The influence of celebrity endorsement, individual and social factors on township residents' pro-environmental behaviour.

by

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Thesis

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Dr Thomas Dorson Anning

DECLARATION

I, Samkelisiwe Levin, declare that this research report is my own original work. It is submitted in full fulfilment of the requirements for the degree of Master of Commerce in Marketing at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

I further declare that, the sources for the words and ideas in my writing have been acknowledged and documented.

Samkelisiwe Levin

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Abstract

Although a popular strategy, the efficacy of celebrity endorsement in promoting pro-environmental behaviour is ambiguous. Additionally, literature has also been ungenerous on the psychosocial mechanisms through which people are persuaded to adopt pro-environmental behaviour. Applying the source credibility model, consumer decision model and the theory of reasoned action, this study investigated the effectiveness of celebrity endorsement as well as the impact of individual and social factors in influencing the intentions of residents of Alexandra township in Johannesburg, South Africa to adopt pro-environmental behaviour. In doing so, the study also compared the effectiveness of two celebrity types: a sport celebrity and an entertainment celebrity. Structured questionnaires through a survey were used to collect data from 300 residents of Alexandra township. A two-stage approach of confirmatory factor analysis and structural equation modelling was used in analysing the data. The findings show that source expertise has a positive influence on the resident's degree of problem recognition for the sport celebrity but not the entertainment celebrity. However, the current study has no evidence that source attractiveness has a positive influence on problem recognition for both celebrity types. Personal involvement and normative influences were found to have a positive influence on problem recognition. The study found an inverse relationship between perceived knowledge and problem recognition. And finally, problem recognition does have a positive influence on residents' intentions to search for information about pro-environmental practices. As its primary contribution, the study has expanded celebrity endorsement theory beyond commercial western setting to a social call for behaviour change in the South African context. It has also added to theory development by offering of a more comprehensive model for understating the efficacy of celebrity endorsements within pro-environmental literature. For marketers, this study has placed the use celebrity endorsement within the ambit of scientific knowledge, providing the empirical basis for future decision making. The main recommendation of this study is that decisions to embark on a celebrity endorsement strategy to convert communities into pro-environmental citizens should be combined with a good understanding of the target audience, their motivations and the contextual factors that drive their actions.

Keywords: Celebrity endorsements, pro-environmental behaviour, source credibility, consumer behaviour, intentions, township communities.

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LIST OF ACRONYMS

US:	United States
TRA:	The theory of reasoned action
EBM:	Engel-Blackwell-Miniard model
ELM:	Elaboration likelihood model
SEM:	Structural equation modeling
SPSS:	Statistical package for social science
SV:	Shared variance
AMOS:	Analysis of moment structures
AVE:	Average variance extracted
CFA:	Confirmatory factor analysis
CFI:	Comparative fit index
EFA:	Exploratory factor analysis
GFI:	Goodness-of-fit index
NFI:	Normed fit index
IFI:	Incremental Fit Index (IFI)
TLI:	Tucker Lewis Index (TLI)
RMSEA:	Root mean square error of approximation
χ^2/df:	Normed-chi-square
χ^2:	Chi-square
SE:	Source expertise
SA:	Source attractiveness
PI:	Personal involvement
NI:	Normative influence
PK:	Perceived knowledge

Chapter One:

Introduction

1.1 Background

In today's business environment of escalated competition, organisations are in a perpetual battle for consumers' attention (Keller & Swaminathan, 2020). At the same time, however, the ubiquitous nature of the information age and new media, coupled with an overload of messages that people are expected to consume, has led to consumers' attention becoming fragmented (Lorenz-Spreen, Mønsted, Hövel & Lehmann, 2019; Pramjeeth & Majaye-Khup, 2016; Riles, Pilny & Tewksbury, 2018). Attention saturated consumers have therefore become very skilled at filtering, ignoring or outright actively avoiding marketing messages (Pramjeeth & Majaye-Khup, 2016; Riles et al., 2018). This has created a sort of impasse between consumers and brands, in which brands are working harder to capture the focus of consumers but the louder brands shout, the less consumers seem to care. Faced with this situation, brands are impelled to rethink their strategies and find new and creative ways to break through and coerce consumers' attention (Riles et al., 2018). Brand equity theory urges those firms wishing to be successful in a competition ridden marketplace to build power brands that can stand out from the clutter and create a unique and valued position in the minds of consumers (Keller & Swaminathan, 2020). As a way of achieving this, some marketers of consumer brands have taken advantage of the current wave of enthusiasm for celebrity culture and are increasingly turning to celebrity endorsements to separate their brands from clutter, arouse consumer attention and interest, and of course, sell their products (Knoll & Matthes, 2017; Roy, 2016).

Celebrity endorsement is traditionally defined as the use of any individual who enjoys public recognition in an advertisement to promote a consumer good (Bergkvist & Zhou, 2016). These individuals include actors, athletes, entertainers, models, politicians, and musicians (Park, 2017). In recent times, however, the use of this technique has spread to other modes of communication either than advertising, for example, social media posts, appearances at events, promotional branding, business-to-business products and services (Salmones, Dominguez & Herrero, 2013; Bergkvist & Zhou, 2016). Celebrity endorsement has also become prevalent in the non-commercial environment, such as political marketing, non-profit organisations, and social marketing communications (Knoll & Matthes, 2017). Given these developments, Bergkvist and Zhou (2016, p.644) offer an updated and much more encompassing definition of celebrity endorsements to earlier versions and define celebrity endorsement as "an agreement between an individual who enjoys public recognition (a celebrity) and an entity (e.g., a brand) to use the celebrity for the purpose of promoting the entity". The authors argue that this revised definition captures celebrity endorsements more accurately as it takes into account the inclusion of other entities and contexts beyond goods as well as all forms and modes of communication and is also therefore the adopted version for this study.

The extent to which celebrity endorsements are a popular strategy used to engage the interest of audiences and elicit favourable outcomes is demonstrated by its prevalence in persuasive communication. Research estimates that at least one-quarter of all advertisement features a famous person as an endorser (Knoll & Matthes, 2017; Roy, 2016). This does vary across regions, at around 30% in western countries and as high as 60% in some Asian countries (Roy, 2016). Similarly, in South Africa, the use of celebrity endorsements is common practice with celebrities frequently endorsing all sorts of marketing efforts, ranging from; products, brands, political parties to campaigns concerned with social issues. Whilst quantitative estimates are not as readily available in South Africa, the trend in the growth of celebrity endorsement in the country is just as widespread (Sunday Times Generation Next, 2017; Pramjeeth & Majaye-Khupe, 2016; Nyamakanga, Ford & Viljoen, 2019). For example, media personalities; Bonang Matheba, Minnie Dlamini, Boity, and Maps Maponyane; actress Nomzamo Mbatha; rappers, AKA, Casper Nyovest and Khuli Chana all endorse advertising for a host of local and international brands. These include brands such as Ipanema footwear, cosmetic brands Revlon and Neutrogena, a range of premium alcohol brands, Woolworths retail store, Sissy Boy jeans, fast-food chain KFC, mobile telecommunications company MTN, sportwear apparel brands Puma and Adidas, luxury vehicles BMW, Audi, and Aston Martin as well as banking groups Nedbank and Investec Private Bank (News24, 2016). Writing about celebrity endorsements of alcohol brands in Southern Africa, communications professional, Tungamirai Zimonte, demonstrates the magnitude of celebrity endorsement deals. He estimates that in South Africa these deals can range from R100 00.00 for a facile social media task such as retweeting and posting to R5 million for more involved associations such as appearing in television commercials (Zimonte, 2017). For instance, in 2019 social media influencer Mihlali Ndamase not only made the annual list of highest paid influencers in the world but was reported to charge R25 00.00 for an Instagram post (Thakurdin, 2019).

Although not driven by commercial gain, the celebrity endorsement trend has also been observed in campaigns aimed at changing public behaviour (Knoll & Matthes, 2017; Bergkvist & Zhou, 2016; Park, 2017; Salmones et al., 2013). These campaigns such as a public call for environmentally responsible practices, as per the focus of this study are typically marketing messages that address social problems for the benefit of all of society (Smith, 2006; Remedios, 2013). Unlike commercial messages which seek financial goals, these social calls attempt to increase public awareness about an issue or a problem with the ultimate objective of encouraging socially desirable beliefs, attitudes, and behaviours as a way of responding to the problems that a society may be faced with (Smith, 2006; Salmones et al., 2013). Like profit campaigns, whose main objective is to persuade consumers to generate profits (Keller & Swaminathan, 2020) these public calls similarly have goals that they need to meet. These may include influencing individual and societal behaviours, addressing social problems, calling for public support as well as informing and educating the public (Hastings, 2003; Remedios, 2013). However, in doing so, much like their commercial counterparts, these altruistic messages are equally confronted with their own demanding environments when attempting to attract the interest of their intended audiences (Salmones et al., 2013). For one, public behaviour change campaigns are likely to encounter consumers who are already stretched for attention resulting from bombardment by commercially driven messages (Hastings, 2003). In certain societies, wider environmental factors such as poor socio-economic conditions, limited access to resources and barriers to knowledge have compelled audiences to be more concerned about their own wellbeing over societal issues (Smith, 2006; Dolnicar & Lazarevski, 2009).

In other situations, given differences in lifestyle choices, values, and varying personal commitments, preferred behavioural alternatives win the attention of audiences (Hastings, 2003; Smith, 2006). For others, undermined perceptions in self-efficacy and inadequate reinforcements of desirable behaviours hinder audiences' capacity to change behaviours (Remedios, 2013). Moreover, as Smith (2006) points out, messages with a social agenda often struggle to achieve prominence because their benefits are "typically delayed or distant to audiences who often do not recognise they have a problem in the first place, much less are looking for a solution" (p. 39).

This study, therefore, considers celebrity endorsements as a source of persuasion in this particularly demanding environment. Pursuing awareness and changes in behaviour, the South African government has constantly used celebrity endorsement in conducting pro-environmental campaigns. In particular, the current study is interested in the effectiveness of celebrity endorsement when used as a tactic to influence the community of Alexandra township in Johannesburg to adopt environmentally responsible practices. Previous studies are ambiguous on the effects of celebrity endorsements on pro-environmental behaviour (Olmedo et al., 2020). At the same time, behavioural research has also consistently demonstrated the primacy of an active decision-making individual in which intentions, including those to act pro environmentally occur within a social context, shaped by cognitive deliberation, individual preferences, and interpersonal factors (Topa & Moriano, 2010). In line with these prevailing assertions, this study hence also considers personal involvement, normative influences, and perceived knowledge as other factors that could additionally influence the adoption pro environmental behaviour.

1.2 Research Problem

South African townships are faced with problems of environmental pollution of living space and of domestic hygiene. This is mostly due to centuries of colonial rule that culminated in apartheid policies that eroded the healthy interaction between people and the environment, particularly for the black underprivileged communities which were disempowered and dispossessed under these systems (Stull, Bell & Ncwadi, 2016). Authorities have emphasised that for a country like South Africa that is seeking to expand its economy; the incorrect disposal of household waste and other related practices has become an economic burden as much as it is a health and environmental concern (Kubanza & Simatele, 2019; Statistics South Africa, 2018). Beyond instituting policy mechanisms and enforcing technical solutions; globally, the promotion of pro-environmental behaviour is considered a viable intervention to reducing the impact of individuals' actions on the environment and achieving environmental sustainability (Thondhlana & Hlatshwayo, 2018).

Given the perceived success of celebrity endorsed advocacy campaigns in other domains and settings, government communicators in South Africa have often utilised this technique to heighten environmental awareness and mobilise communities to adopt pro-environmental behaviour. Yet, the success of celebrity endorsements as an effective tool to enhance persuasion communication is ambiguous (Knoll & Matthes, 2017). That includes the effectiveness of celebrity endorsements in environmental campaigns. For instance, reviewing existing literature to evaluate the role of celebrity endorsement in 79 environmental campaigns; researchers Olmedo et al. (2020) conclude that in the environmental context, the outcomes achieved in these campaigns could not be solely attributed to celebrity endorsement. Environmental communication literature has also been ungenerous on the psychosocial mechanisms through which people are persuaded to adopt pro-environmental behaviour (Li et al., 2019; Thondhlana & Hlatshwayo, 2018). Additionally, it is unclear whether this influence, if it exists, can be extended to the context of a disadvantaged township community in Johannesburg, South Africa.

1.3 Research Gap

Celebrity endorsements are a popular strategy in commercial and non-commercial marketing both internationally and locally (Knoll & Matthes, 2017). Whilst there is no shortage of support for this strategy as a useful promotional tool in commercial settings, there is little research on its efficacy in non-commercial settings (Salmones et al., 2013; Park, 2017; Knoll & Matthes, 2017). Instead, research in non-commercial settings indicates that decisions to adopt celebrity endorsements are too frequently based on anecdotal evidence, subjectively derived principles of communication, as well as a great deal of faith that sponsors and their marketing practitioners, have in this tactic (Knoll & Matthes, 2017). In terms of environmental awareness and education, whilst in practice the use of celebrity endorsements is widespread, there has been limited application of proven knowledge and principles of celebrity endorsements within environmental literature (Olmedo et al., 2020). Hence limited evidence to show whether celebrity endorsements can confer similar benefits in influencing environmental behaviour as seen in the commercial setting. In addition, knowledge of the determinants of pro-environmental behaviour is also scarce (Li et al., 2019; Thondhlana & Hlatshwayo, 2018), and where it exists the focus has been on single factors (Do Paco et al., 2013).

Research into how different audiences respond to celebrity endorsement has also been divided. This divide is demonstrated in a meta-review which found that US consumers were more likely to observe significant effects (80% of effects are significant in the US and only 43% in non-US populations) of celebrity endorsement than consumers living in other parts of the world (Brockington, 2015). Additionally, most conclusions about celebrity endorsements have been from studies conducted in western and more recently, Asian countries, although very minimal, thereby limiting their applicability to other parts of the globe (Knoll & Matthes, 2017; Brockington, 2015; Salmones et al., 2013; Park, 2017).

This signifies important gaps in the literature regarding the impact and effectiveness of celebrity endorsement in the context of the current study. Whilst there is no denying the rise of celebrity culture in South African, the country's townships are characterised by a unique socio-economic past and reality which is vastly different from contexts in which current conclusions have been made. For example, the battle to overcome living conditions and inequalities may surpass that of aspiring to a fabricated celebrity world. Additionally, in this reality, the realisation that one is never likely to attain the world portrayed by celebrities may also disempower audiences, rendering a celebrity backed campaign inappropriate. It is well established that different cultures can lead to different consumer cognitive processes and behaviours (Hofstede, 2011; Lalwani & Shavitt, 2013). Cultural values in South Africa are vastly different from the West and Asia wherein most conclusions about celebrity endorsement have been made which could result in different responses. For example, comparing the implementation of a celebrity endorsement strategy in two dissimilar cultures; the United States and Korea Choi, Wei-Na & Hee-Jung (2005) found its success was dependant on how well it mirrored the respective prevalent cultural orientations of each country. Similarly, comparing consumers in India and the Unites States, Winterich, Gangwar and Grewal (2018) found was that cultural orientation moderates the effects of celebrity endorsements. Notwithstanding its scarcity, research into the effectiveness of celebrity endorsements in developing countries has also produced inconclusive findings. For instance, following a mixed finding on the effectiveness of celebrity endorsements as a suitable marketing strategy in South Africa, researchers Pramjeeth and Majaye-Khup (2016) recommend the use of non-celebrities such as regular admired persons when advertising power brands as a more effective strategy. Others have found that in developing countries there are differences in how consumers respond to local celebrities versus international celebrities (Nyamakanga et al., 2019; Dom, Ramli, Chin & Fern, 2016; Munyoro & Nhevere, 2019). Additionally, Knoll and Matthes (2017) demonstrated that differences found in celebrity endorsement studies may have occurred due to contextual moderating variables and that therefore the effectiveness of celebrity endorsement effect may vary completely depending on the context of the endorsement. They call on future studies to focus precisely on the conditions under which the endorsement effect may change, including non-profit endorsement and endorsement in emerging countries.

Hence, the present study hopes to fill these gaps by considering the efficacy of celebrity endorsement as a suitable strategy to promote and encourage pro-environmental behaviour in the context of a disadvantaged township community in Johannesburg, South Africa. The study also considers a broader range of factors and hence draws on integrated theories of consumer behaviour to widen the range of social and individual level factors that may additionally influence the response of the audience under study to celebrity endorsed environmental messages. Drawing on tested theory, the study also argues for evidence-based decisions when adopting celebrity endorsement as a strategy in social appeals rather than those based on suppositions of sponsors and implementers.

1.4 Purpose of the Study

The purpose of this study is to determine the effectiveness of the celebrity endorsement technique when advocating for and promoting environmentally responsible practices. It is also to identity and propose additional social and individual level factors that may influence people's responses to celebrity endorsed environmental messages.

1.5 Research Objectives

The study's research objectives are outlined as follows:

a) To measure the impact of message source variables (source expertise and attractiveness) in influencing communities to acknowledge the environmental pollution of their living space as problematic.
b) To establish whether the source effects on residents are different for two celebrity types: a sport celebrity and an entertainment celebrity.

c) To measure the impact of social and individual level factors (normative influences, personal involvement, and perceived knowledge) in influencing residents to acknowledge the environmental pollution of their living space as problematic.
d) To measure the influence of residents' acknowledgment of environmental pollution of their living space on their intentions to search for information related to pro-environmental practices.

1.6 Research Questions

Following the objectives stated above, the research question of this study is multi-pronged. First, do celebrity endorsed environmental messages influence communities to make pro-environmental decisions as intended? Second, what is the influence of source effects for different celebrity types? And third, can the influence be solely attributed to celebrity endorsement or do social and individual level factors also impact residents' intentions to adopt environmentally responsible practices?

1.7 Contributions of the Study

As its main contribution, this study adds to existing celebrity endorsement literate by linking source credibility theory to public behaviour change communications. The current contribution specifically links celebrity endorsements to a public call for environmental behaviour change to test the applicability of established knowledge and principles of celebrity endorsements in pro-environmental campaigns. Until recently, previous environmental studies have predominately focused on what actions constitute pro-environmental behaviour and not so much the determinants of pro-environmental behaviour (Li et al., 2019; Thondhlana & Hlatshwayo, 2018). In the few studies where determinants of pro-environmental behaviour were investigated, the focus was mostly on single factors (Do Paco et al., 2013). This is contrary to prevailing thinking that has consistently demonstrated people's behavioural responses as complex interactions between their social contexts, cognitive deliberations, personal preferences, and interpersonal factors (Carmack & Lewis-Moss, 2009; Topa & Moriano, 2010). In linking source credibility theory to public behaviour change communications, this study highlights the importance of personal and social circumstances in which a celebrity endorsement strategy may or not influence people's decisions.

In doing so, the study therefore suggests a combination of individual level and social factors that additionally determine residents' response to the environmental messages.

Additionally, as observed by Knoll and Matthes (2016), prior studies have also not explicitly compared the effects of different types of celebrities in a single study, focussing instead only on single types, for instance, actors, models, musicians, athletes, and TV hosts. The current study advances knowledge in celebrity endorsements as it compares the effects of two celebrity types. Bonang Matheba has been hailed as the queen of South Africa's media personalities. She recently made the top five South Africa's most admired women in the world list as voted by ordinary South Africans, alongside international names like Oprah Winfrey, Thuli Madonsela, Michelle Obama, and Queen Elizabeth II (City Press, 2020). Siya Kolisi is an athlete and at the time of the study the captain of the South African national rugby team (SA History, 2020).

Environmental behavioural change campaigns have also been often criticised for prioritising awareness objectives over influencing or modifying behaviour (O'Rourke & Ringe, 2016; Geiger, Geiger & Wilhelm, 2019). Whilst problem awareness is important, the ultimate objective of such campaigns should be to change behaviour (Wichman, 2017; Andrease, 2006). Guided by behavioural intention theory, the current study addresses these concerns and adopts intention to search for pro-environmental information as a proxy to measure actual behaviour change (Sawitria, Hadiyanto & Hadi, 2014; Octav-Ionut, 2015). This addition contributes to the existing understanding of the possible outcomes that can be achieved by campaigns hoping to change environmental behavioural. Moreover, the current study broadens the applicability of celebrity endorsement beyond the western societies that have been the principal focus. This is an important contribution as South African townships are characterised by a unique socio-economic past and reality which is vastly different from contexts in which current conclusions have been made.
Furthermore, for South African government communicators, their agencies, and policy authorities that may be considering celebrity endorsement as a possible persuasive tactic to convert residents into pro-environmental citizens, this study provides examples of how theoretical concepts can be practically applied in society. The study's contributions are further elaborated in the final chapter of this study.

1.8 Structure of Dissertation

The present chapter has laid the foundation of this study by introducing the main interest of the research and the key issues that will be dealt with in the study. The focus of the study was stated as; an investigation on the effectiveness of celebrity endorsement in influencing the community of Alexandra township in Johannesburg to adopt environmentally responsible practices. The background described a demanding communication environment in which pro-environmental behaviour campaigns and alike are implemented. It was noted that celebrity endorsement has become a popular strategy in both commercial and non-commercial marketing used by communicators to stand out and be noticeable in this challenging environment. The research problem prompting the investigation was then presented, followed by the research gap, purpose, objectives, and research questions of the study. The study's contribution to the existing body of knowledge was also put forward. Next, the chapter closes with the structure that is followed in the rest of the study's chapters.

Chapter two deals with the research context of the study. The benefits and challenges of celebrity endorsements are presented, followed by a discussion on the prevalence of celebrity endorsement in behaviour change campaigns in South Africa. Thereafter the current environmental concerns in South African townships are discussed, leading to the importance therefore of promoting pro-environmental behaviour in these communities. The discussion also includes a brief overview of the Gauteng province's pro-environmental campaign.

Chapter three deals with the theoretical grounding and empirical literature review, starting with an overview of existing celebrity endorsement literature. The theories that have been selected for the current study are then presented. The chapter also provides an empirical review of each of the study's research variables in which the study's operational definitions for each variable are stated.

Chapter four is concerned with the hypothesis development and conceptual model of this study. This chapter maps out the proposed relationships between the main variables of the study as well as present the resulting conceptual model.

Chapter five covers the research design and methodology used, providing a detailed explanation of the methods, techniques, and data analysis approach followed in the study.

Chapter six presents the results of the data analysis

Chapter seven presents the overall conclusions that can be drawn from the study and based on these, also puts forward some recommendations for future campaigns and future research. This chapter also highlight the limitations of the study and makes recommendations for future studies.

Chapter Two:

Research Context

2.1 Introduction

This chapter discusses the research context in which the study is conducted. The chapter begins by reviewing the benefits and challenges associated with celebrity endorsements. This is followed by a discussion on the prevalence of celebrity endorsement in behaviour change campaigns in South Africa. The discussion then provides a historical account leading to the current environmental concerns in South African townships. Thereafter a case for promoting pro-environmental behaviour in these communities is made and an overview of the Gauteng province's pro-environmental campaign is given.

2.2 Celebrity Endorsements – Benefits and Challenges

While it is true that studies on celebrity endorsement have yielded contradictory findings (Knoll & Matthes, 2017), positive effects of celebrity endorsement to account for this technique's frequency in persuasive communications are well documented in extant literature. According to Gupta, Kishore and Verma (2015) celebrity endorsement has been found to; enhance message and brand recall, separate a brand from surrounding clutter thus ensuring more attention to the brand, create positive attitude towards the brand, provide credibility for the brand by making advertisements more believable and appealing. Similarly, Roy (2016) adds that celebrity endorsements have been proven to aid brand name recognition and enhance perceptions of quality. Khatri (2016) highlights the usefulness of celebrity endorsement in creating a distinct personally for the endorsed brand. In a recent meta-analysis of over 1 000 celebrity endorsement studies in for-profit and non-profit marketing, Knoll and Matthes (2017) conclude that the value of celebrity endorsement can be summarised into three core narratives. The first are cognitive, which include awareness and knowledge benefits, the second are affective benefits, which pertain to attitudes about and towards the brand and the third are conative or behavioral benefits which relate to purchasing or using outcomes. These narratives and corresponding outcomes are summarized in Table 1 below.

Table 1: The Value of Celebrity Endorsements

Benefit	Dependent Variable	Endorsed Object	Findings
Cognitive	Attention, interest, recall, recognition, meaning, estimated price, estimated taste, perceived risk, perceived information value, perceived credibility	For-profit & Non-profit	Celebrity endorsements increase consumers' attention and sometimes their interest. Results for recall and recognition is mixed. The same pertains to estimations and perceptions. There is strong meaning transfer effects.
Affective	Attitude toward the ad, attitudes toward the endorsed object, evoked feelings	For-profit & Non-profit	Celebrity endorsements increase attitudes toward the ad and toward the endorsed object. This is particularly true when compared to no endorsement and when the celebrity matches the endorsed object.
Conative/Behavioral	Intention to purchase, intention to use, intention to vote, intention to share information or inform oneself, brand choice, intention to volunteer, intention to support a charitable cause	For-profit & Non-profit	Results for purchase intention and using a product appear to be mixed. Furthermore, celebrity endorsements mostly enhance one's intention to support a charitable cause and to volunteer. The same applies to voting. There are no effects on brand choice or intention to share information or to inform oneself.

Source: (Knoll & Matthes, 2017)

Previous studies have also validated the usefulness of celebrity endorsements by highlighting the benefit of this strategy to the bottom line. Rumschisky (2009 as cited in Freire et al., 2017) found that celebrity endorsements coincide with greater revenues for the firm, as people are willing to pay higher prices for a product that is endorsed by a celebrity. Agrawal and Kamakura (1995) assessment of the impact of celebrity endorsement contracts on the profitability of the firm, leads them to declare celebrity endorsements as a worthwhile financial investment. They found that these contracts tend to influence investors' perceptions of the endorsed company and increase the value of the company on the stock exchange. When reviewing existing celebrity endorsement literature, Bergkvist and Zhou (2016) find that overall, celebrity endorsements have a positive influence on brand evaluations and sales but caution that their findings may warrant additional research as their conclusions are based on the limited number of studies, of which mostly focused on athlete endorsers. In contrast earlier reports of positive impact on market shares, several other researchers generally found minimal economic significance and mixed results regarding stock market responses to celebrity endorsement (Farrell et al., 2000; Mathur et al,1997; Fizel et al., 2008, as cited in Ding, Molchanov & Stork, 2011).

Whilst benefits have been declared, others have highlighted potential risks associated with celebrity endorsement and have therefore cautioned against overreliance on this strategy. For instance, celebrity endorsement scholars, Erfgen, Zenker and Sattler (2015) warn against what they term, the vampire effect. Described as a parasitic effect that occurs when the celebrity's presence reduces the advertisement's effectiveness due to the celebrity's popularity overshadowing the endorsed brand. And so, the endorsement runs the risk of weakening brand recall as consumers may focus on the celebrity rather than the brand being promoted, and as a result, they recall the endorser or celebrity but not the brand (Khatri, 2006; Knoll & Matthes, 2017). Others have warned that changing consumer preferences may leave the celebrity irrelevant and consequently render the endorsement strategy ineffective (Roy, 2016). According to Ding et al. (2011) factors personally related to the celebrity have also been noted as an aspect that can make this strategy a potentially risky endeavour. For instance, when a celebrity associates with too many brands, it may lead consumers to question the celebrity's motives. Also, a celebrity could disappear from the public spotlight due to their stardom fading or their public image becomes tarnished due to a controversy surrounding them (Ding et al., 2011).

2.3 Prevalence of Celebrity Endorsement in Public Behavior Change Campaigns in South Africa

The present study considers the efficacy of celebrity endorsements as a suitable strategy to promote a message with a social purpose. A quick online search reveals several behaviour change and social action campaigns in South African that have incorporated an individual that enjoys public recognition. In politics as South Africa celebrated two decades of freedom and democracy in 2014, the South African Independent Electoral Commission leveraged the popularity of several celebrities by featuring several young local musicians in a television and social media campaign to connect to young people to boost youth registration and participation in the then upcoming general elections (SANews, 2014). And at times, it is the politicians themselves that are used as the face or voice used to garner attention for social messages. For example, Nelson Mandela has been used extensively to promote a myriad of critical social issues, ranging from raising funds in education to advocating for social cohesion (Fin24, 2013). In other examples, following months of continuous electricity blackouts from 2011 to 2012, South Africa's national energy provider, Eskom, launched its celebrity backed 49m campaign aimed at instilling a culture of conserving electricity among South Africans (GCIS, 2012). In 2013, advocating for behavioral change and creating awareness with regards to HIV & AIDS, sexual practices, and other important health issues, the Angilahli campaign as it was called, partnered with several high profile South African celebrities to reach the public of Kwazulu Natal province (Kwazulu-Natal Provincial Government, 2013). Similarly, the Respect advocacy campaign by the Western Cape government enlists the help of entertainment and sport celebrities to assist in raising the profile of the war against the abuse of women and children in the province (Western Cape Government, 2014). In the face of widespread public criticism, the South African National Roads Agency Limited used television & radio personalities in a bid to encourage motorists to support and pay for the controversial e-toll system in Gauteng (Mybroadband, 2015). A call-to-action public appeal to maintain a safe and sufficient blood supply in the country by South African National Blood Services regularly looks to celebrity ambassadors to mobilise more of the population to donate blood (Nair, 2018). With the road fatality rates being one of the highest in the world, at 31.9 deaths per 100 000 population per year as compared to for example Australia's 5.2 and New Zealand's 9.1 per 100 000 population per year, South Africa's roads are said to be some of the deadliest in the world (Peden, Kobusingye & Monono, 2013). Given such carnage on the country's roads, during high traffic seasons such as Christmas and Easter holidays, The Department of Transport in South Africa and its related entities, also frequently employ music and sport celebrities to drive hard road safety messages through a campaign called Arrive Alive (ArriveAlive, 2014). Given this prevalence of celebrity endorsements in public calls for behaviour change in South Africa, understanding the effects of this tactic on local audiences is indeed important.

2.4 Environmental Concerns in Marginalised Communities in South Africa

Globally, the pollution of living and domestic space in urban communities is a major environmental challenge, and hence as elsewhere in the world, South African municipalities are faced with dealing with these harmful effects of modern human lifestyles on the environment (Kubanza & Simatele, 2019; Thondhlana & Hlatshwayo, 2018). Of particular concern in South Africa, are practices and general perceptions related to solid waste management and waste disposal

(Statistics South Africa, 2018; Kubanza & Simatele, 2019). Widespread practices such as illegal dumping, littering, and improper management of waste cause environmental deterioration and negatively impact human health and wellbeing in many ways (Kubanza & Simatele, 2019; Statistics South Africa, 2018). To a large extent, the situation is further exacerbated by low public awareness and a general lack of concern for the environment, especially in the country's poorer communities (Kubanza & Simatele, 2019). Authorities have also emphasised that, in addition to health and environmental consequences, these practices pose serious challenges to the country's economic developmental aspirations (Kubanza & Simatele, 2019; Statistics South Africa, 2018; Spencer et al., 2010). And thus, for a country like South Africa that is seeking to expand its economy; the incorrect disposal of household waste and other related practices has become an economic burden as much as it is a health and environmental concern (Spencer et al., 2010).

In South Africa, centuries of colonial rule that culminated in apartheid policies has had an enormous negative impact on the interaction between people and the environment, particularly for the black majority who were disempowered and dispossessed under these systems (Stull et al., 2016). Black underprivileged communities were forcibly removed from commercial farmable land to overcrowded and under serviced rural and urban settlements, often living close to industrial areas and waste dumps (Stull et al., 2016). The resulting complex structure of South African peri-urban spaces as a consequence of these infamous systems is that; the country's poorest communities bear the greatest impact from the pollution of living and domestic space (Stull et al., 2016). These spaces include Gauteng province's townships. A township is a South African term for settlements typically found on the outskirts of urban areas and cities (Stull et al., 2016). Being the direct products of socio-economic exclusion and neglect under apartheid, these communities in which close to 80% of the province's population resides (Gauteng Department of Economic Development, 2014), are confronted with poverty, rapid unplanned urbanisation, creating the ideal conditions for the escalation of environmental pollution of living and domestic space (Statistics South Africa, 2018). The failure by apartheid authorities to integrate environmental concerns into economic planning for sustainable development meant that in these communities, survival often demanded unsustainable and environmentally damaging patterns of resource use, such as illegal waste dumping and generally a low priority given to environmental issues (Department of Environmental Affairs, 2019). Ultimately it is these under resourced communities that bear the brunt of poor environmental practices because where there is litter, there is filth, and where there is filth, there is disease, thereby threatening the health and socio-economic wellbeing of residents. For example, breeding and spreading of communicable diseases, physical injury, water contamination, smell, and reduced aesthetic appeal of the area. Economically, the unwelcome consequences could include increased healthcare costs, missed opportunities in the waste economy, reduced productivity resulting in decreased economic activity and growth (Govender, Barnes & Pieper, 2011; Kubanza & Simatele, 2019; Department of Environmental Affairs, 2019).

2.5 The Case for Promoting Pro-Environmental Behaviour in Gauteng's Townships

Beyond instituting policy mechanisms and enforcing technical solutions, globally, there has been a growing realisation that at the centre of most environmental challenges are human actions (Thondhlana & Hlatshwayo, 2018). The promotion of pro-environmental behaviour is thus considered a viable intervention to reducing the impact of individuals' actions on the environment and achieving environmental sustainability (Thondhlana & Hlatshwayo, 2018). As with its global contemporaries, the Gauteng government, faced with problems related to poor environmental practices and attitudes, embarked on the challenging task of promoting awareness of and encouraging pro-environmental behaviour. This is hoped will curb the potentially looming environmental crisis and drive change in behaviour, especially in the country's townships (Department of Environmental Affairs, 2019). Homburg and Stolberg (2006 as cited in Sawitria et al., 2014, p. 28) define pro-environmental behaviour as; "conscious actions performed by an individual to lessen the negative impact of human activities on the environment or and to enhance the quality of the environment". These behaviours can be categorised into three groups of distinct actions: 1) activist behaviour which entails active involvement in environmental organizations or petitioning on environmental issues; 2) good behaviour such as saving energy, waste separation, and recycling and 3) healthy consumption behaviours such as not purchasing polluting products like plastic (Thondhlana & Hlatshwayo, 2018; Sawitri et al., 2014).

Gauteng is the smallest of South Africa's nine provinces but also the wealthiest as the country's and continent's economic hub. The province is responsible for over a third of the country's total Gross Domestic Product. South Africa's administrative capital, Pretoria; its largest city Johannesburg and the largest securities exchange in Africa, The Johannesburg Stock Exchange are all in Gauteng. Gauteng is highly urbanised, and its townships are some of the most densely inhabited urban settlements in the country (South African Government, 2019). Alexandra township in Johannesburg, Gauteng, or Alex as it is commonly known has been selected as the research site for this study. It is a densely populated township, contrasting its affluent neighbour Sandton. Like most other townships which have endured many years of under-investment during apartheid, Alex has inherited many of the socio-economic and consequent environmental challenges facing rural and township communities in South Africa (Showme, 2016). Incidentally, the then Gauteng Premier David Makhura speaking on environmental challenges in Alex at the time, described the township as one of the dirtiest places in the province (The New Age, 2016).

The province has stated that heightened environmental awareness is critical to South Africa's economic hub, Gauteng, as it brings with it sustainable social and economic benefits (Gauteng Department of Economic Development, 2011). Adding that; linking environmental and greening interventions with social and economic well-being will have positive spill over effects on sustainable development. Socially, it encourages sustainable environmental action among citizens, ensuring that the environment is clean and protected for present and future generations. For instance, by addressing the health, economic and environmental challenges arising from pollution and poor waste management practices. Economically, it is envisaged that good environmental behaviours will produce new infrastructure systems and operations that will create and promote new local economies and industries which will, in turn, stimulate access to employment and livelihood opportunities (Gauteng Department of Economic Development, 2011). For example, recycling and recovery of materials and energy from waste can stimulate a secondary resources economy and create technological innovations such as in industrial symbiosis, where waste or by-products from one company become the raw material for another. Additionally, the benefits of improved environmental quality directly feedback into Gauteng's economy (Department of Environmental Affairs, 2019; Gauteng Department of Economic Development, 2011). For instance, by improving labour productivity, reducing employee turnover, and public health care costs.

2.6 Gauteng's Environmental Awareness Campaign

The Gauteng government, in particular, developed a community mobilisation programme to heighten environmental awareness and promote pro-environmental behaviour in the province (Gauteng Department of Economic Development, 2011). The programme focusses on the promotion of good behaviour related actions which include recycling, planting trees, waste management, water, and energy consumption. The programme is undertaken under the campaign banner Batho ke Botle and often incorporates popular individuals or celebrities to intensify and mobilise public attention around good environmental behaviours (Gauteng Department of Economic Development, 2011). Loosely translated Bontle ke Botho means being beautiful is being human (Gauteng Provincial Government, 2005). Bontle means beauty and Botho refers to the concept of humanhood in seTswana or Ubuntu in isiZulu which are both local dialects (Merriam & Ntseane, 2007). Botho emphasises a culture of amongst others, relationships, connectedness, mutual help, generosity, and cooperation (Gaie, & Mmolai, 2007). The Bontle ke Botho campaign, therefore, derives its meaning from these concepts and harnesses the idea of mutual reciprocal obligations that are clearly understood and acted upon by Botho observing societies like South Africa (Merriam & Ntseane, 2007). Suggesting that; it is only through behavioural change by individuals, and collective action in all sectors of society, that we can beautify the environment or achieve sustainable environmental management and development.

2.7 Chapter Conclusion

This chapter has introduced the study's research context. It was demonstrated that despite the frequent use of the celebrity endorsement strategy in commercial and non-commercial communications, its use could yield both benefits and disadvantages. It was also shown that in practice behaviour change campaigns in South Africa frequently employ celebrity endorsement as a strategy to appeal to their audiences and that therefore understanding the effects of this tactic on local audiences is important. The discussion then provided an account of the historical political context that culminated into the current state of environmental practices in Alex township. Describing a situation in which an insistent period of poor policy and bad planning has resulted in an unhealthy interaction between people and the environment in South Africa's townships, in turn leading to damaging environmental practices. A case for promoting pro-environmental behaviour in the townships was then made, stressing the social and economic benefits of heightened environmental awareness for the community of Alex township. The chapter closed with an overview of the Gauteng province’s pro-environmental campaign, Bontle ke Botho campaign.

Chapter Three:

Theoretical Grounding and Empirical Literature Review

3.1 Introduction

Theory is said to be an essential component of successful behaviour intervention campaigns (Hagger & Weed, 2019). Behavioural change campaigns, however, have often been criticised for their poor theoretical basis (Michielsen et, al., 2012). Literature states that any new study should entail a methodological review of past literature to serve as the foundation for its investigation. Because doing so helps to facilitate news idea and uncover research gaps where new knowledge is needed (Creswell & Creswell, 2018). Marketing scholars contend that; theoretical application when designing and evaluating behaviour change interventions results in more powerful interventions and more reliable conclusions than those not based on theory (Glanz, Rimer & Viswanath, 2015; Hagger & Weed, 2019). That credible behaviour intervention studies should make an explicit reference to the theory used by describing the theoretical basis chosen as this will enhance the study's generalisability and help build a cumulative understanding of the nature of the change (Foy et al., 2011). In behaviour change interventions, theories also help to identify the determinants of behaviour, thereby also locating the underlying indicators that need to be known prior, prioritised, and targeted for the intervention. These indicators become the key variables for investigation and hence what should be monitored, measured, and compared when evaluating an intervention as well as provide the basis for hypotheses development and choice of research method (Foy et al., 2011; Michielsen et al., 2012).

Considering these assertions, this chapter reviews extant literature to develop the theoretical grounding of this study to answer the research question of assessing audiences' responses to a celebrity endorsed environmental awareness campaign. In the process, it also identifies the main variables for investigation as well as generates the hypotheses of the study. The chapter begins with a literature overview of the dominant theories that have been used previously in the assessment of celebrity endorsement effectiveness. The theories that have been selected for the current study and justification for the selection are then presented. This is followed by an empirical review of each of the study's research constructs.

3.2 Celebrity Endorsement Theories

Celebrity endorsement effectiveness has been mainly examined within the framework of source models, the meaning transfer model, and the match-up model (Muda, Musa, Mohamed & Borhanb, 2014; Fang & Jiang, 2015; Bergkvist & Zhou, 2016).

3.2.1 Source models

A considerable amount of the literate on the effectiveness of celebrity endorsements has explored how the credibility of the source of the message affects the success of the message (Bergkvist & Zhou, 2016; Muda et al., 2014; Knoll & Matthes, 2017). The source models explain how a communication message's persuasiveness is affected by the perceived credibility of the source of the communication (Amos, Holmes & Strutton, 2008; Knoll & Matthes, 2017). Noting that it is the consumers' perceptions rather than the actual or real level of credibility that influences the effectiveness of advertising messages. Messages delivered by credible sources are considered more convincing (Bergkvist & Zhou, 2016), implying that celebrities who are perceived as credible are assumed to be more persuasive (Tormala, Briñol & Petty, 2006). Although source models sometimes claim to represent the same construct, they differ in their conceptualisation of the source of the effectiveness of a message (Muda et al., 2014). Two source models have been identified: the source credibility and source attractiveness models (Amos et al., 2008; Erdogan, 1999). The effectiveness of a message in the in the source attractiveness model is derived from the source's overall physical attractiveness, likeability, familiarity, and similarity to the message receiver (Amos et al., 2008; Erdogan, 1999). The source credibility model on the other hand asserts that the effectiveness of a message depends on trustworthiness and expertise as perceived by the receiver (Amos et al., 2008; Erdogan, 1999).

3.2.2 The Meaning Transfer Model

In the meaning transfer model, celebrity endorsements embody the general process of meaning transfer (Fang & Jiang, 2015). The process is based on a transfer of meaning from the celebrity to the brand which is being endorsed wherein the endorser's effectiveness depends upon the meaning the endorser brings to this process (Muda et al., 2014; Amos et al., 2008;). A celebrity develops a particular image or persona through the roles that they portray in society and based on this image; society then assigns meaning to the celebrity. When a celebrity endorses a product, brand, or issue, the meaning assigned around the celebrity becomes associated with the product, brand, or issue. Consumers are said to choose options with meanings that are congruent with their self-concept (Amos et al., 2008). Hence, when a consumer identifies with a celebrity, they will select the option backed by this celebrity because it is congruent with their self-concept, in the hope that they will transfer the associated meaning into their own lives (Amos et al., 2008; Fang & Jiang, 2015).

3.2.3 The match-up hypothesis

The match-up hypothesis is based on schema theory which suggests that people hold existing schemas or representations of their environments which they rely on (Knoll & Matthes, 2017). When celebrity attributes closely resemble these schemas, they are more easily integrated or fit better with these exiting schemas (Knoll & Matthes, 2017). The endorser's effectiveness depends on the degree of perceived fit between the celebrity and that which is being endorsed (Amos et al., 2008; Knoll & Matthes, 2017). Such that, the higher the perceived fit, the more effective the message. For instance, if the product is related to attractiveness, then it would be the attractiveness of the celebrity endorser that matters (Muda et al., 2014). In more complex products such as a financial product then an expert endorser would be a better match than an attractive one (Muda et al., 2014).

Existing celebrity endorsement theories have produced mixed results when it comes to the effect of celebrity endorsements in persuasion communication and behaviour (Bergkvist & Zhou 2016; Knoll & Matthes, 2017). Additionally, the source models have been criticised for ignoring the underlying psychological mechanisms of celebrity persuasion (Bergkvist & Zhou 2016). The models explain celebrity endorsement as a one-way process taking effect from the source but overlook the receiver's participation in the process (Fang & Jiang, 2015). As the final target of the communication, the receiver's active participation should be considered. According to Ang and Dubelaar (2006) the match-up hypothesis does represent an improvement over the source models in that it acknowledges the existence of underlying mechanisms for a match to occur. The authors add that it is however problematic in that it does not specify what constitutes fit and consequently how and why match-up works are unclear. The meaning transfer model offers a more comprehensive explanation over the other theories by investigating the cognitive process underlying meaning transfer. However, it too is weak in its explanation of which dimensions should be matched between an endorsed object and a celebrity (Knoll & Matthes, 2017). Moreover, the application of current celebrity endorsement theories has been underrepresented in studies dealing with non-profit communication such as environmental communication (Knoll & Matthes, 2017). It is therefore unclear whether the theoretical foundations of celebrity endorsements will hold in environmental behaviour as they do for consumer goods. Underrepresentation has also been observed in the application and measurement of celebrity endorsement theories in the South Africa context. In its investigation, the present study adopts a more comprehensive theoretical grounding to addresses these shortcomings, as discussed next.

3.3 Theoretical Grounding of this Study

The present study is underpinned by theoretical frameworks from the source credibility model, consumer decision model and the theory of reasoned action (TRA). To start with, source credibility literature is applied to investigate the persuasive power of message source in environmental behaviour in the South African context. By doing so, the study links source theory to environmental behaviour to test the robustness of the source credibility model in the context of environmental behaviour change. It also tests the applicability of the source credibility model in the South African context.

Previous environmental related literature has been criticised for its tendency to prioritise the actions that constitute pro-environmental behaviour and ignoring the determinants of pro-environmental behaviour. (Thondhlana & Hlatshwayo, 2018). Li et al. (2019) demonstrate this in their literature review of over 8 400 pro-environmental behaviour studies for the period 1982 to 2017. Their investigation covers a range of topics including environmental behaviour, recycling, waste management, reuse, and green product purchase. They find that only 11% of the studies contained the words factor or determinant in the title, abstract, or keywords. Furthermore, in the few instances where determinants were considered, it was single factors used mainly for segmentation purposes, such as demographics, therefore, ignoring the broad range of factors that have been shown to influence behavioural responses and consumer decision making (Do Paco et al., 2013).

Researchers have also consistently demonstrated that; rather than being passive recipients of communication stimuli, people's behavioural responses to persuasive messages are embedded in social contexts, shaped by cognitive deliberation, individual preferences, and interpersonal factors (Carmack & Lewis-Moss, 2009; Topa & Moriano, 2010). In fact, in the earlier mentioned meta-analysis of celebrity endorsement studies, Knoll and Matthes (2017) summarised the likely outcomes of such campaigns into three potential message effects which they termed as core narratives: cognitive (promoting awareness and knowledge), affective (changing beliefs, values & attitudes) and conative (influencing behavioural intentions). Scholars have also raised concern, whether informational promotions of this nature are even received or understood, or do they simply pass by without attention from recipients and consequently without being processed or taken into account. In this regard, scholars have concluded that persuasive impact depends on the quality of information presented as well on the recipient's attention, cognitive processing of the information, and other individual factors (von Borgstede & Andersson, 2010).

Backed by these views, this study, therefore, takes on a perspective of an active decision-making consumer and turns to consumer decision making theory to propose other factors that could additionally influence the processes through which individuals may reach selection and consumption decisions (Blackwell, Miniard, Engel & Rahman, 2018). Accordingly, in conjunction with the message source, the study proposes; personal involvement, normative influences, and perceived knowledge as additional factors that may induce problem recognition which has been identified as the initial trigger into the decision process. As per consumer decision model, problem recognition is followed by information search which will ultimately lead to some behavioural intent and eventual choice (Schiffman & Wisenblit, 2019; Blackwell et al., 2018).

However, scholars reviewing behavior change campaigns have also convincingly demonstrated that a simple response to an information deficit, where the provision of information is deemed sufficient to change the relevant behaviour is inappropriate on its own

(Geiger et al., 2019; von Borgstede & Andersson, 2010). Instead, it has been stressed that social calls of this nature should accomplish more than just putting a problem on one's personal agenda; influencing or modifying behavior should be the central objective for such campaigns (Andrease, 2006). For example, researchers have often criticised the information-deficit model which states that; the motivation for action can be strengthened by filling the shortfall in public information and understanding (Donga, Hub & Zhuc, 2018). Critics have responded that information on its own is not sufficient to induce perceptual and behavioural shifts, citing a gap between the public's ability to decipher or evaluate information presented and the public's actions (Donga et al., 2018). Similarly, renowned author and researcher Professor Martin Fishbein also cautions that besides decades of research in consumer psychology, there is still no concrete evidence that simply recalling an advertisement changes behaviour (Fishbein & Ajzen, 2010). In another study of the impact of sustainability information on consumer decision making, the authors O'Rourke and Ringe (2016) demonstrate that simply providing more or better information on sustainability issues such as health, social and environmental concerns will have a limited impact on changing the majority of consumer behaviour. Also, in a study looking at sustainable waste management von Borgstede and Andersson (2010) found that that a lack of information alone, is not a significant antecedent to seek information, whereas personal norms had a moderate effect. Whilst others have called for the inclusion of actual impact criteria in the investigation of environmental behaviours in the social sciences (Geiger et al., 2019)

There has also been evidence showing a significant correlation between the provision of information and changes in actions and attitudes or at the very least provision of information as a way of activating intention to act (Tobler, Visschers & Siegrist, 2012; Wichman, 2017). Problem awareness and knowledge therefore cannot be altogether dismissed as meaningful predictors of behavior modification. For example, a Bamberg and Möser (2007) meta-analysis of studies looking into the determinants of pro-environmental behaviour found that problem awareness, whilst mediated by subjective measures such as social norms and guilt, is an important determinant of pro-environmental intention. Other scholars have also stressed the obvious point that ignorance or unawareness is likely to hinder behavior change because if people are not aware of the issue, they cannot intentionally adjust their behavior (Geiger et al., 2019). Hence problem awareness or as earlier expressed, putting a problem on one's agenda although not enough, is a prerequisite first step in messages hoping to alter behaviour. Discussing various recycling information studies, Oke and Krijnen (2016) similarly conclude that, whilst the dissemination of information on its own is not a motive for changes in recycling behaviour, a lack of information is a barrier to recycling. Informational strategies should therefore not be completely overlooked, because whilst these strategies do not change the external context in which choices are made, at the very least they can target the motivational factors responsible for behavioural change and increase awareness, resulting in strengthened knowledge of behavioural alternatives (Gifford, 2014). Gifford (2014) provides evidence of previous literature for the case for the effectiveness of informational strategies in changing prevalent behaviour motivations and knowledge in environmental psychology, which in turn are known antecedents for pro-environmental intentions and behaviour. Based on these arguments, this study therefore accepts, search for information as a meaningful response that can ultimately influence behavior.

Some have added that, whilst it is correct that behavior change campaigns should aim to modify behaviour rather than simply inform, the challenge for social campaigns and similar is that; these messages attempt to direct behaviour that typically does not occur until a later time and thus actual behavioural outcomes are often difficult to measure (Fernandez, Piccolo & Maynard, 2013). The TRA can assist in addressing this difficulty as it has been used to measure future behaviour. The TRA has long established that the most important determinant of behavior is behavioural intention, meaning that the eventual performance of a given behavior can be determined by the strength of a person's intention to perform that behavior (Montaño & Danuta, 2008). In that case, intention can be considered as a reasonable surrogate for expected actual behavior (Montaño & Danuta, 2008). For example, Sawitria et al. (2014) empirically that intentions to recycle newspapers directly predicted actual recycling. In other evidence, applying the TRA to predict environmental behaviour regarding energy conservation Octav-Ionut (2015) found that intention had the strongest influence on actual behaviour. In this study, intention is also therefore accepted as a reasonable surrogate for expected actual behavior. Having accepted search for information as an antecedent for behavioral change and intentions as a surrogate for actual behavior, this study combines these two constructs to investigate intentions to search for information.

3.3.1 Source Credibility

The source credibility model is appropriate for this study as it has been used extensively by social science and marketing researchers to explain the persuasive power of a message source (Bergkvist & Zhou, 2016; Amos et al., 2008). Marketing researchers have found that the degree of persuasiveness of a message largely depends on the considered credibility of the message source (Pornpitakpan, 2004). Leading them to conclude that, audiences are more likely to accept messages from sources that are perceived to be credible, while message acceptance is less likely to occur with those that are perceived to have low credibility (Bergkvist & Zhou, 2016).

Specifically, in this study, the source credibility model of Ohanian (1990) is applied to probe the effects of sources expertise and source attractiveness. Ohanian (1990) proposed a model in which, the perceived credibility of a message is composed of three factors: expertise, trustworthiness, and attractiveness of the endorser. Accordingly, a message's effectiveness is said to be dependent on the source's attractiveness, expertise, and trustworthiness. It follows, therefore, that these three factors influence beliefs, opinions, attitudes, and/or behavioral compliance, and whether the endorser actually possesses the attribute or not, is immaterial, as long as the message receiver perceives it to be (Erdogan, 2001; Ohanian, 1990). Trustworthiness is excluded from the current study as its effectiveness has been dismissed in previous studies. Previous studies found that trustworthiness will not lead to a positive celebrity endorsement effect because consumers are generally aware that celebrities are being paid for their endorsements (Bergkvist & Zhou, 2016).

3.3.2 The Consumer Decision Model

The consumer decision model also known as the Engel-Blackwell-Miniard Model (EBM) complements the objectives of this study as it supports the idea of a complex message recipient as already suggested earlier. This was a pioneering model to encompass a more holistic range of activities that interact directly and indirectly to impact upon consumer decision making process, which had been unaccounted for in previous models (Schiffman & Wisenblit, 2019; Solomon et al., 2016). These can be assigned to three broad categories, namely, psychological processes (memory, attention, information processing, and comprehension); individual differences (consumer resources, personality, values, beliefs, lifestyle, motives, involvement, knowledge, and attitudes) and environmental (culture, social class, normative influences, family and situational) influences (Darley, Blankson & Luethge, 2010; Blackwell et al., 2018). Accordingly, the model emphasises a continuous interplay between stimuli inputs and these activities which directly and indirectly influence decision processing (Blackwell et al., 2018; Darley et al., 2010). Unlike prevailing models at the time, which viewed consumer decision as a linear process, the EBM is centred around four main interrelated parts; information input, information processing, decision processing, and several variables that influence decision processing (Schiffman & Wisenblit, 2019). Implying a view of a consumer who is an intelligent, rational thinking problem-solving organism, who stores and evaluates sensory inputs to make reasoned decisions. And one who actively searches for and uses information to make informed choices (Nash, 2019; Schiffman & Wisenblit, 2019; Solomon et al., 2016) as per the hypothesised assertions of this study.

The process starts with information input when the consumer gets exposure to stimuli from marketing and non-marketing sources, followed by information processing where these inputs can either be ignored or catch their attention and thereafter be interpreted, comprehended, accepted in short term memory, or retained in long term memory. Next is decision processing; which is proposed as a sequential process of decision making consisting of five distinct stages; problem recognition, search, alternative evaluation, choice, and outcomes. Entry into the decision process is precipitated by a conscious recognition of an unsatisfied need or need recognition and is described as the point at which the consumer triggered by the inputted information, acknowledges a discrepancy between their current state and some desirable alternative which is large enough to stimulate a search to solve the recognised problem or satisfy the need. At which point the consumer embarks on a search for information for alternatives that are available to satisfy the need, which is then evaluated to develop a set of criteria to compare and eventually generate a set of preferred alternatives from which the most beneficial choice is made. Finally, there is an outcome that is presented as a post purchase evaluation mechanism, in the form of either satisfaction or dissatisfaction. The outcome acts as feedback on the input and impacts the cycle again thereby influencing future alternative evaluation and choice. Such that, a good experience with the chosen alternative will provide information that may lead the customer to that same brand or choice when a similar product or situation is presented in future. Dissatisfaction on the other hand or when the chosen alternative is perceived to be failing against the desired outcome may result in post-purchase dissonance, prompting further information search (Blackwell et al., 2018; Schiffman & Wisenblit, 2019).

Notwithstanding the importance of other factors described in the consumer decision model, this study focusses on the factors: personal involvement, normative influences, and perceived knowledge. These factors have been selected as they closely relate to current conditions wherein township communities have largely been excluded from environmental issues and consequently forced to operate outside of mainstream environmentalism. In South Africa concern for environmental issues has historically been viewed as a white middle class issue (Louw, 2018). Township communities being black are therefore seen not to have the same levels of environmental anxiety as might be the case in more privileged white neighbourhoods (Meyer, 2018). It would seem that the historical alienation of black South Africans from environmental issues has led to a situation in which environmental problems are inextricably linked to negative attitudes and apathy toward environmental issues in historically marginalised communities (Meyer, 2018; Khan, 2000). These assertions are supported by some research which has shown that black South Africans lack interest in issues of the environment in general (Struwig, 2010; Kubanza & Simatele, 2019). In order to gain the active involvement of township residents in pro-environmental decision-making, it is important to test the factuality of these views and understand the underlying motivations of these residents on environment issues. Personal involvement adds in the understanding of how much importance these excluded communities place on the environment and environmental issues and how this affects their current pro-environmental intentions. In view of the exclusion of these communities, the extent to which pro-environmental social norms have emerged and are adhered to when deciding pro-environmental actions is also an important consideration. As well as the degree to which environmental knowledge barriers have developed and subsequently influence pro-environmental intentions.

3.3.3 Theory of Reasoned Action (TRA)

As earlier mentioned, it has been stressed that behaviour change campaigns should aim to influence or modify behavior. TRA is suitable for this study because it posits that the key antecedent to behaviour predictions is behaviour intentions or put differently, people's behaviour is best predicted by their intention to perform that behaviour (Ajzen, Fishbein, Lohmann & Albarracín, 2019). Studies have consistently shown that that the stronger the intention to engage in the behaviour, the more likely that it will be carried out (Okumah et al., 2020; Morwitz & Munz, 2021; Sheeran & Webb, 2016; Ajzen et al., 2019). Behavioural intention is consequently defied as, an indication of a person's willingness or conscious plan to carry out the recommended response or behaviour (Fishbein & Ajzen, 2010).

3.4 Empirical Literature

The following section is an empirical review of research variables that were utilised in this study.

3.4.1 Intention to Search for Information

Information search is one of the major stages of the consumer decision-making process and relates to how people gather information about the presented problem once it has been recognised (Utkarsh, 2017). It is a measure of the effort exerted by consumers to acquire information when they are making a purchase or consumption decision (Utkarsh, 2017). It is the stage following need recognition when the consumer surveys their environment to consult different sources of information such as marketing messages, other people, and their personal past experiences to identify choice options (Solomon et al., 2016). It is relevant for this study because, it reflects a conscious, energetic way of acquiring information and can therefore be viewed as a more active and directed behaviour (von Borgstede & Andersson, 2010).

Intention is viewed as a measure of the likelihood that a person will engage in a specific behaviour, signalling how hard people are willing to try and how much of an effort they are planning to exert in performing the given behaviour (Ajzen et al., 2019). Previous consumer behaviour studies that have confirmed that the best predictor of people's behaviour is their intention to perform that behaviour agree that the stronger the intention to engage in the behaviour, the more likely that it will be carried out (Morwitz & Munz, 2021). It can be concluded therefore that an intention to perform an extensive search for information is likely to produce an increased likelihood that the given behavior will be carried out. Hence, in this study the dependent variable is crafted as; intention to search for information concerning pro-environmental practices.

A considerable amount of research has been conducted on both constructs; information seeking and intention in relation to pro-environmental behaviour, albeit mostly in developed countries (von Borgstede & Andersson, 2010; Okumah et al., 2020). Hence, a noticeable dearth of knowledge on South African communities, and especially those that are less privileged. Previous studies have also concentrated on single factors and the composition of pro-environmental behaviour as opposed to those that influence or prohibit pro-environmental behaviour (Thondhlana & Hlatshwayo, 2018; Li et al., 2019). Considering the complex convergence of the multiple contextual issues that are unique to South African townships in relation to environmental issues such as assumed apathy, access, understanding, knowledge, perceptions, and normative standards that may influence or prohibit intentions to search for information, there is a need to address a broader range of factors. So, despite the availability of insights gained from pro-environmental behaviour studies, a key question remains whether these insights can be applied in a township setting wherein behaviour choice is complicated by complex historical social structures. In this study, therefore, intention to search for information reflects the effort exerted by residents in searching for information. Accordingly, intention to search for information is operationalised as the likelihood that residents will actively gather information about pro-environmental practices post being exposed to the celebrity endorsed advertisement.

3.4.2 Message Source Variables

Given the increasingly pervasive use of celebrities to promote both commercial products and messages with a social purpose in South Africa, it is surprising that there is an absence of empirical evidence to justify this tactic’s effectiveness in persuading audiences. According to Goodman, Doyle and Farrell (2017) in environmental communication, this is not unique to South Africa. The authors observe that globally, whilst in practice, there has been an explosion of celebrity involvement in environmental campaigning, relatively little research has been undertaken to understand the usefulness of this phenomenon in this area.

3.4.2.1 Source Expertise

Source expertise refers to an endorser's knowledge, experience, or skills about the product or issue at hand as perceived by the target audience (Clark et al., 2011). Thereby, reflecting the degree to which the source or endorser in the case of celebrity endorsement, is perceived by the audience to be a source of valid assertions about the product or issue at hand. Sources that are considered experts have been known to elicit more processing of persuasive messages because of expectations that the information is likely to be valid or accurate (Pornpitakpan, 2004). Such that, an endorser who is perceived to possess the expertise about the presented issue has a higher chance of convincing the consumers than an endorser with less expertise (Muda et al., 2014; Bergkvist & Zhou, 2016). The current study conceptualises source expertise as the extent to which residents of Alex perceive the celebrity to be relaying valid information about environmental issues.

3.4.2.2 Source Attractiveness

Source attractiveness represents the perceived overall attractiveness of the source and depends on the perceived similarity (resemblance between the source and the audience), familiarity (knowledge about the source through repeated exposure), likeability (affection for the source based on their physical appearance or behaviour) of an endorser to the audience (Amos et al., 2008; Fang & Jiang, 2015). Accordingly, the effectiveness of the message relayed by the source depends on these dimensions. For example, endorsers perceived to possess all these characteristics are found to be more effective in helping message recipients to process the presented information and therefore more convincing (Bergkvist & Zhou, 2016; Pornpitakpan, 2004). For this study source attractiveness is operationalised as; the extent to which residents of Alex perceive the celebrity to embody these attractiveness characteristics.

3.4.3 Personal Involvement

Involvement has been a central aspect of consumer behaviour, although, there is no universal agreement of what it entails and therefore conceptualisations and definitions differ (Gendel-Guterman & Levy, 2013). Such that consumer behaviour has been linked to three types of involvement: personal involvement, product involvement, and purchase involvement, each leading to different responses (Michaelidou & Dibb, 2008). Gendel-Guterman & Levy (2013) note that most definitions are conceptualised in terms some measure of interest or importance to the induvial. Other research authors have similarly observed that irrespective of the type of involvement, personal relevance to the individual appears to be the key aspect of all involvement definitions (Bienstock & Stafford, 2006). Taking into account these observations, Gendel-Guterman and Levy (2013) propose that involvement can be regarded as a personal motivational variable, based on an individual's inherent needs, values, and interests, naturally, it varies from person to person and affects consumer behaviours. Jagati and Arya (2018, p.2) describe it as "the amount of physical and mental effort that a consumer puts into a decision which creates within a person a level of relevance or importance to the product/service offering and this leads to an urge within the former to collect and interpret information for present/future decision making and use".

In other literature, Richard E. Petty and John Cacioppo widely studied Elaboration Likelihood Model (ELM) introduced an elaboration continuum through which people process stimuli, in which they identified motivation, involvement, and issue relevancy about the message as key determinants that affect the likelihood that a message will be elaborated upon (Filieri & McLeay, 2013). They described a high elaboration likelihood state, in which people with relatively high motivation, involvement, and relevancy tend to process information or are more likely to engage in scrutiny or thoughtful processing of an informational message. Accordingly, consumers that exhibit high involvement are therefore supposed to be more motivated to intensive and goal-oriented action than those with low involvement and consequently also more motivated to act positively towards the object, activity, or issue (Filieri & McLeay, 2013). In South Africa, there seems to be a persistent narrative that, environmental concern is a middle-class issue that township dwellers supposedly do not care about (Louw, 2018). Hence this study will test whether its sample's degree of personal involvement in environmental issues has any bearings on their intentions to behave pro-environmentally. Consistent with prevailing views, this study also adopts personal relevance underpinning personal involvement and as a result conceptualises personal involvement as; the extent to which residents perceive environmental issues as central or personally important in their lives such that they recognise it as a problem.

3.4.4 Normative influences

As per the decision-making model, decision making is not only influenced by individuals' own motivations but also by other external sources (Blackwell et al., 2018). When individuals gather information and evaluate alternatives, they often consult various information sources ranging from; formal commercial sources such as brochures and media to interpersonal non-commercial sources such as friends, colleagues, and family (Topa & Moriano, 2010; Blackwell et al., 2018). Normative influences, at other times, referred to as subjective norms or perceived social pressures are people's overall perceptions of societal pressures, indicating their estimate of the perceived social pressure to conform to the expectations of other people or groups (Fishbein et al., 2019; Mead et al., 2014). They concern the perceived social pressures that guide, regulate, forbid, and prescribe behaviour in particular contexts (Mead et al., 2014; Fishbein & Ajzen, 2010). The influence on behaviour is caused by either what is considered normal or preventive norms that others approve of or not. These norms are determined by the person's beliefs about what other people who are in some way important to the person, for example, a neighbour, family, peer, thinks the person should behave, (i.e., normative expectations of others) and the individual's motivation to comply with these expectations (Fishbein et al., 2019). Normative influences are therefore an indication of the extent of social influences on one's behavioural intentions or put differently how people feel they will be perceived by important referent others such as family, friends, and community for engaging or not engaging in the behaviour and whether they are motivated to comply with these referents. In relation to environmental protection, a subjective norm has been described as the perceived social pressures to implement or not implement pro-environmental behaviour (Niaura, 2013).

Studies show that people's intention to perform a given behaviour is more likely when they perceive social pressures to perform the behaviour from important referents and when they are motivated to comply with these pressures (Fishbein & Ajzen, 2010). When this happens, the behaviour is said to under normative control or influence. On the other hand, a person who believes that referents think they should not perform the behaviour will have a negative subjective norm, and a person who is less motivated to comply with those referents will have a relatively neutral subjective norm (Fishbein et al., 2019). This study, therefore, understands normative influences as residents perceived social pressures by significant others to comply with environmental behaviour norms.

3.4.5 Perceived knowledge

Environmental behaviour scholars have called for more meaningful research of environmental knowledge arguing that its importance is largely underestimated, necessitating more attention and study (Geiger et al., 2019). The authors further view the lack of environmental knowledge as a potentially limiting factor in environmental behaviour, because without knowledge people cannot intentionally adjust their behaviour towards environmentally sustainable practices. “Knowledge refers to the amount of information held in an individual’s memory system that influences the way he or she assesses, interprets and reacts to environmental stimuli” (Blackwell, Miniard, & Engel, 2001 as cited in Ahmad & Nordin, 2014, p. 65). Scholars have distinguished between two types of knowledge; subjective and objective knowledge, each affecting behaviour differently, depending on the decision context (Geiger et al., 2019; Hadar, Sood & Fox, 2013). Subjective or perceived knowledge reflects people's perceptions of what or how much they think they know about a product, service, issue, or topic. In contrast, objective knowledge is that which the individual possesses through correct facts about the topic or product (Hadar et al., 2013; Carlson et al., 2009) or veridical information, as coined by (Geiger et al., 2019). Whilst, in general, there has been agreement that knowledge has an impact on behaviour, it has been noted that much of the research does not make this important distinction (Ahmad & Nordin, 2014). Distinguishing the two constructs is important because they impact behaviour differently. Objective knowledge is said to be dependent upon ability or expertise and indirect knowledge whereas subjective knowledge depends on direct experience (Carlson et al., 2009; Ahmad & Nordin, 2014). Direct experiences are said to exert a stronger influence on behavior than indirect experiences, suggesting therefore that subjective knowledge would be more influential in the adoption of new behavior (Ahmad & Nordin, 2014).

An environmental awareness public campaign is based on the premise that increasing consumers’ knowledge about good pro-environmental practices will encourage environmentally responsible practices. However, whilst this premise has been verified in some contexts, it has been established in many others that subjective and objective knowledge are not positively correlated, as would be expected; where the more accurate information one has about a product, the more knowledgeable one should feel (Hadar et al., 2013). Instead, past research suggests that consumers with high subjective knowledge engage in less information search, meaning that people typically engage in a more extensive search for information only when they experience a lack of knowledge (Hadar et al., 2013; von Borgstede & Andersson, 2010). And therefore, as Hadar et al. (2013) caution; the provision of accurate information, whilst improving the level of knowledge could concurrently unintentionally weaken subjective knowledge. For instance, Hadar et al. (2013) found that in the context of financial saving; consumers were more inclined to take on risky options when they felt more knowledgeable about these options and less when they were using information from financial education programs. That is because those with high subjective knowledge tend to be more confident in the information that they possess to make good decisions and hence do not require a more extensive search whereas those low in product knowledge tend to have more uncertainty about making an optimal decision and therefore, are likely to engage in more information search (Hadar et al., 2013). Others have reported intervening factors that impact the relationship between perceived knowledge and decision-making processes. For instance, addressing the question; if we improve environmental knowledge, will it increase pro-environmental behaviour, Latifa et al. (2013) found that environmental knowledge is mediated by environmental value or one's orientation towards the environment such that when environmental value is introduced the direct effect of environmental knowledge on pro-environmental behaviour is no longer significant.

Hadar et al. (2013) however have also noted ample studies that have suggested a different outcome, where research has also indicated that high perceived knowledge acts as a conduit to facilitate efficient decision making. The authors add that, in high perceived knowledge cases, "consumers detect product-related information more efficiently, they use fewer cognitive resources to understand product-related information and they tend to be more confident in their ability to make a good choice" (Hadar et al., 2013, p. 304). This view has been further validated by past research that suggests that perceived knowledge facilities speed of processing as it represents easily accessible information which comes to mind more quickly and is, therefore, more likely to be utilised as a judgment cue than less accessible objective information (Coulter, 2005). Others have argued that subjective knowledge is a stronger motivation of consumer behaviours because it reflects self-beliefs or self-assumed confidence about their own knowledge and consequently their ability to make effective decisions (Hadar et al., 2013). This is supported by research that has shown that that self-constructed knowledge triggered a strong inclination to act pro-environmentally (Ahmad & Nordin, 2014).

Moorman et al. (2004) suggested that it should follow therefore that, consumers high in subjective knowledge are more motivated to behave consistently with their subjective knowledge because of the tendency to seek out situations and that are in line with their beliefs. The same authors also proposed that subjective knowledge can increase the likelihood that consumers will locate themselves proximate to stimuli consistent with their subjective knowledge, thereby making information processing easier and more accessible. For example, consumers who believe they are knowledgeable about health will locate themselves proximate to stimuli associated with health knowledge such as health shops. Ahmad and Nordin (2014, p. 65) also cite several other studies where "subjective knowledge was discovered to be a stronger driver of behaviour and decision-making than objective knowledge (Feick et al., 1992; Gámbaro, Ellis, & Prieto, 2013; House et al., 2004; Pieniak et al., 2006; Radecki & Jaccard, 1995; Sirieix et al., 2011; Xiao et al., 2010)".

Whichever may be the case, this phenomenon has not been studied in a South African township environment, where it is believed there are low levels of both objective and subjective environmental knowledge. This study conceptualises perceived environmental knowledge as one's subjective beliefs about what and how much they think they know about the contamination of their domestic space.

3.4.6 Problem recognition

Problem recognition is regarded as the trigger or entry into the decision process, initiating all other pre-purchase decisions such as information search, evaluation, and choice processing (Blackwell et al., 2018). Problem recognition is defined as a conscious recognition of an unsatisfied need and is described as the point at which the consumer triggered by some form of inputted information, acknowledges a discrepancy between their current state and some desirable alternative which is large enough to stimulate a search to satisfy the need (Schiffman & Wisenblit, 2019; Blackwell et al., 2018). Problem recognition, therefore, occurs on the realisation that there is a significant difference between what is perceived as the desired state and that which is perceived as the actual or current state (Blackwell et al., 2018). Meaning that there is an actual state in which one perceives their feelings and situation to be at a present time and a desired state in which they want to feel or be at the present time. Describing problem recognition in the social persuasion contexts, Agostinelli et al. (2004, p.144) state that; "when informational input indicates that behaviour is discrepant from a standard, problem recognition can occur and may instigate behaviour change".

Problem recognition is a process driven by an interaction between processed stimuli inputs, environmental and individual variables, and as such; marketers attempt to influence the process to ensure attention to their messages (Solomon et al., 2016). In this sense, a persuasive message may then be used as a strategy to trigger problem recognition by intentionally creating an imbalance between consumers' current and desired states or to encourage consumers not to be content with their current situation (Solomon et al., 2016). For instance, in the case of the current study, pro-environmental messages could create an imbalance between feelings of indifference towards environmentalism and one in which the individual desires to understand or even assume environmental consciousness.

As the definition implies; there must be at least some level of perceived difference between the two states, which must be surpassed before a problem is recognised, and that this threshold may vary with individual circumstances (Blackwell et al., 2018). Meaning that problem recognition does not always lead to action, in some instances even where problem recognition may occur, there may be no action taken. And hence one may recognise that there is in fact, a difference between the desired state and the actual state but maybe the need may not be large enough to motivate further action or there is an insufficient discrepancy and therefore take no further action. On other occasions, problem recognition occurs but there is little low personal relevance relative to other issues to motivate action and thus no action will be taken. And at other times it is insufficient resources that may be the cause of no action, where the consumer lacks the resources to take up the recommended action. Or even insufficient knowledge, which may also prevent action because consumers lack the knowledge required for action (Solomon et al., 2016; Blackwell et al., 2018; Schiffman & Wisenblit, 2019).

These are very crucial points in the context of disadvantaged township communities in South Africa wherein people are often faced with more immediate and pressing survival issues against scarcity of resources, such as food and shelter to focus their attention on and allocate resources. And hence whilst problem recognition could occur, residents may not initiate any action as they do not possess the resources such as costly disposal bins and knowledge about appropriate action to take or perhaps believe it to be someone else's responsibility, such as government to solve. Hence it remains of interest whether the same responses observed in other settings will apply in the context of the current study. Consistent with prior understandings, this study operationalises problem recognition as residents' acknowledgment of the negative impact of current environmental practices in contaminating their living space and consequently affecting their overall health and well-being.

3.5 Chapter Conclusion

This chapter has introduced the study's research context, stressing the social and economic benefits of heightened environmental awareness for the community of Alex township in Johannesburg, South Africa, a township that is currently fraught with problems of environmental pollution of living space and domestic hygiene. Evidence to account for the usefulness of celebrity endorsement as an effective persuasive strategy in non-western contexts was found lacking and vague, hence source credibility theory was proposed to investigate the persuasive power of source credibility variables; expertise and attractiveness in influencing Alex residents to adopt environmentally responsible practices. Unlike previous environmental research which focused mostly on single factors and the composition of pro-environmental behaviour, this chapter, in support of the idea of a complex message recipient proposed additional factors that may influence behaviour. Drawing on the consumer decision model, personal involvement, normative influences, and perceived knowledge were included as additional factors that may influence Alex residents' response to the celebrity endorsed messages. The chapter also noted that behaviour change calls often prioritise awareness objectives over influencing or modifying behavior and thus the TRA was applied to proposed intentions to search for information as a suitable surrogate for measuring actual behavioral change. The chapter closed with an empirical review, describing each of the research variables used in this study including providing operational definitions for each variable as conceptualised for the present study.

Chapter Four

Conceptual Model and Hypotheses Development

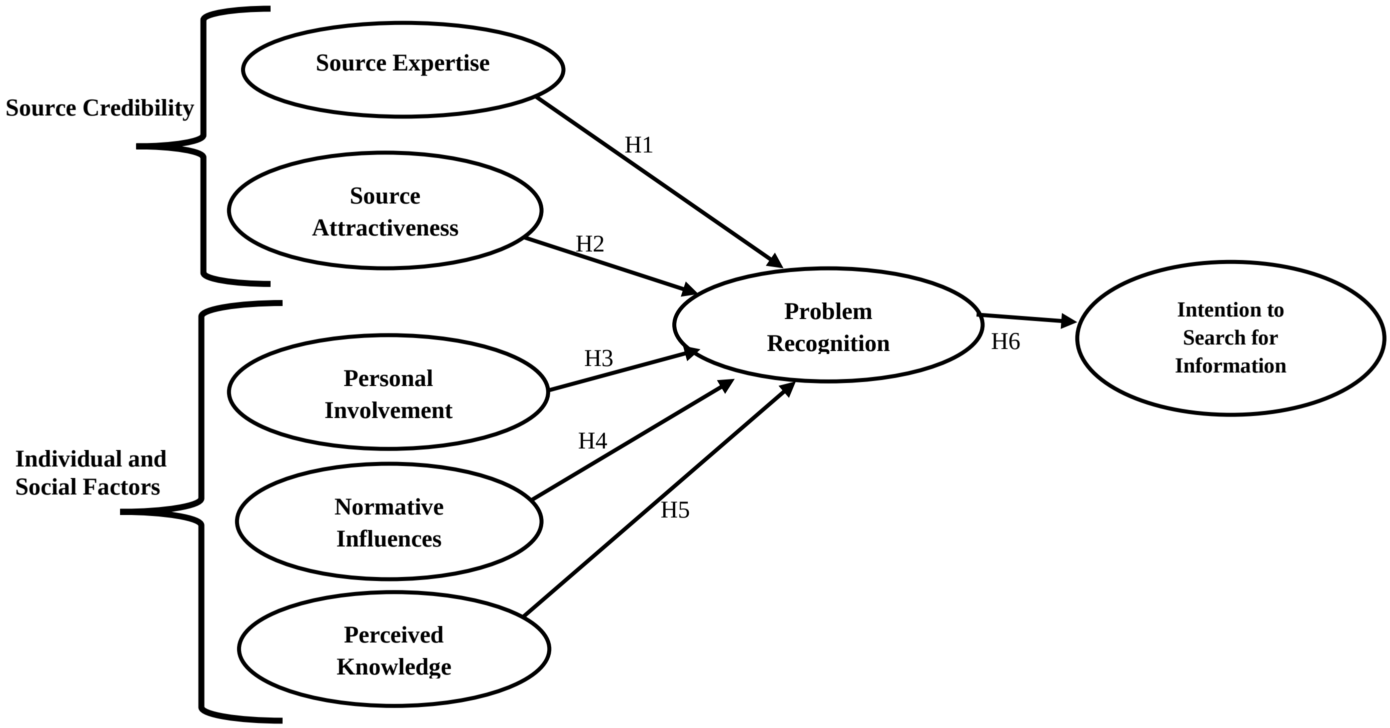
4.1 Introduction

In the previous chapter, having identified the variables of interest for this study using theory and existing literature, this chapter presents the proposed conceptual model of this study. The importance of each of the study's variables in literature are then highlighted, including an explanation of how the hypothesised relationships amongst these variables were established.

4.2 Conceptual Model

The conceptual model is based on the theoretical and empirical review and hence a representation of the variables of the study and their relationships, mapping out the study's variables and how they hypothetically relate to one another (Creswell & Creswell, 2018). Drawing from the literature review in the previous sections and the proposed hypotheses above, a conceptual model for this study is presented in Figure 1 below. The conceptual model below depicts the relationships that are based on the theoretical underpinnings of proven communication and consumer behaviour theories as discussed in the literature review. Source credibility variables: source expertise and source attractiveness are independent variables of this study posited to influence problem recognition. The model also suggests that problem recognition will be additionally influenced by individual and social factors. Hence, personal involvement, normative influences, and perceived knowledge are additional independent variables that are also theorised to influence problem recognition. The model then further suggests that problem recognition will in turn lead to intention to search for information, which is the dependant variable of the study. This conceptual model is tested using the research methodology presented in chapter four that follows.

Figure 1: Study's Conceptual Model



Source: Compiled by Researcher (2021)

The operational definitions for each variable as conceptualised for the present study are summarised in Table 2 below.

Table 2: Summary of Operational Definitions for Variables of this study

Variable	Operational Definition	Source
Source Expertise	The extent to which a resident perceives the celebrity to be relaying valid information about environmental issues.	(Amos et al., 2008; Erdogan, 1999)
Source Attractiveness	The extent to which residents perceive the celebrity to embody attractiveness characteristics: similarity, familiarity, and likeability.	(Amos et al., 2008; Erdogan, 1999)
Personal Involvement	The extent to which a resident perceives environmental issues as central or personally important in their lives	(Gendel-Guterman & Levy, 2013)
Normative Influences	A resident's perceived social pressures by significant others to comply with environmental behaviour norms	(Fishbein & Ajzen, 2010)
Perceived Knowledge	A resident's subjective belief about what and how much they think they know about the contamination of their domestic space	(Hadar et al., 2013)

Variable	Operational Definition	Source
Problem Recognition	Residents' acknowledgment of the negative impact of current environmental practices in contaminating their living space and consequently affecting their overall health and well-being	(Blackwell et al., 2018)
Intention to search for Information	The likelihood that residents will actively gather information about pro-environmental practices post being exposed to the celebrity endorsed advertisement	(Fishbein & Ajzen, 2010)

4.3 Hypothesis Development

The hypothesis can be defined as the statement of what is intended to be investigated. It is a testable statement describing the expected logical relationship among the variables of the study and it should be specified before the research is conducted (Creswell & Creswell, 2018). The development of the hypotheses of this study is discussed next.

4.3.1 Source Credibility (Expertise and Attractiveness)

There has been a great deal of research spanning many disciplines, such as social psychology, consumer behaviour, and communications, devoted to the understanding of the influencing effect of a source of a message (Knoll & Matthes, 2017; Bergkvist & Zhou, 2016; Amos et al., 2008; Pornpitakpan, 2004). In the communications domain, source credibility has attracted considerable attention in persuasion research, producing a rich body of literature on its effect on consumers' evaluations and eventual choices. Empirical findings frequently demonstrating that sources that are perceived to be highly credible are more effective persuaders, and therefore induce greater persuasion toward advocacy than those perceived to be less credible (Bergkvist & Zhou, 2016; Pornpitakpan, 2004).

4.3.2 Relationship between Source Credibility Variables (Expertise and Attractiveness) on Problem Recognition

Message source theory asserts that when source credibility is high, the receiver will be highly persuaded by the message than when it is not (Pornpitakpan, 2004). Evidence for the predictive power of source credibility in influencing decision-making inputs such as individual differences and information processing which in turn determine decision-making processes such as, problem recognition, intentions, and eventual choice has been empirically validated in scores of studies for a wide range of activities and socially enhancing behaviours. Past research has for instance found that source credibility may; operate as a peripheral cue or heuristic during information processing, bias thoughts to elicit favourable responses, impact people's motivation to engage in effortful processing in a persuasion situation, serve as a piece of evidence relevant to support the merits of an issue, or even determine the amount of processing that occurs (Tormala et al., 2006).

Source credibility variables have been found to act as a peripheral cue or heuristic. Meaning that people use characteristics such as expertness and attractiveness to heuristically process whether to accept information based on their perceived expertness and attractiveness of the source for example, rather than thoughtful consideration of the arguments or ideas contained in the message (Wheeler, 2009). According to Silvera and Austad (2004), previous studies have provided ample evidence validating source expertise as the most significant factor in determining the effectiveness of celebrity endorsements in purchase situations. Investigating interpersonal communication and personal influence on the internet, Kiecker and Cowles (2001) suggested that perceived attraction and expertness towards an electronic word-of-mouth source, produces higher credibility and therefore greater persuasion. Tormala et al. (2007) add that people's inherit bias towards perceived expert sources leads them to process messages delivered by these experts with a positive bias and therefore eliciting more favourable message relevant thoughts and in turn, more favourable attitudes. Likewise, Pornpitakpan (2004) proposed that celebrity endorsers perceived high expertise leads to positive attitudes toward communication and significantly positive purchase intentions.

Along with the studies noted, that found a relationship between source credibility variables; expertise and attractiveness, and decision-making inputs and processes, this study also expects source expertise and attractiveness to confer similar effects on problem recognition and thus proposes the following hypotheses:

H1: Source expertise has a positive influence on the residents' degree of problem recognition of the environmental contamination of their living space and associated problems.

H2: Source attractiveness has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems.

4.3.3 Personal Involvement

The understanding and explanation of the effects of individual differences on behaviour has occupied decision-making research across many disciples for decades (Utkarsh, 2017; Appelt et al., 2011; Plassmann & Weber, 2015). In consumer behaviour, despite contradictory findings, lack of homogeneity in definition and measurement, scholars agree that involvement can be viewed as an individual difference motivational variable that influences consumers' decision making and hence has received much attention in marketing and consumer behaviour literature (Gendel-Guterman & Levy, 2013; Bienstock & Stafford, 2006; Jagati & Arya, 2018). Involvement has been shown to explain and moderate various facets of consumer behaviour and therefore there is a consensus of its importance in influencing consumers' evaluation and decision processes (Jagati & Arya, 2018).

Moreover, given the number of decisions that consumers make daily, of which only a few may be of importance, it has been shown that personal involvement plays an important role in determining which are of significant importance to motivate a response (Palla & Zotos, 2017). Generally, it has been found that messages with high personal involvement elicit greater personal significance and therefore higher information processing and increased likelihood for a positive consequence than those with low involvement (Wheeler, 2009; Palla & Zotos, 2017).

4.3.3.1 Relationship Between Personal Involvement and Problem Recognition

Whilst literature dealing specifically with the direct relationship between personal involvement and problem recognition is limited, there is an abundance of literature placing personal involvement as a key antecedent for processes that may affect problem recognition. For example, Engel, Blackwell & Miniard (2000, p. 161 as cited in de Almeida & Düsenberg, 2014) describe involvement as "the most important factor shaping the decision-making behaviour that will be followed". The authors describe a process in which personal involvement impacts information processing which in turn impacts problem recognition.

During information processing, inputs such as advertising stimuli can either be ignored or paid attention to. Problem recognition which represents entry into the decision process is triggered when the information is attended to and processed because the problem is deemed to be personally relevant (de Almeida & Düsenberg, 2014). In related subject matter literature, The Situational Theory of Publics in public relations, similarly proposes that people selectively invest their cognitive resources in a problem only when it is personally relevant to them, suggesting that action will be initiated, or a problem recognised only when people perceive a personal connection to the presented information (Kim, Kim & Kim, 2012).

High involvement has also been found to be key determinant for deeper processing of information, extensive message elaboration, greater time devoted to information, greater attention, and better comprehension of advertising messages (Wheeler, 2009; Filieri & McLeay, 2013). Nowak and Salmon (1987) developed a scale for measuring involvement with social issues and suggested that among other things, the level of involvement with a social issue will affect, how information about the issue is processed and the amount of search behaviour that follows. According to Bienstock and Stafford (2006) generally, the effects of involvement can be assigned to three key areas; search behaviour, information processing, and persuasion; results have shown that the level of involvement influences each of these. It has also been suggested that personal involvement influences the information processing that manifests into overt behaviours such as participation, search behaviour, memberships, and affiliations (Gbadamosi, 2012).

Consistent with these views, The Elaboration Likelihood Model (ELM) purports that personally involving persuasion situations are characterised by considerable cognitive processing in which people tend to process information with relatively high motivation and involvement. Accordingly, as an issue or product increases in personal relevance or when involvement is high, people become more motivated to devote the cognitive effort required to evaluate the true merits of an issue or product rather than when involvement is low (Wheeler, 2009; Filieri & McLeay, 2013). Therefore, it is reasonable to assume that in response to pro-environmental messages, residents who exhibit high involvement in environmental issues are more likely to take the time to read and process the informational case presented thereby eliciting a greater understanding of the merits of the message and in turn increasing the likelihood for problem recognition. By contrast, those with low involvement are more inclined to rely on peripheral cues such as the attractiveness and expertness of the celebrity to process information rather than the cogency of the information presented (Wheeler, 2009; Filieri & McLeay, 2013). As both involvement and the two source characteristics, expertise and attractiveness are investigated in this study, it will be interesting to see which, if any, exert a greater impact on problem recognition.

Considering the literature and empirical review above, it is therefore expected that residents who exhibit high levels of personal involvement to pro-environmentalism will easily be able to recognise the current problem of environmental degradation and be triggered to act to solve the recognised problem and hence, the following hypothesis is derived:

H3: Personal involvement in environmental issues has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems

4.3.4 Normative Influences

There has been an extensive body of literature, including several social and behavioural theories focussing on the role of normative influences in predicting and directing people's behaviours. For instance, the theory of reasoned action, theory of planned behaviour, theory of normative social behaviour, focus theory of normative conduct, and problem behaviour theory (Mead et al., 2014). This has also observed in practice where public service communicators have often included normative information in their persuasive messages aimed at mobilising action against social problems (Cialdini et al., 2006). There are also many studies that have confirmed that norms strongly motivate environmental behaviour (von Borgstede & Andersson, 2010).

4.3.4.1 **Relationship between Normative Influences and Problem Recognition**

Like personal involvement, while studies directly linking normative influences with problem recognition are limited, there is ample evidence connecting normative influences with information processing that prompts problem recognition. For example, there is strong evidence for the impact of normative influences on a variety of attitudes and other behaviours, including littering behaviour, cancer screening intentions, alcohol consumption, fruit and vegetable consumption, and spousal violence against women (Mead et al., 2014). Other studies have that have confirmed the effect of normative influences behaviours include violence prevention, road safety, bullying, and risky sexual behaviour (Burchell, Rettie & Patel, 2013).

Nolan et al. (2008) investigated the persuasive impact of normative social influence on energy conservation. They found that even though respondents reported normative beliefs to be the least important in their conservation decisions, empirically they were the most predictive of their behaviour in the study. In the same study, normative influences also topped conservation messages such as those advocating for environmental protection and social responsibility in influencing behaviour change**.** Hong-Youl and Swinder (2012) also uncovered a strong direct relationship between subjective norms and environmental behaviour engagement, finding that subjective norms foster feelings of the need to behave pro environmentally, leading people to want to engage in environmentally friendly behaviour.

Other studies have also shown that normative influences play an important role in how information is perceived and acted upon. In the case of adolescent drinking, for example, perceptions that friends approve or view excessive alcohol consumption as socially acceptable leads adolescents to drink more to appear “normal” or to conform to the perceived norm (Burchell et al., 2013). Studying the role of knowledge in pro-environmental behaviour Geiger et al. (2019) discover that despite their sample exhibiting high levels of general environmental knowledge, the influence of this knowledge on behaviour was minimal as it was suppressed by normative influences amongst other situational influences. Another study examining individual differences in attention to recycling information, von Borgstede and

Andersson (2010) suggest that normative influences impact problem recognition in the same way that values direct attention toward value-congruent information, resulting in an increased general awareness of environmental problems. The same study also confirmed the existence of moderating effect of norms on perceived lack of information on the intention to seek information. Given the discussion above on the role of normative influences in influencing behaviour, the following hypothesis is proposed:

H4: Normative influences have a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems.

4.3.5 Perceived Knowledge

Consumer knowledge is said to play an important role in determining consumer behaviours and hence it has been investigated across a wide variety of domains, including products, services, and social issues (Carlson et al., 2009). The connection between consumers' knowledge and behaviour has produced many studies demonstrating effects on decision making processes such as information search and information processing (Carlson et al., 2009). Distinguishing between consumers' actual knowledge (accurate stored information) and subjective knowledge (perceived), researchers have often found that in public information campaigns, subjective knowledge was more predictive of changes in behaviour than objective knowledge (Carlson et al., 2009; Moorman et al., 2004; Latifa et al., 2013; Hadar et al., 2013).

4.3.5.1 **Relationship between Perceived Knowledge and Problem Recognition**

The idea that what people think they know, or their perceived knowledge influences their decisions is well documented (Carlson et al., 2009). Although not always a direct relationship, there is ample evidence to show that information such as that from advertisements is gathered, assessed, and activated for problem recognition according to the consumer's current state of perceived knowledge (Hadar et al., 2013). According to Carlson et al. (2009) consumer knowledge has been demonstrated to affect various aspects of information processing and decision-making processes. These researchers mention several sources of previous consumer behaviour studies that provide empirical support for consumers' subjective knowledge exerting a strong impact on choice; (Bearden, Hardesty and Rose 2001; Mossman & Ziller 1968; Fox & Tversky 1995; Fox & Weber 2002; Heath & Tversky 1991). Hadar et al. (2013) themselves conducted four studies to investigate the impact of subjective knowledge on financial investment behaviour and in all their findings, financial information influences consumer investment decisions through its impact on subjective knowledge. Similarly, in their assessment of the various determinants of consumer knowledge authors Park et al. (1994) suggested that perceived knowledge plays a more dominant than the product information cues embedded in objective knowledge during consumers' judgments and choice making.

Empirical findings from several environmental studies have also confirmed similar results indicating that greater subjective environmental knowledge plays a significant role in the success of environmental campaigns in eliciting pro-environmental behaviour (Kim, Kim & Thapa, 2018; Ahmad & Nordin, 2014; Latifa et al., 2013). Based on the above discussion, the next hypothesis of this study is proposed as follows:

H5: Perceived knowledge has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems.

4.3.6 Problem Recognition

Declared as the precursor of all subsequent decisions, the problem recognition phase has a significant role in consumer behaviours, hence it is a key variable in most models of consumer behaviour (Schiffman & Wisenblit, 2019). This is the first process in consumer decision making when the consumer, triggered by internal or external stimuli recognises that there is a problem. Due to its salience in consumer behaviour, analysing and activating problem recognition is among the most critical marketing activities for both marketing practitioners and scholars. The importance of problem recognition has been emphasised by authors who have described it as the cornerstone of consumer behaviour as it is a necessary condition for all subsequent actions in the decision-making process (Blackwell et al., 2018; Schiffman & Wisenblit, 2019).

4.3.6.1 Relationship between Problem Recognition and Intentions to Search for Information.

Like other individual difference variables, problem recognition has been found to be an important antecedent for information search behaviour (Utkarsh, 2017). Search for information is the second stage of the decision-making process following problem recognition as it occurs once a need has been recognised or when the consumer searches for information to attend to the recognised problem (Blackwell et al., 2018). Problem recognition has been shown to be not just an important antecedent for information search and other behavioural intentions but a necessary condition (Utkarsh, 2017). It is an individual difference factor, described as the basic motivation that induces a state of arousal prompting the consumer to attend to information related to the resolution of the need and hence without problem recognition the consumer may not have the motivation to make engage or respond to communication stimuli (Blackwell et al., 2018).

The healthcare sector in particular provides good examples of the influence of problem recognition on search behaviour and related pre-decision processes. Thurston et al. (2015) explored the relationship between parents' recognition of child mental health problems and their decisions to seek help and found that only those parents who acknowledged or recognised the existence of mental health problems with their children reported intentions to seek help. In another healthcare related study, examining the relationship between problem recognition and subsequent search behaviour in extended healthcare decisions, Hill (2001) also confirms the impact of problem recognition on subsequent search processes for long-term healthcare. Analysing the concept of help-seeking behaviour across a variety of health conditions Cornally and McCarthy (2011) also conclude that for help-seeking behaviour to occur, problem recognition must first transpire. In pro-environmental behaviour research, Bamberg and Möser (2007) conducted a meta-analysis of research on responsible environmental behaviour and find that problem recognition is an important antecedent of pro-environmental intention. The final hypothesis of this study is therefore presented as follows:

H6: Problem recognition of the environmental contamination of living space and associated problems have a positive influence on residents' intentions to seek information about pro-environmental practices.

4.3.7 Intentions to Search for Information

A great deal of public interventions has successfully relied on intentions to promote behaviour change across a range of social behaviours (Morwitz & Munz, 2021). That is because intentions are said to be a measure of the likelihood that a person will engage in a specific behaviour and therefore behaviours are best predicted by intentions (Fishbein et al., 2019). It has been generally found that the stronger the intention to engage in the behaviour, the more likely that it will be carried out (Fishbein & Ajzen, 2010) which has in fact been validated in ample pro-environmental studies. For instance, revisiting dominant theories of behaviour change to explore determinants of pro-environmental behaviour, Okumah et al. (2020) conduct a meta-analysis of over 100 papers and confirm that intentions as postulated in theory are indeed a significant predictor for pro-environmental behaviour.

Whilst recognising the importance of intentions in predicting behaviour, researchers have also warned that due to several reasons there is the possibility of a behaviour-intention gap wherein intentions to complete a behaviour are expressed but it does not happen in subsequent actions (Hulland & Houston, 2021). Researchers have suggested the following reasons amongst others (Sheeran & Webb, 2016; Hulland & Houston, 2021). Lack of volitional control or insufficient control over performing a behaviour can prevent the carrying out of intended behaviour. Inaccurate information or information incorrectly interpreted can produce unrealistic beliefs, attitudes, and intentions that will be difficult to be carried out. Unanticipated events or new information in the behavioural context can lead to a change in the intentions that were initially expressed.

According to Hulland and Houston (2021) one way to address this limitation and reduce the size of the behaviour-intention gap is to demonstrate a strong interrelationship between intentions and behaviours, for example using study stimuli to present a more realistic context. This will create a situation specific intention thereby reducing the gap. This approach is also supported by Morwitz and Munz (2021) who propose that providing a context cue such as stimuli to trigger behaviour, acts as mechanism that makes initiating intended behaviours more likely. Theorists have also argued that asking questions about engaging in a behaviour creates a greater commitment to engage in the behaviour and increases the likelihood of engaging that behaviour (Morwitz & Munz, 2021). It has also been found that using more scales points with multiple items as a measurement lowers random measurement error and increases scale reliability (Morwitz & Munz, 2021). The current study combines the remedies suggested above. Firstly, stimuli in the form of a print advertisements are presented to research participants as context cues. Secondly, the survey questions are measured on a 5-point scale with multiple items, four to be precise. Moreover, despite limitations intentions have proven to be a superior and consistent prediction of behaviour for a host of behaviour change interventions and hence there is sufficient evidence to substantiate the predictive validity of intentions (Morwitz & Munz, 2021, Ajzen et al., 2019; Okumah et al., 2020; Sheeran & Webb, 2016)

Researchers have also given substantial attention to the information search behaviour of consumers because of its primacy in consumer decision making (Utkarsh, 2017). Consumer behaviour literature has long established that once a consumer is aware of a particular want or need, they consult different internal and external sources of information to identify and evaluate alternatives (Solomon et al., 2016). Consumer decision making theory identifies information search behaviour following exposure to a marketing message as one of the processes that predict behavioural intention (Utkarsh, 2017), wherein extensive information search is thought to produce more active behaviour towards an issue rather than passive information seeking which reflects less engagement with an issue (Illia, 2013). Combing these two variables (intentions and search for information) the dependant variable of this study is intentions to search for information.

4.4 Chapter Conclusion

This chapter has provided the motivation behind the study's research variables. Source expertise, source attractiveness, personal involvement, normative influences, and perceived knowledge were identified as predictors of problem recognition, which will, in turn, lead to intention to search for information as the outcome of this study. The discussion also included an explanation of the hypothesised relationships between the variables from which the research hypotheses were developed and presented. The discussion was backed by the proposed conceptual model of this study.

Chapter Five:

Research Design and Methodology

5.1 Introduction

Researchers have stressed the importance of determining an appropriate research methodology as this not only assists in achieving the objectives of the study but also authenticates the investigation (Saunders, Lewis & Thornhill, 2019). The methodology consists of the overall approach, the multiplicity of methods, procedures, and models of research used to achieve the research objectives (Kumar, 2019).

This chapter elaborates on the research design and methodology that was used in the current study. It starts with the underpinning philosophy and research approach taken. This is followed by the main methods and techniques that were applied to obtain the findings of this study. This includes the various procedures used and tasks performed for the sampling design and data collection. The ethical issues that needed to be considered are also presented. The last section provides a comprehensive discussion of the data analysis approach of the study, including the analytical techniques and processes used to analyse data.

5.2 Research Philosophy

A research project usually starts with its assumptions about what constitutes valid research and what are the appropriate methods that they will be used to develop new knowledge in the study (Creswell & Creswell, 2018; Saunders et al., 2019). According to Creswell and Creswell (2018) we can refer to these claims as philosophical assumptions which will underpin the research strategy and the methods selected as part of that strategy. Quantitative and qualitative research methodologies differ in their underpinning philosophy (Kumar, 2019). A research philosophy therefore refers to the beliefs held by the researcher about the development of knowledge (Saunders et al., 2019). The research philosophy followed therefore underpins the researchers' choices for how data about a phenomenon will be gathered, analysed, and used (Kumar, 2019; Saunders et al., 2019).

The two popular research philosophies among social science and business researchers are positivism and post-positivism (Kumar 2019). Positivistic, systematic or scientific is approach holds that knowledge beyond what is observable is impossible and that therefore the goal of science or knowledge creation should be restricted to what can be observed and measured (Holden & Lynch, 2004). It tends to advocate for the primacy of empirical data and theories that can be directly tested as well as relies on the adoption of methodologies in explaining human action (Holden & Lynch, 2004; Toritseju, 2019). As a result, positivism will typically emphasise quantifiable observations that lend themselves to statistical analysis (Holden & Lynch, 2004; Toritseju, 2019).

Th opposite approach, post-positivism, postmodernism, or interpretive perspective was largely born out of frustration with the strictly objective and empirical nature of the positivist philosophy (Bhattacherjee, 2019). In contrast therefore, post-positivism argues that it is not possible to make reasonable inferences about a phenomenon by combining empirical observations with logical reasoning, as knowledge exists under unavoidable multiple realities and therefore multiple interpretations (Bhattacherjee, 2019). Thus, context-free research is impossible but rather subjective interpretations need to be explored to sufficiently explain human action or another social phenomenon (Bhattacherjee, 2019; Toritseju, 2019). Accordingly, post-positivist assert that theories must provide general explanations that go beyond the observation of discrete events and advocates qualitative methodologies as the preferred research approach (Holden & Lynch, 2004). Given that this study is concerned with investigating and measuring the observable actions of its target audience as they occur in the real and practical context using theoretical constructs, it follows the positivism approach.

5.3 Research Approach

Another consideration when making research design choices is whether the investigation is deductive and inductive. A deductive approach is associated with a positivist philosophy and deals with theory or hypotheses testing that is subjected to rigorous mathematical testing. It starts with the development of theories and hypotheses which is then followed by a research strategy to test a given hypothesis (Bhattacherjee, 2019; Saunders et al., 2019). An inductive approach, on the other hand, owes more to post positivists or interpretive perspective and starts with data and tries to derive a theory about the phenomenon of interest from the observed data (Bhattacherjee, 2019; Saunders et al., 2019). The current study applies known theory (i.e., source credibility, consumer decision making, and TRA) to understand the effect of celebrity endorsed messages in influencing the community of Alex township to adopt environmentally responsible practices. The study is also interested in testing the hypothesised relationships outlined earlier in the conceptual model as well as follows a positivist approach as just noted at the beginning of this chapter. It, therefore, follows that the study also assumes a deductive approach in testing its hypothesised relationships. This study is also explanatory because as explained by Saunders et al. (2019), the explanatory approach is primarily concerned with understanding the relationships and outcomes between identified variables.

5.4 Research Design

Developing a sound research design is an important aspect of the research process as this is the blueprint for answering the research questions or testing specific hypotheses. The research design delineates the plan for collecting data that is required for an empirical research project. In this way, it provides a detailed outline of how the investigation will proceed or the logical framework guiding the investigation through its various stages. It encompasses the methodology and procedures employed to conduct the research as well as how these different parts of the research work together to address the research questions (Bhattacherjee, 2019; Kumar, 2019). To draw accurate conclusions, the research design chosen must be appropriate to address the research problem. This includes making sure that the design will enhance technical and methodological efficiency as well as providing suitable information for the study (Bhattacherjee, 2019). According to Saunders et al. (2019) the research design process should at least encompass; the research strategies, research choices or methods, and time horizons. These are discussed next.

5.4.1 Research Strategy

Saunders et al. (2019) identify several types of research strategies: experiment, survey, case study, action research, grounded theory, ethnography, and archival research. This research adopted a survey strategy which is typically associated with the deductive approach as well as exploratory and descriptive research (Bhattacherjee, 2019; Saunders et al., 2019). A survey is a research strategy that involves the use of standardised questionnaires or interviews to collect data in which all participants respond to the same set of questions in a predetermined order (Saunders et al., 2019). Surveys are one of the most used research techniques for collecting primary quantitative data (Kolb, 2018; Kumar, 2019). They can be administered by a researcher, either in person or over the phone or self-administered whereby they are physically delivered, sent via the post, emailed, or completed online (Kolb, 2018; Kumar, 2019).

Given that the current study is explanatory and adopted a deductive approach, a survey was deemed suitable. Moreover, unlike other methods such as focus groups for instance, where findings do not apply beyond the individuals that participated in the group, a survey was selected because it can yield information that is generalisable to the population from which the sample was drawn (Kumar, 2019). Also, as a sizeable number of responses was required for this study, a survey was therefore appropriate because as stated by Saunders et al. (2019) surveys are a good way of gathering a large amount of data and can be administered to a sizeable audience in a cost-effective way. A survey was also preferred in this instance as information obtained from questionnaire surveys enables standardisation of data which in turn allows for easier comparison and analysis (Saunders et al., 2019). Data collection through surveys also provides a means to quantify information for mathematical analysis (Saunders et al., 2019) and thus a survey is more favourable for realising the quantitative objectives of this study, as elaborated next.

5.4.2 Research Method Adopted

Quantitative research typically lends itself to positivism as it makes use of predetermined instruments such as questionnaires and experiments to gather quantitative data which are then put through rigorous quantitative analysis to yield statistical data (Creswell & Creswell, 2018). A qualitative approach, on the other hand, relies heavily on the post positivist approach and uses methods of subjective assessment of opinions, behaviour, and attitudes to understand, interpret, describe, and develop a theory on a phenomenon or setting. A qualitative approach uses techniques like in-depth interviews, focus group interviews, and projective techniques to yield non-quantitative results such as the interpretations and insights of the researcher (Bhattacherjee, 2019; Creswell & Creswell, 2018; Saunders et al., 2019). Qualitative research is therefore associated with description narrations using words, language, and experiences rather than measurements, statistics, and numerical figures (Creswell & Creswell, 2018). Table 3 summarises the differences between quantitative and qualitative approaches.

Table 3: Comparing Quantitative and Qualitative Research

	Quantitative	**Qualitative**
Assumptions	• Social facts have an objective reality • Primacy of method • Variables can be identified, and relationships measured	• Reality is socially constructed • Primacy of subject matter • Variables are complex, interwoven and difficult to measure
Purpose	• Generalisability • Prediction • Causal explanations	• Contextualisation • Interpretation • Understanding actors' perspective
Approach	• Begins with hypotheses and theory • Manipulation and control • Uses formal instruments • Experimentation • Component analysis • Seeks consensus, the norm • Reduces data to numerical indices • Abstract language in write up	• Ends with hypotheses and grounded theory • Emergence and portrayal • Researcher as instrument • Naturalistic • Inductive • Searches for patterns • Makes minor use of numerical indices • Descriptive write up

Source : (Creswell & Creswell, 2018 ; Saunders et al., 2019)

Given its research objectives, this study favours a quantitative method as the most fitting technique to achieve its objectives. The study, therefore, utilises a self-administered questionnaire to collect quantitative data to measure hypothesised relationships. This study seeks more than just anecdotal evidence on residents' intentions to search for pro-environmental information. Responding effectively to this goal requires quantifiable facts that can be used to either refute or support prevailing assumptions about residents' environmental behaviours. A quantitative method is justified therefore because it will yield objective findings which are more useful and accurate than current speculations of policymakers and those involved in implementing campaigns to encourage environmentally responsible practices. Accordingly, this study gathered numerical data through a survey and employed quantitative methods to test hypothesised relationships of given variables on a sample of subjects. Additionally, utilising a quantitative method will enable the generalisability of the statistical findings to the target population (Kolb, 2018; Bhattacherjee, 2019; Holden & Lynch, 2004; Saunders et al., 2019).

5.4.3 Research Time Frame

Generally, research differentiates between two main time frames when conducting a study, cross-sectional and longitudinal research designs **(**Saunders et al., 2019). Longitudinal studies involve taking continuous or repeated measures over an extended period (Caruana et al., 2015). In contrast, cross-sectional research analyses a particular phenomenon by measuring multiple variables at the same point in time (Rindfleisch et al., 2008; Caruana et al., 2015). The currents study followed a cross-sectional design. Longitudinal studies require enormous amounts of time and can be expensive (Caruana et al., 2015). A cross-sectional study design was therefore selected for this study as it could be conducted in less time with little cost. As per the research objectives of this study, a cross-sectional design was also more suitable as it enables the analysis of multiple variables in influencing residents' current intentions to search for pro-environmental information. Whereas in a longitudinal design, the emphasis would have been exploring the impact of these variables and change thereof over an extended period (Caruana et al., 2015).

5.5 Data Collection

5.5.1 Sampling Design

Included in the early stage of the research planning are decisions concerning sampling design. Behavioural research, as in the current study, is about inferring patterns of behaviour within specific populations (Bhattacherjee, 2019). In most instances, however, it is not feasible to study entire populations (Bhattacherjee, 2019). Research, therefore, aims to draw inferences about a population using data collected from a sample (Kumar, 2019). To do this, a representative sample from the population or subset of the population of interest must be selected for observation and analysis (Bhattacherjee, 2019). Sample designing is the explicit plan for obtaining this sample from the population of interest to become the basis for making observations and statistical inferences about the bigger population (Kumar, 2019). It includes the decisions, techniques, and procedures undertaken in selecting the sample (Kumar, 2019; Bhattacherjee, 2019). This plan helps to determine; the target population, the sampling frame, the sampling method, and the number of items to be included in the sample or sample size (Creswell & Creswell, 2018). These are discussed next.

5.5.1.1 **Population of Interest**

The population of interest or target population consists of all the units of analysis, cases, or subjects that the study findings will infer generalisations about (Babbie, 2021). It must contain characteristics that conform to what the study aims to investigate (Bhattacherjee, 2019). Alexandra Township's population estimates vary widely, with figures ranging from 179 624 (Stats SA, 2011 as cited in BusinessTech, 2016), 300 000 and 500 000 (Johannesburg Development Agency, 2014) to 750 000 in other sources (Roefs, Naidoo, Meyer, & Makalela, 2003; Johannesburg Development Agency, 2014). Whilst this discrepancy is acknowledged, for this study, the population of Alex was regarded as that which is reported by the national census, which is 179 624. Census data also estimates that children under 18 constitute about 18% of Gauteng's population which is the province in which Alex is geographically located. Assuming a similar demographic trend for Alex, this study, therefore, estimates that approximately 82% of people living in Alex are adults over the age of 18 years old. The population of interest in this study is therefore 147 292 (82% of 179 624) adults (over 18 years of age) that are currently living in Alexandra township in Johannesburg.

5.5.1.2 **Sampling Frame**

Sampling frame refers to a list identifying each element in the study population (Kumar, 2019). Explicitly stating the sampling frame is critical as it forms the basis for selecting the study elements or subjects that will participate in the study (Bhattacherjee, 2019). However, if all elements in a sampling population cannot be individually identified, it is impossible to have a sampling frame for that study population (Kumar, 2019). In this case the sampling frame does not differ from the population (Kumar, 2019). Given the limited population data in Alexandra township, it was impossible to identify each element in the study population as there is no record of all residents living in the township and hence the sample frame of this study is the same as the population. The sample frame for this study therefore comprises of a) persons living in Alexandra township in Johannesburg, b) who are 18 years or older, c) who were available to be interviewed when approached by the researcher and d) were familiar with the celebrities under discussion.

5.5.1.3 Sample Method

The sampling method describes the manner in which the units of observation or units to be surveyed in the case of the current study will be selected from the population (Babbie, 2021). There are two types of sampling strategies: probability sampling and non-probability sampling. Probability sampling requires that each unit, member, or element in the defined population has an equal chance of selection in the sample and that this chance can be accurately determined (Bhattacherjee, 2019). Elements included using probability sampling are therefore representative of the target population such that the inferences or statistics produced from this sample can be generalised to the larger population. The opposite is true for non-probability sampling, where the process is subjective, influenced by human choice. Here, selection is not guided by equal chance but instead, inclusion is less random based on techniques such as convenience, quota, purposive, and snowball sampling (Bhattacherjee, 2019; Kumar, 2019; Babbie, 2021). Many researchers discourage non-probability sampling due to its tendency to produce less representative samples comparative to probability samples and consequently also limiting the generalisability of findings (Babbin, 2020).

Although probability sampling is preferred, it is often impossible in many research situations (Babbie, 2021). For this study, a probability technique was not feasible and hence non-probability convenience sampling was used. Probability sampling follows the logic of probability wherein the number of elements in the population have to be accurately determined in order to draw random probability sampling (Kumar, 2019; Babbie, 2021; Bhattacherjee, 2019). Population data for Alexandra Township is limited and hence it is impossible to accurately identify all residents living in Alexandra in order to draw random probability sampling and attempts to do so would have been costly and taken too much time. Convenience sampling was therefore deemed more suitable as it allowed for the inclusion of residents into the sample based on their accessibility and availability at the time the research was being conducted. Additionally, this method was efficient, easy, quick, and inexpensive to administer.

Accordingly, during March 2021, residents who happened to be available at the time that the survey was being conducted were approached and included in the sample. This decision to adopt convenience sampling in this study is further supported by researchers who have defended convenience sampling as a suitable method when the population is homogenous. They have argued that a random sample would not yield results that are any different if the population is similar with respect to the characteristics under study (Bhattacherjee, 2019; Kumar, 2019). Alex residents are expected to share similar socio-economic characterises, life stories, challenges, and situational experiences. A high similarity with respect to the characteristics under study can therefore be assumed and hence also a homogeneity argument can be made for this population. Additionally, it has also been stated that the statistical power of a convenience sample increases as the sample size increases, thus an adequate sample size, as discussed next was gathered to exploit this advantage (Bhattacherjee, 2019; Kumar, 2019).

5.5.1.4 **Sample Size**

Sample size refers to the number of participants, subjects, or units of observation that will be included in the study (Memon et al., 2020). In statistical analysis determining an appropriate sample size to draw valid conclusions from the research findings to infer to the larger population with precision is vital (Kumar, Talib & Ramayah, 2013).

However, the literature regarding what is an adequate sample size is contentious with variations. There has been research suggesting that samples that are too small will not yield valid results that accurately represent the population understudy (Memon et al., 2020). Whereas other research has found that whilst larger samples can be more representative, if they are too big, they may significantly increase the cost and time taken to conduct the research (Memon et al., 2020) and most important overestimate the research findings (Hair, Black, Babin & Anderson, 2018). In other instances, researchers have called for a focus on the way data is collected rather than obsessing over increasing sample size, arguing that careful selection of the respondents to ensure good representation is more important to a study than the size of its sample (Memon et al., 2020). It has also been suggested that even small sample can provide a reasonably good estimate for a homogeneous population because when there is a small variation in the characteristics of interest of a given population, the results from a larger sample would not make much of a difference (Kumar 2019).

Hair et al. (2018) is a widely referred to source for determining sample size. The authors provide power tables as a guideline to determine appropriate sample sizes for various measurement and structural model characteristics. They suggest that a sample of 100 is sufficient to produce reliable results for most research situations. According to Memon et al. (2020) online calculators are also suitable as well as frequently used to determine appropriate sample size. These calculators typically input the study's confidence level, margin of error and population size to calculate the minimum sample required (Memon et al., 2020). The Raosoft sample size calculator was used in this study. The Raosoft calculator takes into account the mentioned inputs as well as the response distribution to calculate an appropriate sample size. Given the estimate population of 147 292 adults over 18 living in Alex, allowing a 90% confidence level, and accepting a margin of error of 5% and a response distribution of 50%, the suitable sample size calculated for this study is 271 participants. Subsequently, to further decrease sample errors without the number being too large such that it is an overly sensitive sample (Hair et al., 2018), a total of 300 research participants were included in the current study. This meets the threshold of 100 recommended by (Hair et al., 2018).

5.5.1.5 Data Collection Method

For research to provide high quality information that helps to solve problems, the types and sources of information that will be used must be identified. This is imperative as only quality information can provide data that can be translated into rich analysis and consequently enable the building of convincing and credible answers to research questions (Kumar, 2019; Saunders et al., 2019).

In research, two types of sources can be used to gather information about a situation or the phenomenon of interest, primary and secondary data sources (Kumar, 2019). Primary data refers to data that has been collected first-hand by the researcher for the sole purpose of addressing the current research problem (Kolb, 2018; Saunders et al., 2019; Kumar, 2019). A self-administered questionnaire was distributed through a survey to collect quantitative data from primary sources to answer the research questions of this study. Secondary data sources on the other hand are those data that have been previously collected by other researchers for some other purpose either than the one at hand (Kolb, 2018; Saunders et al., 2019; Kumar, 2019). Many secondary sources have been utilised and referred to throughout this study and include websites, government records, academic journals, and papers as well as textbooks.

The choice of data collection was also motivated by the lack of internet access, computers, potentially low computer literacy, and survey competency in this community thus rendering technology-based tools such as email and online surveys useless in this environment. That said, responses were collected at various locations which were identified as the most obvious places where residents are likely to congregate, and these included shopping centres, taxi ranks, bus stations, and the local municipal run multi-purpose community centres which residents frequent to access municipal services such as home affairs, labour, health, and electricity services. Residents were randomly approached depending on their availability and willingness at the time. The researcher was present during the completion of the questionnaire and collected responses at the same time.

5.5.1.6 **Ethical Considerations**

Ethical concerns are a critical aspect for the success of any research project and thus require thorough consideration. Saunders et al. (2019) advise that when considering ethical considerations researchers should think about how they will gain access to the data needed and second and how they will explain to those from whom the data is obtained why the data is needed. Saunders et al. (2009, p.15) define research ethics as “questions about how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data, analyse data and write up our research findings in a moral and responsible way”.

For this study, the purpose of the research as well as what participation entails was stated in writing and verbally to participants. Moreover, participants were informed that their participation in the study is voluntary and hence they could choose not to participate or withdraw from the study or decline to answer any of the questions if they found a reason to do so. In addition, participants' anonymity was observed by omitting their names or any other information that may identify them in the data collection instrument. And finally, ethical approval for conducting the study was requested and granted by the University of the Witwatersrand. Moreover, as the survey was conducted during the Covid-19 pandemic, applicable protocols had to be taken. As such, these we observed in line with the South African Covid-19 national regulations. These included social distancing, wearing of masks by the researcher and participant during the entire session, and the use of hand and surface sanitiser.

5.6 Data Collection Instrument

The research instrument is the tool that is used to collect data from the research participants (Creswell & Creswell, 2018). It combines the values of several items, questions, observations, or variables into a composite measure to predict some underlying continuum (Creswell & Creswell, 2018). The construction of the research instrument is imperative as the study's findings are solely dependent upon the information collected using it (Kumar, 2019). Additionally, the choice of instrument depends on the nature and purpose of the investigation, the resources available, and the skills of the researcher (Kumar, 2019). The measurement instrument chosen for this study is a self-administered questionnaire in which the respondents answer a predetermined set of answers. Given that this study had to be completed under time constraints, the benefit of using a questionnaire compared to other methods such as interviews, focus groups, and observations is that it has the advantage of distribution to a wider audience. Additionally, given this study's sizeable sample size and limited resources, a self-administered questionnaire provides an economical way of collecting responses from a large sample because it doesn't require many resources, and as well as participants respond to the same set of questions making it more efficient. A questionnaire is also more suitable for this study as it yields standardised results that can be treated statistically for testing the hypotheses of this study (Kolb, 2018; Creswell & Creswell, 2018; Kumar, 2019).

A potential drawback of self-administered questionnaires is that in the absence of an interviewer there is no one to provide clarity on difficult questions (Kumar, 2019). English is spoken and understood by most people in Alex township, it is however not their first language and may very well be a second or third language for many people (Showme.co.za., 2016). Whilst the issue of English competency is noted, most people in Alex do have functional English literacy (Khuluvhe, 2021) and hence it was deemed appropriate to administer this study in English. That being, this study did attempt to mitigate a possible literacy bias by ensuring that the instrument uses multiple-choice questions and Likert scales which are simple and easy to follow. The questions are also conveyed in simplified language and a researcher was also available during completion to provide further clarity where it was needed.

The questionnaire comprises 39 questions. It starts with close-ended questions to establish whether the potential participant is indeed a resident of Alex. Demographic information is then collected as a way of settling the participant into the questionnaire and confirming that the characteristics of the sample are indeed representative of the population from which it was drawn (Bhattacherjee, 2019), and include sex, age, and education level of participants. The remainder of the questionnaire is designed to support the variables of the of this study. Questions to probe residents' personal involvement with environmental pollution of their domestic spaces and was measured using the shortened version of (Zaichkowsky, 1994) revised personal involvement inventory as well as (Nowak & Salmon, 1987) scale to measure involvement with social issues. The Normative influences scale is adapted from (Clement, Henning & Osbaldisto, 2014), and (Fishbein & Ajzen, 2010). Residents perceived knowledge of environmental pollution of their domestic spaces and are measured using a scale adapted from (Flynn & Goldsmith, 1999). Problem recognition scale is adapted from (Kim et al., 2012). Source expertise and source attractiveness as a conduit for problem recognition and eventual message effectiveness and is guided by (Ohanian, 1990) scale of descriptive pairs. And finally, the scale to measure intentions to seek information post being exposed to the advertisement is adapted from (Ajzen, 2006) as well as (Kim et al., 2012) information seeking measurement. A detailed discussion on the construction of the measurement scales is provided next.

5.6.1 Measurement Scales

5.6.1.1 Personal Involvement

As earlier stated, in this study personal involvement is operationalised as the extent to which a resident perceives environmental issues as central or personally important in their lives (Gendel-Guterman & Levy, 2013). There are 5 items on a Likert scale, using the anchors 1 (negative response) to 5 (positive responsive). The scale is adapted from (Zaichkowsky, 1994) revised personal involvement inventory to capture and measure the level of involvement consumers exhibit as well as (Nowak & Salmon, 1987) scale to measure involvement with social issues, with higher scores implying greater involvement. Previous validation for (Zaichkowsky, 1994) four-item shortened inventory can be found in (Rahman, 2018; Russell-Bennett et al., 2007; Kim et al., 2012 as cited in Bortree & Waters, 2010). Whilst Zaichkowsky's scale concentrated on tangible products, Bortree and Waters (2010) maintain that it is context-free, suggesting that the involvement scale may be useful in non-product related contexts. The scale has indeed shown reliability and validity in non-product settings. For instance, across a variety of service contexts (Bienstock & Stafford, 2006), involvement with healthcare, purchase decisions of financial services, sport fanaticism and news consumption, and non-profit organisation-volunteer relationship (Bortree & Waters, 2010). The items used in the scale are presented in Table 4 below.

Table 4: Personal Involvement Inventory Scale

Variable	Dimensions		Scale
How would you describe pro-environmentalism in your life?			
Personal Involvement	Unimportant	Important	5-point Likert scale pairs
	Means nothing to me	Means a lot to me	
	Worthless	Valuable	
	Irrelevant	Relevant	
	Does not matter to me	Matters to me	

Source: (Zaichkowsky, 1994; Nowak & Salmon, 1987)

5.6.1.2 Normative Influences

Normative influences were conceptualized as resident's perceived social pressures by significant others to comply with environmental behaviour norms (Fishbein & Ajzen, 2010). There are five items on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores imply stronger normative influences. Previous scales by (Clement et al., 2014) measuring the extent to which people who are important to an individual approve, support, and have pro-environmental behaviour as well as (Fishbein & Ajzen, 2010) predicting and changing behaviour were modified to suit the current study. The items of this scale are presented in Table 5 below.

Table 5: Normative Influences Scale

Variable	Item	Scale
Normative Influences	Most people who are important to me, think that I should be concerned about the environmental pollution of my domestic space	5-point Likert scale
	Most people who are important to me, do take actions to avoid environmental pollution of their domestic space	

	Most people who are important to me, expect me to take action to avoid environmental pollution of my domestic space	
	It matters to me, what people that are important to me, think I should do to avoid the environmental pollution of my domestic space	
	My neighbours expect me to take action to avoid environmental pollution of my domestic space	

Source: (Clement et al., 2014; Fishbein & Ajzen, 2010)

5.6.1.3 Perceived knowledge

This study understands perceived knowledge to be one's subjective belief about what and how much they think they know about contamination of their domestic space (Hadar et al., 2013). Perceived knowledge is measured with 5 items on a five-point Likert scale with the anchors 1 (strongly disagree) to 5 (strongly agree). It is adapted from (Flynn & Goldsmith, 1999) with high scores indicating higher perceived knowledge. These researchers constructed a self-report measure of a consumer's perceptions of their own subjective knowledge on a topic that can be adapted to various contexts. Table 6 presents the items in this scale.

Table 6: Perceived Knowledge Scale

Variable	Item	Scale
Perceived Knowledge	I think that I am quite knowledgeable about environmental pollution of my domestic space	5-point Likert scale
	When it comes to environmental pollution of my domestic space, I really know a lot	
	I think I know enough about environmental pollution, to feel confident about my actions towards environmental pollution of my domestic space	
	I feel confident about my ability to understand information about environmental pollution of my domestic space	
	I rarely come across information about environmental pollution of my domestic space that I haven't heard of	

Source: (Flynn & Goldsmith, 1999)

5.6.1.4 Problem Recognition

In this study, problem recognition is conceptualised as residents' acknowledgement of the negative impact of current environmental practices in contaminating their living space and consequently affecting their overall health and well-being (Blackwell et al., 2018). This section investigates the extent to which residents perceive environmental pollution of their domestic spaces as problematic in the first place. That is, whether they acknowledge the negative impact of current environmental practices in contaminating their living space and causing domestic hygiene problems which has an overall effect on their health and well-being. The measure for problem recognition consists of five items on a Likert scale using the anchors 1 (strongly disagree) to 5 (strongly agree). The scale is adapted from (Kim & Grunig, 2017), as well as (Kim et al., 2012) with higher scores indicative of stronger problem recognition. The items are listed in Table 7 below.

Table 7: Problem Recognition Scale

Variable	Item	Scale
Problem Recognition	I often think about the environmental pollution in my neighbourhood	5-point Likert scale
	I think that environmental pollution of domestic spaces is a problem in my community	
	I feel that something needs to be done to improve the state of environmental pollution in my community	
	I feel that environmental pollution has a negative effect on my and health and well-being	
	The government should take action to solve problems of environmental pollution in the community	

Source :(Kim & Grunig, 2017 ; Kim et al., 2012)

The advertisements were then presented to a respondent to confirm if they know the celebrities presented to them. The order in which the advertisements was presented, was random each time, such that sometimes the entertainment celebrity was presented first and at other times, it was the sport celebrity who was first presented. Respondents were asked if they are familiar with both celebrities and in the case that they were not with either celebrity, the session was abandoned. Under the guidance of the researcher, the respondent then completed all questions relating to each celebrity, one at a time before proceeding to the set of questions for the next celebrity. The responses on source expertise and attractiveness are based on the presented advertisement as depicted in Figure 2 below.

Figure 2: Research Stimuli (Advertisements presented to respondents)

5.6.1.5 **Source Expertise**

As earlier operationalised, source expertise is understood as the extent to which a resident perceives the celebrity to be relaying valid information about pro-environmentalism (Erdogan, 1999; Amos et al., 2008). Measurement items for source expertise were adapted from (Ohanian, 1990) scale of descriptive pairs. There are five items on a Likert scale using the anchors 1 (negative response) to 5 (positive response) with higher scores implying stronger perceived expertise.

5.6.1.6 Source Attractiveness

Source attractiveness as previously stated in this study is conceptualised as the extent to which residents of Alex perceive the celebrity to embody attractiveness characteristics; similarity, familiarity, and likeability (Erdogan, 1999; Amos et al., 2008). Five items on a Likert scale using the anchors 1 (negative response) to 5 (positive response) to measure source attractiveness are adapted from (Ohanian, 1990) scale of descriptive pairs. Higher scores imply a high degree of perceived attractiveness. The items for source expertise and attractiveness are presented in Table 8 below.

Table 8: Scale of Descriptive Pairs to Measure Perceived Expertise and Attractiveness

Variable	Paired Items		Scale
The Celebrity is …			
Expertise	An expert on environmental issues	Not an expert environmental issue	5-point Likert scale pairs
	Experienced in environmental issues	Inexperienced in environmental issues	
	Knowledgeable about environmental issues	Unknowledgeable about environmental issues	
	Qualified to provide information about environmental issues	Unqualified to provide information about environmental issues	
	Skilled to provide information about environmental issues	Does not have the skill to provide information about environmental issues	
Attractiveness	Attractive	Unattractive	
	Classy	Not classy	
	Beautiful	Ugly	
	Sexy	Not sexy	
	Elegant	Plain	

Source: (Ohanian, 1990; Amos et al., 2008)

5.6.1.7 Intentions to Search for Information

And finally, the study defined intentions to search for information as the likelihood that residents will actively gather information about pro-environmental practices post being exposed to the advertisement (Fishbein & Ajzen, 2010). The scale used for this variable is adapted from (Ajzen, 2006) manual for constructing intention questionnaires as well as (Kim & Grunig, 2017) information seeking measurement. The scale has four items, using the anchors 1 (strongly disagree) to 5 (strongly agree), where higher scores imply stronger intentions to search for information. Table 9 below lists the scale items.

Table 9: Intentions to Search for Information Scale

Variable	Item	Scale
Intentions to search for information	After seeing the advert, I plan on learning more about how I can become more pro-environmental in my actions	5-point Likert scale
	After seeing the advert, I plan to seek more information about environmental pollution	
	After seeing the advert, I will request information about pro-environmental behavioural practices	
	After seeing the ad, I will check the media regularly to see if there is any new information about about pro-environmental behavioural practices	

Source: (Ajzen, 2006; Kim & Grunig, 2017)

A summary of the measurement scales adopted in this study is presented in Table 10 below.

Table 10: Summary of Construct Measurements

Construct	No of Items	Scale	Source of Measuring Instrument
Personal Involvement	5	5-point Likert scale	(Zaichkowsky, 1994; Nowak & Salmon, 1987)
Normative Influences	5	5-point Likert scale	(Clement et al., 2014; Fishbein & Ajzen, 2010)
Perceived Knowledge	5	5-point Likert scale	(Flynn & Goldsmith, 1999)
Problem Recognition	5	5-point Likert scale	(Kim & Grunig, 2017; Kim et al., 2012)
Source Expertise	5	5-point Likert scale	(Ohanian, 1990)
Source Attractiveness	5	5-point Likert scale	(Ohanian, 1990)
Intentions to Search for Information	4	5-point Likert scale	(Fishbein & Ajzen, 20106; Kim & Grunig, 2017)

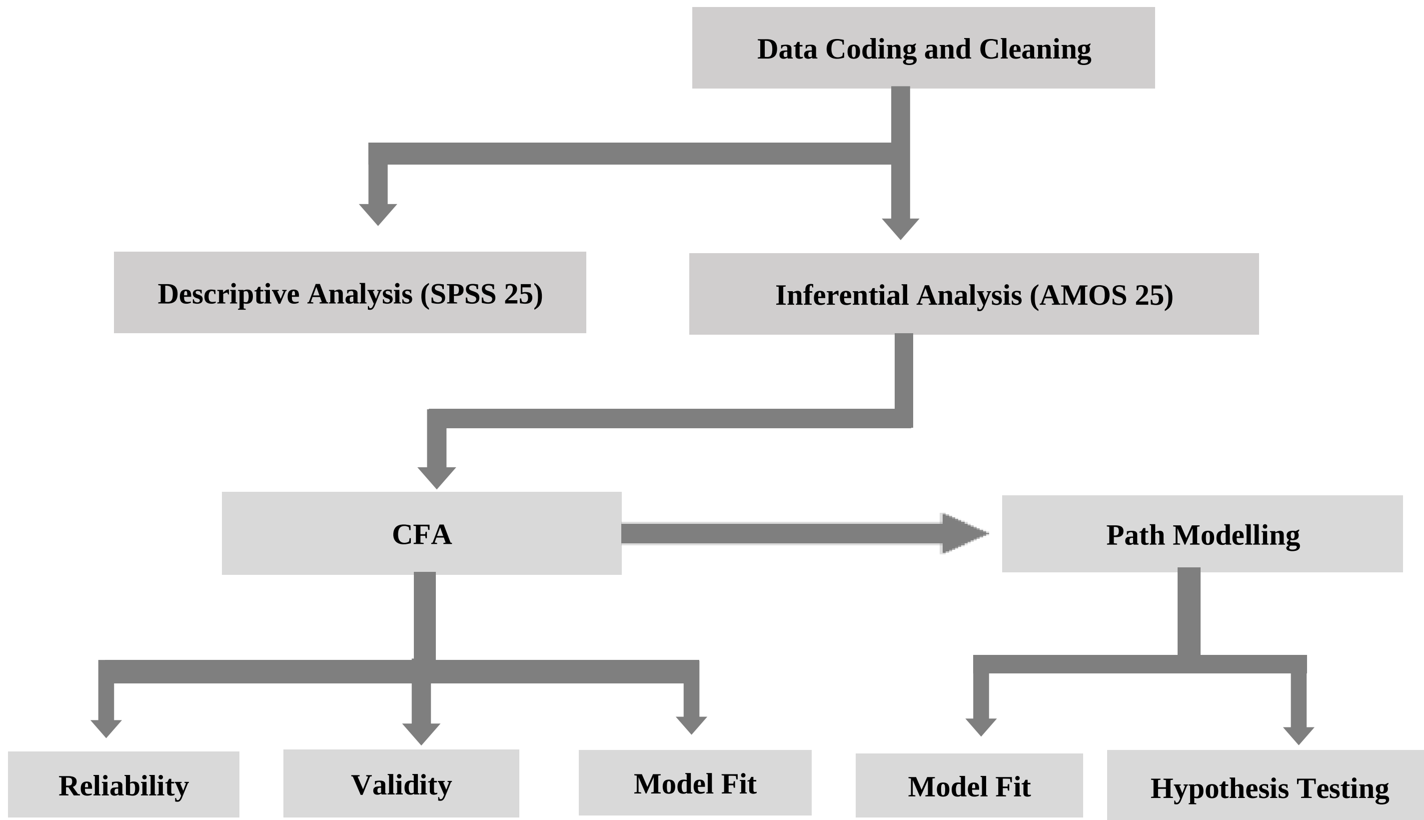
5.7 Data Analysis Approach

The data analysis approach entails the various statistical techniques and processes that are applied to the raw dataset to transform them into the intelligence for extracting research results (Zikmund, Babin, Carr & Griffin, 2013). In other words, the data is converted into meaningful information such as relationships and trends for answering the research questions and meeting the study's objectives (Zikmund et al., 2013). The data analysis process followed is illustrated in Figure 2 below and discussed in detail in the remainder of this chapter.

5.8 Data Editing and Coding

Raw data is bound to contain errors by respondents and those made by the researcher. Hence before any statistical analysis can be performed using the raw data, it must be edited and cleaned to rectify these mistakes (Saunders et al., 2009). The editing process involves checking and adjusting raw data for omissions, consistency, and ensuring the legibility of questions (Zikmund et al., 2013). It is only thereafter that the data can then be used in the application of various statistical routines including those associated with descriptive and inferential analysis (Zikmund et al., 2013) as elaborated further on in this chapter. Since this study used structured questionnaires with predetermined responses, it was possible to pre-code the questions before data collection. Descriptive questions such as demographic questions were allocated dummy nominal codes; for example, 1 for female and 2 for male. For the rest of the questionnaire, a combination of paired comparison scales on 5 anchors as well as 5-point Likert scales was coded from 1 to 5. As recommended by previous researchers, all questions were worded in the same direction, such that lower scores represent negative responses (1) and higher scores (5) positive responses. Collected data was edited and where necessary corrected for errors. The edited and coded raw data was then captured into Excel for preparation to use in statistical software. In the final step of the data cleaning process, captured codes were once again checked to ensure that they fell within the range of allocated codes as well as scanning for any additional blatant errors (Zikmund et al., 2013).

Figure 3: Data Analysis Approach



5.9 The Study's Descriptive and Inferential Analysis

As per the quantitative research design chosen for the present study, there are two options to analyse data quantitatively: descriptive and inferential analyses (Bhattacherjee, 2019). Descriptive analysis is concerned with the transformation of data in a way that statistically describes the characteristic of the data set. Inferential analysis on the other hand and by implication makes inferences and predictions from sample data about the population from which the sample was obtained (Bhattacherjee, 2019). In this study, both descriptive and inferential statistics were used. To start with, as per Figure above, edited and coded data was captured in Microsoft Excel. The data analysis was then conducted in Statistical Package for the Social Sciences (SPSS) version 25 and AMOS version 25. All results and consequent interpretations are presented in subsequent chapters of this study.

5.10 Statistical Modelling

Statistical modeling techniques, such as correlations, regression, and analysis of variance are used across many disciplines in modern research, including in; social sciences, economics, business, behavioral studies (Schumacker & Lomax, 2016). These models are used to derive information on a topic of interest and have thus become essential in the analyses of large-scale social survey data (Schumacker & Lomax, 2016). A statistical model is a set of equations that relate observable data to underlying parameters that are meant to characterise the real world or put differently, it is a mathematical representation of observed data to try and understand the underlying nature of the data (Schumacker & Lomax, 2016). These models use mathematical equations to encode information that is extracted from data and then conduct analyses such as hypothesis testing and confidence intervals to infer relationships between variables, validate hypotheses, or discover insights from the given set of data (Gailmard, 2014). For its analysis, this study used structural equation modeling (SEM), which is discussed next.

5.11 Structural Equation Modelling

SEM is a term used to describe a closely related collection of comprehensive and flexible statistical analysis procedures that simultaneously combine to test complex relationships between variables in theoretical models (de Carvalho & Chima, 2014; Schumacker & Lomax, 2016; Khine, 2013). Following its introduction in the 1970s, SEM has become a widely used statistical technique permeating various research fields, such as psychology, sociology, education, and economics (Wang, Hefetzb & Libermanb, 2017). SEM's popularity across these disciplines is derived from its several distinguishing features. Firstly, SEM is not a single statistical technique. It integrates several multivariate techniques from various disciplines such as measurement theory and factor analysis from psychology, statistics and path analysis from epidemiology and biology, regression modeling from statistics, and simultaneous equations from econometrics into one framework (Kline, 2016; Schumacker & Lomax, 2016). This integration accords SEM the advantage of being a multivariate technique, capable of simultaneously processing multiple measures of a model and thus a powerful and flexible technique for analysing complex theoretical models (Schumacker & Lomax, 2016; Khine, 2013). This is unlike other techniques which typically can only handle a small number of variables separately thereby limiting their ability to explain complex phenomena (Schumacker & Lomax, 2016).

Another appealing feature of SEM is the representation of theories diagrammatically rather than with equations. In SEM, the postulated relationships under study which represent structural equations are modelled pictorially. This enables easier analysis and understanding, which is especially beneficial for social scientists who may not be comfortable with mathematical equations (Kline, 2016; Schumacker & Lomax, 2016). Also, unlike most other multivariate procedures which do not account for both direct and indirect effects on constructs, SEM can adjust for errors (Schumacker & Lomax, 2016). This is important because due to their complexity, multifaceted constructs are difficult to measure and are therefore often measured with error. Ideally, measurement estimates should be as close to the true score as possible to reduce these errors or to obtain scores that are free of error. SEM's produces estimates that are less contaminated by errors and hence closer to the true score of a measurement (Schumacker & Lomax, 2016).

SEM's prevalence can also be attributed to the fact that, in contrast to other multivariate methods that focus only on observed measurements, SEM integrates both observed and unobserved variables in its procedures. In SEM, variables are categorised into two major types, latent and observed variables. Latent variables refer to abstract constructs or factors of the study that cannot be directly observed or measured but are indirectly observed or measured and inferred from items in questionnaires, surveys and tests of respondents (Schumacker & Lomax, 2016). SEM derives measurements for these abstract variables from other related variables that can be measured (Schumacker & Lomax, 2016). Observed variables on the other hand, are those that are directly measured to describe the latent variables (Schumacker & Lomax, 2016). SEM is concerned with how sets of variables define constructs and how these constructs are related to each other (Schumacker & Lomax, 2016). As such, in SEM, latent variables which represent the concepts of a theory together with data from measured indicators are used as input for statistical analyses to generate information about the relationships of a given model (Williams, Vandenberg & Edwards, 2009; Wang et al., 2017).

Another difference in SEM is that whilst traditional methods typically explore the possible underlying factor structure of a set of observed variables without imposing a predetermined model, SEM in contrast tests explicitly stated relationships of hypothesised models (Kline, 2016; Schumacker & Lomax, 2016, Khine, 2013; Jackson, Gillaspy & Purc-Stephenson, 2009). In this regard, SEM consists of two interrelated components of models: a measurement model and a structural model (Kline, 2016). The measurement model estimates associations between latent variables and their related measured indicators (Kline, 2016; Khine, 2013). That is, how well the measured or observed variables of the study combine to represent each of their theorised latent variables or unobserved variables (Kline, 2016). Thereby confirming if the observed variables are indeed good indicators of their latent variables. On the other hand, the structural model is concerned with how the latent variables of the study are related, thereby defining whether the hypothesised relationships of the study are supported (Kline, 2016). In essence, the structural model examines the nature and magnitude of relations among the latent variables or the research's hypothesised relationships (Kline, 2016; Khine, 2013).

Logically, it makes very little sense to test for relationships if the constructs specified are not worthy of further attention. Hence within SEM, the measurement model must be confirmed first before testing for a significant relationship in the structural model (Kline, 2016; Schumacker & Lomax, 2016). This confirmation is vital because hypothesis testing will be valid only if the underlying measurement model confirms that the observed variables are acceptable in defining their latent variables (Kline, 2016; Schumacker & Lomax, 2016). The confirmation is done by ensuring that the measurement model has satisfactory levels of validity, reliability and model fit (Kline, 2016; Schumacker & Lomax, 2016). In the case that these prove to be inadequate, it is not appropriate to proceed to hypotheses testing (Khine, 2013). In SEM, these assessments are often conducted using a statistical technique called confirmatory factor analysis (Kline, 2016) as discussed next.

5.12 Confirmatory factor analysis (CFA)

Confirmatory Factor Analysis (CFA) is one of the statistical methods referred to that form part of the larger family of SEM and plays an essential role in the assessment of measurement models (Schumacker & Lomax, 2016; Kline, 2016). CFA is mostly focused on the link between latent variables and their measured indicators and therefore represents the measurement model. That is, although involving some exploratory element, SEM is primarily a confirmatory technique, in that, it more likely to be used to determine whether a certain model is valid, rather than to find a suitable model (Jackson et al., 2009). Meaning that CFA starts with theory that is then tested against collected data to confirm if the theory holds or put differently to confirm if that which is observed supports the study's hypotheses. In contrast to its investigative counterpart, exploratory factor analysis (EFA) which is applied to find the underlying variables, when using CFA, there needs to be a priori theory based model in which both the number of factors or latent variables and the hypothesised correspondence with their indicators is explicitly specified (Kline, 2016; Schumacker & Lomax, 2016, Khine, 2013; de Carvalho & Chima, 2014).

CFA is used to verify the measurement model which requires testing each cluster of observed variables separately to fit the hypothesised model (Khine, 2013). As with the latent variables which must be clearly stated, the observed indicators that define these latent variables in the hypothesised model must also be clearly specified so that an observation of the model fit can be conducted to see how well each latent variable is measured by its observed variable (Kline, 2016). Meaning that, the extent to which a latent variable is accurately defined depends on how strongly related the observed indicators are, such that when an indicator is weakly related, this will result in a poor definition of the latent construct (Khine, 2013).

For this study, a theoretical framework was developed firstly by linking environmental behaviour change communications to celebrity endorsement and consumer behavior literature. Then, as per the proposed conceptual model, Figure 1, in the previous chapter, the study's conceptual model hypothesised that latent variables; source expertise, source attractiveness, personal involvement, normative influences, and perceived knowledge will influence problem recognition which should, in turn, lead to intention to search for information. Thereby identifying variables to include in the study, establishing the assumed relationships between these variables, and generating the hypotheses of the study. Based on the theory, the observed indicators for each of the study's latent variables were also then identified and explicitly stated in the study's measurement instrument. These will be analysed from the responses of the study's sample as outlined in the previous section dealing with the construction of the measurement instrument. The latent variables with their corresponding observed indicators are the measurement model and the relationships between the latent variables is the structural model which is analysed in path analysis (Khine, 2013; Kline, 2016) as discussed later in this chapter. CFA is applied in determining whether observed indicators load on specified latent variables or constructs as theorised in the measurement model and if there are observed variables that are expected to load that do not. For example, observed variables may load on multiple constructs instead of loading on a single construct or may fail to load on a construct as expected. This study followed the process described above starting with CFA to verify the measurement model for adequate reliability, validity and model fit, then path modeling to deal with the structural model.

5.13 Confirming the Measurement Instrument

SEM, as with other kinds of statistical methods in the behavioural and management sciences, necessitates an analysis of the psychometric properties of the study's instrument or scale with evidence of reliability and validity of the observed scores from the measurement instrument (Kline, 2016). Therefore, before evaluating the model fit, the analysis of the psychometric properties of the instrument is undertaken. This is a vital step that must be performed early in the analysis, as scales that do not meet reliability and validity conditions can jeopardise the integrity of the results or even nullify them (Kline, 2016; Murphy & Davidshofer, 2005). Accordingly, the reliability and validity of this study's measurement instrument were analysed.

5.13.1 Reliability

Reliability is mandatory in the evaluation of assessments and questionnaires as it adds to the legitimacy and accuracy in the analysis and interpretation of data (Murphy & Davidshofer, 2005). Reliability deals with how consistent the said measurement model is in measuring the intended latent constructs (Ahmad, Zulkurnain & Khairushalim, 2016). It, therefore, concerns the extent to which a research instrument or the items that constitute the scale in the instrument produce stable and consistent results on repeated trials (Malhotra & Dash, 2011). This is because the measurement of any phenomenon always contains a certain amount of chance or random error and thus reliability provides a method for estimating the degree to which these random influences tend to impact measures from occasion to occasion (Murphy & Davidshofer, 2005). A scale therefore consists of interrelated items brought together to measure some underlying constructs, the concern of reliability is then to determine whether the same set of items would elicit the same responses if the same scale was re-administered to the same respondents on another occasion (Tourangeau, 2021). The items are then said to be reliable only when they provide stable and reliable responses over a repeated administration under consistent conditions of the instrument (Warrens, 2015). In this study two estimates of reliability were calculated for each construct: Cronbach alpha coefficient (Cronbach α) and composite reliability (CR).

5.13.1.1 **Cronbach Alpha Coefficient**

The Cronbach alpha statistic is a commonly employed index for measuring reliability. It is a measure of the internal consistency reliability of a test or scale and is expressed as a number between 0 and 1 (Ahmad et al., 2016). Internal consistency measures how closely related a set of items are as a group or put differently, the extent to which all the items in a test measure the same concept or construct (Ahmad et al., 2016). It follows that the stronger the items are interrelated, the more likely the test is consistent (Ahmad et al., 2016). Whilst there are different reports on the acceptable threshold for alpha values, too low values are generally considered as indicating an unsatisfactory instrument, whilst higher values, i.e., closer to 1, the more reliable the generated scale is (Murphy & Davidshofer, 2005; Tavakol & Dennick, 2011). Panayides (2013) for example, recommends an alpha value of 0.90. However, it has also been pointed out that higher values of alpha may not always be desirable and therefore do not always mean stronger reliability. This is because in some instances higher values may indicate lengthy scales, parallel items, item redundancy or narrow representation of the construct (Tavakol & Dennick, 2011). Considering these differences, it has been suggested that as a rule of thumb; acceptable levels of alpha should be no less than 0.6 and not much above 0.9 as illustrated in Table 11 below (Hamid, Sami & Sidek, 2017).

Table 11: Rule of Thumb for Cronbach's Alpha Coefficient

Alpha coefficient	Implied Reliability
below .60	Unacceptable
between .60 and .65	Undesirable
between .65 and .70	minimally acceptable
between .70 and .80	Respectable
between .80 and .90	very good
much above .90	consider shortening the scale

Source: (Hamid et al., 2017)

5.13.1.2 **Composite Reliability**

Whilst coefficient alpha remains the most widely used reliability estimator of scales and tests, there has been growing recognition that the underlying assumptions of coefficient alpha, such as that of uncorrelated uniqueness among scale items, are often untenable and as a result may underestimate true reliability (Warrens, 2015). Conceptually related to Cronbach alpha, composite reliability assesses reliability via a ratio of the variability explained by items compared to the total variance of the entire scale (McNeish, 2018). Composite reliability is therefore a popular alternative to coefficient alpha as it is said to be a more stringent test, producing more precise estimates of reliability than those provided by alpha (Peterson & Kim, 2013). Researchers have also emphasised that, composite reliability measures the overall reliability of a set of items loaded on a latent construct and therefore reflects the total amount of true score variance in relation to the total score variance (Malhotra and Dash, 2011). Likewise, Shyu, Li and Tang (2013, p. 13) cite Hair et al. (1995) who suggested that "composite reliability is the sum of the reliability of all measured variables, which revealed the internal consistency among all indices". In their article, Chen and Singpurwalla (1996, p. 1474) referred to "a notion of composite reliability as a measure of the overall reliability of a collection of heterogeneous but similar item". Accordingly, the higher the composite reliability value the more internal consistency among those indices and consequently the more reliable the scale is (Shyu et al., 2013). It has been generally recommended that composite reliability should be equal to and greater than the benchmark of 0.7 to be considered adequate (McNeish, 2018; Peterson & Kim, 2013; Malhotra & Dash, 2011). The reliability criteria adopted to assess the measurement instruments of this study are summarised in Table 12 below.

Table 12: Study's Reliability Criteria

Reliability Measure	Criteria	Source
Cronbach's Alpha - Internal consistency of items	Alpha ≥ 0.60	(Hamid et al., 2017)
Composite Reliability (CR) - Internal consistency of the measurement model	CR ≥ 0.7	(McNeish, 2018)

The reliability of an instrument is closely associated with its validity (Murphy & Davidshofer, 2005) as discussed next.

5.13.2 Validity

Another principal concern for the measurement model that is closely related to reliability is whether the instrument provides a good measure of what it is supposed to measure (Murphy & Davidshofer, 2005). The validity of a scale reflects the extent to which differences in observed scale scores represent true differences on the construct being measured, rather than systematic or random error. It, therefore, reflects the ability of the instrument to measure what it is supposed to be measured for a construct (Ahmad et al., 2016). When a test has high validity, it means that its items are closely linked to the test's intended focus. When a scale has poor validity then it does not measure what it ought to and thus its results cannot be used to make accurate conclusions. A test, therefore, is only valid if it indeed measures what it claims to measure (Murphy & Davidshofer, 2005). In terms of the relationship between reliability and validity; the reliability of an instrument is not contingent upon its validity. In other words, an instrument can produce stable and consistent results but not measure what it is claiming to. However, an instrument cannot be valid unless it is reliable, meaning that if its results are inconsistent, then its validity is inconsequential. What is important though is ensuring that both reliability and validity are demonstrated so that the instrument measures what it claims to measure consistently and reliably (Murphy & Davidshofer, 2005).

Validity can be accessed using several methods (Murphy & Davidshofer, 2005). To satisfy the validity condition, the present study estimated the validity of the measurement model using convergent validity and discriminant validity. Both convergent and discriminant validity are subtypes of construct validity which is the degree to which measures of a test accurately represent their intended hypothesised construct (Murphy & Davidshofer, 2005). Khine (2013) explains that by calculating these two measures, the principal objective of validity can be met because it can be shown that one; items that are meant to be related and measuring the same construct are indeed related (convergent validity) and second; items that should not be related measuring different contrasts are in fact distinct from one another (discriminant validity). Patterns of intercorrelations among the measures are identified to estimate the degree of relatedness such that; correlations between theoretically similar measures should be high while correlations between theoretically dissimilar measures should be low (Khine, 2013). Neither meeting convergent or discriminant validity on its own is sufficient for establishing construct validity, both types of validity must be met to demonstrate evidence for construct validity (Murphy & Davidshofer, 2005; Khine, 2013).

5.13.2.1 **Convergent Validity**

Convergent validity evaluates the degree to which a measure relates to or converges on the construct that it is purported to measure (Bhattacherjee, 2019). Convergent validity is fulfilled when items of the same latent variable substantially correlate with each other, therefore high correlations, meaning that; measures of a construct that theoretically should be related, are in fact related or converge on the same construct (Ahmad et al., 2016). The Fornell & Larcker commonly referred to criterion for Average Variance Extracted (AVE) describes AVE as the average percentage of variation that is accounted for by the items in a construct versus due to measurement error or put differently; the measure of the error free variance of a set of items (Gu et al., 2019). Indicating therefore how well or not the measurement questions reflect the characteristics of each research variable in the model (Shyu et al., 2013). As AVE values range from 0 to 1, it has been suggested that adequate convergent valid measures should therefore contain less than 50% error variance, meaning that the AVE value should be equal to or greater than 0.50 to indicate reliability or that the measurement questions reflect the characteristics of each research variable (Ahmad et al., 2016). Convergent validity is therefore assumed to be met when the AVE of each construct is equal to or greater than 0.5. (Shyu et al., 2013; Ahmad et al., 2016), meaning that items that are meant to be related and measuring the same construct are indeed related (Murphy & Davidshofer, 2005).

5.13.2.2 **Discriminant Validity**

In contrast to convergent validity, discriminant validity seeks to confirm that items making up a construct can be distinguished from items of another construct (Henseler, Ringle & Sarstedt, 2015). The concern here, therefore, is the distinctiveness of a construct from others that it theoretically should be unrelated to (Shyu et al., 2013). According to Bhattacherjee (2019) discriminant validity can be described as the degree to which a measure does not measure (or discriminates from) other constructs that it is not supposed to measure. Discriminant validity is therefore satisfied when measures of constructs that theoretically should not be related to each other are, in fact, observed to not be related to each other (Ahmad et al., 2016). Discriminant validity is also useful for identifying and avoiding any redundant items in the measurement model (Zainudin, 2012) as it indicates a construct's empirical uniqueness, ensuring that that it is not captured by others in the model. Marketing researchers have frequently relied on two approaches to assess discriminant validity in SEM; the assessment of cross-loadings and the Fornell-Larcker criterion (Henseler et al., 2015).

5.13.2.3 **Assessment of Cross Loadings - Inter-Construct Correlation Matrix**

The assessment of cross loading is a commonly used approach for establishing discriminant validity and the inter-construct correlation matrix may be used to identify patterns of correlation between scale items and constructs (Henseler et al., 2015). Discriminant validity is met when each measurement item score correlates highly with its theoretically associated construct and weakly on constructs that it is not supposed to be associated with (Henseler et al., 2015). Discriminant validity is therefore met because a measurement item should be highly correlated with its own construct but not correlated with other constructs that it does not represent (Henseler et al., 2015). The recommended threshold for acceptability varies but a measure of less than 0.70 between constructs has been commonly accepted evidence to confirm distinctiveness and thus discriminant validity (Ahmad et al., 2016). Larger correlations have however been accepted as long as they are below 1.0. There is also the issue that low discriminant validity may cause multicollinearity; where the study's constructs themselves correlate highly with each other and hence are not distinctive from one another. Generally, the rule is estimated correlations between constructs should not be greater than 0.85 (Kline, 2016).

5.13.2.4 **Fornell-Larcker criterion - Average Value Extracted (AVE) and Shared Variance (SV)**

According to the widely used Fornell-Larcker criterion, discriminant validity can be assessed by comparing the amount of the variance captured by the construct and the shared variance with other constructs in the same model. Discriminant validity is established if a latent variable accounts for more variance in its associated indicator variables than it shares with other constructs in the same model (Henseler et al., 2015). This requirement can be assessed by comparing the shared variances among constructs in the model with the AVE of each construct (Henseler et al., 2015). Discriminant validity is supported when the AVE for each construct is above the recommended value of 0.5 and when the average variance extracted for each construct is greater than the highest shared variance or squared correlations between the construct and all other constructs in the model (Hamid et al., 2017). Meaning that conceptually distinctness of the construct is verified because the correlation of the construct with its measurement items is larger than its correlation with the other constructs (Hamid et al., 2017). Table 13 below provides a summary of the validity criteria used to assess the measurement model of this study.

Table 13: Study's Validity Criteria

Validity Measure	Criteria	Source
Convergent validity	Is achieved when the AVE of each construct is equal to or greater than 0.5.	(Shyu et al., 2013) (Ahmad et al., 2016)
Discriminant validity	Inter-Construct Correlation Matrix is achieved with measures of less than 0.70 between constructs	(Ahmad et al., 2016)
	Is achieved when Average Value Extracted (AVE) and Shared Variance (SV) extracted for each construct is greater than the highest shared variance or squared correlations between the construct and all other constructs	(Hamid et al., 2017)

5.14 Model Fit

Following validity and reliability verification of the measurement instrument, the next step is to confirm the model fit. In SEM, the purpose of model fit is to determine how well the observed data fit the hypothesised model or the extent to which the theoretical model is supported by the obtained sample data (Schumacker & Lomax, 2016; Hooper, Couglan & Mullen, 2008), where the smaller the difference is between the two the better the model and therefore fit (Khine, 2013). However, determining model fit in SEM has been a contentious issue due to disagreements over suitable criteria to use as well as what constitutes acceptable fit (Cangur & Ercan, 2015; Khine, 2013; Schumacker & Lomax, 2016). Researchers have therefore recommended that the evaluation of a model fit should be derived from a variety of model fit criteria in combination (Schumacker & Lomax, 2016; Cangur & Ercan, 2015). A summary of the model fit criteria utilised in this study, including the adopted acceptable values is presented in Table 14 below, followed by a discussion on each.

Table 14: Study's Model Fit Criteria

Model Fit Criteria	Acceptable Level	Source
Chi-square ($\chi 2$/DF)	$\chi 2 \leq 3$ = Good fit	(Cangur & Ercan, 2015)
Goodness-of-fit Index (GFI)	GFII ≥ .80 = acceptable GFI ≥ .90 = good	(Hooper et al., 2008) (Chinomona, 2013)
Comparative Fit Index (CFI)	CFI ≥ .90 = acceptable CFI ≥ .95 = good	(Cangur & Ercan, 2015) (Hooper et al., 2008)
Normed Fit Index (NFI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	(Hooper et al., 2008)
Incremental Fit Index (IFI)	IFI ≥ .90 = acceptable IFI ≥ .95 = good	(Hu & Bentler, 1999)
Tucker Lewis Index (TLI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	(Hu & Bentler, 1999) (Cangur &Ercan, 2015)
Root Mean Square Error of Approximation (RMSEA)	RMSEA ≤ .05 or .06 = good RMSEA ≤ .05 to .08 =acceptable RMSEA > 0.08 to .10 = mediocre RMSEA >.10 = unacceptable	(Schumacker & Lomax, 2016)

5.14.1 Chi-Square

The Chi-square ($\chi 2$) fit metric is the traditional measure for evaluating overall model fit. It assesses the extent to which the theoretical model is compatible with observed data (Hooper et al., 2008; Schumacker & Lomax, 2016). It is known as an absolute stand-alone fit index as it does not use an alternative model as a base for comparison but rather, is derived solely from the fit function (Schumacker & Lomax, 2016; Cangur & Ercan, 2015; Kline, 2016). As such, a significant $\chi 2$ suggests that the model does not fit the sample data and must therefore be rejected (Cangur & Ercan, 2015).

Whilst it is a popularly used fit static, researchers have noted some limitations to its use (Hooper et al., 2008). The first is that; the Chi-square square test "assumes multivariate normality and extreme deviation from normality may result in model rejection even though the model is properly specified" (Hooper et al., 2008, p. 54). Secondly, its powers are known to be sensitive to sample size such that larger sample size may be misleading as they typically produce higher chi-square values that are significant, resulting in the rejection of the model where it may fit the data well. Smaller samples on the other hand are likely to produce lower values resulting in the acceptance of a model that is in fact a bad fit and should be rejected (Hooper et al., 2008). As a result, the normative Chi-Square, which is not as sensitive to sample size, has been proposed as an alternative to the Chi-square and it is expressed as the chi-square index divided by the degrees of freedom; $\chi 2/DF$ (Cangur & Ercan, 2015). A normative Chi-Square value of equal to or less than 3 has been recommended as an adequate fit (Cangur & Ercan, 2015). Researchers have also suggested that due to the limitations of the Chi-square, it should not be used as a sole indicator of model fit and have therefore recommended that additional measures are used to assess a model of fit (Schumacker & Lomax, 2016; Cangur & Ercan, 2015) as discussed next.

5.14.2 Goodness-of-fit Index (GFI)

Originally developed as an alternative to the Chi-square test (Hooper et al., 2008), the Goodness of Fit Index (GFI) is also an absolute fit index that calculates the proportion of variance that is accounted for by the estimated population covariance thereby providing an estimate of how closely the model comes to replicating the observed covariance matrix (Hooper et al., 2008; Kline, 2016). Like the Chi-square, sample size seems to have detrimental effects on the GFI where; large samples create an upward bias and a downward bias with smaller sizes. Consequently, it is recommended that the GFI should not be relied upon as a standalone index (Hooper et al., 2008). The GFI statistic ranges from 0 to 1, where 1 indicates perfect model fit and values close to zero indicate very poor fit. A value of .80 has been recommended as an acceptable model fit (Chinomona, 2013) while a value of .95 is viewed as a good fit (Hooper et al., 2008; Kline, 2016).

5.14.3 Comparative Fit Index (CFI)

The Comparative Fit Index (CFI) belongs to a group of incremental fit indices. Unlike the absolute fit indices which use the chi-square in its raw form to derive their calculations, incremental fit indices rely on the comparison of the chi-square with a baseline model (Hooper et al., 2008; Kline, 2016). The CFI compares the model of interest with some alternative; specifically, it measures the improvement in no centrality between the observed model and the theoretical model (Kline, 2016; Schumacker & Lomax, 2016). The CFI is popular due to its capacity to be less affected by the sample size issues normally associated with the chi-square and other tests (Hooper et al., 2008; Kline, 2016). CFI values range from 0 and 1, with higher values indicating a good fit (Cangur &

Ercan, 2015). Generally, an acceptable fit is achieved with a CFI value equal to and larger than .90 and .95 a good fit (Cangur & Ercan, 2015; Hooper et al., 2008).

5.14.4 Normed Fit Index (NFI)

Like the CFI, the Normed Fit Index (NFI) statistic belongs to the group of indices that do not use the chi-square in its raw form but compare the chi-square to a baseline model (Hooper et al., 2008). Sensitivity to sample size is also its major weakness, where small samples may underestimate fit by indicating poor fit, even though other statistics point towards a good fit and therefore also cannot be solely relied on (Hooper et al., 2008). NFI values range from 0 to 1, where 1 indicates a perfect fit. An NFI value equal to and greater than .90 has been recommended as indicative of acceptable fit and .95 a good fit (Hooper et al., 2008).

5.14.5 Incremental Fit Index (IFI)

The Incremental Fit Index (IFI) is also as the name implies is part of the family of incremental fit indices that compare the Chi-square value to the baseline model, rather than using the Chi-square in its raw form (Kline, 2016). Its main advantage is that it is not affected significantly by sample size and therefore is able to respond to sample size deficiencies of the NFI (Cangur & Ercan, 2015). Its values range from 0 to 1 and the suggested threshold for the IFI is a value equal to and greater than .95 (Hu & Bentler, 1999).

5.14.6 Tucker Lewis Index (TLI)

The Tucker Lewis Index (TLI) is another type of incremental fit index also developed to mitigate the sample size disadvantage of the NFI (Cangur & Ercan, 2015). Like the other, incremental fit indices, it therefore also derives its calculations by comparing a proposed model against a baseline model (Hooper et al., 2008). Values equal to and greater than .90 are considered adequate fit (Hu & Bentler, 1999), and those equal to and larger than .95 a good fit (Cangur & Ercan, 2015).

5.14.7 Root Mean Square Error of Approximation (RMSEA)

Root Mean Square Error of Approximation (RMSEA) “is an index of the difference between the observed covariance matrix per degree of freedom and the hypothesized covariance matrix which denotes the model” (Cangur & Ercan, 2015, p.157). The RMSEA's usefulness has been attributed to its ability to be only modestly affected by sample size as well as the fact that it takes model complexity into account (Cangur & Ercan, 2015). RMSEA value must fall between .05 and .08 to indicate a good fit (Schumacker & Lomax, 2016).

Thus far, the discussion on this study's analysis procedure has focussed on the measurement model, which has already been mentioned as the part that assesses the link between observed indicator variables and the constructs they are theorised to measure, however, the relationships between the study's latent variables or hypothesis testing have not been dealt with and is covered next.

5.15 Structural Model and Path Modelling

The structural model has already been explained as the part of SEM that deals with hypothesis testing (Kline, 2016). In other words, in contrast to the measurement model, which concentrates on validating the structure of the variables under study, the focus of the structural model is to test the hypothesised relationships between the constructs (Schumacker & Lomax, 2016; Khine, 2013). In this case, path modelling is used to specify and test the structural model.

In SEM, hypothesised relationships are presented graphically on a path diagram to represent the theorised causal connections between the research's observed variables or its hypotheses (Kline, 2016; Schumacker & Lomax, 2016). Path analysis is applied to quantify the nature and magnitude of these cause-and-effect relationships (Schumacker & Lomax, 2016). One of the advantages of path modelling in SEM is that unlike path models outside of SEM, where only latent variables are considered; path modelling in SEM combines principles of both path and measurement models, thereby taking into account model fit, measurement errors of observed variables as well as the latent variables when evaluating a path model (Kline, 2016). As with the measurement model, these relationships must have a theoretical underpinning with evidence from prior studies. In this regard, based on celebrity endorsement and consumer behaviour literature that was presented in earlier chapters, this study proposed that; source expertise, source attractiveness, personal involvement, normative influences, and perceived knowledge will influence problem recognition which should, in turn, lead to intention to search for information. These theorised paths are illustrated in diagram Table 15 below. To test the research's hypotheses, therefore, a path analysis using statistical software was performed to determine the path coefficient and significance of the study's proposed hypotheses or relationships.

Table 15: Theorised Paths

Hypothesis	Theorised path
H1	Source expertise → problem recognition
H2	Source attractiveness → problem recognition
H3	Personal involvement → problem recognition
H4	Normative influence → problem recognition
H5	Perceived knowledge → problem recognition
H6	Problem recognition → intentions to seek information

Source: Compiled by Researcher (2019)

5.16 Chapter Conclusion

This chapter presented a detailed account of the research philosophy, design, and methodology according to which the current research has been conducted. The research was placed in the positivist deductive realm, utilising a self-administered questionnaire survey. The research design was stated as quantitative. Under research design, the sampling design, data collection methods, the measurement instruments, and its scale development were discussed. SEM was presented as the selected statistical modelling technique used in this study, including the justification for this choice. The data analysis procedure, statistical tools, and techniques utilised for analysing collected data were presented. The ethical issues that needed to be considered in this study were also highlighted in this chapter. The results of the data analysis are presented in the next chapter.

Chapter Six

Data Analysis

6.1 Introduction

The previous chapter dealt with the research design and methodology that was followed for this study. It also detailed the data analysis approach and analytical techniques and processes used in deducing the research results. The focus of this chapter is to present the findings and consequent discussions. Starting with a brief mention of the study's response rate which is followed by the descriptive analysis. The reliability, validity and correlation analysis are presented as well as the structural equation modeling and testing of the hypothesis.

6.2 Response Rate

A total of 340 questionnaires were collected from the sample. Of these, 300 questionnaires were eventually used for the analysis as the rest had significant missing responses, representing an 88% response rate.

6.3 Descriptive analysis

The descriptive analysis provides an account of the characteristics of the sample population and any other descriptive observations that are of interest to a study (Zikmund et al., 2013). The descriptive statistics of interest in this study are the characteristics of the participants' responses indicated by the mean and standard deviation of each variable as well as the demographic characteristics of the respondents, which include place of residence, sex, age and education level.

6.3.1 Characteristics of Participants' Responses

Considering that a five-point Likert scale was applied in this work, the minimum and maximum values that were computed ranged between one (strongly disagree) and five (strongly agree), respectively. The analysis proceeded to determine the level of respondents' agreement or disagreement for each construct. Mean values were computed as the measures of central tendency for this study and standard deviation values were computed to measure the variance of responses on each variable. The relationship between the mean and the standard deviation is that a small estimated standard deviation (SD) denotes that respondents' responses were consistent and that the response distributions are close to the mean (Hair et al., 2018), Conversely, a large standard deviation indicates that the responses are varying, making the response distribution values fall away from the mean of the distribution (Maziriri, Chuchu & Madinga 2019). Moreover, the standard deviation value "should be less than 1 but it is recommended to at least include a value of less than 2 to ensure that there is no issue of outliers" (Drost, 2011, p. 87). The descriptive statistics comprising the means and standard deviations of the items and predetermined constructs are provided with discussions in Tables 16, 17 and 18 below.

Table 16: Descriptive Statistical Results - Items Not Compared

Scale	N	Minimum	Maximum	Mean	Standard deviation
Personal Involvement					
PI1	300	1	5	3.63	1.243
PI2	300	1	5	3.45	1.262
PI3	300	1	5	3.42	1.187
PI4	300	1	5	3.38	1.208
PI5	300	1	5	3.49	1.310
Normative influence					
NI1	300	1	5	2.87	1.320
NI2	300	1	5	2.57	1.105
NI3	300	1	5	2.84	1.244
NI4	300	1	5	3.03	1.341
NI5	300	1	5	2.60	1.119
Perceived Knowledge					
PK1	300	1	5	3.30	.882
PK2	300	1	5	2.91	.930
PK3	300	1	5	2.86	.918
PK4	300	1	5	2.88	.945
PK5	300	1	5	2.73	.905
Problem recognition					
PR1	300	1	5	2.88	1.243
PR2	300	1	5	3.74	1.166
PR3	300	1	5	3.74	1.229
PR4	300	1	5	3.79	1.204
PR5	300	1	5	4.07	1.216

Source: Author compilation (2021)

Table 16 above provides a summary of the means and standard deviations for the responses that pertain to both celebrity types. The mean scores for personal involvement range between 3.38 to 3.63. This shows that the responses for personal involvement were mostly neutral with a slight skew to agree. This is a profound result; in stark contrast to the prevailing views that environmental issues are not important for township communities as discussed earlier in this study. For normative influence, the mean scores range from 2.57 to 3.03, also indicative of a neutral response for this construct. Mean scores for perceived knowledge are between 2.73 and 3.30. This also indicates that most responses are neutral with a slight skew to agree for this construct. The mean scores for problem recognition range between and 2.88 and 4.07 which indicates mostly neutral responses with a skew towards agreeing. The standard deviations for all constructs are below 2, the lowest being .882 and the highest 1.341. This confirms that generally all responses are close to their means and therefore there is no presence of problematic outliers.

Table 17: Descriptive Statistical Results – Sport Celebrity

Scale	N	Minimum	Maximum	Mean	Standard deviation
Source Expertise					
SE1	300	1	5	2.48	.955
SE2	300	1	5	2.35	.870
SE3	300	1	5	2.39	.891
SE4	300	1	5	2.50	1.471
SE5	300	1	5	2.40	.975
Source Attractiveness					
SA1	300	1	5	3.15	1.035
SA2	300	1	5	3.14	.994
SA3	300	1	5	3.38	1.125
SA4	300	1	5	3.44	1.157
SA5	300	1	5	3.46	1.104
Intention to Search for Information					
INT1	300	1	5	3.35	.919
INT2	300	1	5	3.04	.811
INT3	300	1	5	2.94	.782
INT4	300	1	5	2.74	.951

Source: Author compilation (2021)

The sport celebrity's mean scores for source expertise, range from 2.35 to 2.50, indicating that most of the responses are disagree with a slight skew to neutral. Mean scores for source attractiveness range from 3.14 to 3.46 and therefore most scores lean towards a neutral response for this construct. A similar pattern is observed for intention to search for information which has a mean score range of 2.74 to 3.35. The standard deviations for all constructs are below 2, the lowest being .782 and the highest 1.471. It can therefore be confirmed that there are no outliers.

Table 18: Descriptive Statistical Results – Entertainment Celebrity

Scale	N	Minimum	Maximum	Mean	Standard deviation
Source Expertise					
SE1	300	1	5	2.60	.985
SE2	300	1	5	2.47	.934
SE3	300	1	5	2.55	.958
SE4	300	1	5	2.72	1.506
SE5	300	1	5	2.57	1.053
Source Attractiveness					
SA1	300	1	5	3.44	.988
SA2	300	1	5	3.43	.935
SA3	300	1	5	3.62	1.016
SA4	300	1	5	3.64	1.065
SA5	300	1	5	3.61	1.037
Intention to Search for Information					
INT1	300	1	5	3.40	.892
INT2	300	1	5	3.08	.793
INT3	300	1	5	3.02	.780
INT4	300	1	5	3.16	1.099

Source: Author compilation (2021)

For the entertainment celebrity's measurement scale, the mean scores for source expertise, range from 2.47 to 2.60, indicating that most of the responses lean towards disagree with a slight skew to neutral. Mean scores for source attractiveness range from 3.43 to 3.64, which indicates a pattern towards neutral with a slight skew to agree for this construct. Intention to search for information has a mean score range of 3.02 to 3.40, meaning that most responses are neutral. The standard deviations for all constructs are below 2, the lowest being .780 and highest 1.506 and hence it can be confirmed that there are no problematic outliers.

6.3.2 Demographic Profile of Participants

To begin with, the questionnaire required participants to confirm whether they were living in Alex or not.

Table 19: Participants Place of Residence

Place of Residence		
I live in Alex	Frequency	Percentage
Yes	300	100

The results in Table 19 above show that in response to the question, do you live in Alex, all participants confirmed that they were indeed residents of Alex. Considering the aim of this study is to determine the responses of people residing in Alex, the participants were selected based on this criterion and therefore, anyone not meeting it would have been excluded. The rest of the sample demographic characteristics are summarised in Table 20 below and further elaborated after that.

Table 20: Sample Demographic Characteristics

Sex	**Frequency**	**Percentage**
Male	141	47.0
Female	136	45.3
Prefer not to say	23	7.7
Total	**300**	**100.0**
Age	**Frequency**	**Percentage**
19-30 years old	77	25.7
31-45 years old	86	28.7
46-60 years old	83	27.7
Over 60 years old	54	18.0
Total	**300**	**100.0**
Education	**Frequency**	**Percentage**
I did not complete primary school	29	9.7
I completed up to primary school	73	24.3
I completed up to High school/matric	123	41.0
I have a Diploma	51	17.0
I have a bachelor’s degree and above	24	8.0
Total	**300**	**100.0**

Source: Author’s compilation (2021)

As indicated, for the 300 residents of Alex township that were included in this study; 45.3% (n=136) of them are female and 47% (n=141) male, with 23% (n=23) preferring not to disclose their sex. In terms of age, participants were mostly evenly spread across the age groups of 19-30 at 25.7% (n=77); 31-45 at 28.7% (n=86) and 46-60 at 27.7% (n=83). The remainder 8% (n=54), representing over 60 age group. Regarding education, 9.7% (n=29) of participants did not complete primary schooling and 24.3% (n=73) have education up to primary school. The majority had completed some formal education with 41% (n=124) having completed high school, 17% (n=51) that have a diploma and the rest 8% (n=24) with a bachelor and above.

6.4 Measurement Model Assessment

It was stated in the previous chapter that before testing the hypotheses, the measurement model should be verified (Kline, 2016; Schumacker & Lomax, 201). The reliability and validity of the constructs and the model fit for the conceptual model are presented in this section.

6.4.1 Reliability

Reliability is concerned with the measurement model's consistency in measuring its intended constructs (Ahmad et al., 2016). The constructs of interest in this study are source expertise, source attractiveness, personal involvement, normative influences, perceived knowledge, problem recognition, and intentions to search for information. The reliability confirmation of this study is twofold, in that it seeks to analyse measures for two data sets for each celebrity type, a sport celebrity and an entertainment celebrity. The measures used to test the reliability of all constructs are Cronbach α and CR. The results for these tests are summarised below in the Accuracy Analysis Statistics Table 23 for the sport celebrity and Table 24 for the entertainment celebrity.

6.4.1.1 **Cronbach Alpha (α)**

The recommend threshold of Cronbach α of no value below 0.60, and not much above 0.90 (Hamid et al., 2017) is applied for this study. Additionally, Nunnally and Bernstein (1994) recommended a minimum value of 0.70 as the respectable threshold for Cronbach α. Table 23 and Table 24 show that Cronbach α scores for the sport celebrity range from 0.843 to 0.930 and for the entertainment celebrity 0.796 to 0.886 and are therefore within the criteria applied for this study. These findings suggest that the instrument has acceptable internal consistency for the entertainment celebrity. Overall reliability for both the sport celebrity and the entertainment celebrity is confirmed when using Cronbach α measures an indicator.

6.4.1.2 **Composite Reliability (CR)**

CR was used as an additional indicator of reliability (Peterson & Kim, 2013). The CR for each construct was calculated using the following formula as proposed by (Fornell & Lacker, 1981);

$\mathbf{CR\eta = (\Sigma\lambda yi)^{2} / [(\Sigma\lambda yi)^{2} + (\Sigma\varepsilon i)],}$ where CR = [(square of the summation of the factor loadings)/ [(square of the summation of the factor loadings) + (summation of error variances)]. A CR that is equal to and greater than 0.7 is considered the benchmark for adequate reliability (McNeish, 2018).

To start with, the sport celebrity's item to total correlation at PR1 already had a marginally acceptable item to total correlation value of 0.501 and following further analysis produced a factor loading value below 0.50. Similarly, the entertainment celebrity's factor loading for PI5 and item-to-total correlations for PR1 and SE5 is also below 0.50. Consequently, PR1 was deleted for both celebrities as well as PI5 and SE5 deleted for the entertainment celebrity as it could not be confirmed that these items meet the 50% threshold for measuring what they are supposed to and therefore exhibiting poor convergence to warrant further analysis (Shyu et al., 2013).

Following these amendments, Table 23 and Table 23 show CR values for the sport celebrity range from 0.83 to 0.93 and the entertainment celebrity 0.81 to 0.92, therefore all values surpassing the threshold of 0.70 that has been recommended in literature (McNeish, 2017). These results further confirm the reliability of the measurement instrument when using CR as an indicator.

6.4.2 Validity

Validity refers to the extent to which the scale measures what it is purported to measure (Murphy & Davidshofer, 2005). Convergent validity, discriminant validity, Average Value Extracted and Shared Variance was used to test validity. As with the reliability, this study's validity confirmations seek to analyse measures for each of the studies celebrity types, the sport celebrity and the entertainment celebrity. The results are summarised and discussed next.

6.4.2.1 Convergent Validity - Average Value Extracted

Convergent validity may be confirmed when the AVE estimate of each construct is equal to or greater than 0.50 as recommended in literature (Shyu et al., 2013). The AVE was the next measure used to verify the validity in this study, accepting AVE value equal to or greater than 0.50 as the standard for satisfactory reliability (Gu, 2019). The AVE for each construct was calculated using the following formula as proposed by (Fornell & Lacker, 1981); $\mathbf{V\eta=\Sigma\lambda yi2/(\Sigma\lambda yi2+\Sigma\varepsilon i).}$ Wherein

AVE= (summation of the squared factor loadings)/ [(summation of the squared factor loadings) + (summation of the error variances).

Taking into account the items already deleted for not meeting previous thresholds, Table 23 and Table 24 show that all AVE's meet the equal to or greater than 0.50 threshold, with the sport celebrity's values ranging from 0.50 to 0.77 and the entertainment celebrity's 0.50 to 0.73. When using the convergent validity test, these findings suggest that items converged well on the construct they were supposed to measure. Hence, the convergent validity of both celebrity scale items is satisfactory.

6.4.2.2 **Discriminant Validity**

Discriminant validity was assessed using the inter-construct correlation matrix and the Fornell-Larcker criterion of Average Value Extracted and Shared Variance **(**Hamid et al, 2017; Ahmad et al., 2016).

a) Inter-construct correlation matrix

The inter-construct correlation matrix was the first measure used for discriminant validity. Correlations were analysed for each celebrity type as depicted in Table 21 for the sport celebrity and Table 22 for the entertainment celebrity. Both the sport celebrity's and the entertainment celebrity's results show indicate acceptable discriminant validity as all correlations among constructs are less than the recommended 1.0. There were no multicollinearity problems as none of the estimated correlations between constructs are greater than the recommended 0.85 (Kline, 2016). When using the inter-construct correlation matrix, it can therefore be concluded that there are no problematic patterns of correlation between constructs and thus discriminant validity has been met.

b) Average Value Extracted (AVE) and Shared Variance (SV)

Following the method recommended by (Fornell & Larcker, 1981) discriminant validity was further analysed by testing whether the AVE value is greater than the highest shared variance (SV). In respect to the sport celebrity, using this method, the correlation matrix Table 21 shows that the highest shared squared variance is 0.417 (0.646^2) between INT and SA. All AVE's for each construct is greater than this correlation. The sport celebrity's AVE's range from 0.50 to 0.77, see Table 23, as such discriminant validity can be confirmed for the constructs on the sport celebrity's scales. Similarly, in relation to the entertainment celebrity, the correlation matrix Table 22 shows that the highest shared squared variance is 0.273 (0.523^2) between NI and PI. Table 24 shows that all the entertainment celebrity's AVE's are also greater than this correlation as they range from 0.50 to 0.73. The existence of discriminate validity can therefore be confirmed for both celebrity types.

Table 21: Inter-Construct Correlation Matrix - Sport Celebrity

	PI	NI	PK	PR	SE	SA	INT
Personal Involvement (PI)	1						
Normative Influences (NI)	.523**	1					
Perceived Knowledge (PK)	.375**	.304**	1				
Problem Recognition (PR)	.375**	.487**	.198**	1			
Source Expertise (SE)	.380**	.514**	.266**	.469**	1		
Source Attractiveness (SA)	.326**	.272**	.362**	.290**	.550**	1	
Intentions to search for information (INT)	.449**	.488**	.472**	.371**	.616**	.646**	1

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

Table 22: Inter-Construct Correlation Matrix - Entertainment Celebrity

	PI	NI	PK	PR	SE	SA	INT
Personal Involvement (PI)	1						
Normative Influences (NI)	.523**	1					
Perceived Knowledge (PK)	.375**	.304**	1				
Problem Recognition (PR)	.375**	.487**	.198**	1			
Source Expertise (SE)	.129*	.253**	-.005	.213**	1		
Source Attractiveness (SA)	.175**	.193**	.129*	.178**	.278**	1	
Intentions to search for information (INT)	.381**	.398**	.381**	.337**	.220**	.389**	1

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

Table 23: Reliability and Validity Test/Assessment - Sport Celebrity

Sport Celebrity						
Research Construct		**Cronbach's Test**		**CR Value**	**AVE Value**	**Factor Loading**
		Item-Total Correlation	**Cronbach α Value**			
PI	PI1	.767	.874	.87	.59	.884

	PI2	.756				.850
	PI3	.746				.878
	PI4	.699				.651
	PI5	.544				.502
NI	NI1	.724	.886	.87	.58	.749
	NI2	.759				.786
	NI3	.783				.822
	NI4	.628				.673
	NI5	.724				.781
PK	PK1	.544	.843	.83	.50	.633
	PK2	.720				.853
	PK3	.717				.786
	PK4	.711				.675
	PK5	.561				.539
PR	PR2	.768	.884	.94	.75	.931
	PR3	.832				.818
	PR4	.741				.763
	PR5	.784				.916
SE	SE1	.682	.888	.89	.62	.864
	SE2	.821				.825
	SE3	.837				.796
	SE4	.758				.801
	SE5	.541				.629
SA	SA1	.724	.919	.92	.71	.766
	SA2	.759				.876
	SA3	.783				.912
	SA4	.628				.746
	SA5	.724				.901
INT	INT1	.750	.930	.93	.77	.914
	INT2	.914				.898
	INT3	.918				.860
	INT4	.761				.835

Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

Table 24: Reliability and Validity Test/Assessment - Entertainment Celebrity

Entertainment Celebrity						
Research Construct		Cronbach's Test		CR Value	AVE Value	Factor Loading
		Item-Total Correlation	Cronbach α Value			
PI	PI1	.767	.874	.90	.70	.945
	PI2	.756				.867
	PI3	.746				.870
	PI4	.699				.630
NI	NI1	.724	.886	.88	.60	.757
	NI2	.759				.791
	NI3	.783				.846
	NI4	.628				.674
	NI5	.724				.796
PK	PK1	.544	.843	.83	.50	.652
	PK2	.720				.835
	PK3	.717				.801
	PK4	.711				.667
	PK5	.561				.520
PR	PR2	.768	.884	.92	.73	.819
	PR3	.832				.930
	PR4	.741				.877
	PR5	.784				.796
SE	SE1	.565	.796	.81	.51	.635
	SE2	.676				.794
	SE3	.656				.805
	SE4	.544				.613
SA	SA1	.648	.876	.89	.62	.598
	SA2	.784				.730
	SA3	.764				.915
	SA4	.730				.852
	SA5	.605				.799
INT	INT1	.612	.872	.88	.65	.737
	INT2	.794				.833

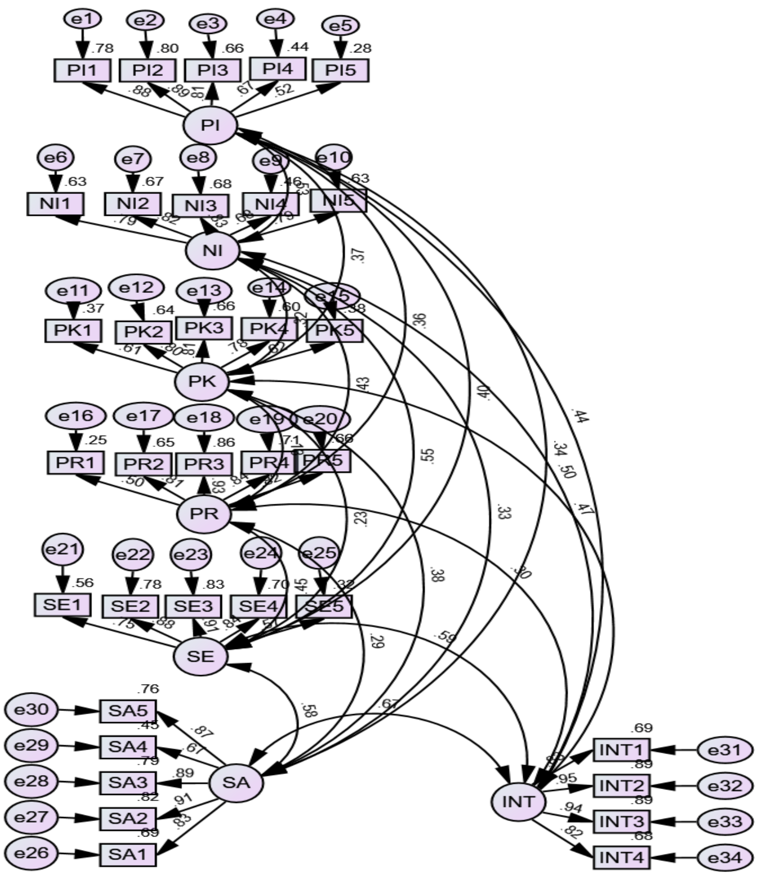
Entertainment Celebrity						
Research Construct		Cronbach's Test		CR Value	AVE Value	Factor Loading
		Item-Total Correlation	Cronbach α Value			
	INT3	.838				.882
	INT4	.650				.768

Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

6.4.3 Model Fit Assessment

Once the measurement model was verified for reliability and validity, next was to assess it for model fit. CFA requires a priori specified theoretical model in which both the number of factors and their correspondence with the indicators are explicitly defined (Kline, 2016; Schumacker & Lomax, 2016). To start with, Figure 3 below provides the confirmatory factor analysis model for the sport celebrity and after that its model fit results are reported in Table 25 and discussed subsequently. The entertainment celebrity's confirmatory factor analysis model is Figure 4, the summary of results in Table 26 and subsequent discussion follows after that.

Figure 4: Confirmatory Factor Analysis Model - Sport Celebrity



Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

Table 25: CFA Model Fit Results - Sport Celebrity

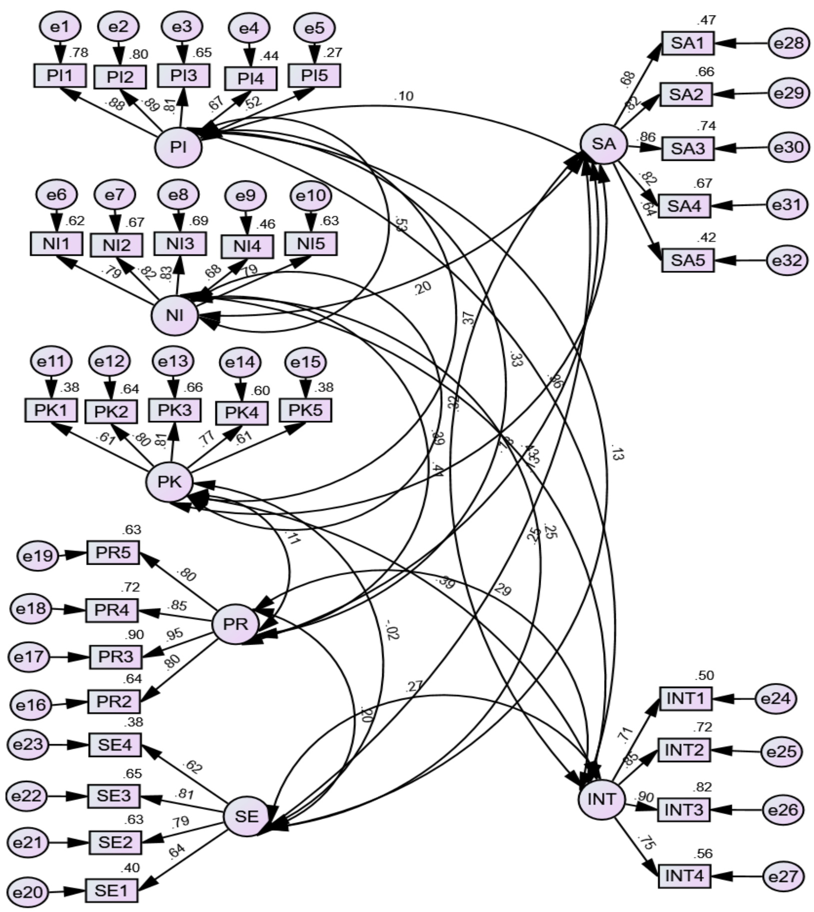
Model Fit Criteria	**Recommended Level**	**Study's Findings (Value)**	**Accepted/Not Accepted**
Chi-square (χ2/DF)	χ2 ≤ 3 = Good fit	1.769	Accepted
Goodness-of-fit Index (GFI)	GFII ≥ .80 = acceptable GFI ≥ .90 = good	.869	Accepted
Comparative Fit Index (CFI)	CFI ≥ .90 = acceptable CFI ≥ .95 = good	.955	Accepted
Normed Fit Index (NFI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	.903	Accepted
Incremental Fit Index (IFI)	IFI ≥ .90 = acceptable IFI ≥ .95 = good	.955	Accepted
Tucker Lewis Index (TLI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	.945	Accepted

Model Fit Criteria	Recommended Level	Study's Findings (Value)	Accepted/Not Accepted
Root Mean Square Error of Approximation (RMSEA)	RMSEA ≤ .05 or .06 = good RMSEA ≤ .05 to .08 =acceptable RMSEA > 0.08 to .10 = mediocre RMSEA >.10 = unacceptable	.051	Accepted

Source: Authors compilation (2021)

The model fit results for the sport celebrity in Table 25 above were all accepted, suggesting adequate model fit as follows: Chi-square χ2/DF (1.769); GFI (0.869); CFI (0.955); NFI (0.903); IFI (0.955), TLI (0.945), and RMSEA (0.051).

Figure 5: Confirmatory Factor Analysis Model - Entertainment Celebrity



Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

Table 26: CFA Model Fit Results - Entertainment Celebrity

Model Fit Criteria	Recommended Level	Study's Findings (Value)	Accepted/Not Accepted
Chi-square ($\chi2$/DF)	$\chi2 \leq 3$ = Good fit	1.324	Accepted
Goodness-of-fit Index (GFI)	GFII ≥ .80 = acceptable GFI ≥ .90 = good	.903	Accepted
Comparative Fit Index (CFI)	CFI ≥ .90 = acceptable CFI ≥ .95 = good	.977	Accepted
Normed Fit Index (NFI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	.912	Accepted
Incremental Fit Index (IFI)	IFI ≥ .90 = acceptable IFI ≥ .95 = good	.977	Accepted
Tucker Lewis Index (TLI)	NFI ≥ .90 = acceptable NFI ≥ .95 = good	.971	Accepted
Root Mean Square Error of Approximation (RMSEA)	RMSEA ≤ .05 or .06 = good RMSEA ≤ .05 to .08 =acceptable RMSEA > 0.08 to .10 = mediocre RMSEA >.10 = unacceptable	.033	Accepted

Source: Authors compilation (2021)

CFA model fit results for the entertainment celebrity in Table 26 above were also all accepted. The model fit results are as follows: Chi-square $\chi2$/DF (1.324); GFI (0.903); CFI (0.977); NFI (0.912); IFI (0.977), TLI (0.971), and RMSEA (0.33). In terms of the CFA measurement model fit, the two celebrities' findings suggest that both hypothesised models are well represented by the data, structural equation modelling may follow as done so next.

6.5 Structural Model Assessment and Hypothesis Testing

Following the confirmation of the CFA measurement model fit, the structural model analysis could proceed, starting with SEM model fit then testing the hypotheses.

6.5.1 SEM Model Fit Analysis

As with the measurement model, SEM model fit was analysed using the same fit indices, the results for both celebrity types are provided in Table 27 below. SEM model fit results for the sport celebrity indicate adequate model fit as follows: Chi-square $\chi2$/DF (2.388); GFI (0.814); CFI (0. 923); NFI (0.876); IFI (0.924), TLI (0.904), and RMSEA (0.068). Results for the entertainment celebrity are Chi-square $\chi2$/DF (2.097); GFI (0.837); CFI (0. 917); NFI (0.854); IFI (0.918), TLI (0.906), and RMSEA (0.061). These too suggest adequate model fit. As the results also show, the

NFI values for both celebrity types are slightly below the recommended threshold. Due to its sensitivity to sample size, the NFI index is known to underestimate fit for smaller samples wherein it does not approach 1 even when there is good fit (Hooper et al., 2008; Kline, 2016). Researchers have therefore suggested that it is not solely relied on (Kline, 2016; Hooper et al., 2008). And hence, where other statistics point towards a good fit, NFI values as low as .80 have been accepted (Hooper et al., 2008). Following this application, as all other indices are well within their thresholds, the NFI results were deemed acceptable in this study as well. Overall, the SEM model fit was acceptable for both celebrities and the study proceeded to test the research hypotheses.

Table 27: SEM Model Fit Results

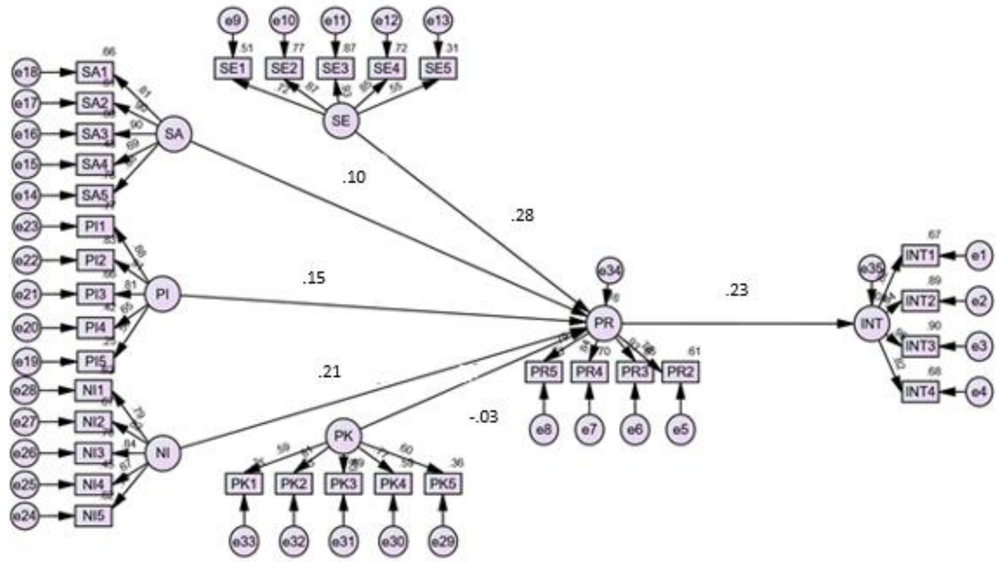
Model Fit Criteria	**Sport celebrity Study's Findings (Value)**		**Entertainment celebrity Study's Findings (Value)**
Chi-square ($\chi 2/DF$)	2.388		2.097
Goodness-of-fit Index (GFI)	.814		.837
Comparative Fit Index (CFI)	.923		.917
Normed Fit Index (NFI)	.876		.854
Incremental Fit Index (IFI)	.924		.918
Tucker Lewis Index (TLI)	.904		.906
Root Mean Square Error of Approximation (RMSEA)	.068		.061

Source: Authors compilation (2021)

6.5.2 The Structural Model Path Analysis

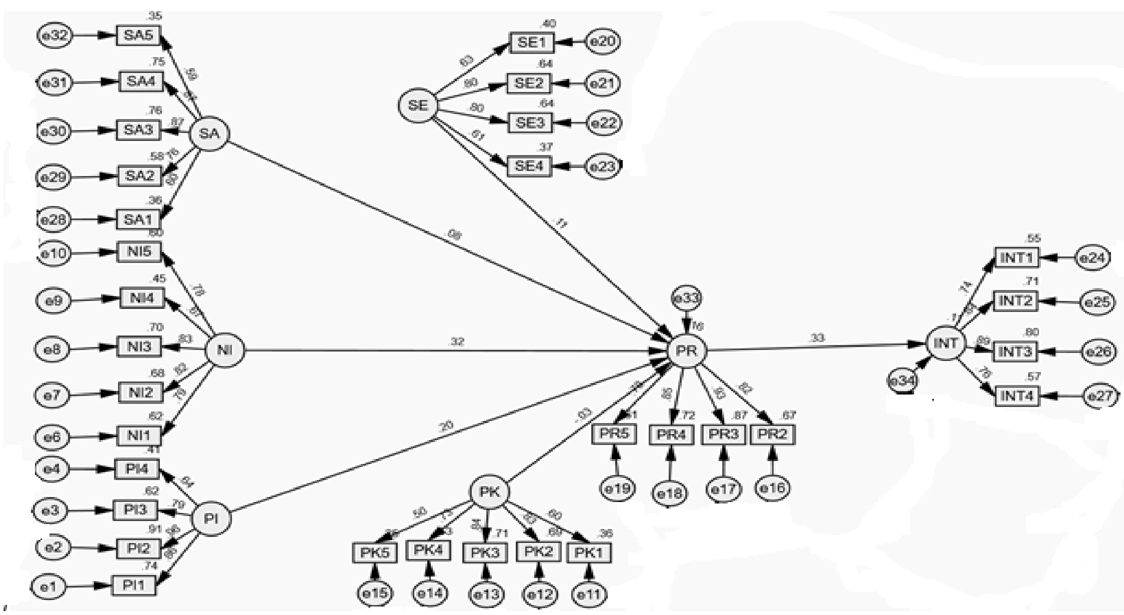
The structural model path analysis involves estimating the theorised causal relations between the research's observed variables (Schumacker & Lomax, 2016). Hence, path analysis was conducted to test whether the relationships of the constructs proposed in this study generate coefficients of paths and based on their *p*-values if these coefficients are significant or not. This study's structural models are presented below, where Figure 6 represents the sport celebrity's structural model and Figure 7 the entertainment celebrity.

Figure 6: Structural Model - Sport Celebrity



Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

Figure 7: Structural Model - Entertainment Celebrity



Personal Involvement (PI); Normative Influences (NI); Perceived Knowledge (PK); Problem; Recognition (PR); Source Expertise (SE); Source Attractiveness (SA); Intentions to search for information (INT)

6.5.3 Hypothesis Testing

Table 28 below provides a summary of the hypotheses testing for each celebrity type of study. Path coefficient and *p*-values of the structural model were used to compute the results of the hypotheses testing. A confidence level of 90% (0.01) was applied and a p-value of $p < 0.05$ signifies a significant relationship.

Table 28: Hypothesised Relationships and Results

Relationships	Hypothesis	Sport Celebrity			Entertainment Celebrity		
		Path Coefficient β	*P* Value	Remarks	Path Coefficient β	*P* Value	Remarks
PR 🡐 SE	H_1	0.281	0.000***	Positive and Significant	0.107	0.082	Positive and Not significant
PR 🡐 SA	H_2	0.101	0.069	Positive and Not significant	0.082	0.164	Positive and Not significant
PR 🡐 PI	H_3	0.153	0.008	Positive and significant	0.200	0.000***	Positive and Significant
PR🡐 NI	H4	0.215	0.000***	Positive and Significant	0.320	0.000***	Positive and significant
PR🡐 PK	H5	-0.028	0.633	Negative and Not significant	-0.026	0.664	Negative and Not significant
INT 🡐 PR	H6	0.231	0.000***	Positive and Significant	0.334	0.000***	Positive and Significant

Note: SE=Source Expertise; SA=Source Attractiveness; PI=Personal Involvement; NI=Normative influence; PK= Perceived Knowledge

***, significance level p < 0.01

6.5.3.1 Results for Sport Celebrity Hypothesis Testing

Starting with the sport celebrity, the results of the path coefficients of the research hypotheses provide support for H1, H3, H4 and H6 and no support for H2 and H5.

H1 hypothesised that source expertise has a positive influence on resident's degree of problem recognition of the environmental contamination of their living space and associated problems. The path coefficient for this relationship is positive at (β = 0.281) and significant at a p-value of 0.000, suggesting that source expertise positively influences the resident's degree of problem recognition. Moreover, compared with other paths, this relationship exhibited the strongest effect on problem recognition.

H2 proposed that source attractiveness has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. The path coefficient in this relationship was positive (β = 0.101) but not significant (p=0.069). Meaning that, whilst source attractiveness has a positive influence on problem recognition, this relationship's influence may be minimal or moderate as it is not significant.

H3 proposed that personal involvement in environmental issues has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. The results provide evidence to confirm that this relationship is positive and significant as it yielded a path coefficient of (β = 0.153) at a significant p-value of 0.008.

H4 hypothesised that normative influences have a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. The results support this relationship with a path coefficient value of (β = 0.215) and a p-value of 0.001, thereby signifying a positive and significant relationship.

H5 posited that perceived knowledge ha a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. In addition to being the weakest relationship, this hypothesis was also not supported as the path coefficient is negative (β = -0.028) and falling outside significance with a p-value of 0.633.

H6 hypothesised that problem recognition of the environmental contamination of living space and associated problems has a positive influence on residents' intentions to seek information about pro-environmental practices. Being the second strongest relationship in the hypothesized model, H6 is positive and significant as reflected by the path coefficient value of (β = 0.231) and p-value of 0.000.

6.5.3.2 **Results for Entertainment Celebrity Hypothesis Testing**

In terms of the entertainment celebrity, the results support H3, H4 and H6 however, H1, H2 and H5 are not supported.

Whereas H1, the hypothesised relationship between source expertise and problem recognition was supported as the strongest for the sport celebrity, that is not the case for the entertainment celebrity. In the case of the entertainment celebrity, H1 is not supported. The results show that, although the path coefficient is positive at (β = 0.107), it was not significant as the p-value is 0.082 therefore probably signaling a moderate or weak effect.

Like the sport celebrity, hypothesis H2 wherein source attractiveness has a positive influence on the residents' degree of problem recognition of the environmental contamination of their living space and associated problems, it was also not supported for the entertainment celebrity as the path coefficient in this relationship was positive (β = 0.082) but not significant (p=0.164). Meaning that, as with the sport celebrity, whilst source expertise has a positive influence on problem recognition, the influence of this relationship for the entertainment celebrity is likely to be minimal or moderate.

H3 proposed that personal involvement in environmental issues has a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. The results confirm that this relationship is positive and significant as it yielded a path coefficient of (β = 0.200) and a significant p-value of 0.000.

H4 hypothesised that normative influences have a positive influence on residents' degree of problem recognition of the environmental contamination of their living space and associated problems. The results support this relationship with a path coefficient value of (β = 0.320) and a p-value of 0.000, therefore confirming a positive and significant relationship.

In terms of H5 which proposed perceived knowledge has a positive influence on problem recognition, this hypothesis is not supported. This relationship is negative (β = -0.026) and not significant (p=664). It is also the weakest relationship.

And finally, H6 which hypothesised that problem recognition has a positive influence on residents' intentions to seek information, is supported for both celebrity types. Yielding a path coefficient of (β = 0.334) and a p-value of 0.000 for the entertainment celebrity.

6.6 Discussion of the findings

6.6.1 Source Expertise and Problem Recognition

Starting with whether source expertise influences Alexandra township residents to acknowledge the environmental pollution of their living space as problematic. The sport celebrity's results provide evidence source expertise does influence Alexandra township residents to acknowledge the environmental pollution of their living space as problematic. These findings are consistent with a great amount of previous persuasion communication studies in which source expertise facilitates decision-making inputs such as problem recognition. For example, higher levels of source expertise are associated with eliciting greater scrutiny of persuasive message arguments and motivating attention (Muda et al., 2014; Erdogan, 2001). In contrast, for the entertainment celebrity, there is no evidence of source expertise exerting influence over Alexandra township residents to acknowledge the environmental pollution of their living space as problematic, as the relationship between source expertise and problem recognition while positive, is not significant. Despite the conclusions of most studies that point to the positive effect of source credibility, The entertainment celebrity's finding is consistent with some studies that have failed to support this effect. For example, Clark et al. (2011) offer evidence to show that factors such as participants' prevailing perceptions, level of familiarity and attitudinal commitment to a topic play a key moderating role that completely reverses the effects of source expertise. In their study, Li and Yin (2018) applied the source credibility model to examine the persuasiveness of an online political fan club in encouraging online political participation and found that source expertise has no effect in encouraging participatory behaviours.

6.6.2 Source Attraction and Problem Recognition

There is no evidence that source attractiveness influences Alexandra township residents to acknowledge the environmental pollution of their living space as problematic for both celebrity types. Indeed, the influence of celebrity attractiveness on various decision-making processes such as problem recognition, intentions, and eventual choice has been confirmed in scores of studies (Bergkvist & Zhou, 2016; Tormala et al., 2006). However, similar to the findings of the current study, some contrary evidence does indicate that attractiveness may not necessarily produce positive effects. For example, Bower and Landreth (2001) suggest that it is the match between a model and a product that enhances message effectiveness and not the attractiveness of the messenger. Others have questioned whether the positive effects of attractiveness can really create behaviour intent as this has not been demonstrated in literature (Erdogan, 1999). Given mixed findings in that some studies have failed to support the positive effect of source attractiveness, Bergkvist and Zhou (2016) propose the presence of other factors that could be moderating the influence. This suggestion is consistent with a previous study by Lord and Putrevu (2009) that found that the persuasive effects of celebrity endorser traits are moderated by product category.

6.6.3 Personal Involvement and Problem Recognition

According to the findings of this study, personal involvement does exert an influence over Alexandra township residents to acknowledge the environmental pollution of their living space as problematic. These results further validate the importance of personal involvement as confirmed by previous studies. For instance, it has been placed as the most important driver of subsequent decision-making behaviour (de Almeida & Düsenberg, 2014). A view supported by other researchers who add that it is only when the problem is deemed personally relevant that it triggers the critical step of problem recognition of the decision processes (de Almeida & Düsenberg, 2014).

6.6.4 Normative Influence and Problem Recognition

In line with previous studies, the current study further validates the power of perceived social pressures from relevant others. The study finds that normative pressures by significant others do influence Alexandra township residents to acknowledge the environmental pollution of their living space as problematic. This finding is consistent with an extensive body of social and behavioural literature that has provided evidence for the role of normative influences in predicting and directing people's behaviours (Fishbein et al., 2019; Mead et al., 2014). In practice, there have also been many behavioural change campaigns that have applied social norms theory to either reduce undesirable behaviour or promote desirable behaviour which has similarly found that people tend to behave according to their perceived normative expectations. Burchell et al. (2013) mention the following examples: violence prevention (Berkowitz, 2010), road safety (Evans & Norman, 1998), bullying (Perkins et al., 2009), risky sexual behaviour (Donovan & Vlais, 2005, alcohol abuse (Coffman, 2002). Examples can also be found in environmental behaviour (von Borgstede & Andersson, 2010; Hong-Youl & Swinder, 2012).

6.6.5 Perceived Knowledge and Problem Recognition

There is no evidence in this study that perceived knowledge has a positive influence on residents' problem recognition of the environmental pollution of their living space. Instead, the findings of this study indicate that there is an inverse relationship between perceived knowledge and problem recognition. This finding is consistent with previous studies that have found that perceived knowledge may in fact have an inverse effect on decision making processes. As cautioned by literature, this finding, while not supporting the hypothesis of this study, is not to be erroneously interpreted to mean that perceived knowledge is not a precondition for environmental awareness. Whereas logic would dictate that the more accurate information one has about a product, the more knowledgeable one should feel, studies have shown that the provision of information unintentionally weakens engagement during decision making (Hadar et al., 2013). For example, Hadar et al. (2013) confirm this weakening effect as they found that consumers of financial products were more inclined to take on risky options when they personally felt more knowledgeable about these options and less when they were using information from financial education programs. The study further notes that those with high perceived knowledge tend to be more confident in the information that they possess to make good decisions and hence are less likely to be influenced by veridical information received from brochures and advertisements. Concluding that it is only when their subjective knowledge is low that people experience a lack of knowledge, are less confident in their own decision-making ability, and are therefore more inclined to pay greater attention to veridical information.

6.6.6 Problem Recognition and Intentions to Search for Information

And finally, this study set out to measure behavioural intentions by addressing the question of whether problem recognition influences residents' intentions to search for pro-environmental information after they had been exposed to the celebrity endorsed messages. The findings further confirm the salient role of problem recognition as an antecedent for information search behaviour as it finds that for both celebrities, problem recognition does have a positive influence on Alex residents' intentions to search for information about pro-environmental practices. These findings are in line with a significant number of studies that have placed problem recognition as one of the most important antecedents for subsequent information search behaviour (Utkarsh, 2017;

Blackwell et al., 2018). For example, there are several health promotion studies that provide empirical evidence of the influence of problem recognition on search behaviour and related pre-decision processes (Thurston et al., 2015; Hill, 2001; Cornally & McCarthy, 2011). Also, a meta-analysis study on responsible environmental behaviour by (Bamberg & Möser, 2007) found that problem recognition is an important antecedent of pro-environmental intention.

6.7 Chapter Conclusion

This chapter has presented the findings of the data analysis procedures. Starting with the descriptive findings; the characteristics of the participants' responses and demographic profile was presented. Results obtained from the CFA analysis for validity and reliability indicated that the hypothesised models for both celebrity types were consistent with the underlying empirical data structures. Moreover, the CFA and SEM model fit results exhibited a satisfactory overall fit to the collected data, suggesting that the obtained sample data support the measurement and structural models of the study. In the last section, the hypotheses were tested through path analysis. The sport celebrity's results provide support for H1, H3, H4 and H6 and no support for H2 and H5. In terms of the entertainment celebrity, the results support H3, H4 and H6 however H1, H2 and H5 are not supported. A summary of the findings in relation to the study's objective and existing literature was also provided. The next chapter considers the conclusions that can be derived as they apply to communication practice, knowledge, and theory building. As the closing chapter of this study, it also acknowledges the study's limitations and presents recommendations for future research.

Chapter Seven

Conclusions and Recommendations

7.1 Introduction

The implications of the study's findings as they apply to marketers of pro-environmental campaigns, policymakers and research are presented in this chapter. The contributions of the study are also discussed. In closing, this chapter acknowledges the study's limitations and puts forward recommendations for future research.

7.2 Summary of Main Findings

In response to the main research question of this study; do celebrity endorsed environmental messages influence the residents of Alexandra township to make pro-environmental decisions as intended? And whether these effects are different for two celebrity types, a sport celebrity, and an entertainment celebrity. The results show that in this study, the effect of source expertise of the sport celebrity on problem recognition has superiority over that of the entertainment celebrity further validating the influence of source expertise on decision-making inputs. On the other hand, in terms source attractiveness there is no difference in the results as there is no evidence in this study that source attractiveness of both celebrity types has a positive influence on the resident's degree of problem recognition of the environmental contamination of their living space and associated problems. Overall, these are inconsistent findings and hence this study prudently concludes that the type of celebrity does not matter. And so, in responding to the main research question; the answer is yes, celebrity endorsed environmental messages can influence pro-environmental decisions, but this is not always guaranteed.

One of the main assertions of this study is that of a rational decision-making individual, whose behavioral responses are driven by active rather than passive deliberation. And so, the study put forth an individual-level factor, personal involvement, and set out to determine the extent to which Alex residents perceive issues of environmental contamination as central or personally important in their lives such that they recognise it as a problem. The findings of this study support this assertion as it finds that personal involvement has a positive influence on problem recognition. As with previous studies, this study further validates the saliency of personal involvement in consumers' evaluation and decision processes. The study also sought to establish the role of the social influences in which the rational decision-making individual makes decisions. In line with previous studies, the current study further validates the power of perceived social pressures from relevant others. The study finds that normative pressures by significant others to comply with environmental behaviour norms do have a positively influence people's degree of problem recognition of the environmental pollution of their living space.

In line with the study's assertion of an active decision-making message recipient, the study was also interested in the extent to which residents' subjective beliefs about what and how much they think they know about the contamination of their domestic space influence them to acknowledge it as a problem. The findings of this study indicate that there is an inverse relationship between perceived knowledge and problem recognition. As its final concern, this study also adopted the view that that behavior change campaigns should aim to modify behaviour rather than simply inform. And so, this study set out to measure the influence of residents' acknowledgment of environmental pollution of their living space on their intentions to search for information related to pro-environmental practices. The current study confirms that problem recognition is indeed an antecedent for information search behaviour for both celebrity types.

7.3 Implications for Practitioners

In terms of source effects, given the inconsistent findings, a celebrity endorsement strategy, regardless of the celebrity type, should be carefully considered before being utilised in persuasion communication because as shown in this study, it does not always yield the desired results. Furthermore, marketers should also pay attention to other factors that may intervene in the effects of source credibility. For example, issue or product congruency, transfer of meaning as explained by the match-up and meaning transfer models (Fang & Jiang, 2015). In practice, this means that the use of a celebrity endorsement is justified only if the credibility, specifically in this study; the attractiveness and expertise of the celebrity can be transferred to the behavior being promoted which in this instance are a range of pro-environmental practices. Similarly, as advocated by the match-up model, not every celebrity can be matched to every product or issue (Knoll & Matthes, 2017). Hence as per the focus of this study, a celebrity that is associated with environmental issues or at the very least, within a similar category of social issues would better suited than a sport or an entertainment celebrity as their attributes are not related to environmental issues. For instance, as someone who is popular for her attractiveness, it is possible that in the current study, the participants were not able to match or associate the entertainment celebrity's attractiveness with issues related to the environment. Also, following the premise of the match-up model, given the complexity involved in attempting to change what are probably deeply entrenched habits towards the environment, marketers should consider an expert endorser, even if, it is a celebrity expert as a better match when calling for environmental consciousness. To sum it up, the celebrity type is inconsequential, what matters is that endorser choice must be made cautiously after considering factors such as what kind of meaning and associations will the celebrity transfer, does the celebrity fit the image product or issue, and the complexity of the product or issue being promoted.

The findings on personal involvement also have implications for the creators and marketers of environmental campaigns aimed at Alex residents. Firstly, contrary to prevailing narratives, it is clear that Alex residents do consider environmental issues as problematic and central or personally important in their lives. This finding amplifies the need for marketers to really understand their audiences, including their motivations before embarking on any particular type of strategy. For instance, guided by the finding that these residents exhibit high involvement in environmental issues, an expert endorser may be more appropriate than a celebrity. This is because as consistent with the ELM, highly involved audiences are motivated to thoughtfully or centrally process the arguments presented rather than rely on peripheral cues such as the attractiveness of the celebrity (Wheeler, 2009). Moreover, as emphasised in literature, because of the perceived personal relevance, such processing is likely to result in durable attitude change and consequent behaviour change (Wheeler, 2009; Filieri & McLeay, 2013). Markets should also concentrate on ensuring that residents are continuously engaged in environmental issues, while at the same time creating greater involvement for those exhibiting lower levels, through engaging campaigns and activities that have a lasting impression. For example, use communication channels to showcase jobs and other economic opportunities in the community that has been directly created by pro-environmental action as this will trigger personal relevance. Personal relevance can also be enhanced through direct experiences such as showcasing the benefits of living in a clean and healthy environment in an easy-to-follow informative graphic illustration, encouraging community clean-ups of public spaces such as parks and rivers, and use these spaces to host social activities.

The results also confirm the influence of social context, finding that residents' normative influences have a positive effect on problem recognition as hypothesised. A useful approach as it relates to these findings is for marketers to identify relevant community influencers and leverage their influence to drive environmental awareness messages. For example, use community radio to showcase or tell the stories of environmental interventions (e.g., tree planting and profit benefits of waste reuse) led small business owners in the community of interest or other relatable ordinary members of the community. Stories are known to be emotionally connecting and memorable (Koll, von Wallpach & Kreuzer, 2010) and can therefore also facilitate personal involvement amongst other brand associations.

According to the findings of this study, celebrity endorsed, and convectional environmental educational strategies may very well work to convey objective knowledge which is not particularly effective at enhancing people's confidence to make decisions and hence also not a very good driver of behaviour. This points to the need for marketers to revisit the strategies employed in environmental awareness campaigns. The first is that a distinction between subjective and objective knowledge needs to be made. This distinction is important because subjective knowledge is said to be a function of direct experience whereas objective knowledge is gained from indirect learning (Ahmad & Nordin, 2014). In adjusting their communication approaches marketers should employ non-traditional methods to stimulate experiential learning which will bring about the required behavioural change. These could include hosting events such as clean-up volunteer days, planting of trees, and cleanest school or street competitions, pledges by community members to act pro environmentally which can then be broadcast on radio. A campaign to reward and recognise those in the community that have shown a commitment to sustainable environmental action, for instance through prizes and awards should inspire others towards environmental consciousness. Incidentally, these suggestions would also influence people's values and attitudes towards the environment which are said to mediate environmental behavior (Latifa et al., 2013), enhance personal involvement as well as increase the possibility for problem recognition as discussed next.

The findings of this study having placed problem recognition as an important antecedent for information search behaviour, marketers should prioritise problem recognition as an important driver of behaviour intentions. For instance, persuasive messages that provide compelling reasons why residents should not be content with their current situation may be used to trigger or increase the likelihood and frequency of problem recognition. According to literature this should create a state of imbalance between their current and desired states, prompting them to pay attention in trying to correct this imbalance (Solomon et al., 2016; Agostinelli et al., 2004). Additionally, given the importance of reference groups as a source of influence, such messages will be more effective when delivered by normative influencers in the community or a carefully selected celebrity endorser. Marketers can also increase the personal relevancy of pro-environmentalism to stimulate problem awareness and recognition, using the tactics that have already been proposed such as emphasising direct experiences with positive outcomes. It is also possible that in an under serviced and resource scarce community like Alex, there is an unlimited number of factors that can interrupt the relationship between problem recognition and further action. In this instance as the findings of the study confirm, residents appear to acknowledge the problem and are willing to take further action. However, there may be other instances where residents are limited by these contextual factors. While marketers can do little to change the socio-economic landscape, by accurately anticipating these hindrances they can work with government policymakers to design appropriate interventions. Wherein obstacles that hinder residents' intentions towards pro-environmental actions are identified and removed. For example, by ensuring the wide availability of litter bins in homes and public spaces, making sure that waste disposal and recycling services are easily accessible, and minimising or removal of financial costs for pro-environmental actions to residents. In situations where constraints cannot be eliminated, marketers should reduce their prominence in the minds of residents. For instance, when the ease and benefits of pro-environmentalism are highlighted, residents will start to prioritise these benefits over the constraints making them less important during decision making. Or increase the personal relevance of environmentalism relative to survival issues that residents perceive to be more pressing to evoke problem recognition for instance.

7.4 Contributions to Theory and Empirical Literature

Where previous research has mostly focused on celebrity endorsement within commercial settings (Salmones et al., 2013; Park, 2017; Knoll & Matthes, 2017), this study has investigated the efficacy of celebrity endorsement in the contexts of a behaviour change campaign. In doing so, this study has linked a celebrity endorsed public call for environmental behaviour change, thereby expanding the domain of celebrity endorsement theory beyond commercial settings as has been the focus of previous research. Previous studies that have only focussed on the actions that constitute pro-environmental behaviour or only considered single factors such as demographics that influence behavioural responses (Thondhlana & Hlatshwayo, 2018; Li et al., 2019; Do Paco et al., 2013). As a point of departure, this study has suggested a combination of individual level and social factors that may additionally determine responses to persuasive messages. The consideration of these factors not only adds to accumulated scientific learning and the completeness in understanding of existing knowledge, but it has also enabled the development of a more comprehensive model for the application and effectiveness of celebrity endorsements within pro-environmental literature. Furthermore, whereas previous studies focussed on awareness goals, the model developed in this study has presented theoretical progression towards measuring the actual behaviour change as a result of a celebrity endorsed campaign. Moreover, the current study will assist in broadening the applicability of celebrity endorsement beyond the western societies that have been the principal focus. This is an important contribution given the unique socio-economic characteristics of South African townships when compared to other contexts in which previous studies were conducted.

7.5 Summary of Contributions to Practice

Given the continuing use of celebrity endorsements in pro-environmental behaviour campaigns in South Africa, the current study provides essential knowledge to government communicators and policymakers. Rather than previous attempts that have used celebrity endorsement based on nothing much more than anecdotal gut feel or so-called common sense (Knoll & Matthes, 2017), by incorporating celebrity endorsement theory with proven behaviour change theories, this study has placed the use celebrity endorsement within the ambit of scientific knowledge. Thereby providing the empirical basis for government communicators and policymakers to make informed decisions when embarking on this strategy. For practice, this study has also shown that, the effects of a celebrity endorsement strategy cannot be attributed to celebrity endorsement alone as the significance of other factors may outweigh that of the celebrity endorsement. In comparing the effects of two different types of celebrities, the contribution of this study lies in the understanding that, rather than focussing on the type, campaign implementors should prudently select the celebrity, backing their choices with market research and empirically validated knowledge such as the celebrity fit, meaning and association transfer to the product or issue as there is no one fit all solution.

7.6 Limitations and directions for future research

The current study, while having made important contributions to literature, practitioners, and policymakers, has some limitations. This leaves room for future studies to generate new topics and areas of interest. Starting with the study's applicability to other contexts. The current study was conducted in Alex township in South Africa, limiting its generalisability in other contexts. Future studies could widen the generalisability by extending the research to other townships in South Africa or to other parts of the continent for instance. While the study's findings provide interesting insights for celebrity endorsement in consumer behaviour, the findings are restricted to pro-environmental campaigns. There is an opportunity for future studies to extend their research to other types of campaigns such as health behaviour, education awareness, violence prevention, or any of the social ills that typically face disadvantaged communities.

Future studies may also find it of interest to compare celebrity endorsements to alternative strategies such as experiential marketing, sponsorships, and non-celebrity advertising campaigns such as the application of the integrated marketing communications principle. For example, experiential marketing is said to enhance personal relevance which in turn facilitates greater behavioural persistence (Brakus, Schmitt & Zarantonello, 2009). Another limitation relates to the two celebrities compared. Being the first black captain of the South African rugby team who had just won the Rugby World Cup, the sport celebrity's popularity was at an all-time high at the time of the study. This could result in response bias, as he might be better known than the entertainment celebrity. This prevailing popularity could be the reason that in this study, the sports celebrity's expertise has influence over problem recognition when compared to the entertainment celebrity for instance. Future studies could therefore compare other celebrity types. Furthermore, the current study investigated whether source influence was different for each celebrity type, however, it did not measure the size of the obtained differences to determine if in fact the differences are significant. Future studies could look into these size differences. The current study also focussed on the individual level and social factors as additional determinants of behaviour. The study did not measure the mediating or moderating effect of these factors. So, while the current study does confirm the power of psychosocial factors in determining behaviour, future studies could explore them as mediators or moderators to determine how these factors intervene in the proposed relationships. And finally, to complement the finding of the current study, future studies could consider a longitudinal study measuring actual behaviour as the current study measured behaviour intentions.

7.7 Concluding Remarks

Overall, the current study's findings suggest that the use of celebrity endorsement as a persuasive strategy in pro-environmental behaviour campaigns should be employed only after careful consideration. It also places psychosocial factors as important determinants of behaviour. This implies that marketers wishing to employ celebrity endorsements as a persuasive tactic should have a good understanding of the target audience they wish to convert, paying serious attention to both their motivations and contextual factors that may determine their behaviour. By understanding the target market, they can determine whether a celebrity or another strategy that may outweigh that of celebrity endorsement is more appropriate, and which psychosocial factors are most relevant in influencing behaviour. This will enable them to design more effective campaigns that will facilitate greater behavioural persistence. The study also elucidates the importance of incorporating proven communication principles rather than anecdotal claims when designing public awareness and behavioural change campaigns. In its contribution, this study has added to theory development by offering a more comprehensive model for the application of celebrity endorsements within pro-environmental literature. For practitioners such as government communicators, their agencies, and policymakers, the current study has provided the empirical basis for future decision making when embarking on celebrity endorsement as a possible persuasive tactic to convert communities into pro-environmental citizens, especially in the unique South Africa township context.

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Appendices

Appendix A: Questionnaire

Please read each question carefully and try to answer all questions. Please indicate the extent to which you agree or disagree with the statement by placing a tick (✓) or a cross (X) in the box that most accurately represents your answer.

Please DO NOT tick more than one box per question

1. **Do you live in Alex?**

B1	Yes		1
	No		2

2. **Please indicate your sex**

C1	Male		1
	Female		2
	Prefer not to say		3

3. **Please indicate your age**

	19-30 years old		1
	31-45 years old		2
	46-60 years old		3
	Over 60 years old		4

4. **Please indicate the highest educational qualification that you have completed**

C3	I did not complete primary school		1
	I completed up to primary school		2
	I completed up to High school/matric		3
	I have a Diploma		4
	I have a bachelor's degree and above		5

5. **I think that environmental pollution of my living space and associated health and wellbeing problems:**

Are not important				Are important	
PI1	**1**	**2**	**3**	**4**	**5**

6. **Environmental pollution of my living space and associated health and wellbeing problems:**

Mean nothing to me				Mean a lot to me	
PI2	**1**	**2**	**3**	**4**	**5**

7. **I think that environmental pollution of my living space and associated health and wellbeing problems:**

Are worthless				Are valuable	
PI3	**1**	**2**	**3**	**4**	**5**

8. **I think that environmental pollution of my living space and associated health and wellbeing problems:**

Are irrelevant				Are relevant	
PI4	**1**	**2**	**3**	**4**	**5**

9. **I think that environmental pollution of my living space and associated health and wellbeing problems:**

Does not matter to me				Matters to me	
PI5	**1**	**2**	**3**	**4**	**5**

			1	**2**	**3**	**4**	**5**
			Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
10.	**NI1**	Most people who are important to me, think that I should be concerned about the environmental pollution of my domestic space					
11.	**NI2**	Most people who are important to me, do take actions to avoid environmental pollution of their domestic space					
12.	**NI3**	Most people who are important to me, expect me to take action to avoid environmental pollution of my domestic space					
13.	**NI4**	It matters to me, what people that are important to me, think I should do to avoid the environmental pollution of my domestic space					
14.	**NI5**	My neighbours expect me to take action to avoid environmental pollution of my domestic space					

			1	**2**	**3**	**4**	**5**
			Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
15.	**PK1**	I think that I am quite knowledgeable about environmental pollution of my domestic space					
16.	**PK2**	When it comes to environmental pollution of my domestic space, I really know a lot					

17.	**PK3**	I think I know enough about environmental pollution, to feel confident about my actions towards environmental pollution of my domestic space					
18.	**PK4**	I feel confident about my ability to understand information about environmental pollution of my domestic space					
19.	**PK5**	I rarely come across information about environmental pollution of my domestic space that I haven't heard of					

			1 Strongly Disagree	**2** Disagree	**3** Neutral	**4** Agree	**5** Strongly Agree
20.	**PR1**	I often think about the environmental pollution in my neighbourhood					
21.	**PR2**	I think that environmental pollution of domestic spaces is a problem in my community					
22.	**PR3**	I feel that something needs to be done to improve the state of environmental pollution in my community					
23.	**PR4**	I feel that environmental pollution has a negative effect on my and health and well-being					
24.	**PR5**	The government should take action to solve problems of environmental pollution in the community					

Before proceeding, please refer to the advertisements which the researcher will present to you and answer the questions that follow.

25. Do you recognise the person in the advertisement?

A1	Yes		1	**A2**	Yes		1
	No		2		No		2

26.	**In relation to environmental issues, I think that the celebrity is:**											
A							**B**					
Not an expert				An expert			Not an expert				An expert	
SE1	1	2	3	4	5		**SE1**	1	2	3	4	5

27.	**In relation to environmental issues, I think that the celebrity is:**											
A							**B**					
Inexperienced				Experienced			Inexperienced				Experienced	
SE2	1	2	3	4	5		**SE2**	1	2	3	4	5

25. In relation to environmental issues, I think that the celebrity is:

A							B					
Unknowledgeable		Knowledgeable					Unknowledgeable		Knowledgeable			
SE3	1	2	3	4	5		SE3	1	2	3	4	5

26. In relation to environmental issues, I think that the celebrity is:

A							B					
Unqualified		Qualified					Unqualified		Qualified			
SE4	1	2	3	4	5		SE4	1	2	3	4	5

27. In relation to environmental issues, I think that the celebrity is:

A							B					
Unskilled		Skilled					Unskilled		Skilled			
SE5	1	2	3	4	5		SE5	1	2	3	4	5

28. I feel that the celebrity is:

A							B					
Unattractive		Attractive					Unattractive		Attractive			
SA1	1	2	3	4	5		SA1	1	2	3	4	5

29. I feel that the celebrity is:

A							B					
Not classy		Classy					Not classy		Classy			
SA2	1	2	3	4	5		SA2	1	2	3	4	5

30. I feel that the celebrity is:

A							B					
Ugly		Beautiful					Ugly		Beautiful			
SA3	1	2	3	4	5		SA3	1	2	3	4	5

31. I feel that the celebrity is:

A							B					
Plain		Elegant					Ugly		Beautiful			
SA4	1	2	3	4	5		SA4	1	2	3	4	5

32. I feel that the celebrity is:

A							B					
Not sexy		Sexy					Not sexy		Sexy			
SA5	1	2	3	4	5		SA5	1	2	3	4	5

			1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
36.	INT1	After seeing the advert, I plan on learning more about how I can become more pro-environmental in my actions	A				
			B				
37.	INT2	After seeing the advert, I plan to seek more information about environmental pollution	A				
			B				
38.	INT3	After seeing the advert, I will request information about pro-environmental behavioural practices	A				
			B				
39.	INT4	After seeing the ad, I will check the media regularly to see if there is any new information about pro-environmental behavioural practices	A				
			B				

Ends

Thank you for your time in completing this survey

Appendix B: Research Stimuli - Sport celebrity

Appendix C: Research Stimuli - Entertainment Celebrity

Appendix D: Ethics Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Levin

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H21/01/12**
PROJECT TITLE	Determining the effectiveness of celebrity endorsement in influencing residents of Alexandra Township in South Africa to adopt environmentally responsible practices
INVESTIGATOR(S)	Ms S Levin
SCHOOL/DEPARTMENT	Economic and Business Sciences/
DATE CONSIDERED	29 January 2021
DECISION OF THE COMMITTEE	Approved Risk Level: Minimal
EXPIRY DATE	02 March 2024

DATE 03 March 2021 **CHAIRPERSON** J Knight
(Professor J Knight)

cc: Supervisor : Professor T Dorson Anning

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I agree to completion of a regular progress report. For Minimal and Low studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

S-Levin
Signature

04 / 03 / 2021
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix E: Consent Letter

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Tittle of Project: **The influence of celebrity endorsement, individual and social factors on township residents' pro-environmental behaviour.**

Name of Researcher: Samkelisiwe Levin

I, ………………………………………………, agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his/her research report	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

……………………………………… (signature)
……………………………………… (name of participant)
……………………………………… (date)

……………………………………… (signature)
……………………………………… (name of person seeking consent)
……………………………………… (date)

Appendix F: Participant Information Sheet

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Dear Sir/Madam

My name is Samkelisiwe Levin, and I am a Masters' student in Commerce, Marketing at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating the use of celebrity endorsements in environmental behaviour communication under the supervision of Dr Thomas Dorson Anning. The aim of the research project is to investigate the impact of celebrity endorsements in influencing residents of Alexander Township in Johannesburg to adopt environmentally responsible practices.

As part of this project, I would like to invite you to complete a questionnaire. You will also be presented with a printed questionnaire and 2 print advertisements that relate to some of the questions in the questionnaire. This activity will involve you completing the questionnaire and looking at the 2 advertisements to answer some of the questions and will take approximately 30 minutes to complete.

There will be no personal costs to you if you participate in this project. You will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. Your responses will be completely confidential and anonymous as I will not be asking for your name or any identifying information, and the information you give to me will be stored securely and not disclosed to anyone else

If you have any questions during or afterward about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. The data collected from this research project will be stored in locked, secure facilities and a password protected computer, and will be kept for 5 years. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,
Samkelisiwe Levin

Researcher:
Samkelisiwe Levin, email 9510035a@students.wits.ac.za

Supervisor:
Dr. Thomas Dorson Anning, email Thomas.dorson.anning@wits.ac.za, telephone +27 (0) 11 714 3951

Appendix G: Turnitin Originality Report

9510035a:The_influence_of_celebrity_endorsement,_individu...
environmental_behaviour_S_Levin_Nov_2021.docx

ORIGINALITY REPORT

2%	0%	4%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Samkelisiwe Levin, Norman Chiliya, Mazanai Musara. "Theory of planned behaviour to predict parents' awareness and intention to participate in school governing body elections", International Journal of Management in Education, 2018 Publication	2%

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		