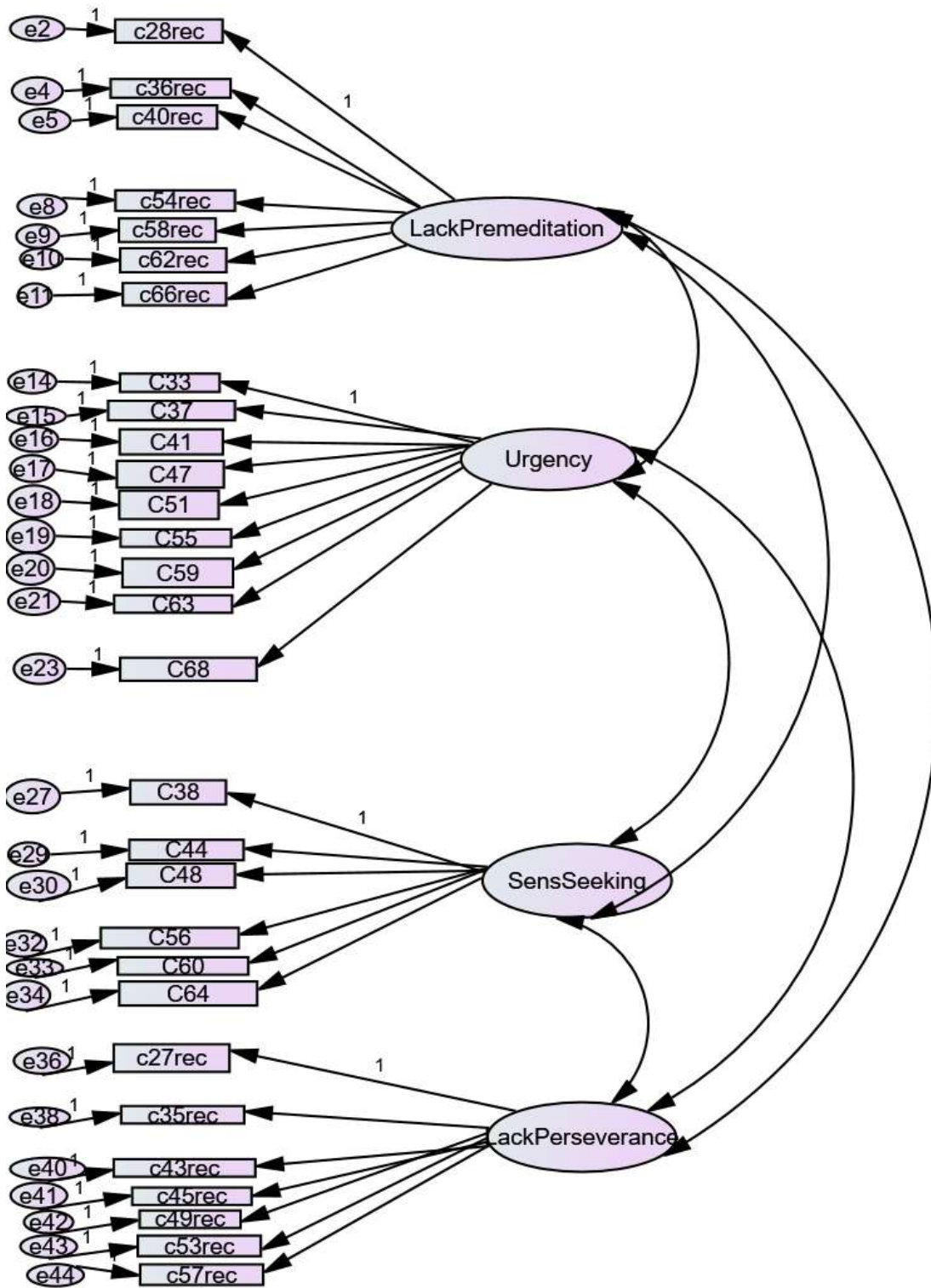


Figure 6.10: Modified model with respect to the underlying factors UPPS

The modified model excluded items that loaded below the 0.4, threshold, giving rise to model (2) presented in Figure 6.10. The improved results are presented in Table 6.5 below.

Table 6.5: Goodness-of-fit indices (2) of the CFA model for UPPS

Model	CMIN (x^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 2	882.952	371	0.000	2.380	0.052	0.832	0.816	0.834	0.042
Acceptable levels	-	-	-	< 3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The model (2) revealed the CMIN/df of 2.380, RMSEA of 0.052 and SRMR of 0.04, indicating acceptable fit. The CFI has been improved to 0.832, TLI 0.816 and IFI 0.834. Although these results were below the general 0.90 threshold, as discussed in Lai & Green (2016), these models can be considered adequate. Furthermore, Hu and Bentler (1999:4) stated that values above 0.8 for parsimony indices can be permissible indices. In addition, Wisting *et al.* (2019:3) suggest the following range-of-fit index: CFI > 0.95 (good fit), > 0.90 (traditional fit) and > 0.8 (sometimes permissible). Inconsistent fit indices have been found to be common in applications of SEM and are not diagnostic of problems in model specification or data (Lai & Green, 2016:233). Therefore, the model presented in Table 6.5 was considered adequate.

The next results provide an empirical analyses of convergent and discriminant validity of the four UPPS sub-constructs.

6.3.2 Convergent and discriminant validity: UPPS

A convergent and discriminant validity test was conducted to assure the reliability and validity of the UPPS instrument used. Convergent validity measurement entails the measuring of a construct with independent measurement techniques that result in a high correlation among the measures. Discriminant validity is the opposite of convergent validity, as it demonstrates a very low correlation among different constructs (DeMello & Collins, 2001:175). It entails that the two latent variables that are meant to represent two different theoretical concepts are statistically and adequately different; this simply means the extent

to which a construct is distinct from other constructs (Hair *et al.*, 2014:78). In this study, composite reliability (CR) with an associated threshold value of 0.7 was used to confirm convergent validity, as the average variance extracted measures (AVE) are considered to be too strict with an associated threshold value of 0.5 (Maholtra, 2011). High CR suggests that internal consistency exists; however, a rule of thumb is therefore 0.7 or higher according to Anderson, Babin, Black, and Hair (2010: 125). Discriminant validity was evaluated by using the HTMT measure with thresholds of less than 0.850 for strict discriminant validity and less than 0.90 for liberal discriminant validity.

6.3.3 Convergent validity

The composite reliability values for each of the constructs of the UPPS are presented in Table 6.6 below.

Table 6.6 Convergent validity of the UPPS

	Lack of Premeditation	Urgency	Sensation Seeking	Lack of Perseverance
CR	0.665	0.797	0.703	0.649

The results indicated that urgency and sensation seeking have a composite reliability value above the general 0.70 threshold, thereby indicating convergent validity. Lack of premeditation and lack of perseverance have a composite reliability value above 0.6. Composite reliability values of 0.60 to 0.70 in exploratory research and values from 0.70 to 0.90 in more advanced stages of research are regarded as satisfactory (Nunnally & Bernstein, 1994),

6.3.4 Heterotrait-Monotrait Approach (HTMT)

The HTMT of correlations measures the ratio between trait correlation and the within-trait correlations; the threshold value of below 0.85 is acceptable (Hair *et al.*, 2014:688). In terms of the second measure, HTMT analysis was conducted to determine discriminant validity. As indicated in Table 6.7, all the values met the criteria of the threshold value of below 0.85.

Table 6.7: HTMT analysis - UPPS

	L/Prem	Urgency	SS	L/ Pers
Lack of Premeditation				
Urgency	0.091			
Sensation Seeking	0.000	0.396		
Lack of Perseverance	0.843	0.147	0.000	

Based on the HTMT analysis, discriminant validity was thus achieved for lack of premeditation and urgency (0.091), lack of premeditation and lack of perseverance (0.843), urgency and sensation seeking (0.396) and urgency and lack of perseverance (0.147).

The next subsections included in the analysis discuss the construct validity and internal consistency (reliability) through utilising EFA for EI and the stages of the EA constructs.

6.3.5 Exploratory factor analysis (EFA)

EFA was employed for EI and subsequently for the stages of EA, in order to determine the construct dimensionality, since the measuring instruments used for EI and the stages of EA were adapted from the original instruments.

The results of the EFA on EI and later those of the stages of EA are discussed in the following sections. The procedure followed in employing EFA is firstly commencing with the Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and Bartlett's test of sphericity, which assess the suitability of the data for factor analysis. Bartlett's test of sphericity threshold should be significant ($p < 0.05$) for the factor analysis to be considered appropriate (Kline, 2014). The KMO index ranges from 0 to 1 and a minimum value of 0.6 is considered appropriate for factor analysis.

6.3.5.1 Exploratory factor analysis: Entrepreneurial Intentions (EI)

The KMO value for EI is 0.876, exceeding the minimum value of 0.6. The Bartlett's test of sphericity showed statistical significance ($p < 0.001$), therefore supporting the factorability of the correlation matrix. The results identified EI as a uni-dimensional construct, based on the eigenvalue exceeding 1 criterium. The eigenvalue for the EI factor is 3.642 and explained 72.84% of the total variance. The final factor loadings are presented below in Table 6.8.

Table.6.8: Factor loadings from the EFA for the factor representing EI

Items	Factor 1
B5 I am ready to do anything to be an entrepreneur	0.703
B6 I will make every effort to start and run my own business	0.875
B7 I am determined to create a business venture in the future	0.816
B8 My professional goal is to be an entrepreneur	0.840
B9 I have a strong intension of starting a business	0.827

The internal consistency (reliability) for the EI factor was measured using Cronbach Alpha and the value is 0.902, which is above the general threshold of 0.7 (Hair *et al.*, 2014) for instruments from previous research. In the next section, EFA is conducted for each of the EA stages separately.

6.3.5.2 Exploratory factor analysis: entrepreneurial opportunity discovery (EODI)

The KMO value for EODI is 0.898, exceeding the minimum value of 0.6. The Bartlett's test of sphericity showed statistical significance ($p < 0.001$), therefore supporting the factorability of the correlation matrix. The results identified EODI as a uni-dimensional construct based on the eigenvalue exceeding 1 criterium. The eigenvalue for the EODI factor is 3.776, which explained 75.52% of the total variance. The final factor loadings are presented below in Table 6.9.

Table.6.9: Factor loadings from the EFA for the factors representing EODI

Items	Factor 1
B10 I am always alert to business opportunities	0.776
B11 I research potential markets to identify business opportunities	0.866
B12 I search systematically for business opportunities	0.872
B13 I look for information about new ideas on products or services	0.835
B14 I regularly scan the environment for business opportunities	0.815

The internal consistency (reliability) for EODI is measured using Cronbach Alpha and the values 0.919. The reliability for EODI factor is above the general accepted threshold of 0.7 (Hair *et al.*, 2014).

6.3.5.3 Exploratory factor analysis: entrepreneurial opportunity evaluation (EOEV)

The KMO value for EOEV is 0.898, exceeding the minimum value of 0.6. The Bartlett's test of sphericity showed statistical significance ($p < 0.001$), therefore supporting the factorability of the correlation matrix. The results identified EOEV as a uni-dimensional construct based on the eigenvalue exceeding 1 criterium. The eigenvalue for the EOEV factor, which is 2.939, explained 58.78% of the total variance. The final factor loadings are presented below in Table 6.10.

Table.6.10: Factor loadings from the EFA for the factors representing EOEV

Items	Factor 1
B15 Rarity – Information about the business opportunity that I started is not widely available to others.	0.648
B16 Value – This business opportunity exhibits the potential for increases in efficiency and effectiveness	0.697
B17 Limits of competition – The market position for this business opportunity is highly defensible	0.826
B18 Inimitability – The potential for others to imitate (or develop substitutes for) this business is considerable.	0.683
B19 Relatedness – This business opportunity is highly related to the entrepreneur's existing knowledge, skills, and abilities	0.624

The internal consistency (reliability) for EOEV was measured using Cronbach Alpha and the value was 0.819. The reliability for EOEV factor was above the general threshold of 0.7 (Hair *et al.*, 2014).

6.3.5.4 Exploratory factor analysis: entrepreneurial opportunity exploitation (EOEX)

The KMO value for EOEX is 0.825, exceeding the minimum value of 0.6. The Bartlett's test of sphericity showed statistical significance ($p < 0.001$), therefore supporting the factorability of the correlation matrix. The results identified EOEX as a uni-dimensional construct based on the eigenvalue exceeding 1 criterium. The eigenvalue for factor 1, which is 2.955, explained 73.87% of the total variance. The final factor loadings are presented below in Table 6.11

Table.6.11: Factor loadings from the EFA for the factors representing EOEX

Items	Factor 1
B20 I have set up an organisation to pursue a business opportunity I perceived.	0.787
B21 Based on a business opportunity I perceived, I have developed a new market.	0.833
B22 I have put together an entrepreneurial team to pursue a business opportunity I perceived.	0.841
B23 I have approached investors (e.g. business angels or venture capitalists) to acquire funding for a business opportunity.	0.768

The internal consistency (reliability) for EOEX measured using Cronbach Alpha and the value was 0.880. The reliability for EOEX factor is above the general threshold of 0.7 (Hair *et al.*, 2014).

6.4 THE CONCEPTUAL FRAMEWORK

The posited model was developed for an empirical study on the conceptual framework adapted from Wiklund *et al.* (2017), investigating the mediation effect of impulsivity in the relationship between EI and the stages of EA as presented in Figure 6.11. SEM was employed to test the structural relationships between constructs by applying statistical

techniques or procedures such as CFA, EFA, and goodness-of-fit indices to illustrate the validity of constructs and the measurement models in order to ensure that the data collected was in line with the literature that forms the theoretical framework (Hair *et al.*, 2019:700).

The structural model is for testing the mediation effect of impulsivity in the relationship between EI and the stages of EA (Hypothesis 1). The visual portrayal of the hypothesised mediation effect of impulsivity dimensions between EI and the stages of EA is depicted in Figure 6.11

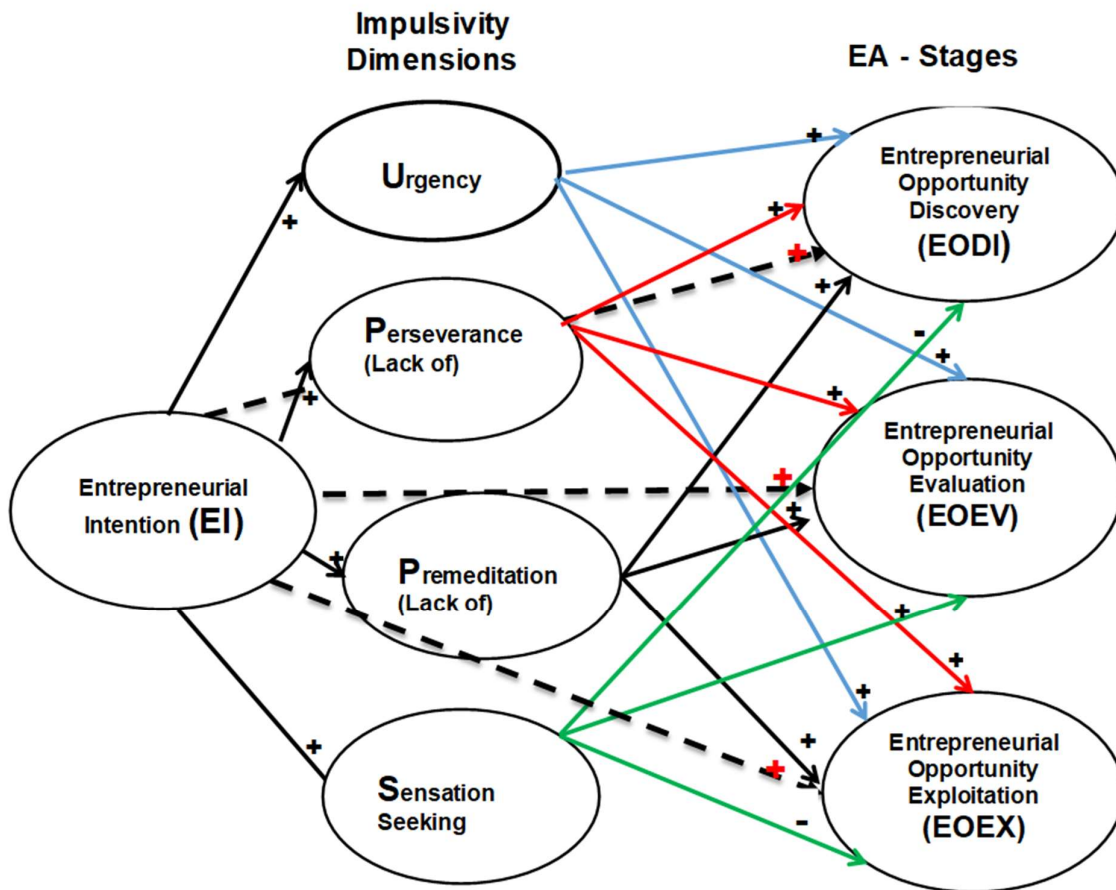


Figure 6.11: Posited model based on the conceptual framework in relation to the mediated effect of the impulsivity dimensions in the relationship between EI and the stages of EA

Figure 6.11 presents main and latent variables of the study; depicting impulsivity dimensions linking EI and the stages of EA. For each of these stages, aspects that are affected by impulsivity dimension are summed in Table 6.23.

The models that make up the theoretical framework are broken down into structural models (SEM 1.1 - SEM 1.4) in section 6.5.1 to 6.5.5. The first SEM structural model presented is that of the mediating role of impulsivity in the relationship between EI and the stages of EA (EODI, EOEV and EOEX), depicted in Figure 6.12.

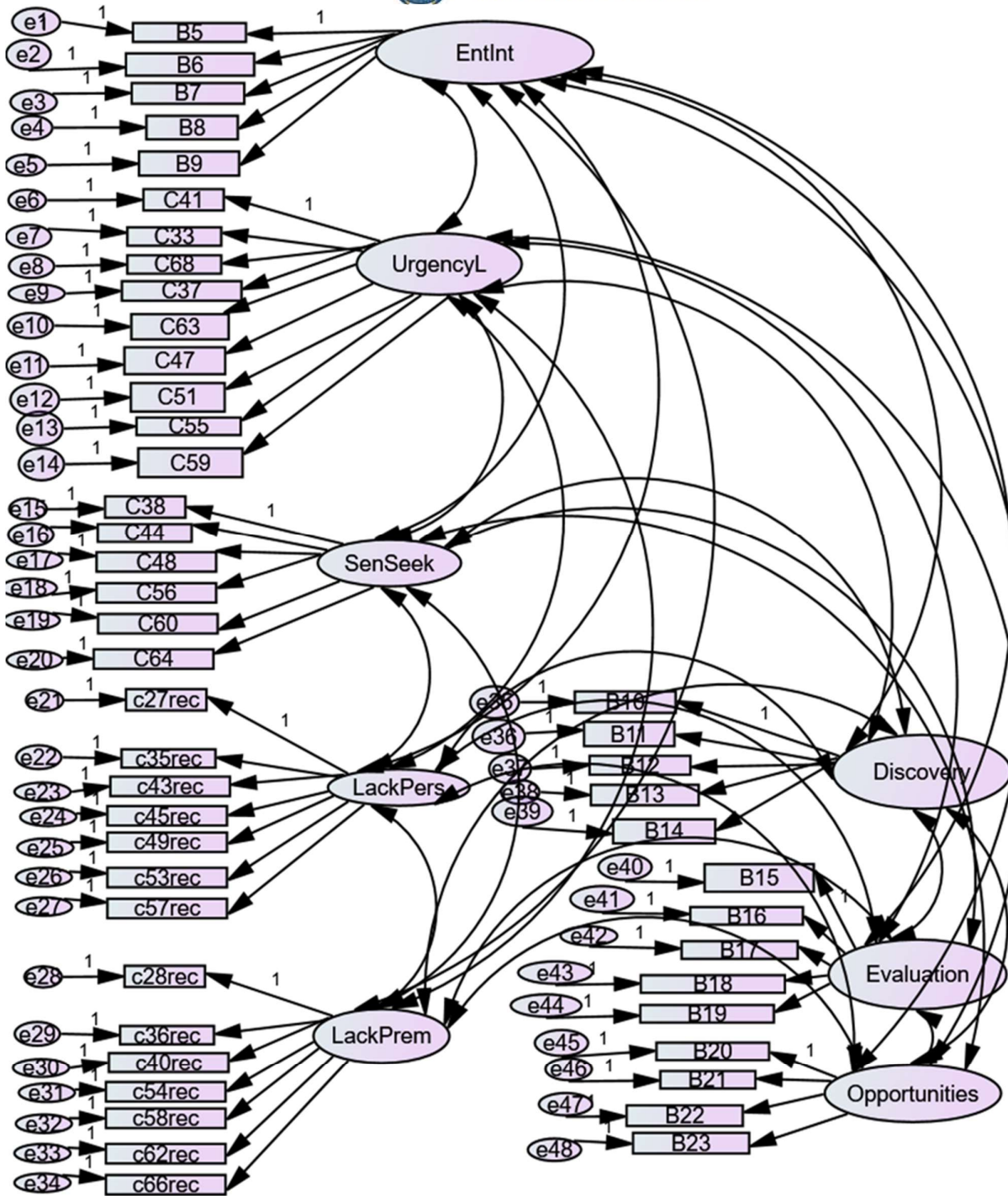


Figure 6.12: The measurement model of the dimensions of impulsivity in the relationship between EI and the stages of EA

The model was tested for consistency with the observed data by means of a set of generally accepted fit indices in order to establish whether the current data fits the relationship between EI and the stages of EA. The goodness-of-fit indices that indicate acceptable fit (Hair *et al.*, 2014:579) were already provided and are again stated in Table 6.12.

Table 6.12: Goodness-of-fit indices for the measurement model

Model	CMIN (x^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	2832.133	1053	0.000	2.690	0.053	0.844	0.833	0.845	0.057
Acceptable levels	-	-	-	< 3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The model revealed the CMIN/df of 2.690, RMSEA of (0.053) and SRMR of (0.057), indicating acceptable fit. The statistics for CFI are (0.844), TLI (0.833) and IFI (0.845). Although these results are below the general 0.90 threshold, these models can, similarly to what was discussed under Table 6.5, be considered adequate as discussed under Lai & Green (2016) and supported by Hu and Bentler (1999:4), who also advised that values above 0.8 for parsimony indices can be permissible indices. In addition, Wisting *et al.*, (2019:3) suggest the following range-of-fit index: CFI > 0.95 (good fit), > 0.90 (traditional fit) and > 0.8 (sometimes permissible). Inconsistent fit indices have been found to be common in applications of SEM and are not diagnostic of problems in model specification or data (Lai & Green, 2016:233). Therefore, the model presented in Table 6.12 was considered adequate.

6.4.1 Convergent validity

The composite reliability values for each of the constructs of the EI and the stages of EA are presented in Table 6.13 below.

Table 6.13 Convergent validity

	EI	EODI	EOEV	EOEX
CR	0.871	0.919	0.825	0.882

The results indicated that EI, EODI, EOEV and EOEX have a composite reliability value that is above the 0.70 threshold (DeMello & Collins, 2001; Anderson *et al.*, 2010).

6.4.2 Heterotrait-Monotrait approach

In terms of the second measure, HTMT analysis was conducted to determine discriminant validity. As indicated in Table 6.14, all the values associated with the constructs of the measurement model met the criteria of the threshold value of below 0.85.

Table 6.14: HTMT analysis

	EI	UR	EODI	EOEV	EOEX	SS	L/Pers	L/Prem
EI								
UR	0.142							
EODI	0.744	0.174						
EOEV	0.644	0.318	0.755					
EOEX	0.501	0.291	0.686	0.806				
SS	0.160	0.396	0.133	0.254	0.135			
L/Pers	0.000	0.147	0.000	0.000	0.000	0.000		
L/Prem	0.000	0.091	0.000	0.000	0.000	0.000	0.843	

Thresholds are 0.850 for strict and 0.900 for liberal discriminant validity

Based on the HTMT analysis, discriminant validity was thus achieved for EI and Urgency (0.142), EODI (0.744), EOEV (0.644), EOEX (0.501) and Sensation seeking (0.160). With regard to Urgency and EODI (0.174), EOEV (0.318), EOEX (0.291), Sensation seeking (0.396), L/Pers (0.147) and L/Prem (0.091) these were achieved. In terms of EODI and EOEV (0.755), EOEX (0.686) and Sensation seeking (0.133), Evaluation and Exploitation (0.806) and Sensation seeking (0.254) and Exploitation and Sensation seeking (0.135) were achieved. Lastly between the lack of perseverance and the lack of premeditation, 0.843 was achieved.

The discussions above presented the descriptive statistical analysis, validity and reliability of constructs and structural models that deal with the relationship between latent constructs. The following section discusses the results from SEM report in terms of the theoretical framework of this study.

6.5 RESULTS OF SEM: CONCEPTUAL FRAMEWORK

All measurement models were validated through CFA. The next step in the process is the structural model in which the SEM technique was employed to test the structural relationships between EI, impulsivity dimensions and the stages of EA.

The structural model for the relationship between EI and the stages of EA is presented first; thereafter the results of the mediation analyses are also presented.

6.5.1 SEM Model 1: Relationship between EI, EODI, EOEV and EOEX

The first SEM structural model presented tests the relationship between EI and the stages of EA (EODI, EOEV and EOEX), which is depicted in Figure 6.13. The goodness-of-fit test is performed to ascertain that the model of fit as presented in Table 6.15 below.

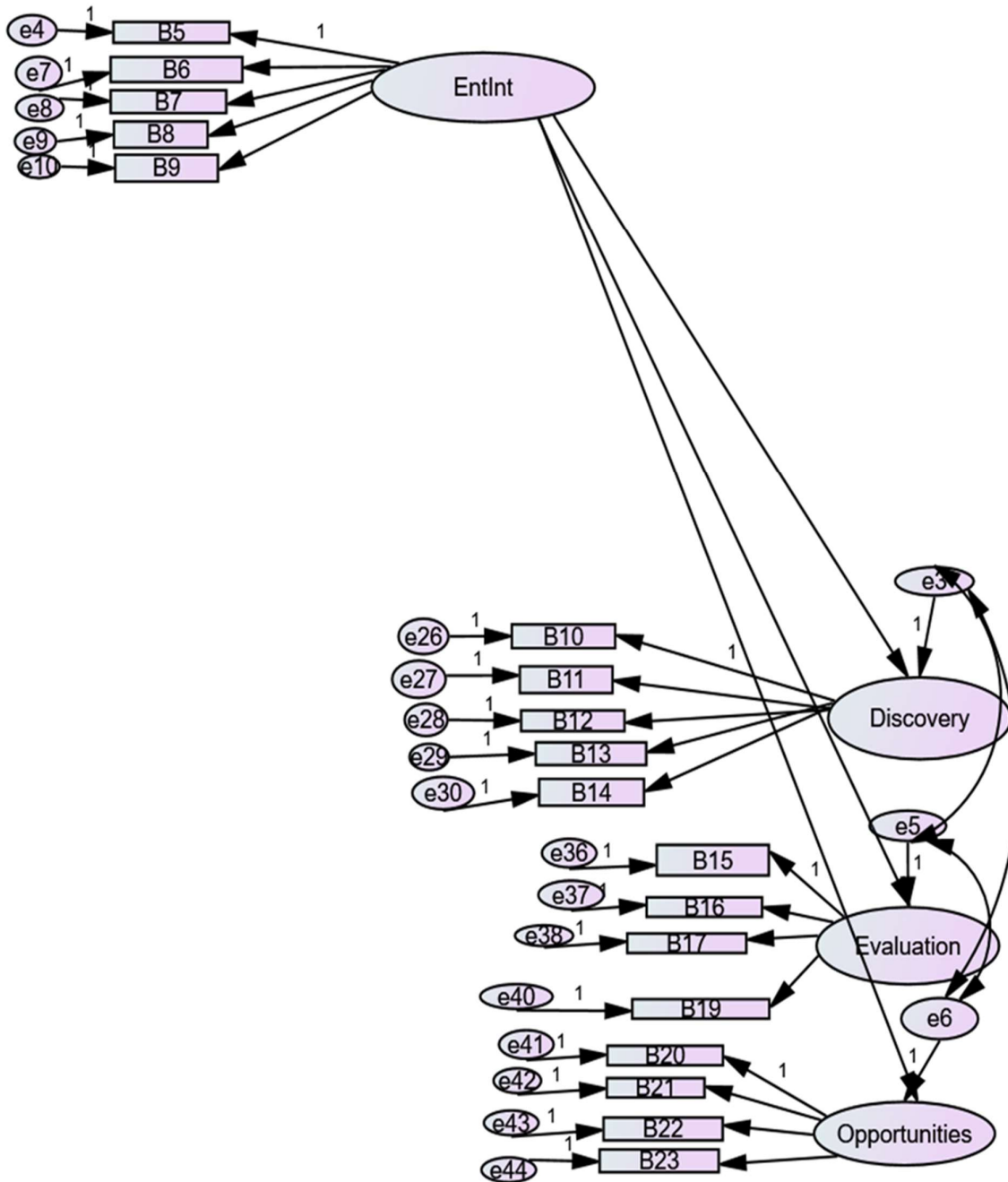


Figure 6.13: SEM model 1 in relation to EI and the stages of EA

Figure 6.13 is the structural model depicting the EI construct and the three stages of EA (EODI, EOEV and EOEX). EI elements (B5–B9), EODI (B10–B14), EOEV (B15–B19) and EOEX (B20–B23).

The model was tested for consistency with the observed data by means of a set of generally accepted fit indices in order to establish whether the current data fits the relationship

between EI and the stage of EA. Table 6.15 reveals the goodness-of-fit indices of the structural model representing the relationship between EI and the stages of EA.

Table 6.15: Goodness-of-fit indices for the structural model for the relationship between EI and the stages of EA

Model	CMIN (χ^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	542.643	129	0.000	4.207	0.073	0.944	0.934	0.945	0.0457
Acceptable levels	-	-	-	< 3 Or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The model presented in Table 6.15 indicated that the CMIN/df (4.207), RMSEA (0.073) and SRMR (0.0457) are below the recommended thresholds and thus indicate acceptable fit. The CFI (0.944), TLI (0.934) and IFI (0.945) were above the 0.90 acceptable level, thus confirming an acceptable model fit.

Table 6.16 is the regression effect of the relationship between EI and the stages of EA.

Table.6.16: Factor loadings representing EI and the stages of EA

Relationships	Regression Weights	Standardised Regression	Label
EI - EODI	0.802	0.731	***
EI - EOEV	0.738	0.664	***
EI - EOEX	0.644	0.493	***

Table 6.16 represents the relationship between EI and the stages of EA. The study found a correlation between EI and the stages of EA, as explained graphically by Figure 6.14.

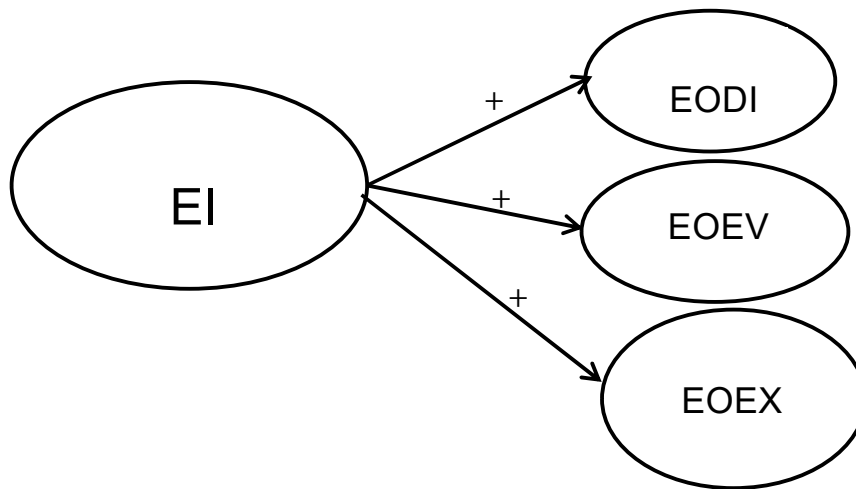


Figure 6.14: EI effect on the stages of EA

Figure 6.14 indicates that the EODI, EOEV and EOEX stages had a positive, statistically significant relationships with EI. The strength of the relationship was strong (larger than 0.5) for the EODI and EOEV, and moderate (between 0.3 and 0.5) for EOEX. This suggest EI has a direct effect on each of the three stages of EA, implying that impulsivity dimensions have a partial effect in this relationship between EI and stages of EA, as illustrated in Figure 6.15. However, this will be expounded in the following sections.

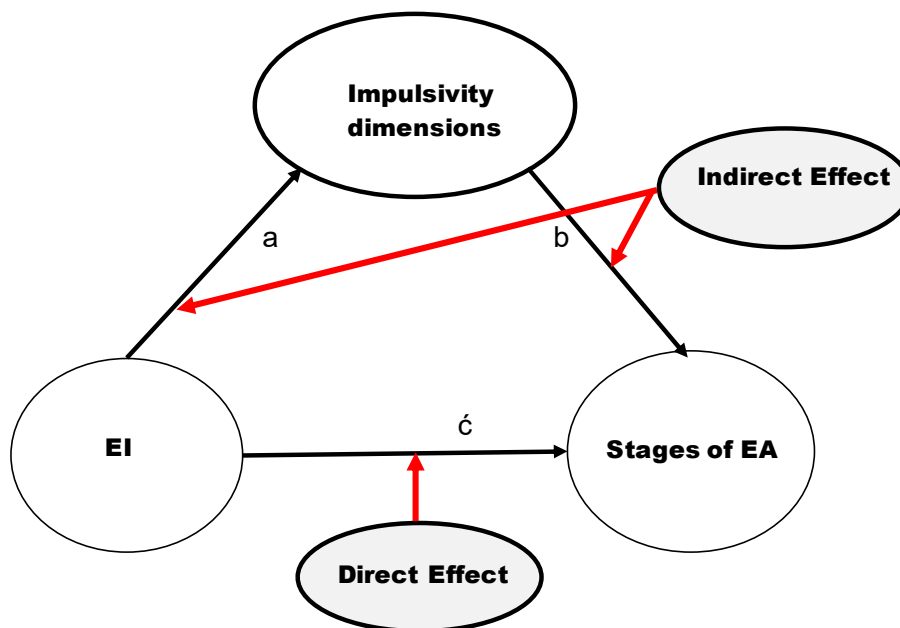


Figure 6.15: Mediation Effect

Figure 6.15 illustrates the graphical difference between direct and indirect effect. The next section in our analysis discusses the mediation effect of the dimensions of impulsivity.

6.6 TESTING THE MEDIATION EFFECT OF THE IMPULSIVITY DIMENSIONS

The construct is regarded as a mediator “to the extent that it accounts for the relation between the predictor and the criterion” (Baron & Kenny, 1986:1176). The following sections present the results of the structural model for each of the dimensions of impulsivity. The models were tested for consistency with the observed data to ascertain their goodness-of-fit.

6.6.1 SEM Model 1.1: Urgency as mediation

The structural model for testing the mediation effect of urgency on the relationship between EI and the stages of EA (Hypotheses 2a, 3a, 4a). The visual portrayal of the hypothesised mediation effect of urgency between EI and the stages of EA is depicted in Figure 6.16.

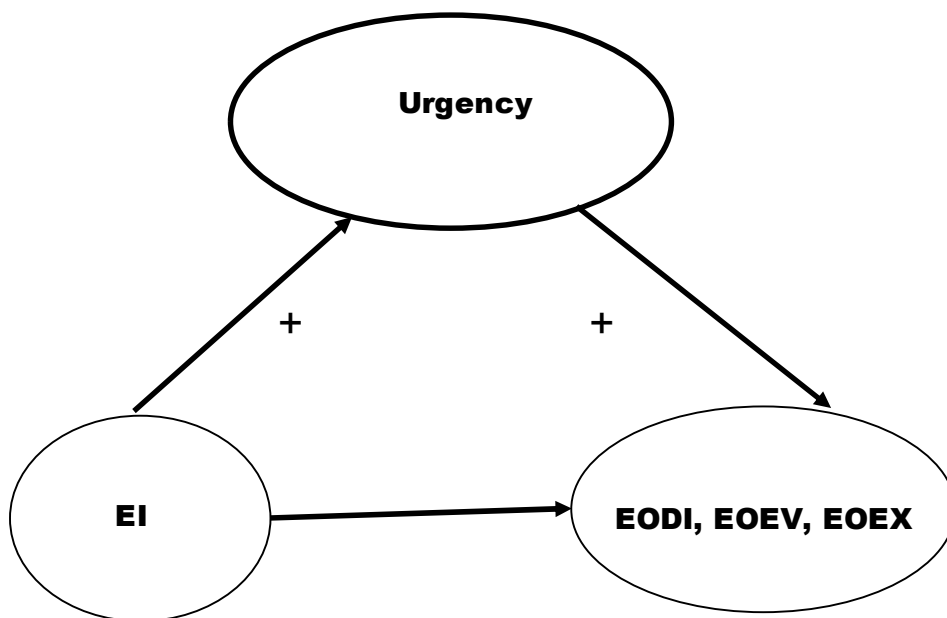


Figure 6.16 Hypothesised mediating effects of urgency in the relationship between EI and the stages of EA

A structural model entails specifying structural relationships between constructs (Hair *et al.*, 2014). These relationships in the model represent hypotheses of the research study. The stated hypotheses of the study with regard to Urgency is that Urgency mediates in the relationship between EI and EODI (H2a), EOEV (H3a) and EOEX (H4a), as depicted in Figure 6.13. In order to test the model for consistency, the goodness-of-fit indices test was employed to determine whether the model in Figure 6.16 emulates the observed data, as suggested by Hair *et al.* (2014:579).

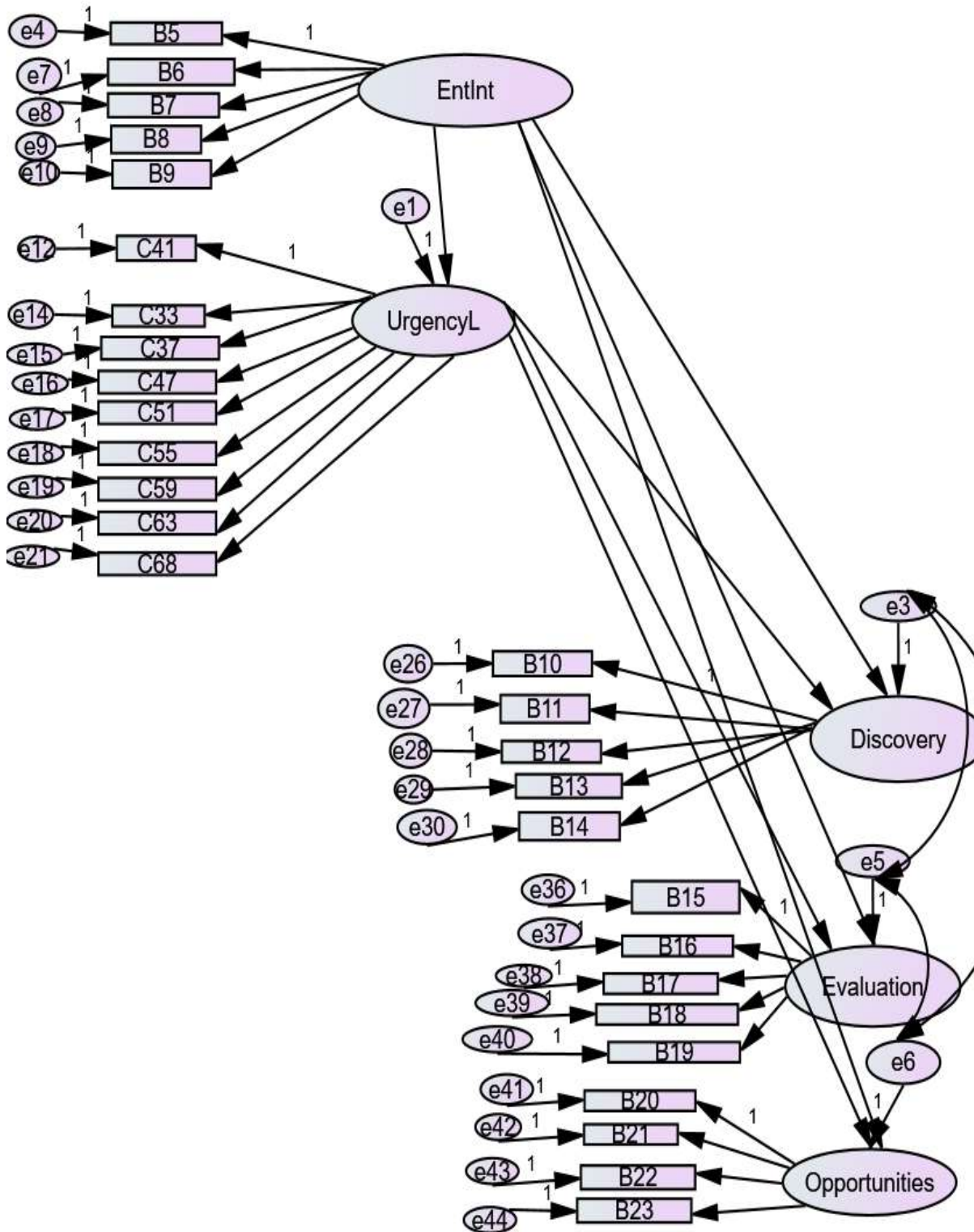


Figure 6.17: Model 1.1 Urgency mediating effect in the relationship between EI and the stages of EA

Figure 6.17 illustrates the hypotheses H1–H1c, positing the mediating effect of Urgency in the relationship between EI and the three stages of EA. In this model, SEM 1.1, EI is represented by five elements (B5–B9), urgency by nine elements (C41, C33, C37, C47, C51, C55, C59, C63 and C68), EODI by five elements (B10–B14), EOEV also by five elements (B15–B19) and EOEX by four elements (B20–B23). Table 6.16 presents the goodness-of-fit indices for the Urgency structural model.

Table 6.16: Goodness-of-fit indices of the Urgency mediation model

Model	CMIN (χ^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	959.181	340	0.000	2.821	0.055	0.931	0.923	0.931	0.0514
Acceptable levels	-	-	-	< 3 or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The results of the goodness-of-fit indices pertaining to SEM model 1.1 indicated a CMIN/df (2.821), RMSEA (0.055) and SRMR (0.0514), which are all below the recommended thresholds. The CFI (0.931), TLI (0.923) and IFI (0.931) values were all above 0.90. Therefore all indices provide sufficient evidence to accept the structural urgency mediation model as adequate.

In order to establish the mediation effect of Urgency in the relationship between EI and EODI, EOEV and EOEX, the bias-corrected percentile-based confidence intervals for standardised indirect and direct effects were employed (Preacher & Hayes, 2008) to illustrate if a mediation effect does exist and whether the effect is partial or full mediation, as presented in Table 6.17 below.

Table.6.17: Standardised direct and indirect effects for the urgency mediation model

	EODI	EOEV	EOEX
Standardised Indirect Effects	0.010	0.030	0.029
Standardised Direct Effects	0.722	0.602	0.464
Standardised Indirect Effects - Lower Bounds	0.001	0.014	0.013
Standardised Direct Effects - Lower Bounds	0.654	0.519	0.378
Standardised Indirect Effects - Upper Bounds	0.022	0.048	0.049
Standardised Direct Effects - Lower Bounds	0.766	0.659	0.509

* Significance at the 10% level ($p < 0.10$), **Significance at the 5% level ($p < 0.05$), *** Significance at the 1% level ($p < 0.01$)

Key to the results of Table 6.17 are the confidence intervals for the standardised indirect effects, as all the figures do not contain zero results of the standardised indirect effect (Preacher & Hayes 2008:79) for the relationship effected by urgency in the relationship between EI and EODI (0.010), EOEV (0.030) and EOEX (0.029). Therefore, since the confidence intervals for the standardised indirect effects do not all contain zero with the standardised indirect effects and they are all statistically significant, thus a mediation effect of urgency exists between EI and EODI, EOEV and EOEX.

The determination of whether the mediating variable partially or fully mediates the influence of the predictor and the outcome variable is based on the 95% bias-corrected confidence interval of the direct effect. If the confidence interval of the direct effect includes '0', then it can be concluded that the mediating variable fully mediates the predictor-outcome. If the confidence interval does not include '0', then it can be argued that there is a partial mediation effect (Choi *et al.*, 2021:12; Preacher & Hayes 2008:79).

Based on the results of Table 6.17, a partial mediation effect by Urgency exists between EI and EODI, EOEV and EOEX. The discussions on whether the construct partially or fully mediated the relationship between EI and the stages of EA as expounded in Section 6.6.1.

6.6.2 SEM Model 1.2: Lack of perseverance as mediation

The structural model for testing the mediation effect of lack of perseverance on the relationship between EI and the stages of EA (Hypotheses 2b, 3b, 4b). The visual portrayal of the hypothesised mediation of lack of perseverance between EI and the stages of EA is depicted in Figure 6.18.

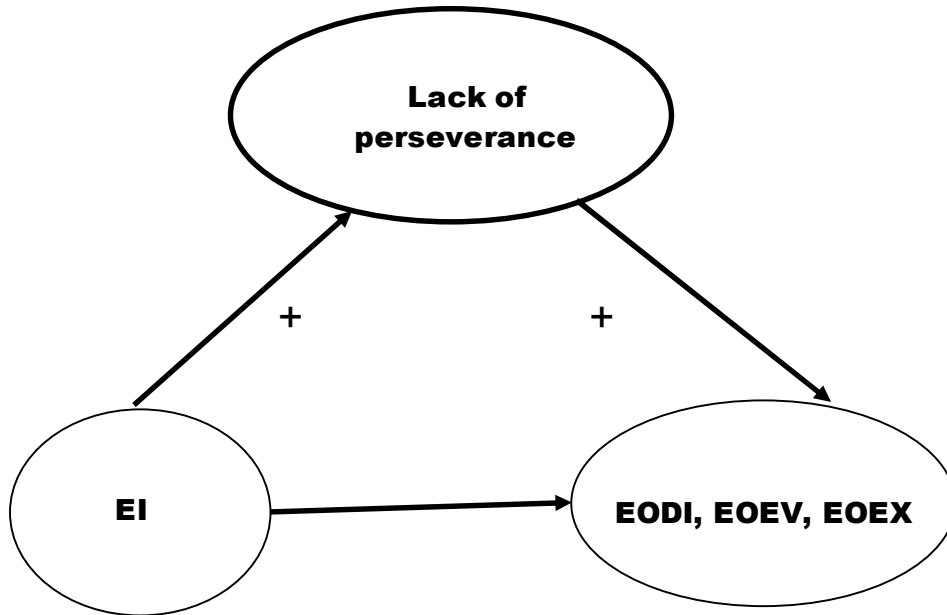


Figure 6.18 Hypothesised mediating effects of lack of perseverance in the relationship between EI and the stages of EA

Figure 6.18 presents the lack of perseverance linking EI to the stages of EA. In order to test for consistency, the model was then evaluated through the goodness-of-fit indices to establish whether the posited model emulates the observed data.

As stated in the previous section, a structural model entails specifying structural relationships between constructs that eventually form part of the hypotheses of the study (Hair *et al.*, 2014). The stated hypothesis with regard to lack of perseverance is that lack of perseverance mediates in the relationship between EI and EODI (H2b), EOEV (H3b) and EOEX (H4b), as depicted in Figure 6.15. In order to test the model for consistency, the goodness-of-fit indices test was employed to illustrate whether the model in Figure 6.16 emulates the observed data, as suggested by Hair *et al.* (2014:579) that it should.

Figure 6.19 illustrates the posited model with regard to the mediation effect of lack of perseverance in the relationship between EI and EODI, EOEV and EOEX.

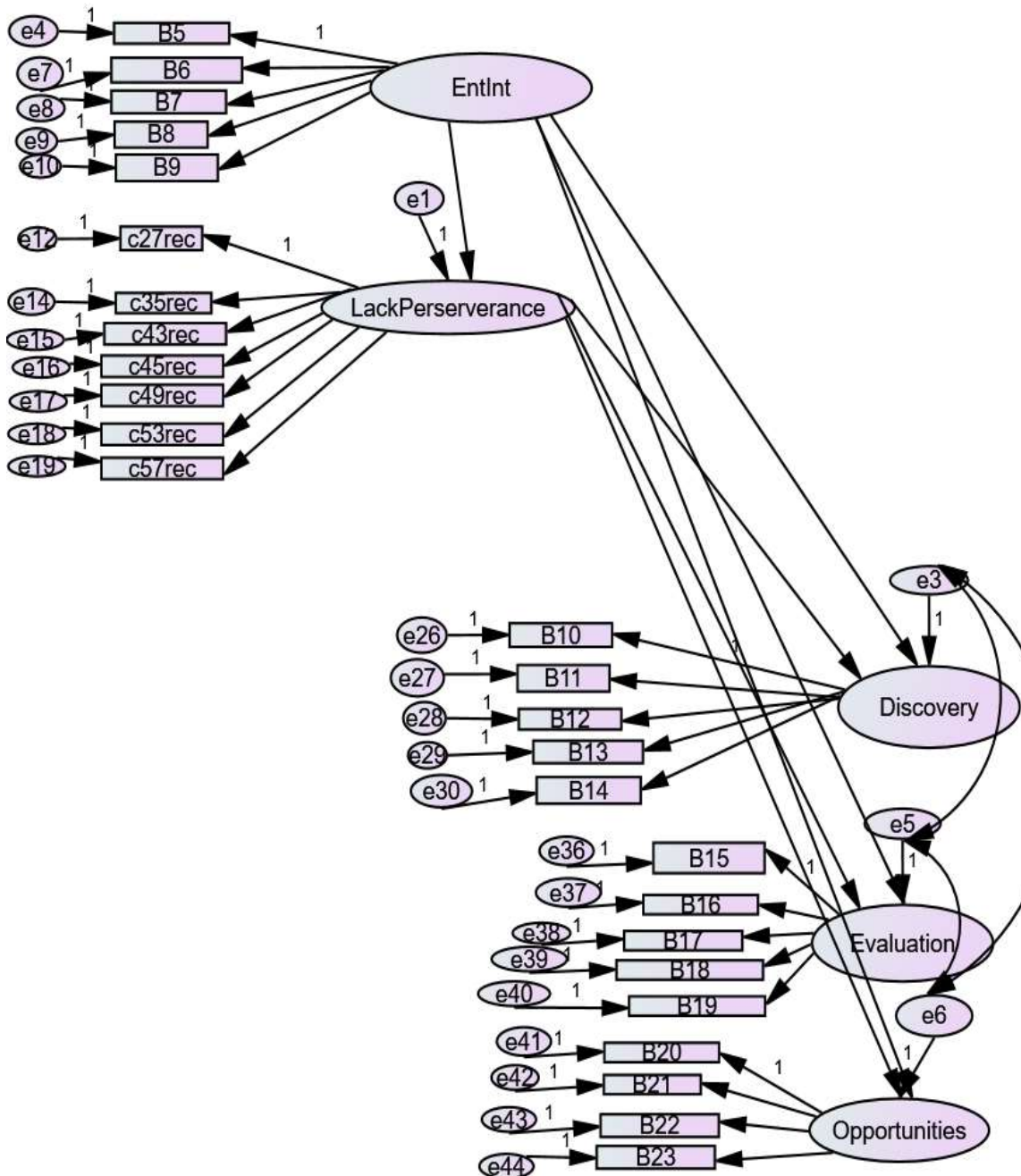


Figure 6.19 Model 1.2 lack of perseverance’s effect in the relationship between EI and the stages of EA

In Figure 6.19, EI was represented by five elements (B5–B9), lack of perseverance by seven elements (C27rec, C35rec, C43rec, C45rec, C49rec, C53rec and C57rec), EODI is represented by five elements (B10–B14), EOEV was represented by five elements (B15–B19) and EOEX was represented by four elements (B20–B23).

The SEM model 1.2 was tested for consistency with the observed data using an SEM approach. The results revealing the goodness-of-fit indices of the structural mediation model for lack of perseverance are presented in Table 6.18 below.

Table 6.18: Goodness-of-fit indices of the lack of perseverance mediation model

Model	CMIN (x^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	882.016	289	0.000	3.052	0.059	0.929	0.920	0.929	0.049
Acceptable levels	-	-	-	< 3 Or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The results of goodness-of-fit indices pertaining to SEM model 1.2 revealed a CMIN/df (3.052), RMSEA (0.059) and SRMR (0.049), which are all below the recommended thresholds. The CFI (0.929), TLI (0.920) and IFI (0.929) values were all above 0.90, therefore all indices provided sufficient evidence to accept the structural lack of perseverance mediation model as adequate.

The bias-corrected percentile-based confidence intervals for standardised direct and indirect effects were used to illustrate if a mediation effect existed, and whether the effect was partial or full mediation as per Table 6.19.

Table.6.19: Standardised direct and indirect effects for the lack of perseverance mediation model

	EODI	EOEV	EOEX
Standardised Indirect Effects	0.046	0.108	0.088
Standardised Direct Effects	0.686	0.525	0.405
Standardised Indirect Effects - Lower Bounds	0.022	0.075	0.050
Standardised Direct Effects	0.607	0.428	0.313
Standardised Indirect Effects - Upper Bounds	0.075	0.146	0.128
Standardised Direct Effects	0.743	0.595	0.471

* Significance at the 10% level ($p < 0.10$), **Significance at the 5% level ($p < 0.05$), *** Significance at the 1% level ($p < 0.01$)

As was the case with Urgency, with lack of perseverance the confidence intervals for the standardised indirect effects do not all contain zero with the standardised indirect effects

and they are all statistically significant. Therefore, a mediation effect of lack of perseverance exists between EI and EODI, EOEV and EOEX.

Based on the results of Table 6.19, lack of perseverance partially mediates between EI and EODI, EOEV and EOEX. The discussions of partial mediation are discussed in Section 6.6.1.

6.6.3 SEM Model 1.3: Lack of premeditation as mediation

The structural model follows for testing the mediation effect of lack of premeditation on the relationship between EI and the stages of EA (Hypotheses 2c, 3c, 4c). The visual portrayal of the hypothesised mediation effect of lack of premeditation between EI and the stages of EA is depicted in Figure 6.20.

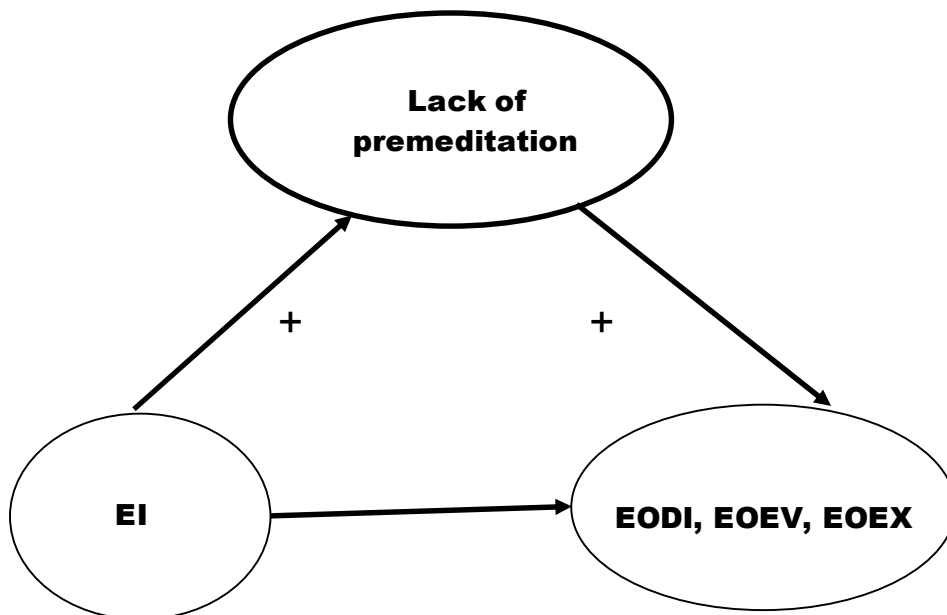


Figure 6.20 Hypothesised effect of lack of premeditation in the relationship between EI and the stages of EA

Figure 6.20 presents lack of premeditation linking EI with the stages of EA. The stated hypothesis with regard to lack of premeditation is that lack of premeditation mediates in the relationship between EI and EODI (H2c), EOEV (H3c) and EOEX (H4c), as depicted in

Figure 6.17. In order to test the model for consistency the goodness-of-fit indices test was employed to illustrate whether the model in Figure 6.20 emulates the observed data collected.

Figure 6.21 illustrates the posited model with regard to the mediation effect of lack of premeditation in the relationship between EI and EODI, EOEV and EOEX.

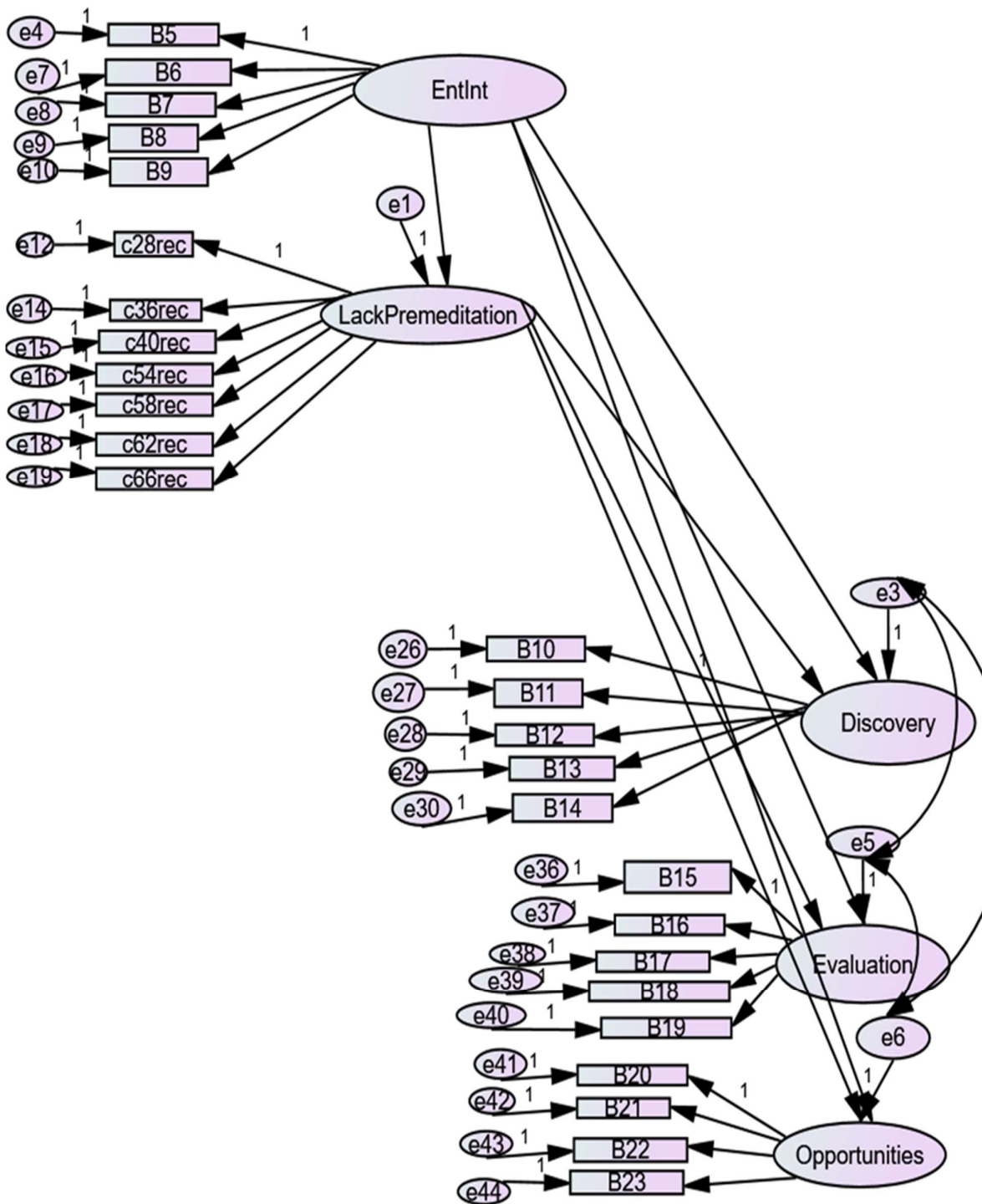


Figure 6.21: SEM model 1.3: lack of premeditation effect in the relationship between EI and the stages of EA

In Figure 6.21, EI was presented by five elements (B5–B9), lack of premeditation by seven elements (C28rec, C36rec, C40rec, C54rec, C58rec, C62rec and C66rec), EODI is

represented by five elements (B10–B14), EOEV was represented by five elements (B15–B19) and EOEX was represented by four elements (B20–B23). The model was tested for consistency with the observed data using a SEM approach. Table 6.20 presents goodness-of-fit indices of the structural mediation model for lack of premeditation.

Table 6.20: Goodness-of-fit indices of the lack of premeditation mediation model

Model	CMIN (χ^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	918.677	289	0.000	3.179	0.060	0.925	0.916	0.925	0.048
Acceptable levels	-	-	-	< 3 Or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The results of goodness-of-fit indices pertaining to SEM model 1.3 revealed that the CMIN/df (3.179), RMSEA (0.060) and SRMR (0.044) are all below the recommended thresholds. The CFI (0.925), TLI (0.916) and IFI (0.925) values were all above 0.90, therefore all indices provide sufficient evidence to accept the structural model as adequate.

The bias-corrected percentile-based confidence intervals for standardised direct and indirect effects were used to illustrate if a mediation effect existed and whether the effect was partial or full mediation as per Table 6.21 below.

Table.6.21: Standardised direct and indirect effects for the lack of premeditation mediation model

	EODI	EOEV	EOEX
Standardised Indirect Effects	0.041	0.076	0.067
Standardised Direct Effects	0.691	0.557	0.426
Standardised Indirect Effects - Lower Bounds	0.018	0.048	0.040
Standardised Direct Effects	0.609	0.455	0.325
Standardised Indirect Effects - Upper Bounds	0.069	0.125	0.114
Standardised Direct Effects	0.749	0.629	0.491

Significance at the 5% level ($p < 0.05$), Significance at the 1% level ($p < 0.01$)

As with Table 6.17 and Table 6.19, here the confidence intervals for the standardised indirect effects do not all contain zero, with the standardised indirect effects all statistically significant, so a mediation effect of the lack of premeditation factor exists between EI and EODI, EOEV and EOEX.

Therefore based on the results of Table 6.20, a partial mediation effect exist between EI and EODI, EOEV and EOEX effected by lack of premeditation and the discussions of the partiality are expounded in Section 6.6.1.

6.6.4 SEM Model 1.4: Sensation seeking as mediation

The structural model for testing the mediation effect of sensation seeking on the relationship between EI and the stages of EA (Hypotheses 2d, 3d, 4d). The visual portrayal of the hypothesised mediation effect of sensation seeking between EI and the stages of EA is depicted in Figure 6.22.

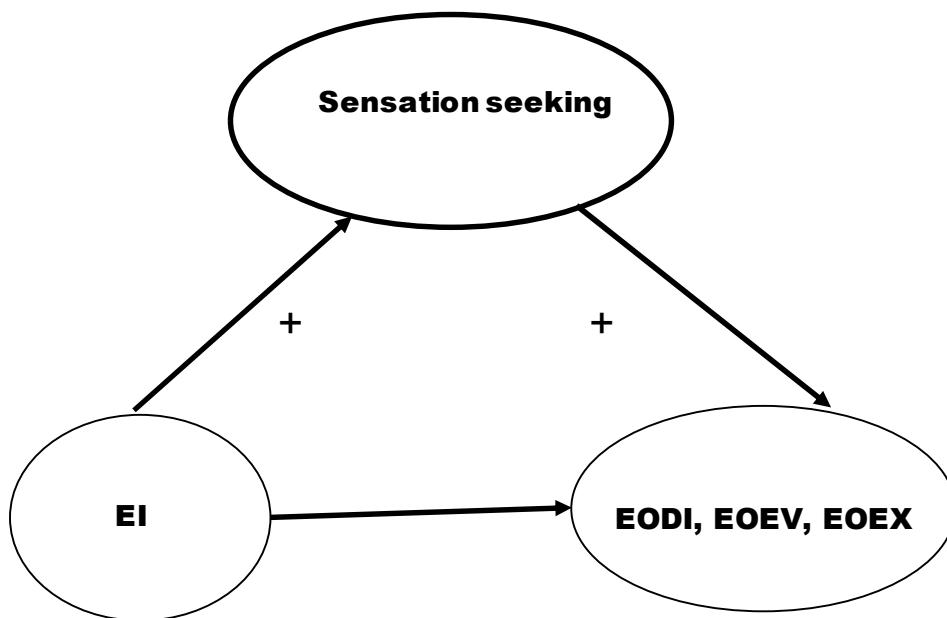


Figure 6.22: Hypothesised effect of sensation seeking in the relationship between EI and the stages of EA

Figure 6.22 presents sensation seeking linking EI with the stages of EA. The stated hypothesis with regard to sensation seeking is that sensation seeking mediates in the relationship between EI and EODI (H2d), EOEV (H3d) and EOEX (H4d) as depicted in Figure 6.19. In order to test the model for consistency, the goodness-of-fit indices test was

employed to illustrate whether the model in Figure 6.23 emulates the observed data collected.

Figure 6.23 illustrates the posited model with regard to the mediation effect of sensation seeking in the relationship between EI and EODI, EOEV and EOEX.

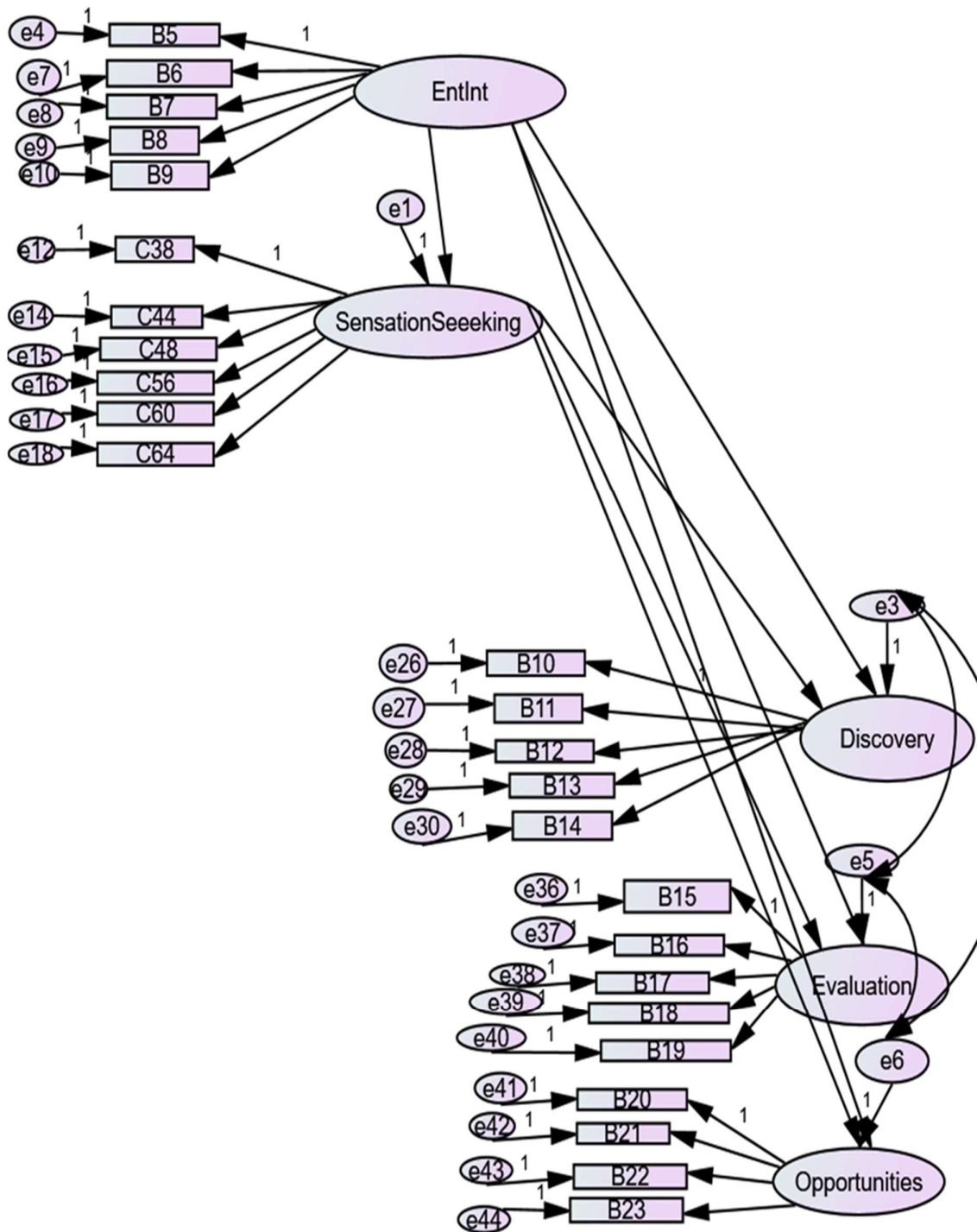


Figure 6.23: SEM model 1.4 sensation seeking effect in the relationship between EI and the stages of EA

In Figure 6.23, EI was represented by five elements (B5–B9), sensation seeking by six elements (C38, C44, C48 C56, C60 and C64), EODI is represented by five elements (B10–

B14), EOEV was represented by five elements (B15–B19) and EOEX was represented by four elements (B20–B23). The model was tested for consistency with the observed data using an SEM approach.

Table 6.21 presents goodness-of-fit indices of the structural mediation model for sensation seeking.

Table 6.22: Goodness-of-fit indices of the sensation seeking mediation model

Model	CMIN (χ^2)	df	P	CMIN/df	RMSEA	CFI	TLI	IFI	SRMR
Model 1	846,465	265	0.000	3.194	0.061	0.930	0.921	0.931	0.051
Acceptable levels	-	-	-	< 3 Or <5	≤ 0.08	≥ 0.90	≥ 0.90	≥ 0.90	< 0.08

The results of goodness-of-fit indices pertaining to SEM model 1.4 revealed the CMIN/df (3.194), RMSEA (0.061) and SRMR (0.051), which are all below the recommended thresholds. The CFI (0.930), TLI (0.921) and IFI (0.931) values were all above 0.90, therefore all indices provide sufficient evidence to accept the structural model as adequate.

The bias-corrected percentile-based confidence intervals for standardised direct and indirect effects were used to illustrate if a mediation effect exist and whether the effect is partial or full mediation as per Table 6.22 below.

Table.6.23: Standardised direct and indirect effects for the sensation seeking mediation model

	EODI	EOEV	EOEX
Standardised Indirect Effects	0.001	0.021	0.008
Standardised Direct Effects	0.730	0.611	0,485
Standardised Indirect Effects - Lower Bounds	-0.009	0.010	-0.003
Standardised Direct Effects	0.660	0.515	0.391
Standardised Indirect Effects - Upper Bounds	0.014	0.047	0.029
Standardised Direct Effects	0.776	0.671	0.532
Standardised Indirect Effects - Two Tailed Significance	0.705	0.002***	0.215
Standardised Direct Effects - Two Tailed Significance	0.016**	0.019**	0.036**

Significance at the 5% level ($p < 0.05$), Significance at the 1% level ($p < 0.01$)

As the confidence intervals of the indirect effects for EODI and EOEX do contain zero and the effects were not statistically significant, no mediation effects of sensation seeking exist between EI with EODI and EOEX. However, for EOEV, as the confidence interval for evaluation did not contain zero and the effect was statistically significant, a mediation effect of sensation seeking exists between EI and EOEV.

Furthermore, as the confidence interval for the direct effect did not contain zero, a partial mediation effect of sensation seeking exists between EI and EOEV.

➤ **Summary of the mediation effect**

Table 6.23 outlines the findings summary of the dimensions of impulsivity in relation to their effect on the relationship between EI and the stages of EA.

Table 6.24: Dimensions of Impulsivity, EI and stages of EA

	EI	EODI	EOEV	EOEX
Urgency	Positive	Positive H1a	Positive H1b	Positive H1c
Lack of perseverance	Positive	Positive H2a	Positive H2b	Positive H2c
Lack of premeditation	Positive	Positive H3a	Positive H3b	Positive H3c
Sensation Seeking	Positive	Negative H4a	Positive H4b	Negative H4c

Table 6.23 summarises the mediation findings of the study H1a–H1c, H2a–H2c, H3a–H3c, and H4b accepted. H4a and H4c rejected

➤ **Clarification for moderation analysis**

The data collected also included demographics of respondents of the study, thus created the interest to analyse the effect of age, gender or years in business in the relationship between EI and the stages of EA mediated by impulsivity dimensions. BarNir *et al.* (2011:285) found that demographical elements are likely to result in a moderated mediation relationship.

6.7 ASSESSMENT OF MODERATED MEDIATION EFFECT

The primary procedure followed to test the moderated mediation effects that are proposed in Hypotheses H5a to H10k was a methodology suggested by BarNir *et al.* (2011:283) per the results presented in Table 6.22. From the literature review, it was postulated that age, gender and years in business (business status) moderate the relationship between EI and the stages of EA as mediated by impulsivity dimensions. Hypotheses H5 (a-k) to H7 (a-k) demonstrate the case of a moderated effect of age, gender and business status between EI and the impulsivity dimensions. Hypotheses H8 (a-k) to 10 (a-k) concern the case of a moderated effect of age, gender and business status between impulsivity dimensions and the stages of EA, as shown in Figure 6.24.

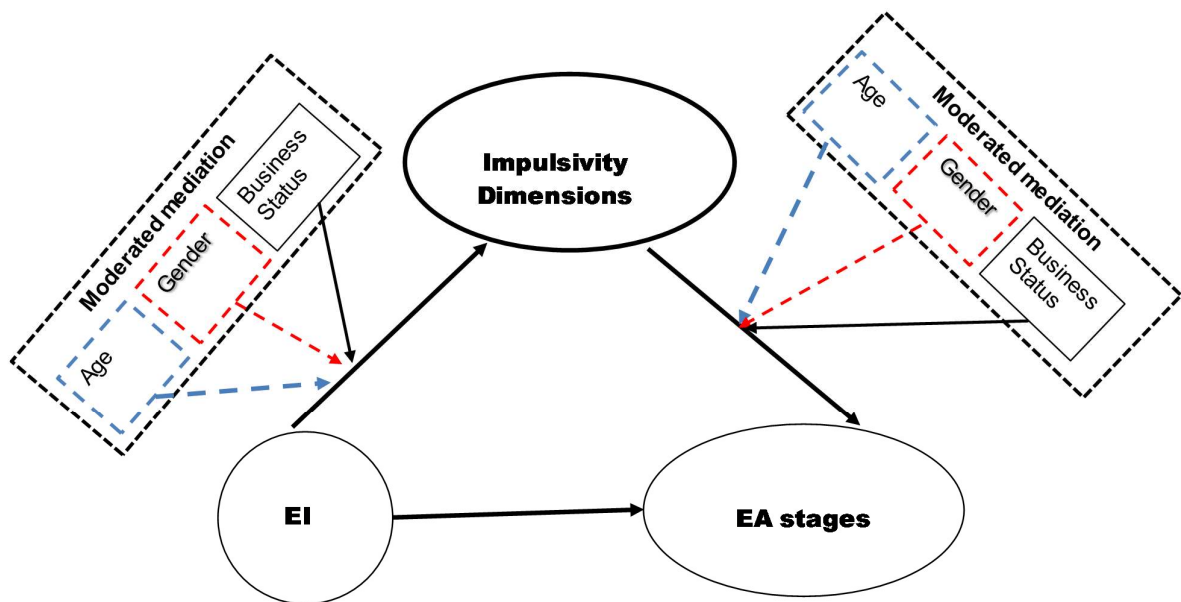


Figure 6.24: The moderated mediation effect in the relationship between EI and the stages of EA.

Figure 6.24 depicts the effect of moderation in the relationship between EI and the stages of EA mediated by impulsivity dimensions. The model was tested for consistency with the observed data using an SEM approach. The multi-group CFA has been utilised to assess

the effect of the moderating variables in the model. Table 6.25 presents a multi-group CFA approach to test the structural moderated mediation model.

Table 6.25: Results of moderated mediation effect between EI and the Stages of EA

Moderator	Path	Statistical significance of interaction term ($p < 0.05$)	Interaction term Confidence Interval	Index of moderated mediation effect: Effect and bootstrapped Confidence Interval	Moderated mediation Hypothesis supported or Not supported
Hypothesis H5a to H7k					
Age (H5a – H5l)	EI- Urg-EODI	0.1881	(-0.2883; 0.0568)	0.0109; [-0.0327, 0.0064]	Not supported
	EI- Urg-EOEV	0.1996	(-0.2865; 0.0599)	-0.0107; [-0.0295, 0.0052]	Not supported
	EI- Urg-EOEX	0.1287	(-0.4478; 0.0569)	-0.0185; [-0.0475, 0.0063]	Not supported
	EI- LPer-EODI	0.6929	(-0.2854; 0.1898)	0.0070; [0.0166, 0.0407]	Not supported
	EI- LPer-EOEV	0.8323	(-0.2114; 0.2626)	-0.0038; [-0.0377, 0.0295]	Not supported
	EI- LPer-EOEX	0.7988	(-0.3044; 0.3952)	-0.0067; [-0.0597, 0.0475]	Not supported
	EI- LPrem-EODI	0.7691	(-0.1967; 0.2659)	-0.0040; [0.0139, 0.0234]	Not supported
	EI- LPrem-EOEV	0.8009	(-0.2634; 0.2034)	0.0034; [-0.0229, 0.0291]	Not supported
	EI- LPrem-EOEX	0.1975	(-0.5664; 0.1173)	,0257 ,[-0.0166, 0.0725]	Not supported
	EI-SS-EODI	0.0280	(0.0201; 0.3504)	0.0184; [0.0011, 0.0437]	Supported
EI-SS-EOEV	0.6926	(-0.2026; 0.1347)	-0.0034; [-0.0213, 0.0160]	Not supported	
EI-SS-EOEX	0.9373	(-0.2569; 0.2371)	-0.0010; [-0.0267, 0.0271]	Not supported	
Gender (H6a – H6l)	EI- Urg-EODI	0.7132	(-0.1482; 0.2165)	0.0029; [-0.0137, 0.0226]	Not supported
	EI- Urg-EOEV	0.0980	(-0.0283; 0.3337)	0.0129; [-0.0017, 0.0335]	Not supported
	EI- Urg-EOEX	0.8111	(-0.2334; 0.2980)	0.0027; [-0.0219, 0.0293]	Not supported
	EI- LPer-EODI	0.0511	(-0.0011; 0.4831)	-0.0360; [-0.0717, -0.0038]	Not supported
	EI- LPer-EOEV	0.0085	(0.0819; 0.5570)	-0.0477; [-0.0861, -0.0142]	Supported
	EI- LPer-EOEX	0.2415	(-0.1429; 0.5664)	-0.0316; [-0.0899, 0.0215]	Not supported
	EI- LPrem-EODI	0.0075	(0.0859; 0.5565)	-0.0368; [-0.0713, -0.0082]	Supported
	EI- LPrem-EOEV	0.0040	(0.1103; 0.5783)	-0.0394; [-0.0719, -0.0134]	Supported
	EI- LPrem-EOEX	0.1900	(-0.1151; 0.5783)	0.0265; [-0.0742, 0.0150]	Not supported
	EI-SS-EODI	0.5719	(-0.2206; 0.1220)	-0.0049; [-0.0252, 0.129]	Not supported
EI-SS-EOEV	0.5535	(-0.2242; 0.1203)	-0.0052; [-0.0253, 0.0119]	Not supported	
EI-SS-EOEX	0.6409	(-0.3134; 0.1931)	-0.0060; [-0.0367, 0.0202]	Not supported	
Business Status (H7a-H7l)	EI- Urg-EODI	0.3333	(-0.0905; 0.2664)	0.0083; [-0.0097, 0.0310]	Not supported
	EI- Urg-EOEV	0.8483	(-0.1599; 0.1945)	0.0016; [-0.0168, 0.0207]	Not supported
	EI- Urg-EOEX	0.9242	(-0.2675; 0.2427)	-0.0012; [-0.0300, 0.0274]	Not supported
	EI- LPer-EODI	0.0066	(-0.5688; -0.0927)	0.0487; [0.0143, 0.0878]	Supported
	EI- LPer-EOEV	0.7299	(-0.1949; 0.2781)	-0.0061; [-.0418, 0.0280]	Not supported
	EI- LPer-EOEX	0.3587	(-0.5056; 0.1834)	0.0237; [-0.0320, 0.0783]	Not supported
	EI- LPrem	0.0036	(-0.2349; -0.0462)	0.0333; [0.0070, 0.0665]	Supported
EI- LPrem-EOEV	0.6722	(-0.1815; 0.2813)	-0.0057; [-0.0379, 0.0198]	Not supported	



	EI- LPrem-EOEX	0.4744	(-0.2129; 0.4571)	-0.0140; [-0.0639, 0.0247]	Not supported
	EI-SS-EODI	0.0057	(0.0688; 0.4014)	0.0233; [0.0035, 0.0520]	Supported
	EI-SS-EOEV	0.0664	(-0.0107; 0.3252)	0.0156; [-0.0017, 0.0389]	Not supported
	EI-SS-EOEX	0.0112	(0.0717; 0.5554)	0.0311; [0.0044, 0.0668]	Supported

Table 6.25 presents the results of the moderated mediation in the relationship between EI and the stages of EA mediated by dimensions:

1. Urgency as mediator

- a. No moderation effects and subsequently no moderated mediation effect of age, gender and years of business were detected when the moderation was tested on the path between EI and Urgency.
- b. No moderation effects and subsequently no moderated mediation effects of age, gender and years of business were detected when the moderation was tested on the path between Urgency and the EODI, EOEV and EOEX stages respectively.

2. Lack of Perseverance as mediator

- a. No moderation effects and subsequently no moderated mediation effects of age, gender and years in business were detected when the moderation was tested on the path between EI and Lack of Perseverance.
- b. A Moderation and moderated mediation effect of years in business were detected when the moderation was tested on the path between Lack of Perseverance and the EODI stage.
- c. A Moderation and moderated mediation effect of gender was detected when the moderation was tested on the path between Lack of Perseverance and the EOEV stage.
- d. No moderation effects and subsequently no moderated mediation effects of age, gender and years in business were detected when the moderation was tested on the remaining paths between Lack of Perseverance and the three stages, EODI, EOEV, and EOEX respectively.

3. Lack of Premeditation as mediator

- a. A Moderation effect and subsequently a moderated mediation effect of years in business was detected when the moderation was tested on the path

between EI and Lack of Premeditation for the EODI, EOEV and the EOEX stage.

- b. No moderation effects and subsequently no moderated mediation effects of age and gender were detected when the moderation was tested on the path between EI and Lack of Premeditation.
- c. Moderation effects and subsequently moderated mediation effects of gender were detected when the moderation was tested on the path between Lack of Premeditation and EODI as well as on the path between Lack of Premeditation and EOEV stages.
- d. No moderation effects and subsequently no moderated mediation effects of age, gender and years in business were detected when the moderation was tested on the remaining paths between Lack of Premeditation and the three stages, EODI, EOEV, EOEX respectively

4. Sensation Seeking as mediator

- a. No moderation effects and subsequently no moderated mediation effects of age, gender and years in business were detected when the moderation was tested on the path between EI and Sensation Seeking.
- b. Moderation effects and subsequently moderated mediation effects of age and years in business were detected when the moderation was tested on the path between Sensation Seeking and EODI stage.
- c. A moderation effect and subsequently moderated mediation effect of years in business were detected when the moderation was tested on the path between Sensation Seeking and EOEX stage.
- d. No moderation effects and subsequently no moderated mediation effects of age, gender and years in business were detected when the moderation was tested on the remaining paths between Sensation Seeking and the three stages, EODI, EOEV, EOEX respectively

6.7.1 Moderated mediation graphs

The following graphs depict the moderated effect by age, gender and years in business as observed on the 10 paths between EI, the impulsivity dimensions and the stages of EA. The first graph represents the relationship between EI and lack of premeditation as shown in Figure 6.25.

6.7.1.1 The relationship between EI and lack of premeditation moderated by years in business (Business Status)

The moderation was tested on the path between EI and Lack of Premeditation is depicted in Figure 6.25.

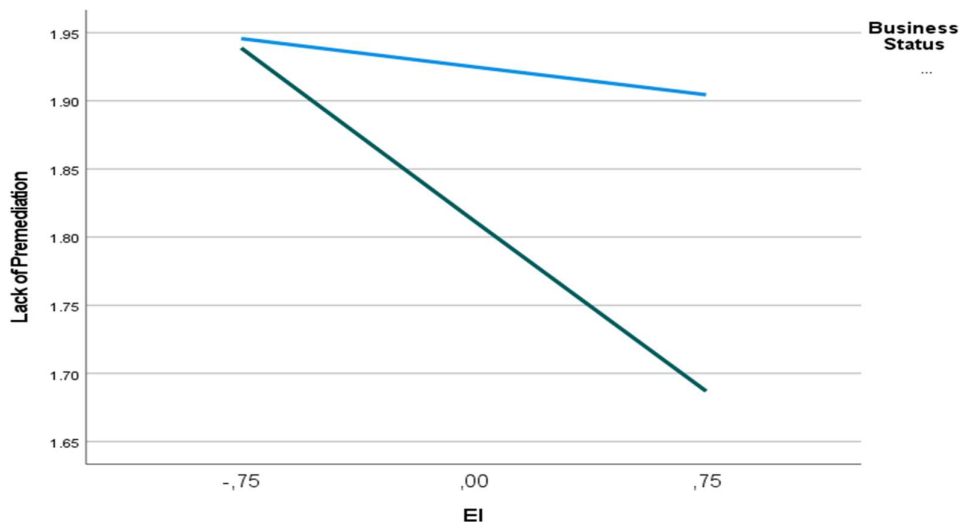


Figure 6.25: Moderated mediation by business status between EI and Lack of premeditation

Figure 6.25 presents the number of years in business (business status) represented by 1 (those not in business yet) and 2 (existing entrepreneurs). Years in business is made up of element A4 that moderated the relationship between EI (B5–B9) and the lack of premeditation element (C28rec, C36rec, C40rec, C54rec, C58rec, C62rec and C66rec).

As the moderation effect was between EI (the independent variable) and lack of premeditation (mediating variable), graphs were found to be identical for all three stages of EA, therefore only one graph is presented to illustrate the moderation for all three effects. The graph revealed that as EI increases, the mean value of lack of premeditation decreases sharply for the group that has been in business for the number of years (2), whilst it decreases very slightly for the group that has not started a business yet (1).

6.7.1.2 The relationship between lack of perseverance and EOEV moderated by gender

The moderated mediation effect by gender between the lack of perseverance dimension and the EOEV stage as displayed in Figure 6.26.

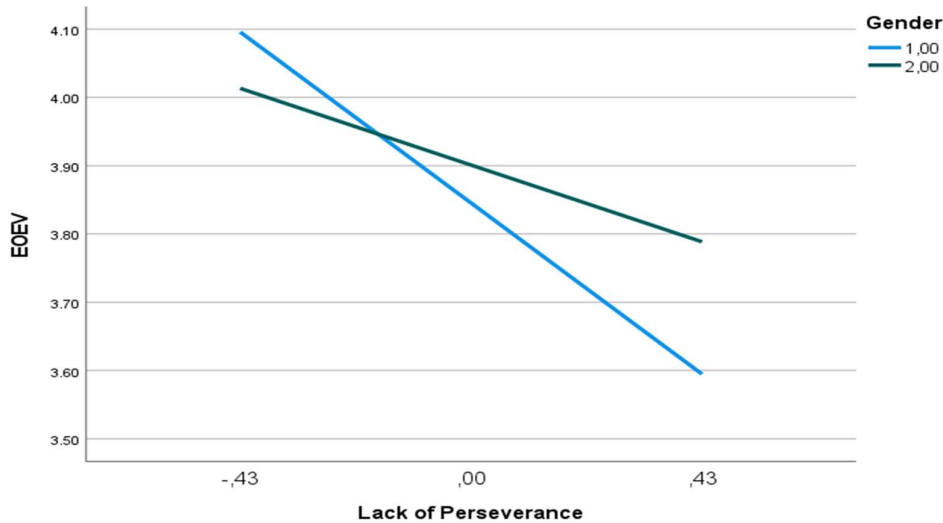


Figure 6.26: Moderated mediation by gender between lack of perseverance and EOEV

Figure 6.26 presents the relationship between lack of perseverance represented by elements (C27rec, C35rec, C43rec, C45rec, C49rec, C53rec and C57rec) and EOEV (B15-B19) moderated by gender (A2). The number 1 on the graph represents male entrepreneurs and 2 female entrepreneurs and those who preferred not to disclose their gender. As values of lack of perseverance increase, mean values of EOEV decrease sharply for male entrepreneurs compared with those of female entrepreneurs.

6.7.1.3 The relationship between lack of perseverance and EODI moderated by years

The moderated mediation effect by years in business on the path between the lack of perseverance dimension and EODI stage as depicted in Figure 6.27.

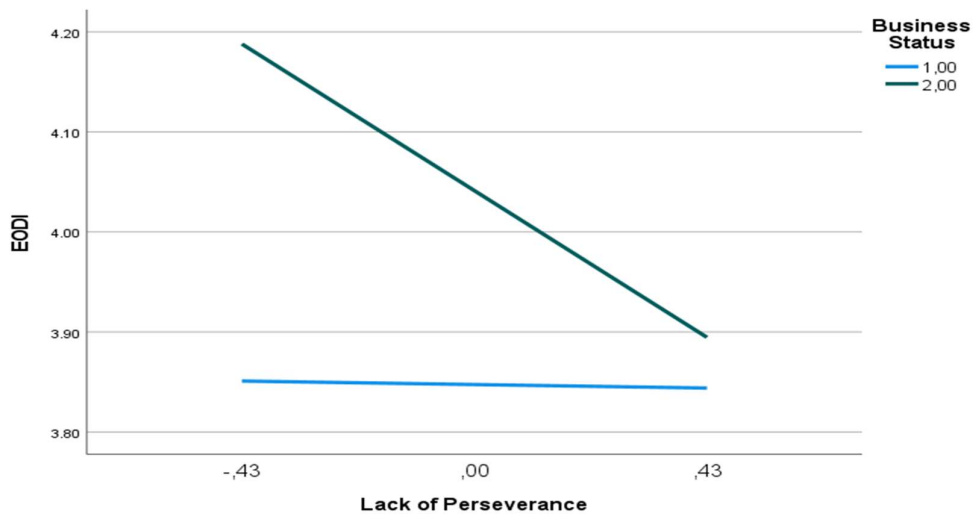


Figure 6.27: Moderated mediation by years in business between lack of perseverance and EODI

Figure 6.27 reveals that as lack of perseverance increases, the mean value of EODI (B1-B5) decreases sharply for entrepreneurs that have been in business for the number of years, while the mean value for EODI remains relatively constant for the group that has not started a business as yet.



6.7.1.4 The relationship between lack of premeditation and EODI moderated by gender

The moderated mediation effect by gender on the path between lack of premeditation and the EODI stage as shown in Figure 6.28.

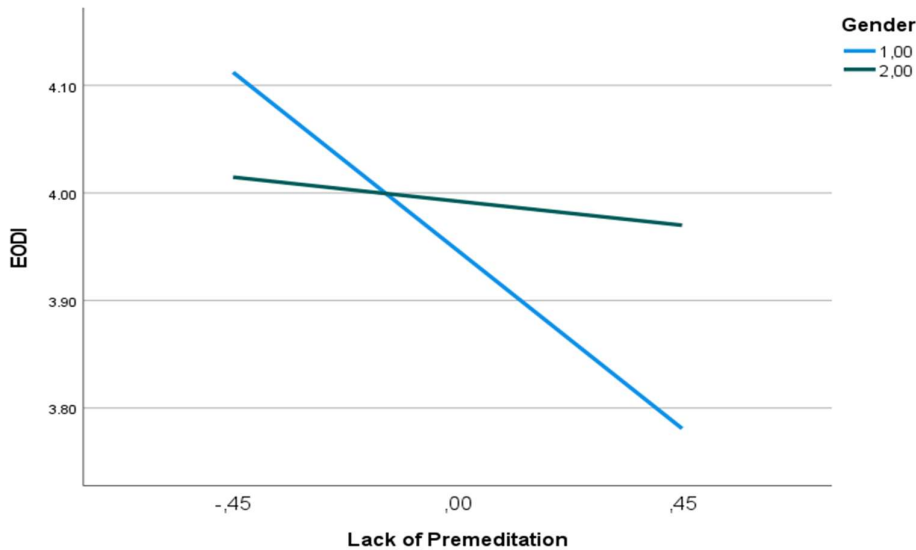


Figure 6.28: Moderated mediation by gender between lack of premeditation and EODI

Figure 6.28 indicates that as lack of premeditation increases, the mean value of EODI decreases sharply for male entrepreneurs, compared with that of female entrepreneurs; that the mean value of EODI only decreases very slightly.



6.7.1.5 The relationship between lack of premeditation and EOEV moderated by gender

The moderated mediation effect by gender on the path between lack of premeditation and the EOEV stage as shown in Figure 6.29.

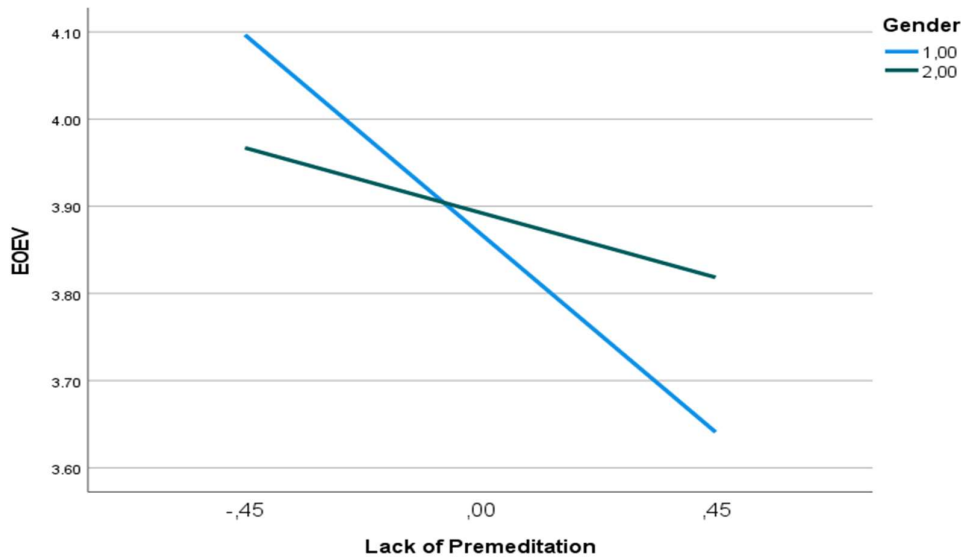


Figure 6.29: Moderated mediation by gender between lack of premeditation and EOEV

As in Figure 6.28, Figure 6.29 indicates that as lack of premeditation increases, the mean value of EOEV decreases sharply for male entrepreneurs, compared with that of female entrepreneurs, where the mean value of EOEV decreases more than in Figure 6.28, but still only reflects a slight decrease.

6.7.1.6 The relationship between Sensation seeking and EODI moderated by age

The moderated mediation effect of age on the path between sensation seeking and EODI stage as depicted in Figure 6.30.

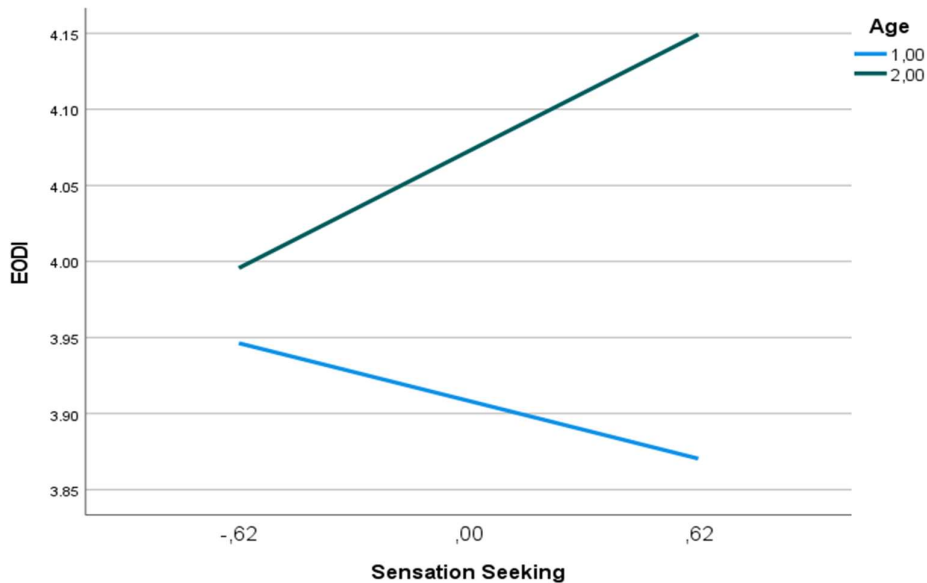


Figure 6.30: Moderated mediation by age between sensation seeking and EODI

Figure 6.30 depicts the relationship between sensation seeking (C38, C44, C48 C56, C60 and C64) and EODI (B1-B5) moderated by age (A1). The graph indicates that as the value of sensation seeking increases, the mean value of EODI stage increases for entrepreneurs that are older; however, it decreases for the younger group.

6.7.1.7 The relationship between Sensation seeking and EODI moderated by years in business

The moderated mediation effect of years in business on the path between sensation seeking and EODI stage as shown on Figure 6.31.

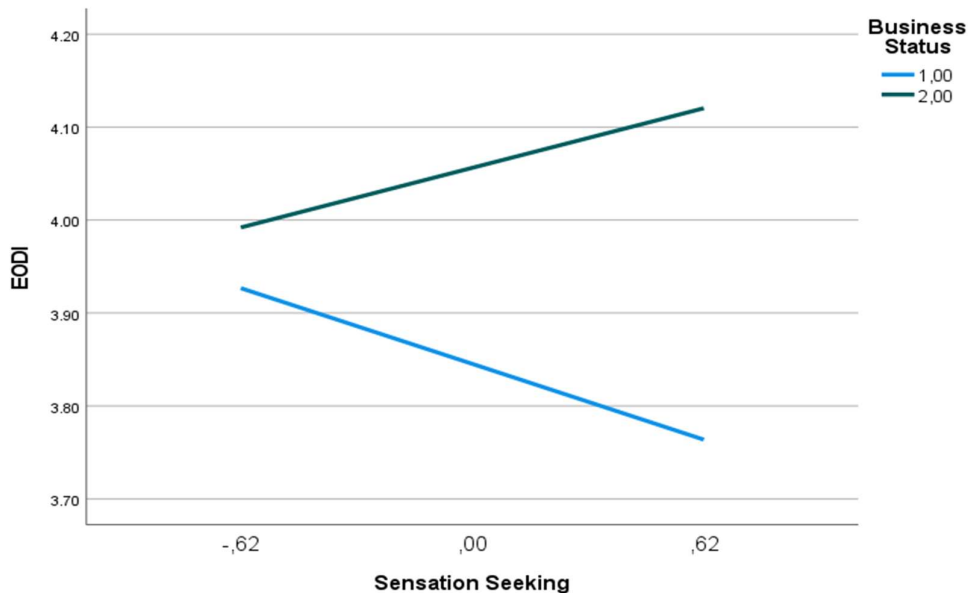


Figure 6.31: Moderated mediation by years in business between sensation seeking and EODI

Figure 6.31 presents the relationship between sensation seeking and EODI moderated by years in business. The graph indicates that as the value of sensation seeking increases, the mean value of EODI stage also increases with entrepreneurs that have been in business, however it decreases sharply with the group that has not started a business yet.

6.7.1.8 The relationship between Sensation seeking and EOEX moderated by years in business

The moderated mediation effect by years in business between sensation seeking and EOEX stage as depicted in Figure 6.32.

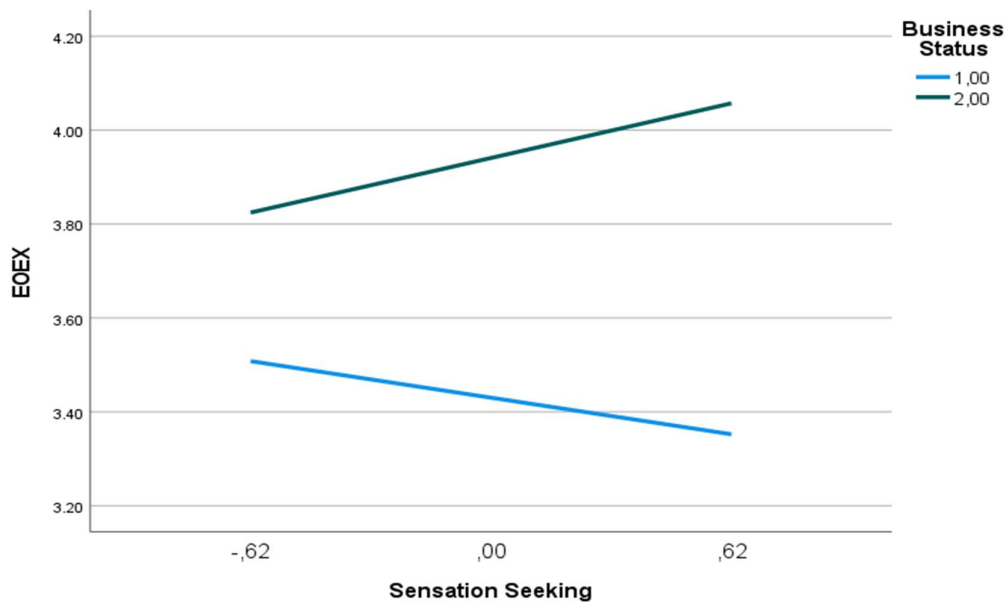


Figure 6.32: Moderated mediation by years in business between sensation seeking and EOEX

Figure 6.32 presents the relationship between sensation seeking and EOEX moderated by years in business. The graph indicates that as the value of sensation seeking increases, the mean value of EOEX stage increases moderately with entrepreneurs' years in business. However it decreases moderately with the group that has not started a business yet.

6.8 CONCLUSION

This chapter presented the findings based on responses received from the participants that completed the quantitative questionnaire. Throughout this chapter, the study results were presented in tables and figures and were divided into descriptive and inferential statistics.

Various statistical methods and procedures that were presented and discussed in Chapter 5 were employed to analyse the research data collected. The respondents' demographics were presented and discussed. The CFA, EFA, and goodness-of-fit indices tests employed confirmed the validity of all the constructs and the measurement models to be in line with the data collected and the literature that formed the theoretical framework of this study. The Cronbach's alpha values confirmed the reliability of the questionnaire. Descriptive statistics in order to illustrate the mediation effect of impulsivity and the moderation effect of age, gender and years in business in the relationship between EI and the stages of EA were presented. The regression analysis was employed to test the significant effect of the mediation and moderation constructs in the relationship between the independent and dependent variables, and the results were presented and discussed.

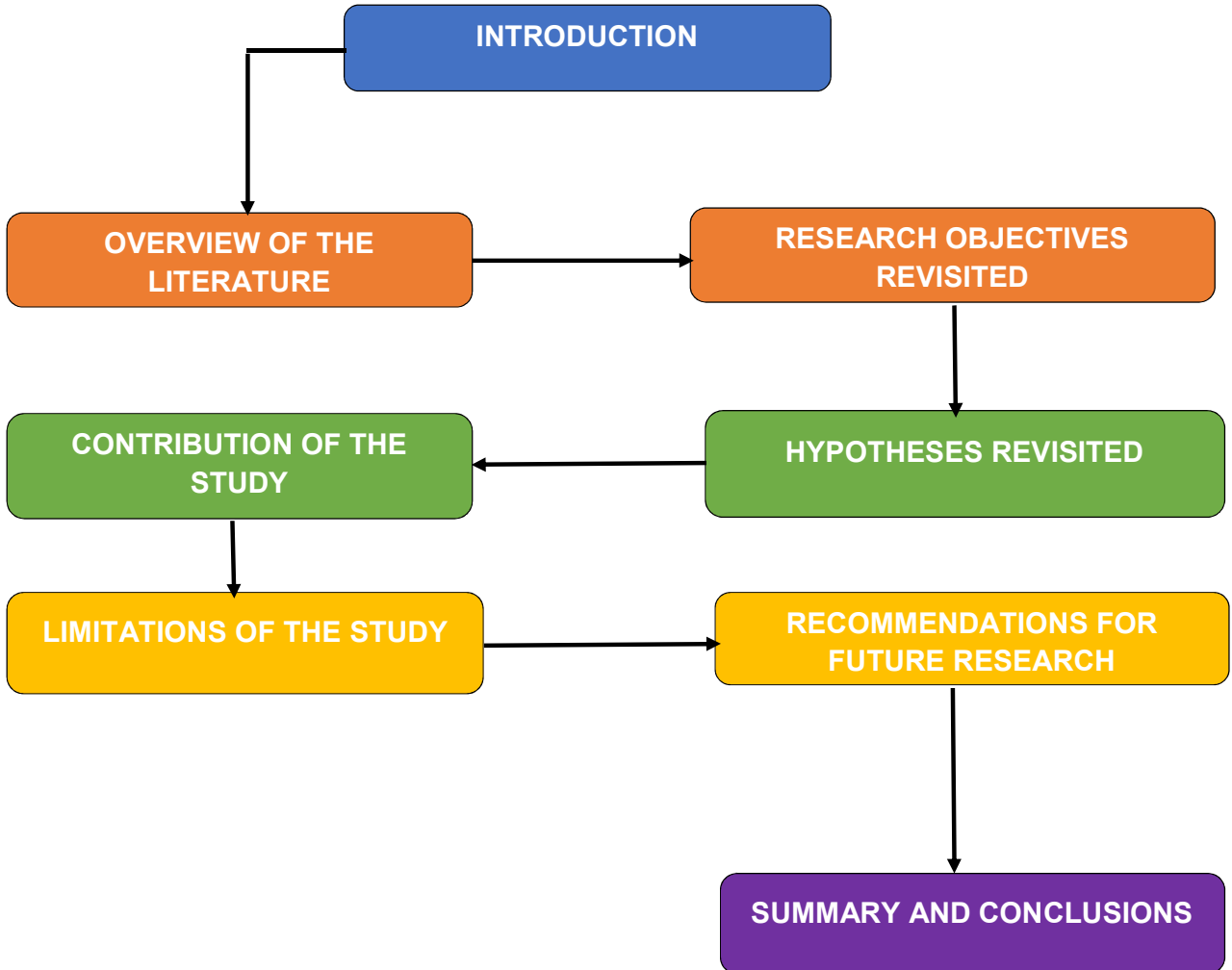
The findings in this chapter confirmed that most of the impulsivity dimensions were mediators in the relationship between EI and the stages of EA and further revealed that in some instances age and/or gender and/or years in business moderated this relationship. Specifically, the study revealed the partial mediation of impulsivity dimensions in the relationship between EI and the stages of EA, except with sensation seeking, where no mediation effect was found to exist in the relationship between EODI and EOEX.

With regard to the moderated mediation, the study detected (i) years of business moderated between lack of perseverance and the EODI stage, (ii) gender moderated between lack of perseverance and the EOEV stage, (iii) years of business moderated between EI and lack of premeditation, (iv) age, gender and years in business moderated between lack of premeditation and the EODI, EOEV and EOEX stages. (v) age and years in business moderated between Sensation Seeking and the EODI stage (vi) years in business moderated between sensation seeking and the EOEX stage. This thus confirms that psychological factors, in this case dimensions of impulsivity, have a positive effect in contributing to the formation of EA.

The findings from this chapter have been used to formulate the conclusions and recommendations presented in Chapter 7. The study's limitations and recommendations for further research avenues are also presented in the final chapter.



CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS



7.1 INTRODUCTION

Given the emergence of the current conversation to investigate the contribution of impulsivity in entrepreneurship (Pietersen & Botha, 2021), this study adapted Wiklund *et al.*'s (2017) conceptual framework to illustrate the effect of impulsivity in the relationship between EI and the stages of EA. The effect of this relationship is also likely to bridge the EI-EA gap caused by the absence of action despite high levels of EI (Herrington *et al.*, 2017:7). Findings on the relationship between EI and EA are also likely to contribute to theories on the effect of so called “negative” traits that were not considered previously, but are now considered to provide a counterweight to existing research emphasising only the role of “positive” personal attributes in explaining entrepreneurial action (Wiklund *et al.*, 2017).

As discussed in Chapter 5, the study followed a quantitative research approach, in which a self-administered questionnaire was employed to test the relationship between EI and the stages of EA. A total of 597 responses was received from entrepreneurs and SEM was employed to assess the data in light of the literature review.

This chapter starts by providing an overview of the literature discussed, followed by revisiting of the research objectives, followed by hypotheses in terms of whether they are supported or rejected based on the findings presented in Chapter 6. This chapter also presents the contribution of the study, its limitations, recommendations, opportunities for future research and the summary and conclusions.

7.2 OVERVIEW OF THE LITERATURE

As indicated, both primary and secondary research was conducted in this study. Chapters 1 to 5 dealt with the secondary research part and Chapter 6 and 7 the primary part as depicted in Figure 7.1 below.

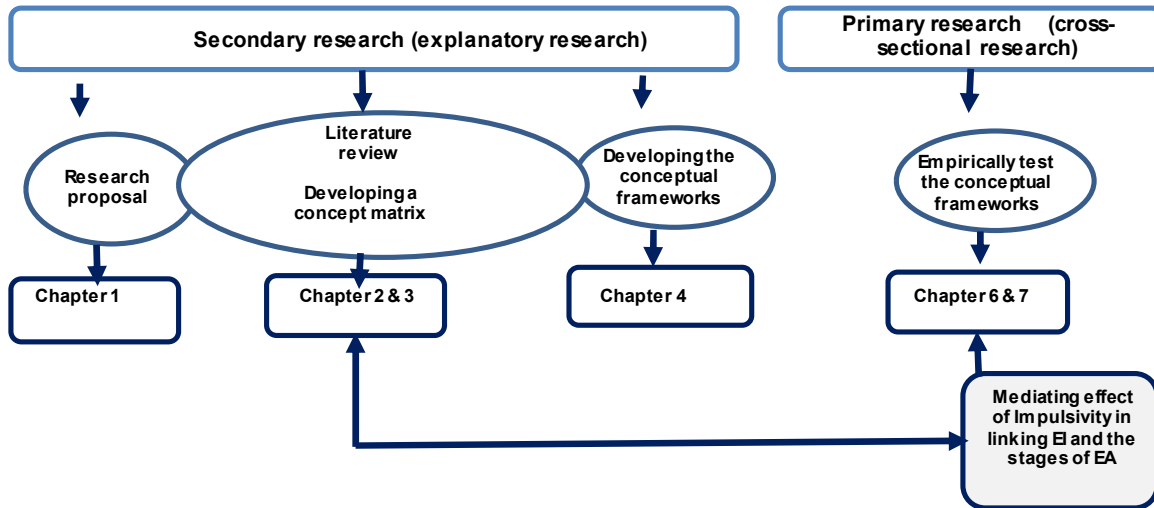


Figure 7.1: Methodological procedure of this study

Source: Own Compilation

Figure 7.1 illustrates the process followed in each chapter and the study is divided into two main categories; first is the secondary research (Chapters 1–4) and second primary research (Chapters 6–7). Chapter 5 consists of the research design and methodology followed for this study. The chapters were outlined as follows.

Chapter 1 presented a research proposal that detailed the study background that sought to expand the work by Wiklund *et al.* (2017) by conducting empirical research on their conceptual framework that proposed contribution of impulsivity to effect EA. This chapter included aims, objectives, hypotheses and the contribution of the study. The chapter also presented a brief discussion of the literature review, the conceptual framework and proposed research methodology.

Chapter 2 outlined impulsivity in relation to entrepreneurship, by explaining theories such as the Interactive theory that suggests impulsivity is an inborn predisposition. Impulsivity is a multidimensional construct; whereby Whiteside and Lynman (2001) narrowed the definition to four co-variances (Urgency, Lack of perseverance, Lack of premeditation and Sensation seeking) that lead to impulsive-like behaviour, which the study adopted as antecedents for mediation. Although there is sufficient literature on impulsivity across a wide variety of contexts, its contribution to entrepreneurship is still limited (Wiklund *et al.*, 2017; Lerner *et al.*, 2018). It is with the emergence of recent research that the focus has fallen on impulsivity

in relation to entrepreneurship. Chapter 2 concluded by highlighting the theoretical effect of each dimension of impulsivity to the stages of EA (Wiklund *et al.*, 2017).

Chapter 3 discussed theories and models of EI and the stages of EA, in terms of elements that construct EI and the stages of EA. EI was constructed through the use of the TPB theory in conjunction with MOA. EA was presented to be consisting of three stages, namely EODI, EOEV and EOEX. The study utilised the Discovery theory together with the Creation theory in detailing the EA stages in an effort to discuss how entrepreneurial activity takes place.

Chapter 4 discussed the link between EI and the stages of EA, especially in the light of previous research, which found the contribution of EI not significant to effect EA, hence Wiklund *et al.* (2017) proposed the inclusion of impulsivity to influence EA. Based on the discussions from Chapters 1, 2, 3 and the first part of Chapter 4, the conceptual framework was developed. This was done to expand on Wiklund *et al.*'s (2017) work on the likelihood of impulsivity mediating the relationship between EI and the stages of EA. The literature suggests a possible link effected by the four impulsivity dimensions between EI and the stages of EA.

7.3 RESEARCH OBJECTIVES REVISITED

The primary and secondary objectives are revisited and presented below.

7.3.1 Primary objective revisited

The primary objective of this study was to illustrate the mediating role of impulsivity in the relationship between entrepreneurial intention and the stages of entrepreneurial action.



7.3.2 Secondary objective revisited

The secondary objectives and the hypotheses that address each objective are summarised as follows:

- The effect of EI on the stages of EA (H1a–H1c).
- The mediating role of the four impulsivity dimensions in the relationship between EI and EODI. The first secondary objective was met through urgency, lack of perseverance and lack of premeditation partially mediating the relationship between EI and EODI (H2a–H2c). However, the sensation-seeking dimension did not mediate the relationship between EI and EODI (H2d).
- The mediating role of the four impulsivity dimensions in the relationship between EI and EOEV. The second secondary objective was met, as all four dimensions of impulsivity partially mediated the relationship between EI and EOEV (H3a–H3d).
- The mediating effect of the four impulsivity dimensions in the relationship between EI and the EOEX. The third secondary objective was met through urgency, lack of perseverance and lack of premeditation partially mediating the relationship between EI and EOEX (H4–H4c). The sensation-seeking dimension did not mediate the relationship between EI and EOEX (H4d).
- The moderation effect by age, gender and years in business in the relationship between EI and the stages of EA mediated by dimensions of impulsivity. The study found no moderation as a result of age and gender between EI and the dimensions of impulsivity. Only the effect of the number of years in business was detected between EI and the lack of premeditation dimension. In terms of the relationship between impulsivity dimensions and the stages of EA the following moderated mediation were detected: age between EI and EODI through sensation seeking (H5d); gender between EI and EODI through Lack of premeditation (6c); gender between lack of perseverance and EOEV (H6f); years in business between lack of perseverance and the EOEV (H7f); years in business between lack of premeditation and all three stages of EA (H7c, H7g, H7k); also gender between lack of premeditation and EODI and EOEV (H6c; H6g); as well as years in business between sensation seeking and EOEX (H7l).

The primary and secondary objectives of this study were achieved by measuring various relationships in all the study's hypotheses; the results are summarised in the next section.

7.4 PRESENTATION OF RESEARCH FINDINGS

The final step in the research process is the presentation of the findings. As the research findings were presented in detail in the previous chapter, this chapter summarises those findings in the light of the stated hypotheses by drawing conclusions and recommendations which are supported by the existing literature.

The assessment of measurement models' reliability and validity was conducted through the application of CFA procedures. The findings of the study suggest that the measurement models had an acceptable construct validity and reliability. All the measurement scales revealed convergent validity, indicating that each item had statistically significant loadings on each factor specified (Van Dyne & LePine, 1998).

The study presented a conceptual framework which expands on the work of Wiklund *et al.* (2017) to investigate the mediation role of impulsivity in the relationship between EI and the stages of EA. The stated hypotheses are based on sound theories that inform EI, the stages of EA and impulsivity constructs. The study tests seven hypotheses in order to empirically address the research objectives. A hypothesis-testing exercise was performed to either support or not to support the null or alternative hypotheses based on the findings and levels of significance. The hypotheses below were tested by employing several descriptive and inferential statistics.

7.4.1 The effect of EI on the three stages of EA

Based on the SEM analyses conducted in Chapter 6, the results indicated that the model fit. The indices included CFI = 0.944, TLI = 0.934 and TLI = 0.945 values that were all above the 0.9 threshold, RMSEA = 0.073 and SRMR=0.0457 which were below the threshold of 0.08. EI had a positive, statistically significant relationship with all three of the stages of EA (EODI, EOEV and EOEX). Thus it is implied that all hypotheses are supported in relation to

the effect of EI on the stages of EA as presented in Table 7.1; each individual relationship is discussed below.

- **H1a: *The relationship between EI and EODI***

The results of the study found a positive relationship between the EI and the EODI stage. The strength of this relationship was strong (larger than 0.5) for the EODI. This supports the literature that suggests opportunity discovery as an instantaneous action driven by intentions (Hui-Chen *et al.*, 2014). EI and opportunity discovery are significant constructs in entrepreneurship literature (Karimi *et al.*, 2016), that play a key role in initiating the entrepreneurial activity. This suggests that in order for the entrepreneurial opportunity to be realised, it should be driven by deliberate action to solve a problem or need that has the potential to yield returns (Hsieh *et al.*, 2007), in which Lins and Doktor (2014) placed EODI as a cognitive process more than anything else. Therefore **hypothesis H1a is supported** as per the literature and empirical results presented.

- **H1b: *The relationship between EI and EOEV***

The results of the study found a positive relationship between EI and the EOEV stage. The strength of the relationship was strong (larger than 0.5) for EOEV. Literature that supports this narrative argues that the EOEV process is an intentional exercise that entails feasibility and desirability of the opportunity (Haynie *et al.*, 2009:349). This is supported by Keh *et al.* (2002:126), who regard the evaluation process as crucial and an essential cognitive phenomenon phase of EA. Deciding on whether to act on the opportunity or not is regarded as a complex and psychological exercise more than anything else (Allinson *et al.*, 2000:31).

Therefore **hypothesis H1b is supported** as per the literature and empirical results presented.

- **H1c: *The relationship between EI and EOEX***

The results of the study found a positive relationship between the EI and the EOEX stage. The strength of the relationship was moderate (between 0.3 and 0.5) for EOEX. This is supported by literature, that once entrepreneurial opportunity is discovered and evaluated, then the entrepreneur must decide whether to abort or exploit it (Shane & Venkataraman, 2000), which makes the entrepreneur's intentions key in making the exploitation stage realisable (Alvarez, 2005:13). This suggests that the entrepreneur's intentions to exploit entrepreneurial opportunity is pivotal at this juncture (McMullen & Shepherd 2006).

Therefore **hypothesis H1c is supported** as per the literature and empirical results presented.

The following sections discuss the effect of each of the dimensions of impulsivity in the relationship between EI and the stages of EA, starting with Urgency.

7.4.2 The effect of impulsivity between EI and the three stages of EA

All the relationships, other than the influence of sensation seeking to effect opportunity discovery and exploitation, were found to be statistically significant. As such, with the exception of sensation seeking to affect EODI and EOEX, all the hypotheses regarding the mediation of impulsivity in the relationship between EI and the stages of EA are supported. These findings are consistent with Wiklund *et al.*'s (2017) conceptual framework that proposed that certain dimensions of impulsivity are likely to affect stages of EA.

The following sections discuss the effect of each of the dimensions of impulsivity in the relationship between EI and the stages of EA, starting with Urgency.

7.4.2.1 The mediation effect of urgency

The results of the study concerning the mediation role of Urgency were found to be statistically significant based on the SEM analysis. The indices were: CFI = 0.931, TLI = 0.923, TLI = 0.931, RMSEA = 0.055 and SRMR = 0.0514. Therefore all hypotheses are supported in relation to the mediation role of Urgency in the relationship between EI and the stages of EA, as presented in Table 7.1.

- **H2a: The mediation effect of Urgency between EI and EODI**

The confidence intervals for the standardised indirect effects of EODI = 0.010, lower bounds = 0.001 and high bounds = 0.022 and do not contain zeros, therefore empirical results imply that Urgency is positive in the relationship between the EI and EODI stage. This is a contrast with Wiklund *et al.*'s (2017) conceptual framework that proposed Urgency to be strongly negative to affecting EODI. People that are high in Urgency tend to be more sensitive to negative cues brought by the uncertainties that often accompany entrepreneurial opportunities (Baron, 2008:169), as a result of negative emotions such as anxiety, doubt or procrastination that may lead to action aversion or inaction on discovered opportunities (Gelderens *et al.*, 2015; Zermatten *et al.*, 2005:647; McKelvie *et al.*, 2011). However, Cyders and Smith (2007:840) suggest that urgency can equally be positive, and cause an aspirant entrepreneur to act with speed under extreme emotions or when driven by uncertainties (Riley *et al.*, 2015; Wang *et al.*, 2017), as some entrepreneurial activities are borne out of adverse situations. This notion is in favour of an entrepreneurial environment that favours entrepreneurs that can exercise business judgement with agility and speed (Hebert & Link, 1988: 21), in order to make quick decisions regarding entrepreneurial opportunities before the opportunity window closes down (Wiklund *et al.*, 2017:2).

As indicated in Section 6.5.1 that EI has a direct effect on stages of EA, Urgency indirectly affected EODI. Therefore the Urgency dimension partially mediated in the relationship between the EI and EODI stages, and thus **hypothesis H2a is supported** as per literature and empirical results presented in Section 6.6.1.

- **H3a: The mediation effect of Urgency between EI and EOEV**

Regarding the empirical results on the effect of urgency on EOEV, the confidence intervals for the standardised indirect effects of EOEV = 0.030, lower bounds = 0.014 and high bounds = 0.048 and do not contain zeros, therefore the study found urgency positive in the relationship between the EI and EOEV stages. This finding is in contrast with Wiklund *et al.*'s (2017) conceptual framework, which suggested that urgency is negative to affecting EOEV. This is consistent with Kaiser *et al.*'s (2012) findings that link those that are high in Urgency with their failure to ascertain if the opportunity is desirable, due their low distress tolerance. Yu (2018) found those with Urgency put most emphasis on past emotions. In the case when these emotions are negative, they are likely to reduce the entrepreneur's desire to pursue the opportunity further (March & Shapira, 1987:1404), much as individuals with urgency have an inability to deal with uncertainties or to tolerate negative emotions (Kaiser *et al.*, 2012). However Sosna, Trevinyo-Rodríguez and Velamuri (2010:383) found past information or knowledge regarding the opportunity to be relevant to a certain extent, dispelling the notion that EOEV is mainly dependant on the entrepreneur's control and competence (Krueger, 1993:5).

This suggests perceived desirability as a key deterrent on whether the opportunity is to be pursued further or not (Hartanto *et al.*, 2017:1131). Like the findings of the relationship between EI and EODI affected by urgency, here also Urgency is found to have an indirect effect on EOEV. As a result Urgency partially mediated in the relationship between EI and the EOEV stage, therefore **hypothesis H3a is supported** as per literature and the empirical results presented under Section 6.6.1.

- **H4a: The mediation effect of Urgency between EI and EOEX**

The confidence intervals for the standardised indirect effects of EOEX = 0.029, lower bounds = 0.013, high bounds = 0.049 and do not contain zeros; as such the empirical results found that urgency is positive in the relationship between the EI and EOEX stages. This contrasts with Wiklund *et al.*'s (2017) conceptual framework that proposed urgency to be negative to affecting EOEX. This is supported by research that found those with Urgency being likely to chicken out on risky or uncertain opportunities (McMullen & Shepherd, 2006:133). However, Cyders and Smith (2007:840) found that Urgency can equally be positive and cause individuals to act accordingly. This notion is supported by Byrom and Murphy (2013:346),

who found that individuals high in Urgency are attuned to their environments and experiences more strongly than those without Urgency. As a result these individuals are more likely to maintain negative information in memory for future reference (Derryberry & Reed, 1994:1128). This information can be useful, especially during the opportunity evaluation exercise, when past information can be used as a reference and the basis for the action taken.

Based on the empirical results, the study found an indirect effect of Urgency on EOEX. As a result Urgency partially mediated in the relationship between the EI and EOEX stages. Thus **hypothesis H4a is supported** as per the literature and empirical results presented under Section 6.6.1.

The overall results of urgency reveal that there is a mediation effect by urgency in the relationship between EI and the three stages of EA. As discussed, the study found this mediation to be partial and not full, due to the argument forwarded in Chapter 6 that suggested a strong positive correlation between EI and the three stages of EA. Therefore all the hypotheses in relation to the effect of urgency in the relationship between EI and the three stages of EA are accepted.

The next paragraph discusses the effect of lack of perseverance in the relationship between EI and the stages of EA.

7.4.2.2 The mediation effect of lack of perseverance

The results of the study concerning the mediation role of Lack of perseverance were found to be statistically significant. The indices included CFI = 0.929, TLI = 0.920, TLI = 0.929, RMSEA = 0.059 and SRMR = 0.049. Therefore all hypotheses are supported in relation to the mediation role of Lack of perseverance in the relationship between EI and the stages of EA as presented in Table 7.1.

- **H2b: *The mediation effect of lack of perseverance between EI and EODI***

The confidence intervals for the standardised indirect effects of EODI = 0.046, lower bounds = 0.022, upper bounds = 0.075 and do not contain zeros; as such therefore results of the study found lack of perseverance is positive in the relationship between the EI and EODI

stages. This is in contrast with Wiklund *et al.*'s (2017) conceptual framework, which proposed that lack of perseverance is likely to be negative to affecting EODI. Literature revealed that the high levels of risk and uncertainty associated with entrepreneurship make the EODI process a highly emotive journey (Baron, 2008). Zajonc (1984) found that emotions such as those driven by lack of perseverance are likely to influence action independently of cognition. Zajonc's (1984) findings are consistent with the prevailing literature that suggests that entrepreneurs with lack of perseverance tendencies are likely to abandon an opportunity when faced with risky or uninteresting tasks (Riley *et al.*, 2015).

However, this does not mean that when the opportunity is discarded this precludes an entrepreneur from discovering other opportunities (Riley *et al.*, 2015:440). Yu (2018) found that entrepreneurs have an elevated ability to detect and attend to stimuli in a dynamic, fast-changing environment that may result in chopping and changing of opportunities from one to another, this practice not being un-entrepreneurial (Wiklund *et al.*, 2017:632). Instead Cloninger *et al.* (1993:977) found this to be common with entrepreneurs with a lack of perseverance predisposition that responds with spontaneity to new ideas. Dickman (1990) found spontaneity to new ideas common in impulsivity.

Therefore, based on the empirical results, the study found an indirect effect of the lack of perseverance in affecting EODI. As a result lack of perseverance partially mediated in the relationship between the EI and EODI stages. Thus **hypothesis H2b is supported** as per the literature and empirical results presented under Section 6.6.2.

- **H3b: The mediation effect of lack of perseverance between EI and EOEV**

The confidence intervals for the standardised indirect effects of EOEV = 0.108, lower bounds = 0.075, upper bounds = 0.146 and do not contain zeros; therefore empirical results found that lack of perseverance has a positive effect in the relationship between the EI and EOEV stages. This finding is congruent with Wiklund *et al.*'s (2017) conceptual framework that proposed lack of perseverance to be positive in the relationship that influences EOEV. Literature, supported by Pietersen and Botha (2021), found the lack of perseverance does not influence the perceived desirability of entrepreneurship. Irrespective of whether the opportunity is feasible or not, unless the entrepreneur perceived such opportunity as desirable, such an opportunity may cease to be exploited (Kuckertz *et al.*, 2017).

Riley *et al.* (2015:440) found that entrepreneurs with a lack of perseverance's predisposition tend to leap from one opportunity to another when they find the opportunity to be boring or difficult. Lazar *et al.* (2020) and Wiklund *et al.* (2017) argue that in instances when entrepreneurs jump into another opportunity, they do not completely abandon the first opportunity, but are likely to leave it with their teams to continue to pursue the opportunity to the fullest.

Based on the empirical results, the study found an indirect effect of the lack of perseverance on affecting EOEV. As a result lack of perseverance partially mediated in the relationship between the EI and EOEV stages. Thus **hypothesis H3b is supported** as per the literature and the empirical results presented under Section 6.6.2.

- **H4b: The mediation effect of lack of perseverance between EI and EOEX**

The confidence intervals for the standardised indirect effects of EOEX = 0.088, lower bounds = 0.50, upper bounds = 0.128 and do not contain zeros, therefore the empirical results found that lack of perseverance has a moderate positive effect in the relationship between the EI and EOEX stages. Wiklund *et al.*'s (2017) conceptual framework suggests that lack of perseverance does not have the effect in the relationship to influence EOEX. Riley *at al.* (2015:445) found in their study that those with lack of perseverance tended to quit once they perceived their course to be difficult or uninteresting. However, discarding the opportunity does not preclude an entrepreneur from discovering other opportunities (Riley *et al.*, 2015:440), suggesting that lack of perseverance is muted when coming to the opportunity exploitation stage. This assertion is supported by Kaiser *et al.* (2012:527), who found no relationship between lack of perseverance and the possibility of initiating EA.

This could probably be the reason why the empirical study found a moderated effect of lack of perseverance in the relationship between the EI and EOEX stages. Therefore **hypothesis H4b is supported** as per the empirical results presented under Section 6.6.2 and supporting literature.

The next paragraph discusses the effect of lack of premeditation in the relationship between EI and the stages of EA.

7.4.2.3 The mediation effect of lack of premeditation

All results were found to be statistically significant, based on the SEM analysis. The indices included CFI = 0.925, TLI = 0.916, TLI = 0.925, RMSEA = 0.060 and SRMR = 0.048. The empirical evidence in Table 7.1 revealed that all hypotheses relating to the mediation effect of lack of premeditation in the relationship between EI and the stages of EA are supported. The following paragraphs expound on the effect of lack of premeditation dimension to each of the stages of EA.

H2c: *The mediation effect of lack of premeditation between EI and EODI*

The confidence intervals for the standardised indirect effects of EODI = 0.041, lower bounds = 0.018, high bounds = 0.069. The empirical results found that lack of premeditation has the strongest positive relationship in the relationship between the EI and EODI stage. This is in line with Wiklund *et al.*'s (2017) conceptual framework that proposed that lack of premeditation is mainly positive to effect EODI. Literature by Whiteside and Lynman (2001:670) found a lack of premeditation triggered experiences of hopefulness when coming to opportunities. This is consistent with Adams *et al.*'s (2012:848) findings that individuals with the lack of premeditation have high levels of affection for opportunities; as a result they pay less attention to information that suggests any probability of failure. Therefore **hypothesis H2c is supported** in line with the empirical results of the study and the supported literature to this effect.

H3c: *The mediation effect of lack of premeditation between EI and EOEV*

The confidence intervals for the standardised indirect effects of EOEV = 0.076, lower bounds = 0.048, high bounds = 0.125. The empirical results found lack of premeditation has a strong positive effect in the relationship between the EI and EOEV stage. This finding supports Wiklund *et al.*'s (2017) conceptual framework that proposed lack of premeditation had a positive effect on influencing the EOEV stage based on perceived desirability. Lowe and Ziedonis (2006) found those high in lack of premeditation have elevated levels of optimism; in turn this increases their desire to pursue the entrepreneurial opportunity, irrespective of any possible outcomes, once their minds are made up. The supporting literature argued for

lack of premeditation reducing sensitivity to negative information and rather enforcing forging ahead in a set course of actions, once decided on the entrepreneurial opportunity (Whiteside & Lynam, 2001:669; Moeller *et al.*, 2001). This notion is supported by Pietersen and Botha (2021) that lack of premeditation has a mediating effect to influence the perceived desirability, leading to the entrepreneurial activity taking place. As such, **hypothesis H3c is supported** as per the results of the empirical study and supporting literature to this effect.

H4c: The mediation effect of lack of premeditation between EI and EOEX

The confidence intervals for the standardised indirect effects of EOEX = 0.067, lower bounds = 0.040, high bounds = 0.114. The empirical results found that lack of premeditation has a positive moderate influence on the relationship between the EI and EOEX stage. Wiklund *et al.*'s (2017) conceptual framework proposed that lack of premeditation is positive to influencing the EOEX stage. Wiklund *et al.*'s (2017) proposal supports Whiteside and Lynam's (2001) findings that entrepreneurs high in lack of premeditation are inclined to act without considering any potential setbacks, as these entrepreneurs are less intimidated by the imminence of risks and uncertainties. This is also supported by literature that found the positive influence of lack of premeditation on entrepreneurial action (Yu 2018:86). Lack of premeditation has considerable impact to affect the probability that an entrepreneur will initiate action and persist with opportunities, even when facing activities that seem challenging (Wiklund *et al.*, 2017). Therefore **hypothesis H4c is supported** in line with the empirical results of the study and the supporting literature to this effect.

7.4.2.4 The mediation effect of sensation seeking

All results were found to be statistically significant, based on the SEM analysis. The indices included CFI = 0.930, TLI = 0.921, TLI = 0.931, RMSEA = 0.061 and SRMR = 0.051. Based on the fact that the confidence intervals of the indirect effects for EODI and EOEX do contain zero, only the evaluation stage was found to be statistically significant. The following paragraphs expound the effect of sensation seeking on each of the stages of EA.

H2d: The mediation effect of sensation seeking between EI and EODI

The confidence intervals for the standardised indirect effects of EODI = 0.001, lower bound = -0.009, upper bound = 0.014 and do contain zeros; therefore empirical results found that sensation seeking does not have an effect in the relationship between the EI and EODI stage. In terms of sensation seeking, empirical results were found not to be statistically significant. The empirical findings indicated that no mediation effect of sensation seeking exists between EI with EODI. This is in contrast with Wiklund *et al.*'s (2017) conceptual framework that proposed that sensation seeking is mainly positive in the relationship to affect EODI. Literature supports the conceptual framework, by postulating the effect of sensation seeking in pursuit of entrepreneurial opportunities (Ardichilia *et al.*, 2003). The argument forwarded is that entrepreneurs that are high in sensation seeking have a high arousal for risk in pursuit of novelty (Nicolaou *et al.*, 2008:8). This notion is supported by Zuckerman (1994), holding that sensation-seeking entrepreneurs are not satisfied with the status quo and are constantly looking for new and exciting experiences.

It is not evident why the results of this empirical study found no mediation link of sensation seeking to opportunity discovery when sensation-seeking entrepreneurs are known to thrive on novel ideas. Sensation seeking and lack of premeditation are traits that are relatively better suited for innovative opportunities (Wiklund *et al.*, 2017). Could the results of this study be because the UPPS instrument was not well understood, or the participants from the developing world do not identify with the items chosen that suggest sensation seeking? For example, most respondents strongly disagreed with questions such as Q38: I would enjoy water skiing, Q40: I don't like to start a project until I know exactly how to proceed, Q44: I would enjoy parachute jumping, Q52: I would like to learn to fly an airplane, Q60: I would enjoy the sensation of skiing very fast down a high mountain slope and Q64: I would like to go scuba diving. These items equate to 50 percent of what constitutes a sensation-seeking factor on the measurement scale. It is possible that incorrect feedback was solicited, supported by Jarrett (2017), who found that the average scores tend to come out differently across cultures. This implies that it is very possible that respondents could not identify with or understand the questionnaire. As a result of the findings of the study, **hypothesis H2d is not supported** in line with the empirical results of the study regarding the effect of sensation seeking in influencing the EODI stage.

H3d: *The mediation effect of sensation seeking between EI and EOEV*

The confidence intervals for the standardised indirect effects of EOEV = 0.021, lower bounds = 0.010 and upper bounds = 0.047. The empirical results found that sensation seeking has a positive influence in the relationship between EI and the EOEV stage, supporting Wiklund *et al.*'s (2017) conceptual framework, which proposed that sensation seeking is positive to influencing EOEV. The prevailing literature suggests that those entrepreneurs with sensation seeking do not regard gathering and analysing of information as key to suggesting if they want to pursue the opportunity or not. Their emphasis is more on perceived desirability than whether the opportunity is feasible to be exploited (Nicolaou *et al.*, 2008). This argument is based on the fact that those high in sensation seeking regard uncertainties and novelty rewarding (Tzagarakis *et al.*, 2012:33). This is supported by McMullen and Shepherd's (2006) findings that argued that entrepreneurs that are high in sensation seeking find it more desirable to bear the uncertainty associated with opportunity than those who are low in sensation seeking. Therefore **hypothesis H3d is supported** in line with the empirical results of the study and the supporting literature.

H4d: *The mediation effect of sensation seeking between EI and EOEX*

The confidence intervals for the standardised indirect effects of EOEX = 0.008, lower bounds = -0.003 and upper bounds 0.029. The empirical results found that sensation seeking has no effect in the relationship between EI and EOEX stage. Wiklund *et al.*'s (2017) conceptual framework proposed that sensation seeking was positive to influencing the opportunity exploitation stage. Tzagarakis *et al.*'s (2012) findings are consistent with literature that suggests that those individuals that are high in sensation-seeking are prone to act and enjoy engaging in new and risky activities (Dickman 2000:563), in that entrepreneurs high in sensation seeking are argued to have an elevated biasness towards action (Horvath & Zuckerman, 1993:44).

The reason why the results of the empirical study suggest the negative contribution of sensation seeking to effect EOEX cannot be explained, except to suggest that perhaps this is a similar case to that of the contribution of sensation seeking to effect EODI that was found to be negative. It is highly possible that participants in the developing world did not identify with items that suggested sensation seeking. As such, **hypothesis H4d is not**

supported in line with the empirical results of the study regarding the effect of sensation seeking in influencing the EOEX stage.

7.4.3 The moderated mediation effect between EI and the three stages of EA

The study also investigated the moderating effect of age, gender and years in business on the relationship between EI and the stages of EA mediated by dimensions of impulsivity (H5a–H7I). The study found that out of 36 paths, only 8 paths revealed a moderated effect between EI and the stages of EA mediated by impulsivity dimensions (see Table 6.24). Therefore only hypotheses of the results that were found to be statistically significant, based on the SEM analysis that tested the moderated mediation effect, are discussed in the following paragraphs.

The moderated mediation by age was found on the path between sensation seeking and EODI, SSI = 0.0280, ICII = (0.0201; 0.3504) and EBCI = 0.0184; [0.0011, 0.0437]

The moderated mediation by gender was found on the path between the lack of perseverance and EOEV, SSI = 0.0085, ICII = (0.0819; 0.5570) and EBCI = -0.0477; [-0.0861, -0.0142] and between the lack of premeditation and EODI, SSI = 0.0075, ICII = (0.0859; 0.5565) and EBCI = -0.0368; [-0.0713 -0.0082] and EOEV, SSI = 0.0040, ICII = (0.1103; 0.5783) and EBCI = -0.0394; [-0.0719, -0.0134]. Bagheri and Lope Pihie (2014:255) found that gender significantly moderates the relationship between students' entrepreneurial intention and dependent variable, in that entrepreneurial attitude and self-efficacy had greater effects on males' intentions to become entrepreneurs. However, entrepreneurial attitude and subjective norms had a stronger impact on females' entrepreneurial intentions. This notion is supported by BarNir *et al.*'s (2011:270) study, which found that the effects of role models and self-efficacy on forming career intentions vary by gender and process. Their results found that gender moderated the effects, in that a moderated mediation relationship was observed such that for women, role models had stronger influence on self-efficacy, which in turn influenced entrepreneurial career intention.

Moderated mediation by number of years in business was found on the path between EI and lack of premeditation, SSI = 0.0036, ICII = (-0.2349; -0.0462) and EBCI 0.0333; [0.0070, 0.0665], lack of perseverance and EOEV, SSI = 0.0066, ICII = (-0.5688; -0.0927) and EBCI

= 0.0487; [0.0143, 0.0878] sensation seeking, EODI, SSI = 0.0057, ICII = (0.0688; 0.4014) and EBCI = 0.0233; [0.0035, 0.0520] and EOEX, SSI = 0.0112, ICII = (0.0717; 0.5554) and EBCI = 0.0311; [0.0044, 0.0668]. In terms of number of years in business or entrepreneurial self-efficacy, the study by Tran, Duong, Nguyen, Tran & Vu (2022) found evidence that sensation seeking, lack of premeditation and lack of perseverance are significantly and directly conducive to the formation of entrepreneurial intention. Yet, impulsivity symptoms might weaken the link between entrepreneurial self-efficacy and entrepreneurial intention. Entrepreneurial self-efficacy was also found to moderate between sensation seeking, lack of premeditation, and lack of perseverance and intention to become an entrepreneur.

Therefore with the moderated mediation effects of age, gender and business status as discussed, the following hypotheses are supported as per the findings of the study and supporting literature:

Hypothesis H5d Age between EI and EODI through Sensation seeking.

Hypothesis H6c Gender between EI and EODI through Lack of premeditation.

Hypothesis H6f Gender between EI and EOEV through Lack of perseverance.

Hypothesis H6g Gender between EI and EOEV through Lack of premeditation.

Hypothesis H7c Business status between EI and EODI through Lack of premeditation.

Hypothesis H7d Business status between EI and EODI through Sensation seeking.

Hypothesis H7f Business status between EI and EODI through Lack of perseverance.

Hypothesis H7I Business status between EI and EOEX through Sensation seeking.

Table 7.1 below provides a summary of all the tested hypotheses in terms of whether they are supported or not supported by the findings in this study.

Table 7.1: Summary of the results of impulsivity dimensions mediating between EI and the stages of EA

Hypotheses Tested		
Hypothesis 1: There is a positive relationship between entrepreneurial intention and the entrepreneurial action stages.		
H1a	EI is positive in the relationship to effect EODI.	Supported



H1b	EI is positive in the relationship to effect EOEV	Supported
H1c	EI is positive in the relationship to effect EOEX	Supported
Hypothesis 2: Impulsivity is a mediator in the relationship between EI and entrepreneurial opportunity discovery		
H2a	Urgency is a mediator in the relationship between EI and EODI.	Supported
H2b	Lack of perseverance is a mediator in the relationship EI and EODI.	Supported
H2c	Lack of premeditation is a mediator in the relationship between EI and EODI.	Supported
H2d	Sensation seeking is a mediator in the relationship between EI and EODI	Not supported
Hypothesis 3: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity evaluation		
H3a	Urgency is a mediator in the relationship between EI and EOEV.	Supported
H3b	Lack of perseverance is a mediator in the relationship EI and EOEV.	Supported
H3c	Lack of premeditation is a mediator in the relationship between EI and EOEV.	Supported
H3d	Sensation seeking is a mediator in the relationship between EI and EOEV	Supported
Hypothesis 4: Impulsivity is a mediator in the relationship between entrepreneurial intention and entrepreneurial opportunity exploitation		
H4a	Urgency is a mediator in the relationship between EI and EOEX.	Supported
H4b	Lack of perseverance is a mediator in the relationship EI and EOEX.	Supported



H4c	Lack of premeditation is a mediator in the relationship between EI and EOEX.	Supported
H4c	Sensation seeking is a mediator in the relationship between EI and EOEX	Not supported
Hypothesis 5: Age has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator		
H5a	Age has a moderating effect on the relationship between EI and EODI through urgency as a mediator	Not Supported
H5b	Age has a moderating effect on the relationship between EI and the EODI through lack of perseverance as a mediator	Not Supported
H5c	Age has a moderating effect on the relationship between EI and EODI through lack of premeditation as a mediator	Not Supported
H5d	Age has a moderating effect on the relationship between EI and EODI through sensation seeking as a mediator	Supported
H5e	Age has a moderating effect on the relationship between EI and EOEV through urgency as a mediator	Not Supported
H5f	Age has a moderating effect on the relationship between EI and EOEV through lack of perseverance as a mediator	Not Supported
H5g	Age has a moderating effect on the relationship between EI and EOEV through lack of premeditation as a mediator	Not Supported
H5h	Age has a moderating effect on the relationship between EI and EOEV through sensation seeking as a mediator	Not Supported
H5i	Age has a moderating effect on the relationship between EI and EOEX through urgency as a mediator	Not Supported



H5j	Age has a moderating effect on the relationship between EI and EOEX through lack of perseverance as a mediator	Not Supported
H5k	Age has a moderating effect on the relationship between EI and EOEX through lack of premeditation as a mediator	Not Supported
H5l	Age has a moderating effect on the relationship between EI and EOEX through sensation seeking as a mediator	Not Supported
Hypothesis 6: Gender has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator		
H6a	Gender has a moderating effect on the relationship between EI and EODI through urgency as a mediator	Not Supported
H6b	Gender has a moderating effect on the relationship between EI and the EODI through lack of perseverance as a mediator	Not Supported
H6c	Gender has a moderating effect on the relationship between EI and EODI through lack of premeditation as a mediator	Supported
H6d	Gender has a moderating effect on the relationship between EI and EODI through sensation seeking as a mediator	Not Supported
H6e	Gender has a moderating effect on the relationship between EI and EOEV through urgency as a mediator	Not Supported
H6f	Gender has a moderating effect on the relationship between EI and EOEV through lack of perseverance as a mediator	Supported



H6g	Gender has a moderating effect on the relationship between EI and EOEV through lack of premeditation as a mediator	Supported
H6h	Gender has a moderating effect on the relationship between EI and EOEV through sensation seeking as a mediator	Not Supported
H6i	Gender has a moderating effect on the relationship between EI and EOEX through urgency as a mediator	Not Supported
H6j	Gender has a moderating effect on the relationship between EI and EOEX through lack of perseverance as a mediator	Not Supported
H6k	Gender has a moderating effect on the relationship between EI and EOEX through lack of premeditation as a mediator	Not Supported
H6l	Gender has a moderating effect on the relationship between EI and EOEX through sensation seeking as a mediator	Not Supported
Hypothesis 7: The number of years in business (Business status) has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator		
H7a	Business status has a moderating effect on the relationship between EI and EODI through urgency as a mediator	Not Supported
H7b	Business status has a moderating effect on the relationship between EI and EODI through lack of perseverance as a mediator	Not Supported
H7c	Business status has a moderating effect on the relationship between EI and EODI through lack of premeditation	Supported



H7d	Business status has a moderating effect on the relationship between EI and EODI through sensation seeking as a mediator	Supported
H7e	Business status has a moderating effect on the relationship between EI and EOEV through urgency as a mediator	Not Supported
H7f	Business status has a moderating effect on the relationship between EI and EOEV through lack of perseverance as a mediator	Supported
H7g	Business status has a moderating effect on the relationship between EI and EOEV through lack of premeditation as a mediator	Not Supported
H7h	Business status has a moderating effect on the relationship between EI and EOEV through sensation seeking as a mediator	Not Supported
H7i	Business status has a moderating effect on the relationship between EI and EOEX through urgency as a mediator	Not Supported
H7j	Business status has a moderating effect on the relationship between EI and EOEX through lack of perseverance as a mediator	Not Supported
H7k	Business status has a moderating effect on the relationship between EI and EOEX through lack of premeditation as a mediator	Not Supported
H7l	Business status has a moderating effect on the relationship between EI and EOEX through sensation seeking as a mediator	Supported

From Table 7.1 it is evident that all the hypotheses that test the relationship between EI and the three stages of EA are supported (H1a–H1c). Furthermore, the effect of urgency, lack of perseverance and lack of premeditation mediating in the relationship between EI and all three stages of EA these hypotheses are supported. However, the hypotheses that test the effect of sensation seeking as the mediator in the relationship between EI and the stages of EA are supported for EOEV, but not for EODI and EOEX and therefore they are not supported. With regard to hypotheses that tested the moderated mediation in the relationship between EI and the stages of EA, out of the 36 that were tested only 8 are supported. Regarding the hypotheses (H5–H7) that tested age, gender and business status as a moderating effect on the relationship between EI and the stages of EA through impulsivity as a mediator, the following were supported: Age has a moderating effect on the relationship between EI and EODI through sensation seeking as a mediator; Gender has a moderating effect on the relationship between EI and EODI through lack of premeditation as a mediator; Gender has a moderating effect on the relationship between EI and EOEV through lack of perseverance as well as lack of premeditation as mediators; Business status has a moderating effect on the relationship between EI and the EODI through lack of premeditation and sensation seeking as mediators; Business status has a moderating effect on the relationship between EI and EOEV through lack of perseverance as a mediator; and Business status has a moderating effect on the relationship between EI and EOEX through sensation seeking as a mediator.

7.5 CONTRIBUTION OF THE STUDY

7.5.1 Theoretical contribution

Low EA levels are a global concern; however, with South Africa's alarming high unemployment rate, EA in this developing country is a priority (Herrington, *et al.*, 2017). By exploiting entrepreneurial opportunities, leading to the creation of new business ventures (Wiklund *et al.*, 2017), the low EA levels can be addressed. However, some research found positive relationships between EI and EA (Meoli *et al.*, 2019) while other previous research found no direct correlation between EI and EA (Adam & Fayolle, 2015; Van Gelderen *et al.*, 2015). This gave rise to recommendations for the inclusion of psychological factors such as impulsivity (Adam & Fayolle, 2015) in the relationship which is likely to effect EA (Klotz &

Neubaum, 2016). Though previous research did not establish the significant correlation between EI and the various stages of EA (Van Gelderen *et al.*, 2018), this study has found EI having a direct relationship with each of the stages of EA (4.2; 6.5). This finding contributes to the ongoing research on the effects of intentions on actions. As much as there is a sizeable amount of research that investigated the relationship of the intentions and actions phenomenon, however, research that focuses on this relationship from an entrepreneurship point of view cannot be obsolete (Esfandiar *et al.*, 2019). More and more studies conducted in this regard are likely to have a positive effect on both EI and EA that are regarded as key pillars of the entrepreneurial activity (Dimov & Pistrui, 2019). To this effect it can be accepted that in order for EA to be realised in a developing country context, it must be as the results of well-formulated EI and not just a mere capricious or frivolous behavioural outcome (Ajzen, 1991) in order to yield intended results (Hsieh *et al.*, 2007:1255).

This study not only gives insight into the positive contribution of EI to the stages of EA, but also into the mediating effects of impulsivity in this relationship (4.3.1; 6.6). This empirical study expanded the work by Wiklund *et al.* (2017) on their conceptual framework by positing the contribution of impulsivity in mediating the relationship between EI and stages of EA. The study employed TBP in conjunction with the MOA theory that inform the EI construct. CT and DT theories suggest stages of EA and the UPPS measuring scale which was utilised to illustrate the elements that suggest the dimensions of impulsivity constructs of the study. The theoretical contribution of this study is that Wiklund *et al.*'s (2017) conceptual framework was empirically tested through a series of models which demonstrated an overall model fit that revealed each of the impulsivity dimensions linking EI with each of the three stages of EA. Therefore, this study proves that in a developing country context such as South Africa, impulsive individuals with high levels of EI are likely to engage in EA. This could aid scholars to formulate programmes that include negative traits such as impulsivity that for long has been excluded but has now proven to contribute positively to affecting EA. This positive contribution of impulsivity is also likely to minimise the EI–EA gap that is created by the lack of action (Asante & Affum-Osei, 2019).

This study revealed urgency, lack of perseverance and lack of premeditation mediated between EI and all three stages of EA. With regard to the sensation seeking dimension, it was only found to have had the effect on EOEV and not EODI and EOEX. However the

results on urgency and sensation-seeking dimensions were also found to be contrary to the literature that support these constructs. For example, urgency is known to be associated with negative cues that are likely to result in action aversion (Van Gelderen *et al.*, 2015), while with sensation seeking, individuals under this dimension thrive on novel and risk opportunities (Nicolaou *et al.*, 2008). The results on lack of perseverance and lack of premeditation matched the literature that supports these constructs. Furthermore the study also tested the moderated mediation effect by age, gender and number of years in business and out of the 32 paths only the study found 8 positively moderated the relationship between EI and the stages of EA (BarNir *et al.*, 2011:285). Therefore, this study also contributes to the impulsivity literature by indicating which of the dimensions had an effect on the relationship between EI and EA. Since research on impulsivity in the context of entrepreneurship is still evolving, especially from the developing nations' point of view, this study empirically tested Wiklund *et al.* (2017) conceptual framework which contributes to both the entrepreneurship and personality literature. This study therefore answered the call for empirical research to be conducted in this regard (Wiklund *et al.*, 2017; Lerner *et al.*, 2018; Pietersen & Botha, 2021). It is likely to deepen our understanding and insight into the contributions of the impulsivity phenomenon from the developing nation's viewpoint.

7.5.2 Practical contribution

The call for more research on the effect of impulsivity in entrepreneurship (Pietersen & Botha, 2021), suggests studies such as this one which is likely to contribute towards entrepreneurship education, skills, policy, and the entrepreneurial activity to take place (Klotz & Neubaum, 2016:7). This study tested impulsivity construct from the premise that it is not a super construct, but multifaceted construct consisting of four dimensions that do not necessarily co-vary (Whiteside & Lynam, 2001). Since this study expands on the work by Wiklund *et al.* (2017) to test their conceptual framework, the study has provided the empirical evidence that out of the four dimensions of impulsivity, three (urgency, lack of perseverance and lack of premeditation) were found to be positive in the relationship that effected all three stages of EA and sensation seeking only effected EOEV and not EODI and EOEX. Furthermore, results pertaining to urgency and sensation seeking dimensions the study revealed that these dimensions effected stages of EA contrary to what is regarded a general

norm when coming to these dimensions. These results are significant in the sense that urgency is proven to be positive, whilst most research regard individuals with urgency generally to be associated with negative cues that mostly end in action aversion (Baron, 2008). Similarly with sensation seeking this study found it to be negative in effecting EODI and EOEX, whilst individuals with sensation seeking are generally known to thrive on novelty, risk opportunities (Nicolaou *et al.*, 2008). Even with the other two dimensions (lack of perseverance and lack of premeditation) that were found to be in line with their typical norm, the results on urgency and sensation seeking are significant in the sense that these dimensions veered from what is the generally accepted as a norm regarding these dimension. The first practical contribution of this study is thus that it empirically tested and proved that impulsivity cannot be tested as one super construct and it is indeed a multifaceted construct. Scholars within the field of psychology and entrepreneurship can benefit from this study in understanding how to test impulsivity in relationships with other constructs as well.

Since this study was conducted in South Africa, a developing nation, it is suggested that the results of this study on the effect of impulsivity are informed by developing nation's point of view and that is likely to be different from those in the developed nation (Jarrett, 2017). This is also in light of the results of urgency and sensation seeking that are different from the general accepted norm when coming to these dimensions. Therefore, these results provides a counterweight balance on the effect of impulsivity between the developed and developing nations. As most studies on the contribution of impulsivity are from the developed world as such their findings are mainly informed by developed world worldview (Tustin, 2011). Therefore, the practical contribution of this study provides a useful guideline in which education and training of entrepreneurship programmes on the contribution of impulsivity can be tailored to be specific for the developing nation. The casing point is the "negative" urgency can no longer be regarded as negative as the study proved it to be significant to effect EA.

A further practical application is that government support organisations and incubators can benefit from the findings that indicated that the number of years in business (Business status) has a moderating effect on the relationship between entrepreneurial intention and the stages of entrepreneurial action through impulsivity as a mediator. When supporting entrepreneurs, it is important to take note of the number of years they are in business and that different support are required as entrepreneurs progress through the stages of the

entrepreneurial process. In doing this, it might enhance entrepreneurs with impulsive notions to engage in entrepreneurial action activities. Furthermore, age and gender should also be considered when focusing on specific entrepreneurial profiles and developing their entrepreneurial intention and action levels. For example, when developing youth entrepreneurs, the government support programmes could focus on enhancing these entrepreneurs' EI and EA relationship through sensation seeking activities. These sensation seeking activities include enjoyment and pursuing actions that are thrilling, new and dangerous (Dickman, 2000).

7.6 LIMITATIONS OF THE STUDY

Although the study was conducted in line with the requirements of scientific research, the findings of this study have to be viewed in the light of some limitations that are identified as follows:

Firstly, prior studies are key to providing the theoretical foundations for research (Shepherd & Suddaby, 2017). The literature on the contribution of impulsivity in entrepreneurship is still in its infancy, especially in a developing country such as South Africa. As a result there is limited literature on developing countries, and developed country literature has been mostly used in this study. Jarrett (2017) confirms that when psychologists have given the same personality test to hundreds or thousands of people from different nations, they have indeed found that the average scores tend to come out differently across cultures. In other words, the average personality traits in one country often really are different from the average personality in another.

Secondly, the instrument used to collect the data (UPPS), was formulated and validated for the developed world. It was evident during the data collection that not all respondents were conversant with the line of questioning. This may have negatively affected the data collected in this developing country context. The South African focused and confined geographic nature of the study could therefore limit the application and generalisation of the research findings to other developing communities such as the South African Development Community (SADC).

Thirdly, the questionnaire was administered in English and though most of the respondents indicated that they could answer in English, nevertheless a considerable time was spent by

respondents reading and rereading questionnaire statements in order to understand, as English is the second language of most of the respondents in South Africa. Psychological or psychometrical questionnaires by nature are best served when answered at a pace when individuals do not have to overthink their answers.

7.7 RECOMMENDATIONS FOR FUTURE RESEARCH

Notwithstanding the limitations the study presented, it also provides opportunities for future research. A key consideration is that the results of this study were mainly focused on the empirical evidence as it sought to validate Wiklund *et al.*'s (2017) conceptual framework.

Firstly, although the study touched on each of the dimensions of impulsivity, there is still scope for more studies to solidify this theoretical framework by Wiklund *et al.* (2017), especially in a developing country context. This is particularly so in the light of what the study found with regard to some dimensions that revealed a different behavioural outcome from the one commonly associated with these dimensions. For example, urgency was found to be positive in effecting stages of EA, while sensation seeking proved negative to affecting EODI and EOEX. These findings are in contrast to expected behavioural outcomes with regard to urgency and sensation seeking.

Secondly, it is envisaged by the researcher that this study can be taken further to investigate other developing nations in order to validate the assertion of the contribution of the dimensions of impulsivity from the developing world point of view. It is worth every study that can improve the current EA levels that are poor compared with those of their corresponding EI that are found to be consistently high (Herrington *et al.*, 2017).

Thirdly, a comparison study could be conducted between developed and developing countries on the contribution of impulsivity to effect EA. This could determine if the findings in this study can be generalised to developed countries as well.

Fourthly, as the study also tested the impact of age, gender and years in business moderating the relationship mediated by impulsivity dimensions, which resulted in moderated mediation models, additional research could be conducted examining the relationship between other antecedents in the same study. For example, what would be the impact of age to years in business in the relationship mediated by impulsivity dimensions.

Such a study would be considered as the moderated-moderated-mediation effect (BarNir *et al.*, 2011).

Fifthly, as much as the UPPS is a universal tool to measure impulsivity dimensions, the question is whether the UPPS instrument can be adapted for entrepreneurs in a developing country context. Research found that personality trait average scores tend to come out differently across different nations and cultures (Jarrett, 2017). Could it be that impulsivity emerges differently between the developed and developing world?

Lastly, future studies could also utilise a longitudinal dataset to fully explore the causal relationships across the different stages of EA, as opposed to a cross-sectional study. It is possible that being in an entrepreneurial environment could lead to higher levels of impulsivity and this could have an effect on improving EA levels.

7.8 SUMMARY AND CONCLUSIONS

The chapter started by presenting the overview of the literature that informs this study, followed by revisiting the research objectives and hypotheses in terms of whether these were supported or not supported, based on the empirical findings in Chapter 6 and presented literature that formulated the conceptual framework discussed in Chapter 4. The Figure 7.2 depicts a summary of the statistically significant relationships that were tested through SEM, in which the mediation by dimensions of impulsivity and moderation (age, gender, years in business) between EI and the stages of EA were established.

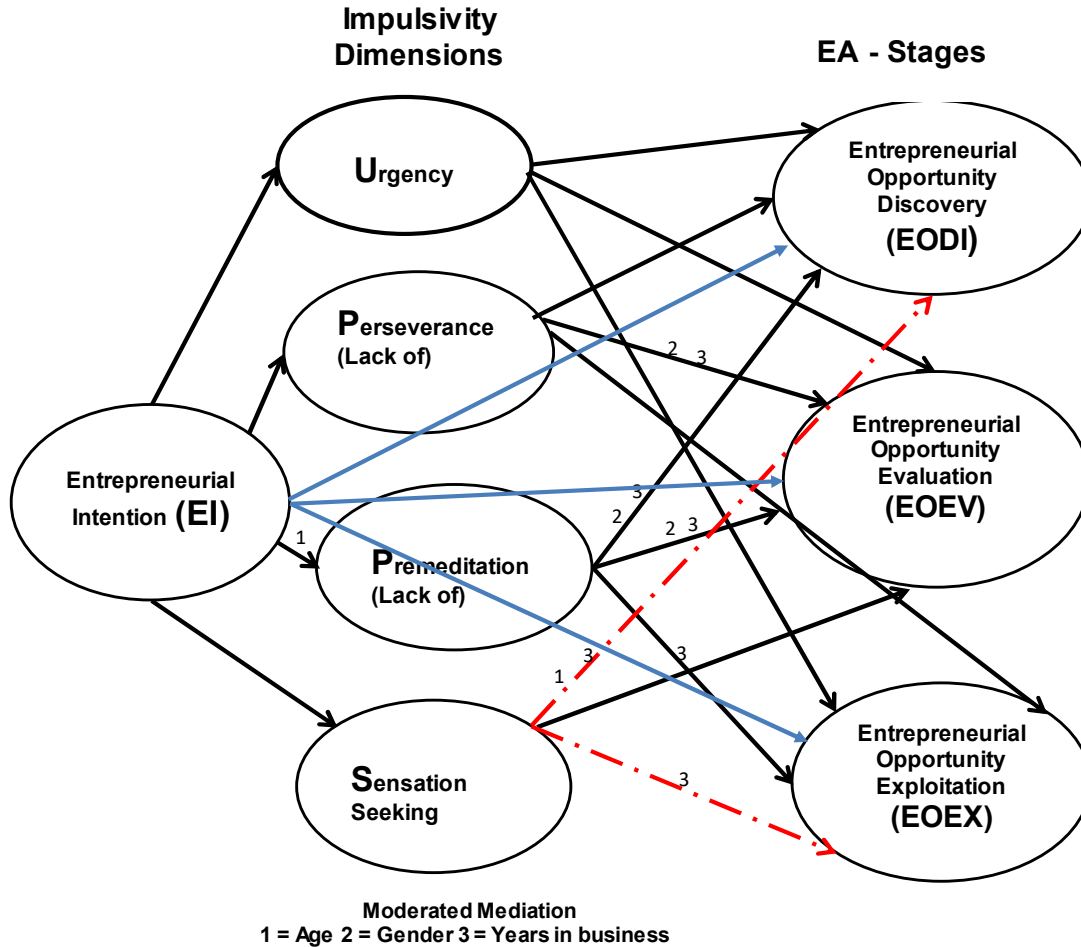


Figure 7.2: Graphical representation of hypotheses that demonstrate significant positive relationships

Source: Own Compilation

Figure 7.2 illustrates the relationships and paths that are statistically significant. Blue lines are correlations between EI and the stages of EA; black lines are statistically significant relationships between EI and stages of EA, mediated by the dimensions of impulsivity, and red lines are insignificant effects by impulsivity in the relationship between EI and the stages of EA. The numbers are paths moderated by 1 Age, 2 gender and 3 numbers of years in business. As presented, the study found that urgency, lack of perseverance and lack of premeditation partially mediated the relationship between EI and the stages of EA. Sensation seeking mediated only between the EI and EOEV stages, but not with the EODI and EOEX stages. A moderated mediation effect was established through Years in business, between EI and the lack of premeditation dimension; Years in business between lack of perseverance and the EODI stage; Years in business between sensation seeking

and the EOEX stage; Years in business between lack of premeditation and all the three stages of EA (EODI, EOEV and EOEX); Gender between lack of perseverance and the EOEV stage; and Gender between lack of premeditation and the EODI and EOEV stages.

The contribution of this study to literature provided the empirical evidence that tested Wiklund *et al.*'s (2017) conceptual framework through series of models which were tested, and revealed each of the impulsivity dimensions linking EI with each of the three stages of EA from the developing nation's viewpoint. In conclusion, even though this study made contributions to the body of knowledge, its limitations have been acknowledged and stated. Finally, the recommendation is for future research, such as to conduct more studies, especially those that will focus on the contribution of impulsivity in entrepreneurship, especially in developing countries. This may not only add to the body of knowledge but may also contribute to addressing low EA levels (Van Gelderen *et al.*, 2015:655), and in turn high unemployment and poor economic growth, that to date have been threatening the socioeconomic stability of most developing economies (Herrington *et al.*, 2017:7).

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ADDENDUM

ADDENDUM 1

RESEARCH ETHICS COMMITTEE APPROVAL



RESEARCH ETHICS COMMITTEE

Faculty of Economic and Management Sciences

Approval Certificate

21 May 2021

Mr PM Dlamini
Department: Business Management

Dear Mr PM Dlamini

The application for ethical clearance for the research project described below served before this committee on:

Protocol No:	EMS193/20
Principal researcher:	Mr PM Dlamini
Research title:	The mediating role of impulsivity in the relationship between entrepreneurial intention and the entrepreneurial action stages
Student/Staff No:	28342900
Degree:	Doctoral
Supervisor/Promoter:	Prof M Botha
Department:	Business Management

The decision by the committee is reflected below:

Decision:	Approved
Conditions (if applicable):	
Period of approval:	2021-04-01 - 2021-12-31

The approval is subject to the researcher abiding by the principles and parameters set out in the application and research proposal in the actual execution of the research. The approval does not imply that the researcher is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria if action is taken beyond the approved proposal. If during the course of the research it becomes apparent that the nature and/or extent of the research deviates significantly from the original proposal, a new application for ethics clearance must be submitted for review.

We wish you success with the project.

Sincerely

pp PROF JA NEL
CHAIR: COMMITTEE FOR RESEARCH ETHICS



ADDENDUM 2

APPROVAL TO EXPAND ON THE WORK

Johan Wiklund <jwiklund@syr.edu>

Tue, Dec 12, 2017 at 2:50 AM

To: Mzwakhe Dlamini <mzwakhe.dlamini10@gmail.com>

Cc: Melodi Botha <melodi.botha@up.ac.za>, "Wei Yu (wyu04@syr.edu)" <wyu04@syr.edu>, Holger Patzelt <patzelt@tum.de>

Dear Mzwakhe ,

Many thanks for your email! Please build on our framework, it would be great if you could have some findings from South Africa regarding this important topic.

Thanks,

Johan

From: Mzwakhe Dlamini <mzwakhe.dlamini10@gmail.com>

Sent: Monday, December 11, 2017 5:29 PM

To: Johan Wiklund

Cc: Melodi Botha

Subject: Conceptual framework



ADDENDUM 3

APPROVAL TO USE THE UPPS MEASURING SCALE

Request to use the UPPS scale

3 messages

Mzwakhe Dlamini <mzwakhe.dlamini10@gmail.com>

Tue, Jun 25, 2019 at 7:24
PM

To: dlynam@purdue.edu, mcyders@iupui.edu
Cc: Melodi Botha <melodi.botha@up.ac.za>

Good Day Prof Lynam and Prof Cyders

Trust this mail finds you well.

My name is Mzwakhe Dlamini (Student No 28342900), I am reading towards PhD at the University of Pretoria in South Africa, supervised by Prof Melodi Botha. The topic of my study is "The significance of impulsivity in the stages of the entrepreneurial intention-action gap".

The purpose of this email is hereby to seek your approval to use the UPPS scale excluding the Positive Urgency. I will ensure that it is followed as recommended and will ensure that it is cited and acknowledged accordingly.

Thanking you in anticipation.

Mzwakhe Dlamini
+27 82 378 0891

Virus-free. www.avast.com

Lynam, Donald R <dlynam@purdue.edu>

Tue, Jun 25, 2019 at 7:40 PM

To: Mzwakhe Dlamini <mzwakhe.dlamini10@gmail.com>, "mcyders@iupui.edu" <mcyders@iupui.edu>
Cc: Melodi Botha <melodi.botha@up.ac.za>

You have my permission. If you need anything else, please let me know. Good luck with your research.

Best,



ADDENDUM 4

LETTER OF INTRODUCTION AND INFORMED CONSENT



Faculty of Economic and Management Sciences

Letter of Introduction and Informed Consent

Faculty of Economic and Management Science
Department of Business Management

The mediating role of impulsivity in the relationship between entrepreneurial intention and the entrepreneurial action stages

Research conducted by:

Mr. P.M. Dlamini (28324900)
Cell: 082 378 0891

Dear Participant

You are invited to participate in an academic research study conducted by Mzwakhe Dlamini, PhD student from the Department of Business Management at the Faculty of Economic and Management Science at the University of Pretoria.

The purpose of the study is to investigate the mediating role that impulsivity can play in the relationship between entrepreneurial intention(s) (EI) and the stages of entrepreneurial action (EA).

Please note the following:

- This is an anonymous survey as your name will not appear on the questionnaire. The answers you give will be treated as strictly confidential as you cannot be identified in person based on the answers you give.
- Your participation in this study is very important to us. You may, however, choose not to participate and you may also stop participating at any time without any negative consequences.
- Please answer the questions in the attached questionnaire as completely and honestly as possible. This should not take more than 30 minutes of your time.
- The results of the study will be used for academic purposes only and may be published in an academic thesis and journal. We will provide you with a summary of our findings on request.
 - Please contact my study leader, Prof M Botha, email: melodi.botha@up.ac.za if you have any questions or comments regarding the study.

In research of this nature the study leader may wish to contact respondents to verify the authenticity of data gathered by the researcher. It is understood that any personal contact details that you may provide will be used only for this purpose, and will not compromise your anonymity or the confidentiality of your participation.

Please sign the form to indicate that:

- You have read and understand the information provided above.
- You give your consent to participate in the study on a voluntary basis.

Participant's signature

Date



ADDENDUM 5 QUESTIONNAIRE



QUESTIONNAIRE

Section A

1. Age	>24	25-34	35-44	<45					
2. Sex	Male	Female	Other						
3. Region	Gau	KZN	F/S	MP	LIP	N/W	NC	WC	EC
4. Status of the business venture	Almost started	0 > 6 months	< 6 months > 36 months						

Section B

Entrepreneurial Intention	1	2	3	4	5
5. I am ready to do anything to be an entrepreneur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I will make every effort to start and run my own business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I am determined to create a business venture in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My professional goal is to be an entrepreneur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I have a strong intension of ever starting a business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: (Guerrero, Lavin, Alvarez, 2013:8)



Section C

Entrepreneurial Opportunity Discovery	1	2	3	4	5
10. I am always alert to business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I research potential markets to identify business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I search systematically for business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I look for information about new ideas on products or services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I regularly scan the environment for business opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: (Kuckertz, Kollmann, Krell, & Stöckmann, 2017:86)

Section D

Entrepreneurial Opportunity Evaluation	1	2	3	4	5
Variables and levels					
15. Rarity - Information about the business opportunity that I started is not widely available to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Value - This business opportunity exhibits the potential for increases in efficiency and effectiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Limits on Competition - The market position for this business opportunity is highly defensible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Inimitability - The potential for others to imitate (or develop substitutes for) this business opportunity is considerable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Relatedness - This business opportunity is highly related to the entrepreneur's existing knowledge, skills, and abilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source adapted: Haynie, Shepherd, and McMullen, (2009:349)



33	I often get involved in things I later wish I could get out of.	1	2	3	4
34	I like sports and games in which you have to choose your next move very quickly.	1	2	3	4
35	Unfinished tasks really bother me.	1	2	3	4
36	I like to stop and think things over before I do them.	1	2	3	4
37	When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
38	I would enjoy water skiing.	1	2	3	4
39	Once I get going on something I hate to stop.	1	2	3	4
40	I don't like to start a project until I know exactly how to proceed.	1	2	3	4
41	Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
42	I quite enjoy taking risks.	1	2	3	4
43	I concentrate easily.	1	2	3	4
44	I would enjoy parachute jumping.	1	2	3	4
45	I finish what I start.	1	2	3	4
46	I tend to value and follow a rational, "sensible" approach to things.	1	2	3	4
47	When I am upset I often act without thinking.	1	2	3	4
48	I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	1	2	3	4
49	I am able to pace myself so as to get things done on time.	1	2	3	4
50	I usually make up my mind through careful reasoning.	1	2	3	4
51	When I feel rejected, I will often say things that I later regret.	1	2	3	4
52	I would like to learn to fly an airplane.	1	2	3	4
53	I am a person who always gets the job done	1	2	3	4
54	I am a cautious person.	1	2	3	4
55	It is hard for me to resist acting on my feelings.	1	2	3	4
56	I sometimes like doing things that are a bit frightening	1	2	3	4
57	I almost always finish projects that I start.	1	2	3	4
58	Before I get into a new situation I like to find out what to expect from it.	1	2	3	4
59	I often make matters worse because I act without thinking when I am upset	1	2	3	4
60	I would enjoy the sensation of skiing very fast down a high mountain slope.	1	2	3	4
61	Sometimes there are so many little things to be done that I just ignore them all.	1	2	3	4



62	I usually think carefully before doing anything.	1	2	3	4
63	In the heat of an argument, I will often say things that I later regret.	1	2	3	4
64	I would like to go scuba diving.	1	2	3	4
65	I always keep my feelings under control.	1	2	3	4
66	Before making up my mind, I consider all the advantages and disadvantages.	1	2	3	4
67	I would enjoy fast driving.	1	2	3	4
68	Sometimes I do impulsive things that I later regret.	1	2	3	4

Thank you for agreeing to be part of this study

Signature.....

Date



ADDENDUM 6 CERTIFICATE OF EDITING

MARION MARCHAND
Certificate of Editing

Protea
105 Swardlelie Street
The Willows
082 343 0325
marchmarchand@gmail.com

To whom it may concern

I certify that I have in the long period of preparation edited the thesis entitled, "The mediating role of impulsivity in the relationship between entrepreneurial intention and the entrepreneurial action stages", by Mzwakhe Dlamini.

I am a very experienced and respected editor, having edited for over 20 years. I edited the text for grammatical correctness, readability, accuracy of language and complying with the style of the university. I checked all the references with the text and adjusted them manually to comply with the style of the periodical.

MARION MARCHAND

BA, H ~~Dip~~ Lib, HED

Postgraduate Certificate in Editing UP; Accredited Translator (Afrikaans to English) and English Editor, South African Translators' Institute; Full Member Professional Editors' Guild; Member of the English Academy

ADDENDUM 7

Entrepreneurial Intention / stages of Entrepreneurial Action

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	42	542,643	129	,000	4,207
Saturated model	171	,000	0		
Independence model	18	7597,053	153	,000	49,654

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,929	,915	,945	,934	,944
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,843	,783	,796
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,073	,067	,080	,000
Independence model	,286	,280	,291	,000

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	172	186
Independence model	15	16



Regression Weights: (Model 1)

			Estimate	S.E.	C.R.	P	Label
Discovery	←	EI	,802	,054	14,754	***	
Evaluation	←	EI	,738	,062	11,827	***	
Opportunities	←	EI	,644	,062	10,377	***	
B9	←	EI	,948	,048	19,705	***	
B8	←	EI	1,186	,058	20,319	***	
B7	←	EI	,887	,046	19,288	***	
B6	←	EI	1,062	,052	20,588	***	
B5	←	EI	1,000				
B10	←	Discovery	1,000				
B11	←	Discovery	1,128	,048	23,552	***	
B12	←	Discovery	1,197	,051	23,689	***	
B13	←	Discovery	1,034	,046	22,592	***	
B14	←	Discovery	1,050	,048	21,813	***	
B15	←	Evaluation	1,000				
B16	←	Evaluation	,887	,057	15,692	***	
B17	←	Evaluation	,966	<u>,062</u>	15,649	***	
B19	←	Evaluation	,774	,059	13,103	***	
B20	←	Exploitation	1,000				
B21	←	Exploitation	1,064	,048	22,369	***	
B22	←	Exploitation	1,141	,052	21,930	***	
B23	←	Exploitation	1,108	,055	19,958	***	

ADDENDUM 8

Model Fit Summary: Urgency as a mediator

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	66	959,181	340	,000	2,821
Saturated model	406	,000	0		
Independence model	28	9364,368	378	,000	24,773

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,898	,886	,931	,923	,931
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,899	,807	,837
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,055	,051	,059	,018
Independence model	,200	,196	,203	,000

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	239	251
Independence model	28	29



Standardized Indirect Effects (Model 1.1)

	EI	Urgency	Exploitation	Evaluation	Discovery
Urgency	,000	,000	,000	,000	,000
Opportunities	,029	,000	,000	,000	,000
Evaluation	,030	,000	,000	,000	,000
Discovery	,010	,000	,000	,000	,000
C47	,083	,000	,000	,000	,000
C68	,056	,000	,000	,000	,000
C63	,075	,000	,000	,000	,000
C59	,090	,000	,000	,000	,000
C55	,058	,000	,000	,000	,000
C51	,069	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,377	,173	,000	,000	,000
B22	,407	,187	,000	,000	,000
B21	,416	,191	,000	,000	,000
B20	,392	,180	,000	,000	,000
B19	,397	,149	,000	,000	,000
B18	,405	,153	,000	,000	,000
B17	,501	,188	,000	,000	,000
B16	,470	,177	,000	,000	,000
B15	,426	,160	,000	,000	,000
B14	,596	,062	,000	,000	,000
B11	,632	,066	,000	,000	,000
B12	,635	,066	,000	,000	,000
B13	,612	,064	,000	,000	,000
B10	,573	,060	,000	,000	,000
B6	,000	,000	,000	,000	,000
C33	,057	,000	,000	,000	,000
C37	,072	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
C41	,067	,000	,000	,000	,000



Standardized Indirect Effects - Lower Bounds (Model 1.1)

	EI	Urgency	Exploitation	Evaluation	Discovery
Urgency	,000	,000	,000	,000	,000
Opportunities	,013	,000	,000	,000	,000
Evaluation	,014	,000	,000	,000	,000
Discovery	,001	,000	,000	,000	,000
C47	,034	,000	,000	,000	,000
C68	,022	,000	,000	,000	,000
C63	,031	,000	,000	,000	,000
C59	,038	,000	,000	,000	,000
C55	,020	,000	,000	,000	,000
C51	,029	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,307	,124	,000	,000	,000
B22	,339	,134	,000	,000	,000
B21	,333	,136	,000	,000	,000
B20	,315	,128	,000	,000	,000
B19	,332	,104	,000	,000	,000
B18	,345	,101	,000	,000	,000
B17	,428	,135	,000	,000	,000
B16	,394	,129	,000	,000	,000
B15	,359	,111	,000	,000	,000
B14	,519	,012	,000	,000	,000
B11	,574	,013	,000	,000	,000
B12	,568	,012	,000	,000	,000
B13	,540	,013	,000	,000	,000
B10	,509	,012	,000	,000	,000
B6	,000	,000	,000	,000	,000
C33	,021	,000	,000	,000	,000
C37	,028	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
C41	,027	,000	,000	,000	,000



Standardized Indirect Effects - Upper Bounds (Model 1.1)

	EI	Urgency	Exploitation	Evaluation	Discovery
Urgency	,000	,000	,000	,000	,000
Opportunities	,049	,000	,000	,000	,000
Evaluation	,048	,000	,000	,000	,000
Discovery	,022	,000	,000	,000	,000
C47	,122	,000	,000	,000	,000
C68	,085	,000	,000	,000	,000
C63	,108	,000	,000	,000	,000
C59	,134	,000	,000	,000	,000
C55	,089	,000	,000	,000	,000
C51	,106	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,417	,251	,000	,000	,000
B22	,451	,267	,000	,000	,000
B21	,455	,278	,000	,000	,000
B20	,436	,251	,000	,000	,000
B19	,460	,189	,000	,000	,000
B18	,459	,190	,000	,000	,000
B17	,547	,241	,000	,000	,000
B16	,536	,228	,000	,000	,000
B15	,474	,204	,000	,000	,000
B14	,640	,115	,000	,000	,000
B11	,688	,123	,000	,000	,000
B12	,684	,124	,000	,000	,000
B13	,662	,121	,000	,000	,000
B10	,639	,111	,000	,000	,000
B6	,000	,000	,000	,000	,000
C33	,085	,000	,000	,000	,000
C37	,107	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
C41	,106	,000	,000	,000	,000

ADDENDUM 9

Model Fit Summary: Lack of perseverance as a mediator

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	62	882,016	289	,000	3,052
Saturated model	351	,000	0		
Independence model	26	8641,265	325	,000	26,589

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,898	,885	,929	,920	,929
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,889	,798	,826
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,059	,054	,063	,001
Independence model	,207	,203	,211	,000

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	223	236
Independence model	26	27



Standardized Indirect Effects (Model 1.2)

	El	Lack of Perseverance	Opportunities	Evaluation	Discovery
Lack of Perseverance	,000	,000	,000	,000	,000
Opportunities	,088	,000	,000	,000	,000
Evaluation	,108	,000	,000	,000	,000
Discovery	,048	,000	,000	,000	,000
c45rec	-,152	,000	,000	,000	,000
c57rec	-,137	,000	,000	,000	,000
c53rec	-,144	,000	,000	,000	,000
c49rec	-,154	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,377	-,209	,000	,000	,000
B22	,407	-,226	,000	,000	,000
B21	,416	-,230	,000	,000	,000
B20	,393	-,218	,000	,000	,000
B19	,398	-,210	,000	,000	,000
B18	,409	-,215	,000	,000	,000
B17	,501	-,264	,000	,000	,000
B16	,471	-,248	,000	,000	,000
B15	,422	-,222	,000	,000	,000
B14	,596	-,115	,000	,000	,000
B11	,632	-,122	,000	,000	,000
B12	,635	-,122	,000	,000	,000
B13	,612	-,118	,000	,000	,000
B10	,573	-,110	,000	,000	,000
B6	,000	,000	,000	,000	,000
c35rec	-,140	,000	,000	,000	,000
c43rec	-,158	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c27rec	-,148	,000	,000	,000	,000



Standardized Indirect Effects - Lower Bounds (Model 1.2)

	EI	Lack of Perseverance	Exploitation	Evaluation	Discovery
Lack of Perseverance	,000	,000	,000	,000	,000
Opportunities	,050	,000	,000	,000	,000
Evaluation	,075	,000	,000	,000	,000
Discovery	,022	,000	,000	,000	,000
c45rec	-,193	,000	,000	,000	,000
c57rec	-,185	,000	,000	,000	,000
c53rec	-,200	,000	,000	,000	,000
c49rec	-,184	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,307	-,289	,000	,000	,000
B22	,339	-,283	,000	,000	,000
B21	,335	-,303	,000	,000	,000
B20	,317	-,280	,000	,000	,000
B19	,330	-,280	,000	,000	,000
B18	,349	-,278	,000	,000	,000
B17	,428	-,328	,000	,000	,000
B16	,394	-,300	,000	,000	,000
B15	,354	-,280	,000	,000	,000
B14	,521	-,184	,000	,000	,000
B11	,574	-,189	,000	,000	,000
B12	,568	-,193	,000	,000	,000
B13	,540	-,188	,000	,000	,000
B10	,508	-,174	,000	,000	,000
B6	,000	,000	,000	,000	,000
c35rec	-,180	,000	,000	,000	,000
c43rec	-,203	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c27rec	-,192	,000	,000	,000	,000



Standardized Indirect Effects - Upper Bounds (Model 1.2)

	EI	Lack of Perseverance	Opportunities	Evaluation	Discovery
Lack of Perseverance	,000	,000	,000	,000	,000
Opportunities	,128	,000	,000	,000	,000
Evaluation	,146	,000	,000	,000	,000
Discovery	,075	,000	,000	,000	,000
c45rec	-,115	,000	,000	,000	,000
c57rec	-,104	,000	,000	,000	,000
c53rec	-,103	,000	,000	,000	,000
c49rec	-,108	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,417	-,119	,000	,000	,000
B22	,451	-,119	,000	,000	,000
B21	,458	-,135	,000	,000	,000
B20	,437	-,120	,000	,000	,000
B19	,459	-,148	,000	,000	,000
B18	,462	-,158	,000	,000	,000
B17	,547	-,200	,000	,000	,000
B16	,534	-,183	,000	,000	,000
B15	,471	-,162	,000	,000	,000
B14	,641	-,055	,000	,000	,000
B11	,689	-,052	,000	,000	,000
B12	,683	-,059	,000	,000	,000
B13	,662	-,055	,000	,000	,000
B10	,639	-,053	,000	,000	,000
B6	,000	,000	,000	,000	,000
c35rec	-,079	,000	,000	,000	,000
c43rec	-,113	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c27rec	-,107	,000	,000	,000	,000

ADDENDUM 10

Model Fit Summary: Lack of Premeditation as a mediator

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	62	918,677	289	,000	3,179
Saturated model	351	,000	0		
Independence model	26	8705,131	325	,000	26,785

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,894	,881	,925	,916	,925
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,889	,795	,822
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,080	,058	,085	,000
Independence model	,208	,204	,212	,000

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	214	228
Independence model	28	27



Standardized Indirect Effects (Model 1.3)

	EI	Lack of Premeditation	Exploitation	Evaluation	Discovery
Lack of Premeditation	,000	,000	,000	,000	,000
Opportunities	,087	,000	,000	,000	,000
Evaluation	,076	,000	,000	,000	,000
Discovery	,041	,000	,000	,000	,000
c54rec	-,092	,000	,000	,000	,000
c66rec	-,147	,000	,000	,000	,000
c62rec	-,134	,000	,000	,000	,000
c58rec	-,121	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,377	-,208	,000	,000	,000
B22	,407	-,223	,000	,000	,000
B21	,415	-,227	,000	,000	,000
B20	,393	-,215	,000	,000	,000
B19	,399	-,194	,000	,000	,000
B18	,408	-,197	,000	,000	,000
B17	,501	-,243	,000	,000	,000
B16	,473	-,230	,000	,000	,000
B15	,422	-,204	,000	,000	,000
B14	,598	-,134	,000	,000	,000
B11	,833	-,142	,000	,000	,000
B12	,838	-,143	,000	,000	,000
B13	,811	-,137	,000	,000	,000
B10	,572	-,128	,000	,000	,000
B6	,000	,000	,000	,000	,000
c36rec	-,108	,000	,000	,000	,000
c40rec	-,111	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c28rec	-,098	,000	,000	,000	,000



Standardized Indirect Effects - Lower Bounds (Model 1.3)

	EI	Lack of Premeditation	Exploitation	Evaluation	Discovery
Lack of Premeditation	,000	,000	,000	,000	,000
Opportunities	,040	,000	,000	,000	,000
Evaluation	,048	,000	,000	,000	,000
Discovery	,018	,000	,000	,000	,000
c54rec	-,128	,000	,000	,000	,000
c66rec	-,217	,000	,000	,000	,000
c62rec	-,181	,000	,000	,000	,000
c58rec	-,168	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,307	-,292	,000	,000	,000
B22	,339	-,317	,000	,000	,000
B21	,333	-,319	,000	,000	,000
B20	,317	-,308	,000	,000	,000
B19	,335	-,247	,000	,000	,000
B18	,348	-,256	,000	,000	,000
B17	,429	-,303	,000	,000	,000
B16	,398	-,293	,000	,000	,000
B15	,355	-,263	,000	,000	,000
B14	,521	-,197	,000	,000	,000
B11	,571	-,210	,000	,000	,000
B12	,569	-,209	,000	,000	,000
B13	,540	-,202	,000	,000	,000
B10	,508	-,190	,000	,000	,000
B6	,000	,000	,000	,000	,000
c36rec	-,154	,000	,000	,000	,000
c40rec	-,161	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c28rec	-,153	,000	,000	,000	,000



Standardized Indirect Effects - Upper Bounds (Model 1.3)

	EI	Lack of Premeditation	Exploitation	Evaluation	Discovery
Lack of Premeditation	,000	,000	,000	,000	,000
Opportunities	,114	,000	,000	,000	,000
Evaluation	,125	,000	,000	,000	,000
Discovery	,069	,000	,000	,000	,000
c54rec	-,049	,000	,000	,000	,000
c66rec	-,090	,000	,000	,000	,000
c62rec	-,077	,000	,000	,000	,000
c58rec	-,072	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,417	-,139	,000	,000	,000
B22	,450	-,152	,000	,000	,000
B21	,454	-,149	,000	,000	,000
B20	,436	-,161	,000	,000	,000
B19	,461	-,148	,000	,000	,000
B18	,462	-,151	,000	,000	,000
B17	,549	-,185	,000	,000	,000
B16	,538	-,180	,000	,000	,000
B15	,470	-,156	,000	,000	,000
B14	,641	-,063	,000	,000	,000
B11	,688	-,068	,000	,000	,000
B12	,684	-,065	,000	,000	,000
B13	,662	-,067	,000	,000	,000
B10	,640	-,062	,000	,000	,000
B6	,000	,000	,000	,000	,000
c36rec	-,063	,000	,000	,000	,000
c40rec	-,061	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
c28rec	-,050	,000	,000	,000	,000

ADDENDUM 11

Model Fit Summary: Sensation seeking as a mediator

CMIN

Model	NPART	CMIN	DF	P	CMIN/DF
Default model	60	846,465	265	,000	3,194
Saturated model	325	,000	0		
Independence model	25	8666,328	300	,000	28,888

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,902	,889	,931	,921	,930
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,863	,797	,822
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,061	,056	,065	,000
Independence model	,216	,212	,220	,000

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	215	227
Independence model	24	25



Standardized Indirect Effects (Model 1.4)

	EI	Sensation Seeking	Exploitation	Evaluation	Discovery
Sensation Seeking	.000	.000	.000	.000	.000
Opportunities	.008	.000	.000	.000	.000
Evaluation	.021	.000	.000	.000	.000
Discovery	.001	.000	.000	.000	.000
C56	.073	.000	.000	.000	.000
C64	.088	.000	.000	.000	.000
C60	.101	.000	.000	.000	.000
B7	.000	.000	.000	.000	.000
B23	.377	.042	.000	.000	.000
B22	.407	.045	.000	.000	.000
B21	.416	.046	.000	.000	.000
B20	.393	.043	.000	.000	.000
B19	.399	.089	.000	.000	.000
B18	.406	.090	.000	.000	.000
B17	.502	.112	.000	.000	.000
B16	.470	.105	.000	.000	.000
B15	.422	.094	.000	.000	.000
B14	.596	.005	.000	.000	.000
B11	.632	.006	.000	.000	.000
B12	.635	.006	.000	.000	.000
B13	.611	.006	.000	.000	.000
B10	.573	.005	.000	.000	.000
B6	.000	.000	.000	.000	.000
C44	.081	.000	.000	.000	.000
C48	.062	.000	.000	.000	.000
B5	.000	.000	.000	.000	.000
B8	.000	.000	.000	.000	.000
B9	.000	.000	.000	.000	.000
C38	.072	.000	.000	.000	.000



Standardized Indirect Effects - Lower Bounds (Model 1.4)

	EI	Sensation Seeking	Exploitation	Evaluation	Discovery
Sensation Seeking	,000	,000	,000	,000	,000
Opportunities	-,003	,000	,000	,000	,000
Evaluation	,010	,000	,000	,000	,000
Discovery	-,009	,000	,000	,000	,000
C56	,032	,000	,000	,000	,000
C64	,041	,000	,000	,000	,000
C60	,044	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,307	-,021	,000	,000	,000
B22	,339	-,027	,000	,000	,000
B21	,334	-,030	,000	,000	,000
B20	,317	-,022	,000	,000	,000
B19	,334	,036	,000	,000	,000
B18	,346	,039	,000	,000	,000
B17	,429	,049	,000	,000	,000
B16	,394	,046	,000	,000	,000
B15	,356	,040	,000	,000	,000
B14	,519	-,046	,000	,000	,000
B11	,573	-,048	,000	,000	,000
B12	,569	-,048	,000	,000	,000
B13	,539	-,047	,000	,000	,000
B10	,509	-,043	,000	,000	,000
B6	,000	,000	,000	,000	,000
C44	,037	,000	,000	,000	,000
C48	,031	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
C38	,034	,000	,000	,000	,000



Standardized Indirect Effects - Upper Bounds (Model 1.4)

	EI	Sensation Seeking	Exploitation	Evaluation	Discovery
Sensation Seeking	,000	,000	,000	,000	,000
Opportunities	,029	,000	,000	,000	,000
Evaluation	,047	,000	,000	,000	,000
Discovery	,014	,000	,000	,000	,000
C56	,124	,000	,000	,000	,000
C64	,136	,000	,000	,000	,000
C60	,152	,000	,000	,000	,000
B7	,000	,000	,000	,000	,000
B23	,417	,114	,000	,000	,000
B22	,450	,123	,000	,000	,000
B21	,457	,124	,000	,000	,000
B20	,437	,117	,000	,000	,000
B19	,461	,148	,000	,000	,000
B18	,480	,159	,000	,000	,000
B17	,547	,187	,000	,000	,000
B16	,536	,167	,000	,000	,000
B15	,471	,153	,000	,000	,000
B14	,639	,077	,000	,000	,000
B11	,689	,082	,000	,000	,000
B12	,683	,082	,000	,000	,000
B13	,662	,078	,000	,000	,000
B10	,640	,075	,000	,000	,000
B6	,000	,000	,000	,000	,000
C44	,120	,000	,000	,000	,000
C48	,111	,000	,000	,000	,000
B5	,000	,000	,000	,000	,000
B8	,000	,000	,000	,000	,000
B9	,000	,000	,000	,000	,000
C38	,114	,000	,000	,000	,000

ADDENDUM 12

Moderated mediation of age between EI and the Stages of EA

Path	Statistical significance of interaction term (p < 0.05)	Interaction term Confidence Interval	Index of moderated mediation effect: Effect and bootstrapped Confidence Interval
EI- Urg-EODI	0.1881	(-0.2883; 0.0568)	0.0109; [-0.0327, 0.0064]
EI- Urg-EOEV	0.1996	(-0.2865; 0.0599)	-0.0107; [-0.0295, 0.0052]
EI- Urg-EOEX	0.1287	(-0.4478; 0.0569)	-0.0185; [-0.0475, 0.0063]
EI- LPer-EODI	0.6929	(-0.2854; 0.1898)	0.0070; [0.0166, 0.0407]
EI- LPer-EOEV	0.8323	(-0.2114; 0.2626)	-0.0038; [-0.0377, 0.0295]
EI- LPer-EOEX	0.7988	(-0.3044; 0.3952)	-0.0067 ;[-0.0597, 0.0475]
EI- LPrem-EODI	0.7691	(-0.1967; 0.2659)	-0.0040; [0.0139, 0.0234]
EI- LPrem-EOEV	0.8009	(-0.2634; 0.2034)	0.0034; [-0.0229, 0.0291]
EI- LPrem-EOEX	0.1975	(-0.5664; 0.1173)	,0257 ,[-0.0166, 0.0725]
EI-SS-EODI	0.0280	(0.0201; 0.3504)	0.0184; [0.0011, 0.0437]
EI-SS-EOEV	0.6926	(-0.2026; 0.1347)	-0.0034; [-0.0213, 0.0160]
EI-SS-EOEX	0.9373	(-0.2569; 0.2371)	-0.0010; [-0.0267, 0.0271]

ADDENDUM 13

Moderated mediation of gender between EI and the Stages of EA

Path	Statistical significance of interaction term (p < 0.05)	Interaction term Confidence Interval	Index of moderated mediation effect: Effect and bootstrapped Confidence Interval
EI- Urg-EODI	0.7132	(-0.1482; 0.2165)	0.0029; [-0.0137, 0.0226]
EI- Urg-EOEV	0.0980	(-0.0283; 0.3337)	0.0129; [-0.0017, 0.0335]
EI- Urg-EOEX	0.8111	(-0.2334; 0.2980)	0.0027; [-0.0219, 0.0293]
EI- LPer-EODI	0.0511	(-0.0011; 0.4831)	-0.0360; [-0.0717, -0.0038]
EI- LPer-EOEV	0.0085	(0.0819; 0.5570)	-0.0477; [-0.0861, -0.0142]
EI- LPer-EOEX	0.2415	(-0.1429; 0.5664)	-0.0316; [-0.0899, 0.0215]
EI- LPrem-EODI	0.0075	(0.0859; 0.5565)	-0.0368; [-0.0713 -0.0082]
EI- LPrem-EOEV	0.0040	(0.1103; 0.5783)	-0.0394; [-0.0719, -0.0134]
EI- LPrem-EOEX	0.1900	(-0.1151; 0.5783)	0.0265; [-0.0742, 0.0150]
EI-SS-EODI	0.5719	(-0.2206; 0.1220)	-0.0049; [-0.0252, 0.129]
EI-SS-EOEV	0.5535	(-0.2242; 0.1203)	-0.0052; [-0.0253, 0.0119]
EI-SS-EOEX	0.6409	(-0.3134; 0.1931)	-0.0060; [-0.0367, 0.0202]

ADDENDUM 14

Moderated mediation by number of years in business between EI and the Stages of EA

Path	Statistical significance of interaction term (p < 0.05)	Interaction term Confidence Interval	Index of moderated mediation effect: Effect and bootstrapped Confidence Interval
EI- Urg-EODI	0.3333	(-0.0905; 0.2664)	0.0083; [-0.0097, 0.0310]
EI- Urg-EOEV	0.8483	(-0.1599; 0.1945)	0.0016; [-0.0168, 0.0207]
EI- Urg-EOEX	0.9242	(-0.2675; 0.2427)	-0.0012; [-0.0300, 0.0274]
EI- LPer-EODI	0.0066	(-0.5688; -0.0927)	0.0487; [0.0143, 0.0878]
EI- LPer-EOEV	0.7299	(-0.1949; 0.2781)	-0.0061; [-.0418, 0.0280]
EI- LPer-EOEX	0.3587	(-0.5056; 0.1834)	0.0237; [-0.0320, 0.0783]
EI- LPrem	0.0036	(-0.2349; -0.0462)	0.0333; [0.0070, 0.0665]
EI- LPrem-EOEV	0.6722	(-0.1815; 0.2813)	-0.0057; [-0.0379, 0.0198]
EI- LPrem-EOEX	0.4744	(-0.2129; 0.4571)	-0.0140; [-0.0639, 0.0247]
EI-SS-EODI	0.0057	(0.0688; 0.4014)	0.0233; [0.0035, 0.0520]
EI-SS-EOEV	0.0664	(-0.0107; 0.3252)	0.0156; [-0.0017, 0.0389]
EI-SS-EOEX	0.0112	(0.0717; 0.5554)	0.0311; [0.0044, 0.0668]