



**The influence of personality traits on consumers' willingness to buy groceries  
online in South Africa**

by

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## ABSTRACT

Online shopping attracted a great deal of attention from researchers over the past two decades. The advent of the Internet and other disruptive technologies has had a fundamental effect on how consumers buy goods and services today. People can now order groceries online to be delivered to their homes, but this is still a relatively new concept in the South African market. Consumers remain sceptical about this way of shopping. Many researchers have studied consumer behaviour of online shopping and the conceptual factors influencing their intention to purchase groceries online. However, the influence of personality traits on consumer willingness to adopt online grocery shopping is largely under researched, especially in South Africa, and thus the researcher intends to help fill this gap.

The purpose of the study is to analyse the relationship between personality traits based on the Big Five theory and consumer willingness to buy groceries online. The main objective of the study is to determine psychographic segmentation of consumers to assist retailers to develop strategies targeting those consumers who are not purchasing groceries online to become more frequent online grocery shoppers. Based on a positivist philosophical paradigm, the study has adopted a cross-sectional design and a quantitative method. Random sampling was used to collect data through an online survey from 2788 participants, of which only 1992 surveys were usable. The data was collected from an online consumer panel in South Africa through a marketing research company. Statistical Package for the Social Sciences version 27 was used to analyse the data and a discriminant function analysis to test for differences between the groups.

The results showed significant differences between the groups of consumers who are willing and unwilling on agreeableness, conscientiousness and openness to experience. In addition, the results also revealed that agreeableness, conscientiousness and openness to experience have a positive relationship with willingness to buy groceries online, and that agreeableness is the strongest predictor of consumer willingness to buy groceries online. However, there were no statistically significant differences found between the groups of consumers who are willing or unwilling for extraversion and neuroticism.

**Keywords:** Big Five personality traits, online grocery shopping, consumer behaviour, psychographic segmentation

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## ABBREVIATIONS

**CAD:** Complaint, aggressive and detached test

**CPG:** Consumer Packaged Goods

**DFA:** Discriminant function analysis (multivariate test)

**EGS:** E-Grocery shopping model

**FFM:** Five-factor model

**FMCG:** Fast moving consumer goods

**GDP:** Gross domestic product

**CPUT:** Cape Peninsula University of Technology

**OFC:** Online fulfilment centre

**OGS:** Online grocery shopping

**OCEAN/NEOAC/CANOE:** Openness to experience, conscientiousness, extraversion, agreeableness, neuroticism

**IPIP:** International Personality Item Pool

**UK:** United Kingdom

**USA:** United States of America

**SPSS:** Statistical Package for Social Science

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

Since time immemorial, human behaviour has been changing and evolving. More recently, the development of the Internet has made it possible for consumers to search easily for information on products and to find substitute products that will satisfy their needs (Schiffman & Wisenblit, 2015:38). Moreover, the advancement of information and communication technology drastically changed the environment in which businesses operate today and as result, consumer behaviour has also changed (Dobre & Milovan-Ciuta, 2015:69). The emergence of new digital technologies compels retailers to constantly innovate and adapt their processes to stay competitive (Reis *et al.*, 2018). Digital platforms provide retailers with rich data they can use in their marketing strategies to influence consumers and expand into new market segments (Goga *et al.*, 2019).

Online retailing, also known as e-tailing or Internet retailing, allowing consumers to buy products from retailers over the Internet, is one of the most well-known platforms for purchasing goods online today (Levy & Weitz, 2012:58; Pauzi *et al.*, 2017:1). The adoption of online shopping has gradually picked up momentum; this can be useful in many ways. Consumers use it for different reasons (Chakraborty *et al.*, 2016), but for the purpose of this study the term *shopping* refers specifically to making a grocery purchase online.

The complexity of consumers changes considerably across different market segments that depend on a number of needs such as companionship and belonging, and psychological needs and values. Therefore, retailers must conduct in-depth studies of consumers' consumption behaviours to develop strategies that can increase customer satisfaction (Schiffman & Wisenblit, 2015:33). Researchers have placed significant emphasis on other conceptual aspects that have an impact on consumer decisions to buy groceries online such as trust, convenience, ease of use and perceived risk (Pauzi *et al.*, 2017; Musikavanhu, 2017; Mortimer *et al.*, 2016). However, few studies have focused on the influence of personality traits on consumer willingness to purchase grocery products online.

According to Dobre and Milovan-Ciuta (2015:69), there are a number of theories postulating that personalities can be associated with online buying behaviour. Since the 20<sup>th</sup> century, previous studies of online grocery shopping were conducted in Denmark to understand consumer attitudes and willingness to buy groceries online (Hansen, 2008). Likewise, Morganosky and Cude (2000) analysed consumer responses to online grocery shopping in

the United States based on customers that were actively buying groceries online to determine their characteristic profiles.

In addition, Musikavanhu (2017) notes that online grocery markets are already well-established in developed countries such as the UK, USA, France and Finland. Most of the previous research focused on developed countries; however, so little attention has been paid to online groceries in emerging countries such as South Africa which is the area that this study aims to focus.

According to literature reviewed by Dobre and Milovan-Ciuta (2015:69), there is a difference between the online and offline environment owing to the role that the consumer plays in each. For example, the offline environment puts consumers in a passive role compared to the online environment in which they become active explorers when Internet visiting websites. There are many factors that influence online customer behaviour, for instance, the online retailer's store design, service, product offering and endogenous factors such as perception and personality traits (Dobre & Milovan-Ciuta, 2015:70). According to Gohary and Hanzee (2014:166), personality has a major influence on consumer decisions as each individual has unique traits. Therefore, the purpose of this study is to discover if there is a relationship between consumer personality traits and consumer willingness to buy groceries online in South Africa.

There are different theories of personality that can be adopted by researchers and in different ways, but according to Schiffman and Wisenblit (2015:96), the three major theories that play a role in the relationship between consumer behaviour and personality are the Freudian theory, Neo-Freudian theory and trait theory. According to Novikova (2013) and De Mooij (2019:147), the most updated model of personality is the Big Five theory (or "the global factors of personality") developed in the framework of trait theory. Trait theory is based on verifiable measurements of an individual's personality to test specific psychological characteristics known as 'traits' (Schiffman & Wisenblit, 2015:98). The researcher will adopt the trait theory as the underpinning theory of the study and the Big Five theory of personality traits – extraversion, agreeableness, openness, conscientiousness and neuroticism – that have been widely used in the field of personality psychology and consumer behaviour (Pervin & Cervone, 2010:228; Schiffman & Wisenblit, 2015:96-107).

The next section discusses the background of the study and online grocery shopping in South Africa.

## 1.2 Background of the study

Online shopping has attracted a large amount of research interest as it evolved, but studies concerning online grocery shopping have only more recently started to emerge (Mortimer *et al.*, 2016:202). Despite the development of the online grocery market in future, many consumers are still not comfortable purchasing their groceries online (Hansen, 2008:128). Grocery retailers in South Africa yielded positive results since they expanded their presence online, but in the broader spectrum, the country still lags in the global market (Bratt, 2018). According to an Online Retail in South Africa 2019 study conducted by World Wide Worx, online retail is predicted to increase by 2% of the country's total retail sales in 2022 (Anon, 2019a:27). However, online sales have already increased to 5% in 2020 due to education and grocery spending in the lockdown period of the Covid-19 pandemic (Anon, 2020b:3). According to a publication of the 2019 Global Digital Yearbook by We Are Social and Hootsuite (2019), South Africa was ranked as the second highest user of the Internet in the world with an Internet penetration rate of 54% in 2019 (Anon, 2019b:1). This rate has increased to 64% in January, 2021 (Kemp, 2021:11).

The market research company Statista South Africa discovered before the disruption of the pandemic that nearly 40% of the population were online shoppers in 2019, which translates to 21.5 million people (Yousafza, 2019:29). In addition, the latest mid-year 2021 estimates that were released by Stats SA indicate that South Africa has a population of 60.14 million people, a 1,01% increase from the previous year (Statistics South Africa, 2021). Furthermore, according to a Mastercard survey, half of all South Africans were purchasing more clothing and groceries online in 2020 (Daniel, 2021:17). However, OneDayOnly revealed in their study which was conducted in 2020 that the majority of online shoppers were shopping between online and bricks-and-mortar stores once the lockdown restrictions had lifted in November (Anon, 2021:23). Nonetheless, even though mobile penetration increased significantly as well as online shopping, online retail still contributes to a small percentage (4%) of the country's total retail turnover (Daniel, 2021:17), likely due to the fact that only 55% of the country's Internet users were actively buying online, as reported in the Global Digital Yearbook for 2019 (Anon, 2019b:1). Mortimer *et al.* (2016:203) suggest that buying groceries online offers a different experience than other products offered online because groceries are highly dependent on the perishability and variability thereof. As a consequence, customers are justifiably concerned about the freshness and quality of the products when delivered to them.

Consumers began purchasing products online in the late 1990s and so, according to Saunders (2018), while the online grocery phenomena is not new to the Internet arena, it is still underdeveloped and even today requires an increasing amount of investment and focus for many traditional retailers and Consumer Packaged Goods (CPG) products. Bhasin

(2020:16) defines *Consumer Packaged Goods* as “products that sell quickly in the marketplace at very reasonable low prices”. CPG products are also known as Fast Moving Consumer Goods (FMCG) due to their high consumer demand, perishability and quality that expire quickly because of the environment and time factors (Bhasin, 2020:16). Online grocery shopping was born in the United States but researchers found that it attracted the attention of retailers and consumers in numerous countries (Kurnia, 2014). Consumers who first adopted online grocery shopping were “high-spending consumers” and those that shopped often (Saunders, 2018). However, it turned out that online shopping was quickly overtaken by the technology companies who have become the “early movers” in the industry of the online shopping phenomena. Saunders (2018) explains that grocery retailers had massive failures and losses as companies overvalued the success of online orders and that the business model for online groceries is different from that of traditional bricks-and-mortar retailing. Furthermore, people prefer to feel and touch products such as meat, baked goods and other perishable items which could be a challenge for grocery retailers. These sensory inputs are very important elements of consumer perception as this can change a consumer’s decision to buy a product online (Mortimer *et al.*, 2016).

Research conducted by World Wide Worx (2018) revealed that apparel are still the leading sector in online retailing in South Africa, but for grocery retailers, online shopping is still in its infancy (Anon, 2019c:4). However, online delivery in South Africa has increased significantly due to the global Covid-19 outbreak and major retailers such as Checkers, Takealot, Pick n Pay and Woolworths provided essential products and services to consumers while they were at home (Anon, 2020c:27).

Pick n Pay introduced its first online shopping division in 2001; at the time, it was the first of a handful of companies to detect potential in this method of shopping, also considering the fact that Internet penetration and broadband services were low in SA. They opened their first online distribution centre in Cape Town during March 2012 and in 2017 a similar facility in Gauteng (Goko, 2017:2). This made it the first brick-and-mortar grocery retailer in South Africa to serve its online customer base with a dedicated fulfilment centre enabling them to improve service deliveries. Stuurman (2017:25) further adds that a fulfilment centre enables retailers to fill orders quickly instead of picking orders from a store near their delivery locations to meet demand (Business Report, 2017). They also launched their new online shopping website in October, 2017, alongside its upgraded version of their mobile app which includes better search and navigation, product information, faster checkout and more delivery options (Mybroadband, 2017:4). The retailer offers over 15 000 products online and delivers six days a week from Monday to Saturday until 20h00. Alternatively, customers can also collect their order from a selected Pick n Pay store, anywhere across South Africa, anytime that is convenient for them, at no extra cost (Moyo, 2017:12; Pick n Pay Integrated Annual

Report, 2018:14). The largest portion of their customer base is comprised of middle-income South African consumers of for whom online shopping is a small but growing part of the business (Pick n Pay Integrated Annual Report, 2018:14-16). Pick n Pay has trained personal shoppers to hand pick the products and pack the orders; if the customer is not happy with what they received, it can be returned for a full refund. Furthermore, the head of online shopping, Mike Cottrell, explains that customers most frequently purchase dry groceries such as coffee, milk, sugar and cleaning detergents online. However, consumer buying patterns are starting to move towards other categories as well like fresh, convenience and liquor products (Moyo, 2017:12).

On the other hand, Woolworths Holdings Limited (WHL), a South African-based food and clothing retailer that focuses mainly on innovation, quality and sustainability, catering for more affluent customers in the mid- to upper-income class (LSM 8-10), operates across the southern hemisphere in 11 sub-Saharan African countries, Australia and New Zealand. They offer a wide range of private label premium products comprising quality clothing, general merchandise and food products available online and offline (WHL Integrated Report, 2018:10). The retailer revamped their online app in 2013 to provide customers with a seamless integrated online and offline shopping experience by offering their full range of products online that are also available in-store – from groceries to clothing, home, beauty and financial services (Woolworths Holdings Limited, 2013).

The Group conducted 2 000 interviews from their in-store and online customers in 2013 and, according to their findings, while the majority of their online shoppers are women, they found that men are slowly adopting the online shopping experience, especially for special occasion gift buying (Woolworths Holdings Limited, 2013). Online grocery orders are fulfilled from selected stores and a dedicated 'dark store' in South Africa that was recently launched in 2016 to provide the storage and delivery of their clothing, home and beauty products offered online (WHL Integrated Report, 2018; Anon, 2016:15). In addition, these retailers are also partnered with an online service delivery platform, OneCart, that was launched to the public in 2018 and acts as a 'virtual mall' whereby online consumers can purchase their groceries from multiple retailers into one basket for delivery within two hours. Consumers can also filter their products according to their dietary preferences, placing significant emphasis on a customer-centric experience (Guzzle, 2019).

Then again, Shoprite Holdings quickly picked up momentum since they launched their 60-minute online grocery delivery app late in 2019 (Vorster, 2021:3). Grocery orders are picked from the stores and delivered to customers within an hour, tracked in real-time (Tshuma, 2020:17). According to Spiller (2021:8), the Checkers Sixty60 app is currently the most popular online grocery app with more than 1.5 million downloads since its launch in 2019; it



now operates nationwide from 233 stores. The online grocery delivery app is currently available in nine provinces in South Africa (Vorster, 2021:3). Surprisingly, there are a number of South African consumers who seem to make use of delivery applications to order their groceries online. Zulzi, also a grocery delivery mobile app processing over 15 000 orders from Cape Town and Johannesburg consumers per month, has more than 50 000 registered regular users on their application. Zulzi first launched their business in 2016, initially only delivering groceries to consumers in Cape Town and Johannesburg, but now operating in Durban and Pretoria as well. Customers can place their grocery orders from different retail outlets such as Pick n Pay, Woolworths, Dischem and Clicks to be delivered to their doorstep within one hour at a delivery fee ranging from R20 up to R85 (De Villiers, 2019:4; Zulzi.com, 2021).

According to research conducted by Goga *et al.* (2019), features like product assortment, checkout methods and website design are important elements with which retailers compete online, among others that are more critical for grocery retailers such as the last-mile delivery and fulfilment of orders. People's personality has an impact on their behaviour in terms of the Internet and the choices made when, for instance, deciding to purchase from a specific retailer or visiting a particular website (Dobre & Milovan-Ciuta, 2015:69). In line with this statement, Botha (2013:35) concurs that people's behaviour is influenced by their motivation, which is in turn is determined by their personality. In essence, retailers that want to succeed in this competitive digital age have to conduct in-depth research to better understand their customers. According to Mpinganjira (2013:274), "effective market segmentation is critical for business success" as it provides retailers with insights to meet their customers' needs and wants. Likewise, Botha (2013:36) affirms that consumers are faced with so many choices which make their decisions to buy even more complicated. Hence, grocery retailers must find ways to maintain online customer loyalty and to influence sceptical, occasional shoppers to become more trusting regular online shoppers (Mortimer *et al.*, 2016:203). Some retailers encourage the use of psychographic segmentation as it aids in understanding how different consumers think and what their dissimilarities are. Interestingly, personality can be linked to an individual's preferences and hence the type of products they select (Mpinganjira, 2013:280).

The following section discusses the research problem that the study aims to address.

### **1.3 Problem statement**

Based on the background as previously discussed, this study highlights some significant gaps in online grocery shopping in South Africa. As the country's economy remains under pressure due to high unemployment and poverty rates that increased substantially since Covid-19, consumers are more selective in the type of product and price of goods they are

willing to purchase. Grocery retailers are faced with many challenges due to the complexity of grocery products. Customers' uncertainty of buying groceries online in South Africa and increased competition adds even more pressure. Therefore, retailers must make an effort to know their online grocery consumers in order to develop strategies that will appeal to particular types of customers. Trait theories and the Big Five personality traits have been widely employed in research across different cultures and countries, but little is known in regards to online grocery shopping and personality traits in South Africa. It is also evident from the limited information available in the literature that this is a unique study which provides an exciting opportunity for research.

The next section highlights the purpose of the study.

#### **1.4 Purpose of the study**

This study aim to explore the selected Big Five personality traits comparatively across two consumer groups according to their willingness to purchase groceries online to make two determinations. First, how retailers can develop their strategies to appeal to consumers who are sceptical about purchasing groceries online and secondly, to encourage them to purchase groceries online. The two groups studied are as follows:

- *Willing*: Consumers currently purchasing groceries online and consumers who have not yet purchased groceries online but are willing to.
- *Unwilling*: Consumers who have purchased groceries online before but are no longer willing to purchase groceries online, and consumers who have not yet purchased groceries online and are still not willing to purchase groceries online.

The following sections discuss the research hypotheses and objectives of the study.

#### **1.5 Research objectives**

The study seeks to fulfil the following objectives:

**1.5.1** To determine the relationship between the selected personality traits and consumer willingness to buy groceries online in South Africa.

**1.5.2** To determine the differences and similarities of consumer personality traits.

**1.5.3** To identify the dominant personality traits in each of the following consumer groups studied:

- *Group A* - Consumers currently purchasing online and consumers who have not yet purchased groceries online but are willing to.

- *Group B* – Consumers who have purchased groceries online before but are no longer willing to purchase groceries online, and consumers who have not yet purchased groceries online and are still not willing to purchase groceries online

## **1.6 Research hypotheses**

The subsequent hypotheses were created to test the relationship of the selected personality traits and consumer willingness to purchase groceries online:

H1: *Extraversion has a negative relationship with consumer willingness to buy groceries online.*

H2: *Agreeableness has a positive relationship with consumer willingness to buy groceries online.*

H3: *Openness (to experience) has a positive relationship with consumer willingness to buy groceries online.*

H4: *Conscientiousness has a negative relationship with consumer willingness to buy groceries online.*

H5: *Neuroticism has a negative relationship with consumer willingness to buy groceries online.*

## **1.7 Significance of the study**

### **1.7.1 Significance to practitioners**

The study firstly highlights the relevance of online grocery shopping in South Africa which is still relatively new in the South African market, but already established in other developed countries. Though, demand increased since the beginning of the Covid-19 pandemic and forced consumers to become familiar with this way of shopping. On the other hand, grocery retailers are also faced with many challenges in the online arena and competition is fierce. Hence, the study can benefit retailers by understanding consumers on a deeper level and personalising their products to specific customers online which can in turn increase online purchases. The intention is that retailers use these insights to develop strategies and to successfully position their products and services to the right target audience, to increase market penetration, and to possibly influence shoppers who are unwilling to be more frequent online grocery shoppers.

## 1.7.2 Significance to academics

Firstly, it is a unique study that adds value to the body of knowledge with limited literature available on online grocery shopping in South Africa, especially how it can be influenced by personality traits which is a gap the study aimed to fill. The Trait Theory have been adopted as the underpinning theory of the study with a conceptual model that derived from the literature and existing theories to illustrate the relationship between the variables which is the focus of the study. Furthermore, the study highlight ways in which retailers can identify their online customers and the market segments they belong to by means of psychographic segmentation which adds value to academics as consumer behaviour evolves. Secondly, the study will add value to the Cape Peninsula University of Technology (CPUT) as a centre of knowledge generation to update students and researchers on current events in the workplace and in the retail industry. Finally, the study will add value to the knowledge of the researcher as an emerging academic and in the retail environment, conducted as partial fulfilment of the requirements of the Master's in Retail Business Management degree programme.

## 1.8 Structure of the thesis

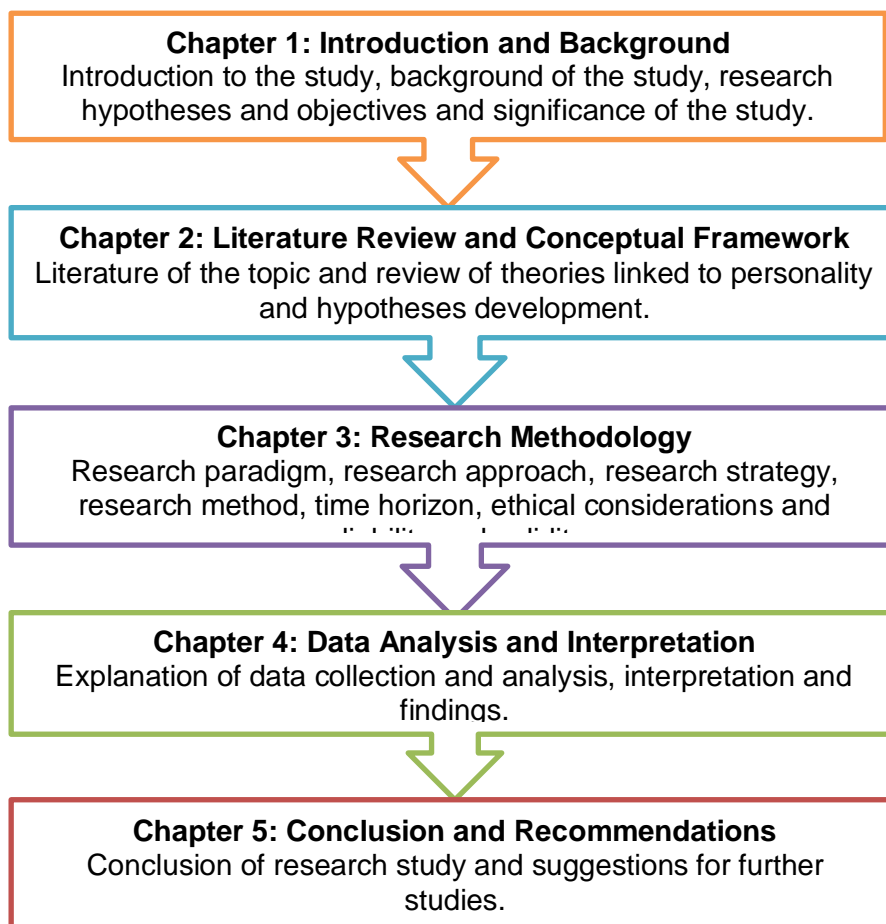


Figure 1.1: Structure of research study (Own source)

This research study has been organised into five chapters, as shown in the diagram above, which also briefly explains what each chapter entails.

*Chapter 1* begins with an introduction and background of the topic, explained the present state of online grocery shopping in South Africa. The chapter includes a problem statement of the study and the hypotheses that derived from the development of theory in the literature reviewed, as well as the research objectives the study aims to achieve and the significance of the study.

*Chapter 2* elaborates on the literature review of the topic to explore existing knowledge of the phenomenon and to build on the theoretical framework of the theory that underpins the study. Furthermore, it includes the conceptual framework that was developed from the theory to describe the relationship of the main constructs of the study and the hypotheses that were tested.

*Chapter 3* outlines the research methodology of the study and explains how data were generated and analysed.

*Chapter 4* provides a detailed analysis and interpretation of the data.

*Chapter 5* highlights the key findings, conclusion and recommendations emanating from the study, offering suggestions for further studies.

### **1.9 Chapter summary**

This chapter provided an introduction and background of online grocery shopping, still a relatively new phenomenon in South Africa, but one that is slowly gaining momentum. Retailers are being forced to expand their presence online, which is a complex and expensive undertaking for grocery retailers. Simultaneously, retailers are facing increased competition by other pure players and consumer uncertainty of online groceries. Hence, personality studies can aid retailers to make better decisions when they understand the personality traits of their customers and target specific market segments. In this study, the selected personality traits are drawn from the Big Five model that is widely used in consumer behaviour and psychology. The aim of the study was to explore the relationship of these five traits and consumer willingness to purchase groceries online.

The next chapter will provide a review of available literature on the topic of this study.

## **CHAPTER TWO**

### **LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

#### **2.1 Introduction**

The previous chapter introduced the study and presented background information surrounding online grocery shopping in South Africa and the major online grocery retailers. This chapter presents a discussion of the available literature concerning online grocery shopping and consumer behaviour in light of the online grocery shopper profile. The main focus of the study is discussed in the conceptual framework, and hypotheses were developed based on the selected personality traits of the Big Five theory from the five-factor model and consumer willingness to buy groceries online.

#### **2.2 Online grocery shopping**

The retail industry has changed dramatically due to the development of the Internet that now entices many consumers to purchase products online (Nguyen *et al.*, 2018:255). Weber and Badenhorst-Weiss (2016:435) assert that the shift from traditional retailing to multi-channel retailing has increased consumer demand for more shopping channel options, such as online shopping, as a way to buy products. Hung and Cant (2017:1) describe online shopping as an optional channel that consumers can use to purchase products and services over the Internet at a time and place that is convenient for them. The Internet, a transformer of people's shopping experience, plays a crucial role in connecting people to information and changing consumer lifestyles (Alamelu & Meena, 2015; Berg, 2016; Saleem *et al.*, 2018).

The growth of Internet users has increased significantly across the globe, largely driven by the emergence of mobile devices with advanced capabilities to connect to the Internet (Phang, 2016:2). According to Kemp (2020:30), more than 4.5 billion people are Internet users and over 3.8 billion people are actively using social media. Chigada and Hirschfelder (2017:113) add that 78% of Facebook users in South Africa use their mobile phones to connect to this platform. Therefore, retailers should engage with their customers through various channels of digital marketing media that will have a significant impact on consumer purchasing decisions. As consumers are constantly connected to information, online shopping has made it possible for them to purchase products and services easier and faster, coupled with the ability to compare prices (Dani, 2017:42). Thus, digital marketing can be used by retailers in many different ways to increase sales, change consumer preferences and promote their brands (Todor, 2016:52). Moreover, as customers have various options when they engage in online shopping, retailers must strive to provide a unique service to their online customers that will enhance their experience (Bilgihan *et al.*, 2016:102). However, the online customer experience is different from traditional shopping in terms of the purchasing process, information search, product presentation and customer support (Nguyen

*et al.*, 2018:255, 256). Nguyen *et al.* (2019:1) report that grocery retailers have recently expanded their presence in the online context which mainly attracts consumers who are Gen X, Millennials and Gen Z.

Online grocery shopping (OGS) can be described as the process of purchasing groceries over the Internet from a retailer for delivery to the consumer (Nawayseh & Balachandran, 2012). The term *groceries* can be defined as “edible commodities that are purchased often or on continuous basis from supermarkets, usually regular intervals of time” (Saleem *et al.*, 2018:2). Online grocery shopping is convenient for consumers as it saves them time, it can be delivered to their home and it affords them access to various retailers and products (Pan *et al.*, 2017:1919). Conversely, the buying process consists of various decisions that consumers must make such as choosing a shopping destination, selecting products, considering price and evaluating alternative brands (Hanus, 2016:11).

In contrast to traditional shopping, consumers can now “click and collect” or have products delivered by placing their grocery orders online; groceries are picked and packed on their behalf and ready for collection or delivery (Hilpi, 2017:15). However, the logistics of perishable items purchased online remain expensive and complex (Hübner *et al.*, 2016:229). For instance, Eriksson *et al.* (2019:1233) explain that online groceries are managed at different temperature zones such as frozen, fresh and ambient levels which make handling of these items problematic. Consequently, according to the results of Nielsen’s 2017 Connected Commerce report (2017:17), the main hurdles for online grocery shopping are quality control and product freshness. The report also found that consumers were apprehensive about purchasing groceries online for the fear of receiving the wrong order or not being home at the time of delivery (The Nielsen Company, 2017:17). Previous studies revealed that consumers are still hesitant to shop online as they are sceptical about buying goods that they cannot see, touch or feel (Claasen & Wrottesley, 2014). Similarly, Boyer and Hult (2006) corroborate that many consumers are not comfortable with this way of shopping as they must rely on the retailer’s selection of products.

The differences in customer orders and requirements make order fulfilment difficult. Therefore, grocery retailers have to operate through an online fulfilment centre (OFC), also termed as ‘dark stores’, to separate store replenishment from online shopping orders (Wollenburg *et al.*, 2018:431; Hübner *et al.*, 2016:235; Eriksson *et al.* 2019:1233). Pan *et al.* (2017:1918) insist that delivery of online groceries is an important part of the fulfilment process and for the overall customer experience. There are two delivery methods of online groceries namely, home delivery and click-and-collect. The availability of retailers’ products can be integrated into one approach across all shopping channels – online and offline – which can be described as ‘omni-channel’ retailing (Saghiri *et al.*, 2018). In simpler terms,

this means that omni-channel provides customers with more than one option to purchase and receive a product, thereby giving consumers more choice in their shopping experience (Frazer & Stiehler, 2014:655).

Alternatively, Saghiri *et al.* (2018:362) describes 'multi-channel' retailing as various channels or platforms through which a customer can transact with the business, but each channel operates in isolation. More specifically, it is the process of searching, buying and returning products to the retailer through "independently managed channels", such as online stores and bricks-and-mortar stores. According to Banerjee and Siemens (2015:93), a multi-channel retailer is similar to "bricks-and-clicks" retailers: both retailers depend on both online and traditional retail store services. Li *et al.* (2018:2) classify two e-grocer business models as the "Bricks and Clicks model", a store-based picking model, and the pure play "E-Grocery Shopping model" (EGS). Bricks and Clicks retailers offer customers the choice to order groceries online that can be collected at the store (Li *et al.*, 2018:2). Pure play retailers, however, do not have physical stores and therefore customers can buy their groceries online to be delivered to them, which is in accordance with the EGS model (Banerjee & Siemens, 2015:93).

According to the 2017 E-Commerce Industry Report, South African consumers are becoming progressively familiar with online shopping, indicated by their findings that reveal that 46% of the offline shoppers were willing to make an online purchase in 2018. The report also indicates that 50% search for information from social media to compare prices across different sites, and 30% browse in-store and then purchase online (Effective Measure, 2017).

The trend of online shopping is clearly rising, but it changes significantly across various categories, countries and within a country itself (Anesbury *et al.*, 2015:261). The most popular products consumers often buy online are computer appliances, books and accessories. Groceries remain a challenge, though, because of the sensory inputs that impact consumer purchasing decisions (Saleem *et al.*, 2018:2).

In the South African ecommerce landscape, consumers are more interested in purchasing apparel (53%), entertainment and educational goods (51%), event tickets (51%), fast foods, and finally, electronics and media products online (Davis, 2019:7). However, Alamelu and Meena (2015:54) argue that online grocery shopping is likely to increase over the next ten years when a new generation of consumers adopt to purchasing groceries online.

Hobbs (2020:1) suggests that due to the sudden crisis of the Covid-19 pandemic, consumer buying behaviour changed dramatically; supply chains were forced to respond quickly to the high spike in demand for food supply as a result of panic buying in various countries worldwide. According to a recent study of Nielsen South Africa on Covid-19 and consumer



behaviour in South Africa, there was a significant shift towards online grocery shopping for packaged and fresh products during the lockdown period (Anon, 2020a:27). They also discovered that a third of the population with access to Internet (58%) is willing to shop online, which is clearly indicative of a change in consumer shopping habits towards online grocery shopping (Anon, 2020a:27).

### **2.3 Consumer behaviour in online grocery shopping**

Consumer behaviour can be described as physical and psychological processes that affect consumers' decision-making when they want to purchase a product or service to satisfy their needs and requirements (Erasmus, 2013:12). The complexity of consumer behaviour is due to changes in time, demographics of people, cultural differences and personality traits. The researchers also highlight that personality has an impact on people's behaviour and the way they react to the "social and physical environment" (Gangai *et al.*, 2016:35).

Online shoppers are identified as individuals who make use of the Internet to purchase products from retailers. To the contrary, non-online shoppers are individuals who have not purchased products on the Internet (Lim & Cham, 2015:345). In previous studies, many researchers studied the comparison between online and offline purchasing behaviour, and consumer perceptions about the advantages and disadvantages of buying groceries online (Hand *et al.*, 2009). A few previous studies found that online consumers are different from traditional shoppers, while other studies contend that online and offline shoppers have certain similarities (Brown *et al.*, 2003; Jayawardhena *et al.*, 2007, as cited by Dennis *et al.*, 2009). However, more recent studies of Huseynov and Yildirim (2019) affirm that various motivational factors have an impact on shopper attitudes and their intentions towards online shopping. Singh (2014) describes shopping motivation as the main objective that encourages consumers to shop. Additionally, Van Droogenbroeck and Van Hove (2017:264) define *motivation* as "an inner state of arousal" that stimulates an individual's need. According to the researchers, consumers are motivated to purchase groceries online due to the benefits they perceive.

Similar to traditional consumer studies (Sambargi & Gopal, 2016:37), hedonic and utilitarian motivations appear to be the most dominant factors that impact consumer attitudes towards online shopping (Huseynov & Yildirim, 2019:4). Moon (2016) suggests that people have different motives for shopping online which are not only related to the need for a specific product, but also a combination of other factors like their cognitive and emotional needs.

According to Rao *et al.* (2018:4), online shopping is more of a "cognitive absorption experience" than a "goal-orientated" activity. Kim and Hall (2019:238) conducted a study on virtual reality and hedonic motivation in which they refer to *cognitive absorption* as "curiosity, heightened enjoyment". Online grocery shopping can be considered a repetitive task,

because grocery products are generally purchased more often than products in other categories (Azhar & Bashir, 2018:39). However, consumers who shop online for fun, enjoyment, fantasy and pleasure are seeking to satisfy their hedonic and emotional needs (Husnain & Akhtar, 2016) and shoppers who have utilitarian motives are goal-orientated and shop to complete a task (Wu *et al.*, 2015).

Singh (2014:5) contends that shopping motivations are diverse across different cultures. For instance, Chinese consumers shop for fun and enjoyment and in the Hungarian culture, shopping motivations are more goal-orientated. According to Duarte *et al.* (2018), consumers turn to online shopping to lessen their decision-making as time-saving is a critical deciding factor for today's consumers. Conversely, some consumers may be unwilling to adopt online grocery shopping due to the feeling of loneliness which, according to a number of studies, seems to be more prevalent among older females (Van Droogenbroeck & Van Hove, 2017).

A study by Seitz *et al.* (2017:1250, 1251) revealed that 89.9% of the sample population in Germany was unaware of the concept of online grocery shopping. However, 85.5% showed interest in online grocery shopping due to the benefits of convenience and saving time. Convenience, it seems, remains the underlying factor that inspires consumers to shop online (Jiang *et al.*, 2013:191).

### **2.3.1 Decision-making in online shopping**

Many studies indicate that the shopping behaviour and motivations of online consumers are different from consumers who do not shop online. Etumnu *et al.* (2019:3) stress that a successful investment in online grocery markets depend on a deep understanding of consumers and the reasons behind their decisions. *Consumer decision-making* is defined, according to Prashar *et al.* (2020:5629), as “a process by which the consumer decides and selects among various available alternatives”. According to Wu *et al.* (2015:604), the online shopping experience also involves searching for product information, interpreting the information, evaluating the products or alternatives, and making a purchasing decision. Nguyen *et al.* (2018:256) suggest that online consumer behaviour includes problem and need recognition, information search, evaluation or choice of purchase and then outcome (post-purchase stage). According to a decision-making model for online shoppers developed by Smith (2003), these processes can be divided into three phases: the input stage, process stage and the output stage (Wei, 2016:113).

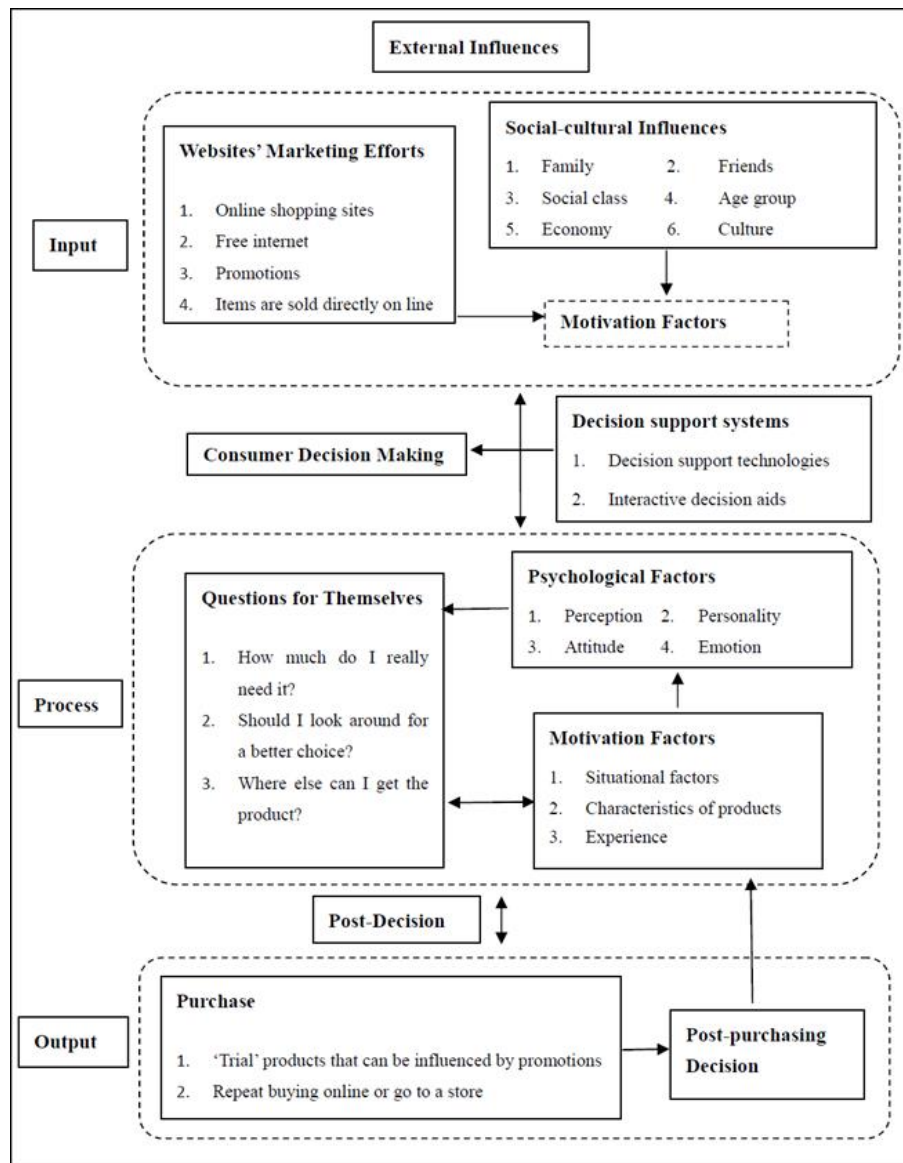


Figure 2.1: Consumer decision-making process of online shopping (Wei, 2016:113)

### 2.3.1.1 Problem and need recognition

This stage of the consumer decision-making process can be initiated by either internal or external stimuli (Lamb *et al.* 2010:77). An internal need can, for example, be triggered by hunger or thirst according to Maslow's theory (Schiffman & Wisenblit, 2015:91). To the contrary, an external need can be stimulated and created by retailers or other stimuli, for example products or services that offer convenience (Lamb *et al.* 2010:78). According to the online decision-making process developed by Smith (2003, as cited by Wei, 2016), a consumer's need can be stimulated by websites, promotions or product characteristics and information. Consistent with this viewpoint, Goga and Nyamwena (2019) point out that a consumer's choice of online store is stimulated by means of social media advertising, online media advertising or customer awareness. Campo and Breugelmans (2015:7), however, note

that “in-store stimuli” does not have a major influence on online shoppers as they have more control over their “shopping route” and are less prone to impulse buying when shopping online.

### **2.3.1.2 Information search**

Consumers search for information on various alternatives that will satisfy their needs and wants. According to Huyghe *et al.* (2016), the costs of information searches are lower online because a wide variety of product information readily is available. Consistent with this statement, Cai and Cude (2016) assert that numerous studies indicate the benefits of lower costs to search online than in physical stores.

Consumers are constantly connected online to search for information on products and services, to compare prices and products and to read reviews or browse online while they are in-store (Bilgihan *et al.*, 2016). Moreover, information aids consumers in finding products quicker to make easier and more efficient purchasing decisions (Huyghe *et al.*, 2016; Cai & Cude, 2016:345).

Cai and Cude (2016:344) confirm that “94% of online shoppers conduct research before purchasing”, and 61% of online shoppers find information through search engines during their online shopping trip. Furthermore, according to Lamb *et al.* (2010:79), consumers increase their information search for alternative brands when the perceived risk of an item increases. Then again, the more knowledge a customer has on a product, the less time is required to search for information.

### **2.3.1.3 Choice of product or service**

There are many factors that influence a consumer’s choice of products or services in the purchasing decision-making process; Lautiainen (2015:6) classifies these as social factors, personal factors or psychological factors. Numerous researchers have studied the decision-making process based on these factors; for instance, Wang and Yu (2015:8), analysing the influence of social interactions on consumer purchasing intentions, determined that social factors like peer reviews, product reviews and user experience on social platforms have a significant influence on consumer intention to purchase.

Alternatively, Van Droogenbroeck and Van Hove (2017) explored the impact of personal and household socio-demographic constructs on consumer intention to purchase groceries online. Further studies suggest that factors such as price differences, assortment differences and promotional differences can influence consumer choice of product or channel (Campo & Breugelmans, 2015).

Consumers base their purchasing decision on the channel that is best fit to fulfil their needs and ultimately their motives. San and Yazdanifard (2014:152), for example, underline that

psychological factors such as motivation, attitudes and personality can influence a consumer's purchasing decision and trigger a need to purchase a product or to search for information.

#### **2.3.1.3.1 Motivation**

Adaji *et al.* (2018a:58) indicate that retailers can provide an enhanced shopping experience if they understand consumers' attitudes and motivations for shopping during their decision-making process. Harris *et al.* (2017:423) identified four types of online grocery shoppers (developed by Rohm and Swaminathan [2004]) based on their motivations to shop online. These shopper segments are classified as "convenience shoppers, variety seekers, balanced buyers, and store-orientated shoppers". A recent study of Bauerová and Klepek (2017:3) suggests that convenience shoppers are predominantly motivated to shop online because it is convenient. Variety seekers search online for different brands and product choices to find the best option to meet their needs (Eastman *et al.*, 2009:106). This segment is particularly important in the online shopping context because of their motives to explore alternatives when they shop (Rohm & Swaminathan, 2004).

Xiao *et al.* (2014) conducted a study of online shopper types that compared different decision-making models to determine their similarities and differences. Similar to Rohm and Swaminathan (2004), their findings revealed that balanced buyers are primarily inspired by the convenience of online shopping. They are also motivated by searching for variety and saving costs, but to a lesser extent than variety seekers and bargain hunters (Xiao *et al.*, 2014:14). In contrast, store-oriented shoppers are motivated by social interactions when they shop in-store and the ability to physically touch and feel the products that they buy. Moreover, they want immediate possession of their purchased goods (Adaji *et al.* 2018a:59).

#### **2.3.1.3.2 Attitude and perception towards online grocery shopping**

Consumer decisions to buy groceries online are also influenced by perceived characteristics of online grocery shopping, such as ease of use, perceived risk and consumer inability to ask for assistance when shopping online (Rishi *et al.*, 2018). According to Nguyen *et al.* (2019:4) the ease of use of a website and the convenience of online shopping has a positive impact on consumer attitude towards buying products online. Conversely, Pelaez *et al.* (2019:73) contend that perceived risk and trust are considered the most significant factors of consumer purchasing behaviour and perception towards online buying.

According to a study by Bhatti *et al.* (2018:3) on consumer attitudes towards online shopping in Pakistan, only 3% of the population explores online shopping due to lack of trust, security issues, access to the Internet and a high rate of illiteracy. Singh and Söderlund (2019) further highlight that customer service is important in online grocery shopping as consumers are

concerned about the inability to talk to a real person when they need assistance or require information.

Previous studies suggest that a customer's choice of channel and repurchasing decision depends on the transactional cost and what they perceive as value (Cheng & Lee 2011:5201; Wu *et al.*, 2012). Hence, customers will switch to purchasing online if they think that it will benefit them in terms of money, time, convenience and effort (Pillay, 2010). Pillay's findings are aligned with Musikavanhu's (2017:94-96) study which found that perceived cost was the predominant factor influencing consumer willingness to purchase groceries online in the Cape Metropole of South Africa. Despite the various studies on perceived characteristics and consumer attitudes towards online grocery shopping, consumer purchasing decisions depend largely on the nature of the product or service (Rao *et al.*, 2018).

Perceived convenience and time-saving applies across all categories when it comes to consumer decision-making in online shopping. But grocery products are categorised under the "smell, touch and feel" category which has a major influence on purchasing decisions as consumers want to inspect the product before they decide to purchase it (Bauerová, 2018:1240).

#### **2.3.1.4 Repurchase intention (post-purchase stage)**

Repurchasing intention can be described as the likelihood of a customer's repeat purchase or use of a product or service from a retailer (Bao, 2015:299). Consumer repurchasing intention is unpredictable in online shopping as it may increase or decrease according to the frequency of repurchases (Martin *et al.*, 2015). Therefore, it is important for retailers to ensure customer satisfaction in online shopping, as Ludin and Cheng (2014) note that customers are willing to repurchase from a retailer if their expectations are met. Azhar and Bashir (2018:41) define *satisfaction* as "one's feelings of disappointment or pleasure as a consequence of perceived performance of a product/service against his/her expectations". However, the findings of the study by Azhar and Bashir (2018:50) reveal that e-satisfaction does not necessarily influence e-loyalty in online grocery shopping owing to the perishability and variability of this type of product.

Wu *et al.* (2014), on the other hand, posit that consumer perceived value has a major influence on the repurchasing intention of a customer. Their findings are supported by Fang *et al.* (2016:117) who likewise insist that consumer perceived value has a major influence on repurchasing decisions in online shopping. *Customer perceived value* is defined as the customer's sacrifice, perception and overall evaluation of the usefulness of a product and the benefits received (Chang & Wang, 2011).

Nonetheless, other factors such as order fulfilment also impact customer loyalty and repurchasing behaviour (Nguyen *et al.*, 2018:256). According to Nguyen *et al.* (2019:299), online consumers are particularly concerned about delivery time which has a major influence on customer satisfaction and intent to repurchase. In addition, Mortimer *et al.* (2016:205) suggest transactional outcome stage as the most important factor influencing consumer repurchasing intention in online shopping.

## **2.4 Personal characteristics**

The upsurge in the online consumer market today necessitates careful segmentation of homogeneous groups that share the same needs, goals and interests for retailers to create targeted marketing and products that appeal to each segment (Huseynov & Yildirim, 2019:2). The purpose of segmentation is to divide a population into sub-groups with shared values, traits, motives and buying behaviour to develop more insight of a specific target market (Atkins *et al.*, 2016:43).

Huseynov and Yildirim (2019:2) identify different types of market segmentation approaches that can be employed by retailers, namely demographic, behavioural and psychographic segmentation. According to An *et al.* (2018:1), demographic segmentation can be used to target an audience based on specific characteristics that distinguish one group from another, such as gender, age, race, education and career. Segmenting grocery shoppers according to age and gender has been done repeatedly in retailing (Whaley *et al.*, 2019:125). Retailers in South Africa use psychographic segmentation to understand how consumers think and to identify differences between segment groups (Mpinganjira, 2013:280). Camilleri (2018:73) also adds that psychographic segmentation can be used by retailers to divide groups according to “personality traits, values, motives, interests and lifestyles”. Psychographics give retailers information on *why* consumers buy, while demographics identify *who* buys (Cant *et al.*, 2002:128).

Behavioural segmentation, on the other hand, is used to identify shopping behaviours of consumers, for example, to determine how often consumers purchase a certain product. Geographic segmentation is often used to determine consumption habits of consumers in different regions of the world such as Africa, countries like South Africa or urban and rural areas within a country in provinces like Gauteng (Mpinganjira, 2013:277,278). Simpson (2017:4,5), for instance, indicates that more than 23% of South Africa’s population lives in Gauteng that generates approximately 58% of the country’s gross domestic product (GDP) due to people relocating to cities to earn a healthier income.

### **2.4.1 Age and generational cohorts**

Numerous studies focus on age as a segmentation tool, but researchers can gain deeper insights on consumer motivation and purchasing behaviour by analysing generational

cohorts and not just age. Lansley and Longley (2016:272) suggest age as an important characteristic of consumer behaviour that influences consumer shopping behaviour and product and brand preferences. Consistent with this statement, Ramya and Ali (2017:80) concur that age is a significant personal factor that influences consumer behaviour, because consumer preferences change according to stages of a life cycle.

As Cant *et al.* (2002:87) affirm, each generation is different from the other, so each can be segmented into subcultures by means of cohort analysis. According to Ramya and Ali (2016:79), subcultures are used to identify more specific beliefs and traits of a targeted segment within a larger group or culture. Researchers study generational cohorts to analyse change over time, for example, people's perceptions, age and technological savviness (Dimock, 2019:1). It is therefore imperative for retailers to understand the differences between generational cohorts, their perceptions, values and shopping behaviours (Bilgihan, 2016).

Consistent with the viewpoint of Dimock (2019), DeVaney (2015:11) affirms that generations are determined by age, changes in lifetime events and cohort. As Ordun (2015:40) clarifies, generational cohorts are people who were born during a certain period who share the same experiences and changes of events that occur during that time of their life.

#### **2.4.1.1 Generation Y (millennials)**

Generation Y (millennials) have been given different arrays of birth dates (Duh & Struwig, 2015:90). Several studies, for example, indicate that Generation Y were born between 1980 and 1994 (Althaus, 2016:2; Andrea *et al.* 2016:92; Mandhlazi *et al.*, 2013) while various publications in South Africa indicate that this generation was born between 1980 and 2000 (Duh & Struwig, 2015:90). However, this study will rely on the latest research by Dimock (2019) which indicates the last birth year for Millennials are 1996, so their birth dates range between 1980 to 1996 (23 to 40 years in 2020). According to Moreno *et al.* (2017:135), millennials were influenced by many changes and developments in their upbringing during the emergence of a digital era. Millennials, in fact, became dependent on technology from a young age and enjoy utilising it (Smith & Nichols, 2015:40). Hence, they are also known as "digital natives" that quite willingly accept new and innovative technologies (Venter, 2017:500).

The convenience of online shopping is growing in popularity amongst consumers, and even more so millennials (Lim *et al.*, 2016:401). According to Whaley *et al.* (2019:126), 67% of consumers who shop online are millennials. This generation plays a crucial role for retailers today as they often explore and search on different platforms to satisfy their needs and are easily influenced by what others think (Stankevich, 2017:8). Interestingly, Ordun (2015:53) found that social media has a greater influence on the purchasing decisions of millennials



than other generations. Gunawan *et al.* (2018:23) opine that tech-savvy consumers like millennials are technology-driven and therefore find it is easier to adopt this new way of shopping. Millennials are profound adopters of online activities as well as electronic commerce and mobile commerce (Bilgihan, 2016:103). According to Moreno *et al.* (2017:141), this generation tends to spend a significant amount on purchases online as they represent a large population worldwide. They shop online with ease and frequency and therefore search constantly for information on products (Chakraborty & Balakrishnan, 2017:145). According to a study of online grocery consumers in Austria, Peball (2017:23) found that millennials are less risk-averse and more motivated by the convenience of online grocery shopping and the enjoyment attached to it. Manu (2015:79) describes this as an “intrinsic motivation” – the enjoyment that a person experiences when engaging in an activity or mastering a task. With similar findings in other countries, Duh and Struwig (2015:94,95) suggests that millennials in South Africa have greater opportunities to earn higher income and obtain better education than other generations which also enables them to spend more and purchase “top of the range” products.

#### **2.4.1.2 Generation X**

The birth dates of this generation commonly used by researchers vary between 1965 and 1979 (Chauke & Dhurup, 2017:148; Lissitsa & Kol, 2016:305). According to Dabija *et al.* (2018:194), Generation X are well-educated and also acquainted with the Internet, but sceptical about new innovation. However, they are value-seekers and frequently conduct research when they shop online (Lissitsa & Kol, 2016:306). Some trait attributes of this generation include self-reliance, adaptability, “distrust [of] authority and technologically-savvy” (DeVaney, 2015:13).

#### **2.4.1.3 Baby boomers**

Baby boomers are the parents of Generation Y (millennials) that were born between 1946 and 1964 (Smith & Nichols, 2015:39; DeVaney, 2015:11; Dimock, 2019; Krishen *et al.*, 2016; Venter, 2017:499). Parment (2013:196) suggests that baby boomers are more concerned about the quality of a product when they purchase online as compared to Generation Y that values emotional involvement. This generation (also known as “digital immigrants”) was introduced to digital technologies later in life and therefore trust is a significant factor influencing their acceptance of new innovation and technologies (Prensky, 2001, cited in Ahn & Jung, 2014:1237). However, previous studies of Lim *et al.* (2011:1713) suggest that this generation successfully familiarises themselves with new technology and trends. Indeed, as this affluent market often visits the Internet and websites, this is a segment that should not be overlooked.

#### 2.4.1.4 Generation Z

Generation Z is born after millennials, after 1996, with the oldest turning 24 years of age in 2020; they are also known as the “centennials” (Dimock, 2019; Gaidhani *et al.*, 2019:2804). As alluded to in literature by Alamelu and Meena (2015), centennials are regarded as the “new generation” that will become online grocery shoppers in the next ten years. Moreover, Priporas *et al.* (2017) point out that as Generation Z is notably different from the former generations, this will bring changes in consumer behaviour. Generation Z was born with technology in their hands. This new generation engage with various brands through the Internet; however, they are not brand loyal and value the experience more (Priporas *et al.*, 2017:376). Centennials are a powerful generation that is constantly connected to the Internet via mobile phones, and thus as Housand (2016:6) notes, they are regarded as “mobile-natives”. This generation are the latest aspirants in the workplace, driven by innovation and technology that is “digital-centric” (Gaidhani *et al.*, 2019). Furthermore, centennials are a “consumer powerhouse” and considered “emerging shoppers” that engage in a plethora of activities from various platforms (Sharma, 2019:40; Housand, 2016). In essence, centennials will be significant in the future of online grocery shopping.

Online grocery shopping is growing worldwide and, according to the literature surveyed, it is growing even more in popularity among young, tech-savvy consumers (Prasad & Raghu, 2018) globally.

According to a recent study by Rajagopalan (2017:2890), most consumers in India, between the ages of 20 to 30, are buying their groceries online on a weekly basis to save time and effort. Further studies by Gutama and Intani (2017) indicate that the majority of online grocery shoppers in Indonesia were among young consumers, between the ages of 15-35 years old. Similarly, according to the findings of a study by Sulastri *et al.* (2017), online groceries were also more popular among the young, tech-savvy consumers in Malaysia ranging between 26-35 years than older consumers. South Africa, similarly, comprises a relatively young population as 48% of the population is below the age of 24 (Simpson, 2017:3). Musikavanhu (2017:63,64) found that the majority of online grocery shopping adopters in the Cape Metropole of South Africa were predominantly male between the ages of 26 and 45 years. Brink *et al.* (2019:8), though, in a study on online grocery shoppers in Gauteng, determined that the majority of respondents were females (78.9%) between the ages of 25-34 years (32.9%), 35-44 years (24%), and 18-24 years (7.8%), respectively. According to the findings of previous researchers, Internet buyers consist primarily of well-educated males with a higher level of income between the ages of 21 and 30 years (Kalia, 2016:38-39). It can therefore be assumed based on the literature, that the average online grocery shopper ranges between the ages of 24 and 30. Kooti *et al.* (2016:212), reviewing a variety of studies on the profile of the typical online shopper compared to the average

Internet user, found that online shoppers are more likely to be younger and well-educated with more spending power. Consistent with their findings, Anesbury *et al.* (2015:263) suggest that females purchase groceries from online and offline channels more frequently, but online grocery shoppers are generally younger and earn higher incomes.

#### **2.4.2 Gender**

Previous literature indicates that family tasks have become the responsibility of both genders as consumer lifestyles changes (Mortimer, 2012:790). However, research indicates that males are generally more task-oriented and females more process-oriented (Fang *et al.*, 2016:120,121). According to Whaley *et al.* (2019:127), online grocery shoppers purchase specific products and prefer online shopping to fit their schedules and “time-constraints”. Prasad and Raghu (2018:21,22), exploring the attributes of online grocery shoppers in India, found that males are more likely to purchase groceries online for the household and for themselves as compared to females. Similarly, Gutama and Intani (2017:24) discovered in their study on online grocery shopping in Indonesia that females prefer to shop in-store for their grocery products rather than purchasing online.

According to a recent study by Musikavanhu (2017:63) on consumer adoption of online grocery shopping in the Cape Metropole of South Africa, the majority of online grocery shopping adopters are male (25.8%), while a smaller percentage (19.9%) are female. Chen *et al.* (2014:272) assert that males and females have different attitudes and perceptions towards risk in online shopping which influence their purchasing behaviour. Consistent with their study, Ling and Yazdanifard (2014:50), in reference to Hasan (2010) who developed a theory of cognitive attitudes among males and females towards online shopping, suggest that males find online shopping more effective and more useful than females. Females in Pakistan, for example, prefer to shop in a safe environment and are only willing to shop online if consumers are protected from unethical and fraudulent activities (Akhlaq & Ahmed, 2016:83). Mortimer *et al.* (2016:206) found that feelings of anxiety and other factors increase consumers’ lack of trust which then negatively impacts their willingness to purchase or repurchase groceries online. In addition, females perceive a higher risk of functional and psychological factors towards online shopping than men (Fang *et al.*, 2016:121). According to Kalia (2016:39), online shoppers as people who are generally more “open-minded, venturesome in outlook, socially mobile and self-confident”.

Hinkelman (2019:71) suggests that demographics and motivations be considered in the segmentation of consumers. However, Simpson (2017:11) highlights that it is difficult to segment the South African market due to the diversity of the population and people’s disparate disposable income. In the same notion, Atkins *et al.* (2016:45) clarify that demographic variables are generally used to segment a population according to

homogenous groups with similar characteristics. Several studies confirm the moderating effects of age and gender on the use of technology across different contexts (Okumus *et al.*, 2018). Consumers have become more complex and, in practice, retailers can no longer only rely on traditional segmentation methods to find the right consumer (Datskova & Zhylinska, 2019:92). According to Dali *et al.* (2020:18), findings of psychographic and attitudinal studies could aid retailers to better identify customer profiles based on their backgrounds, especially during the Covid-19 pandemic. Therefore, the core focus of this study is to analyse selected personality traits and consumer willingness to buy groceries online, as discussed in the subsequent section.

## **2.5 Personality**

Aspects like ease of use, trust and perceived risks are not the only factors that have an impact on consumer willingness to shop online. Instead, personality traits, situational factors, product characteristics and previous online shopping experience also must be regarded as influential factors (Althaus, 2016:3). Studies by Delafrooz *et al.* (2010:138) suggest that as consumer attitudes and perceptions are known to be some of the main influencing factors in online adoption, it is therefore important for retailers to understand consumer attitudes towards online shopping. However, little is known about consumer psychological states and how these states can influence willingness to buy groceries online. In fact, researchers have rarely studied online grocery shopping in South Africa, especially how it can be influenced by personality traits. This therefore is a gap that the study sought to address.

According to Liu *et al.* (2019:2), personality is one of the main psychological and marketing characteristics for effective prediction of consumer preferences in the online context. Researchers use psychographic segmentation to study consumer groups according to their psychological attributes such as “personality traits, beliefs, values, attitudes, expectations, interests, and lifestyles” (Huseynov & Yildirim, 2019:2,3). Many recent studies have suggested that this form of segmentation is an important method of understanding the consumer on a deeper level. Datskova and Zhylinska (2019:93,94), for example, specify that psychographic segmentation has become a necessity for retailers to develop effective consumer profiles for successful product launches, especially online. Furthermore, Ladhari *et al.* (2019:113) used psychographic segmentation to identify online shopper profiles among females based on their “psychographic, demographic and behavioural characteristics”. Specifically, a study Adaji *et al.* (2018b:252) adopted the five-factor model of the Big Five theory to categorise the personality traits of online shoppers and their healthy shopping habits.

The five-factor model of personality (FFM) consists of five general dispositions that are labelled as the Big Five: neuroticism, extraversion, openness (to experience), agreeableness

and conscientiousness (Soto & Jackson, 2013). According to conventional wisdom, the Big Five model represents the most basic dimensions of individual differences in personalities and the way people think, feel and behave (Novikova, 2013:1; Gohary & Hanzee, 2014:167; Soto & Jackson, 2013). The Big Five model is also recognised by several acronyms: OCEAN, NEOAC or CANOE (Novikova, 2013:1).

Individuals are distinguished by their personalities that comprise unique traits which have an influence on their decisions and buying behaviour (Gangai & Agrawal, 2016:35). Personality not only influences the final buying decisions, but also other factors such as the way consumers interpret marketing stimuli, how they behave, think and react to situations in life (Rybanská, 2015:129). Kandler *et al.* (2014:231) define *personality* as a group of characteristics that are somewhat stable and differentiate one person from another within a specific reference group, for example, age groups or cultures.

According to recent studies by Dobre and Milovan-Ciuta (2015:69), personality influences consumer attitudes towards the Internet and similarly, according to Kayis *et al.* (2016:39) all the Big Five personality traits have an important relationship with Internet addiction. It is therefore important for retailers to identify consumer personality traits because these traits impact the way consumers respond to retailers, their choice of products and services and how they want to consume these products and services (Schiffman & Wisenblit, 2015:95).

Personality has been interpreted in various ways by theologians, theorists, psychologists and sociologists (Hampson, 2019:1). In addition, different personality theories exist in literature of personality, with each theory based on its own characteristics. For instance, Schiffman and Wisenblit (2015:96) identify three significant theories that were used to study the relationship between consumer behaviour and personality such as the Freudian theory, Neo-Freudian theory and trait theory. Pennington (2016:3,4), for example, highlights four major theories that play a role in the study of human personality namely, psychoanalytic theory, dispositional theory, behavioural and cognitive theory, and humanistic theory that will be discussed next.

### **2.5.1 Psychoanalytical theory**

The psychoanalytical theory, also known as the Freudian theory, was conceptualised, developed and publicised by Sigmund Freud in 1896. In his early years, Freud's interest in the human mind was inspired by the neuroscientific findings of Jean-Martin Charcot and Josef Breuer and their use of hypnosis to treat hysteria which he renounced at a later stage (Johnson, 2016:74). According to Pennington (2016:10), Freud's psychoanalytical theory focuses on the unconscious needs that influence human behaviour. Moreover, the theory is based on the assumption that an individual's development and personality is formed by past experiences in early childhood which impact the way they subconsciously respond to social interactions and relationships in their adulthood (Johnson, 2016:75, Pennington, 2016:10).

Freud's (1856-1939) childhood experiences played a major role in the development of his theory. Freud, a qualified scientist and physician, adopted a clinical observational approach to theory development instead of an experimental method whereby he observed the personalities of his patients, analysed their dreams and their mental disorders to study human behaviour (Schultz & Schultz, 2009:6). According to Willmott *et al.* (2018:230), Freud's view of personality stems from intrinsic drives and immediate gratification as the ultimate force of motivation and human behaviour.

Freud proposed three components as the "interacting systems" of personality – the id, ego and superego – that exist in the conscious, unconscious and preconscious mind (Schiffman & Wisenblit, 2015:96). The id stores the unconscious drives of pleasure and desire that seek instant gratification, for example, food, water and sex (Willmott *et al.*, 2018:230). The id is an inborn component and the objective of the ego is to satisfy these intrinsic needs that instinctively originate from the id (Johnson, 2016:76). According to Schiffman and Wisenblit (2015:96,97), the ego operates in the conscious mind and manages the impulsive drives that an individual seeks to fulfil in a "socially acceptable" manner which are, according to the super ego component, the principles and morals adopted from childhood.

Many theorists criticised the credibility and validity of Freud's data as he memorised his observations with patients and recorded the findings of each session later in the evenings after work (Schultz & Schultz, 2009:74). Pennington (2016:14) argues that hypotheses could not be developed from Freud's psychoanalytical theory as the unconscious human mind cannot be scientifically measured and analysed. Additionally, critics also argue that Freud's clinical observations could not be replicated or generalised on the population (Schultz & Schultz, 2009:75).

### **2.5.2 Neo-Freudian theory**

In addition to Freud's concept, this theory suggests that personality is primarily shaped by social interactions with others instead of sexual drives as proposed by Freud (Sarker *et al.*, 2013:43; Schiffman & Wisenblit, 2015:97). Neo-Freudians such as Alfred Adler argue that people are motivated to fulfil coherent goals which he labelled as "style of life" and to move towards "striving for perfection or superiority" (Watts & Ergüner-Tekinalp, 2017:331; Schiffman & Wisenblit, 2015:97). Other major neo-Freudians like Carl Jung were more interested in understanding personality from a cultural and religious point of view (Kelland, 2015a:63). His theory was based on the development of the human psyche and the unconscious mind that are inherited by ancestral past behaviours and patterns called "archetypes" (Kelland, 2015a:68,69). On the other hand, Sullivan (1892-1949) believed that personality is shaped by interpersonal relationships and social development (Evans, 2017:1). Sullivan focused substantially on reducing tension like anxiety (Sarker *et al.*, 2013:44). Karen

Horney (1945-1950) was also interested in reducing anxieties based on parent-childhood relationships. According to Horney (1945) individuals develop a neurotic personality in early childhood due to a parent's lack of interest, affection and love towards them as children (Coolidge *et al.*, 2015:2014). Horney (1945) identified three personality types – compliant types that move towards others for love; aggressive types that move against others to gain power and status; and detached types that move away from others for self-dependence (Allen, 2016:107,108).

Numerous studies adopted the Neo-Freudian theories to study consumer behaviour, especially Horney's theory of compliant, aggressive and detached individuals that was used by researchers to develop a personality test, namely the "compliant, aggressive and detached (CAD) test" (Santoki, 2018:90). Retailers could benefit from these insights to understand consumer consumption patterns of a specific product or a brand (Schiffman & Wisenblit, 2015:97).

### **2.5.3 Behavioural theory**

Behavioural and cognitive theories focus on environmental perceptions and mental processes. According to Thoma *et al.* (2015:424), behavioural theory (BT) was first developed and influenced by behaviourism that attracted the attention of many laboratory researchers and psychologists in the early 20th century. Behavioural theorists uphold that personality is abstract and cannot be observed from the human psyche or the unconscious, as proposed by the psychoanalytical theory (Singh & Khosla, 2018:15). Instead, behaviourists believe that the human mind can only be studied and understood through scientific measurements of external stimuli and response (Murtonen *et al.*, 2017:116). Classical behavioural theories were based on the study of animal behaviour and their response to stimuli. According to Gaines (2020:61-64), behavioural theories were influenced and developed by the works of Ian Pavlov's (1926) "reflexology", also known as the "classical conditioning" theory; Edward Thorndike's (1911) "connectionism" and the "Law of Effect"; John B Watson's (1916) conditioning study of "Little Albert"; and Skinner's (1938) "operant reinforcement theory".

As noted in various literatures, Pavlov observed behaviour of animals by experimenting with dogs' reflex responses (salivation) to external stimuli such as a bell associated with food (Walker 2018:6; Thoma *et al.*, 2015:424,426). Alternatively, Thorndike's experiment was based on a cat learning to escape from a box by reinforcing stimulus linked to a reward, thereby conditioning the cat's behaviour by "training" the cat to pull a lever (S) that enables the door to open (R) and be rewarded with food (Fletcher, 2016:33). However, Watson's approach was different based on the assumption that humans' internal stimuli automatically respond to external stimuli (Schultz & Schultz, 2009:6). Watson, the father of behaviourism,

experimented on humans and hypothesised that humans can be conditioned through the environment which reflects on his popular study of “Little Albert” (Thoma *et al.*, 2015:425). Skinner, on the other hand, experimenting on rats, was inspired by Pavlov’s reflex theory of behaviour and named it the “Skinner box” (Walker, 2018:12). However, Skinner did not view his theory as a personality theory, but instead, thought of it as replacing personality theories. Skinner’s approach was based mainly on the view that a person responds automatically through organism reflexes (namely “operants”) to external stimuli as a result of repetitive learning, or habits from past experiences (Cervone & Pervin, 2015:320; Schultz & Schultz, 2009:6).

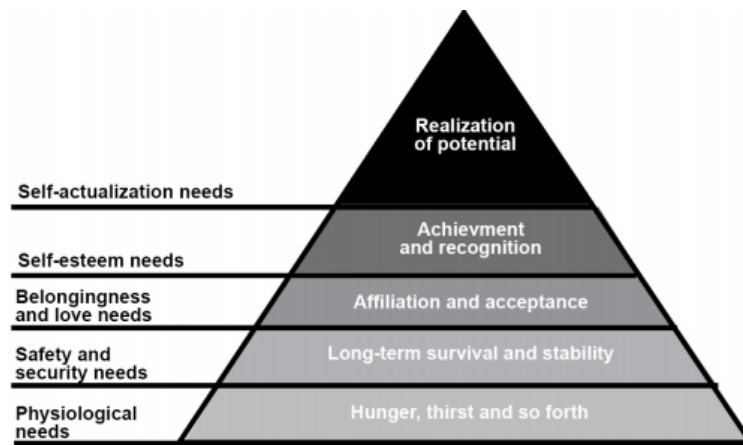
#### **2.5.4 Cognitive theory**

Cognitive psychology is a broad topic primarily concerned with “how the mind works” and its cognitive capabilities such as language, memory and learning. Griffin *et al.* (2015:2) concur that cognition focuses on understanding the human mind, and how it perceives, processes and uses information that can be scientifically measured through changes in behaviour. Aaron Beck, the founder of cognitive therapy (CT), used scientific measurements to analyse and validate psychoanalytic theory. Beck developed CT for depression, anxiety and personality disorders (Thoma *et al.*, 2015:429). Conversely, the cognitive approach to personality focuses mainly on “conscious mental activities” that involve people’s perceptions, interpretation, evaluation and decision-making. George Kelly (1905-1967) theorised that people create their own “cognitive constructs” based on their personal experiences (Schultz & Schultz, 2009:345, 347, 348). People process and interpret stimuli in different ways based on their personal experiences, needs and values which, as a result, influence behaviour (Schiffman & Wisenblit, 2015:114).

#### **2.5.5 Humanistic theory**

Humanistic theorists focus on positive qualities and strengths of human nature that are concerned with “growth and self-actualization” in their approach to personality (Schultz & Schultz, 2009:297). According to Wong (2006:198,199), Abraham Maslow (1908-1970) and Carl Rogers (1902-1987) are the founding fathers of humanistic psychology emerging in the 1950s. Maslow developed and popularised the concept of “self-actualisation” that originated from a neuroscientist’s view, namely Goldstein (Bland & DeRobertis, 2017:2,3). Furthermore, D’Souza *et al.* (2015:28) expound that Maslow refers to self-actualisation as an individual’s desire to feel content with what they accomplished once they fulfilled their basic needs. Maslow (1943) proposed a hierarchy of needs that consists of five categories ranging from the lowest level of needs to the highest level of needs. These needs are comprised of primary needs such as thirst and hunger, safety needs that include stability and security, belonging and affection, self-acceptance and finally self-actualisation (Schiffman & Wisenblit, 2015:91; Wong, 2006:198).





**Figure 2.2: Maslow's hierarchy of needs (Singh & Khosla, 2020:158)**

According to D'Souza and Gurin (2017:187), Maslow suggested that people generally seek to fulfil their "deficient needs" first – consisting of primary needs, safety needs, belonging and self-esteem needs – before satisfying the need for self-actualisation. Some researchers like Bland and DeRobertis (2017:4) highlight that this theory can cause misperception in terms of the degree to which a person satisfies these levels of needs as some needs can be partially fulfilled while others are unfulfilled. Likewise, the level of needs cannot be measured accurately as there is no indication of when a need is completely satisfied, hence the theory cannot be empirically tested (Schiffman & Wisenblit, 2015:92). According to Mawere *et al.* (2016:68), Maslow's theory of human motivation cannot therefore be accepted as a universal theoretical framework as it is essentially based on the Western culture that differs from African cultures.

Carl Rogers (1902-1987), on the other hand, focused on a self-concept approach to personality development that refers to the way people view themselves which he labelled "self-image" and people's drive to achieve their desired goals, namely "ideal self" (Ahmad & Tekke, 2015:28,30). According to Rogers, people's growth depends on their environment which he compared to a tulip. If, for instance, the flower is not nurtured and planted in poor soil, the flower will not grow to its full potential (Yazdani & Ross, 2019:63).

Likewise, Rogers proposed that people are born with an "actualising tendency" and that the relationship between a parent and child is an important aspect of personality development as it can influence the psychological condition and well-being of a person in adulthood (Kelland, 2015b:87). Furthermore, Rogers suggested that people are innately motivated to fulfil both biological needs and psychological needs to achieve self-actualisation and gain independence (Willmott *et al.*, 2018:231).

Some critics such as Thompson and Rudolph (1983) and Hergenhahn (1984) argue that the self-theory approach overlooks the diagnosis of a client and that it is dependent on “insightful, self-directed” clients to obtain effective results (Eremie & Ubulom, 2016:48,49). Rogers was also criticised for his philosophical viewpoint in that he adopted a phenomenological philosophy as a psychotherapist, but practiced scientific methods for analyses based on a positivism approach (Dutra, 2016:416,417).

### **2.5.6 Trait theory**

The trait approach has been popular in American and British psychology: theorists such as Hans Eysenck and Raymond Cattell identified the characteristics of personality traits which can be defined as dispositions of people who are more or less the same (Pervin & Cervone, 2010:226). The fundamentals of trait psychology originated from three major psychologists in the field contributing significantly in the industry: Gordon Allport (1897-1967), Raymond Cattell (1905-1998) and Hans J. Eysenck (1916-1997), (Pervin & Cervone, 2010:227). Theorists have different perspectives of personality, either from a holistic view or they focus on specific traits (Schiffman & Wisenblit, 2015:96). However, many researchers agree on the following viewpoints: that traits are measurable; that they create the personality structure; they we can interpret differences of people’s dispositions; and that, to a certain extent, traits make us distinct from one another (Fajkowska & Kreitler, 2018:5).

Allport’s (1897-1967) philosophy was that every person is unique and therefore he used “idiographic” approaches to collect data through written information such as diaries, interviews and observations of each person individually (Krapp, 2005:133). Likewise, Cattell (1905-1998) agreed that ‘trait’ is the ultimate unit of analysis of personality, but he adopted correlation to distinguish the relationship between the variables and the external situation (Pervin & John, 1999:8,12). In essence, Cattell turned to correlation and other multivariate techniques for clarification.

Lastly, Eysenck (1916-1997) adopted a scientific approach to psychology which was a combination of psychological theory and an experimental method to study individual differences with the focus on personality (Revelle, 2014:1). The study was based on soldiers with psychiatric disorders and existing data that were previously collected from patients to analyse their behaviour by means of “behavioural ratings, psychiatric diagnoses and hypnotic suggestibility” (Revelle, 2014:1).

Trait theory focuses on the observation of personality that is applied and observed everyday based on specific traits. Consistent with this viewpoint, Pervin and Cervone (2010:228) explain that traits are often referred to as “dispositions” which implies that while traits change over time and across situations, traits describe what a person is typically like. Numerous studies have determined that personality traits change for many reasons and in different

situations, for instance, as people get older they become more conscientious and less agreeable (Bleidorn, 2015:245). But the five-factor personality theory of McCrae and Costa (2008) suggests that personality traits are biologically programmed with environmental influences playing a minor role in trait development and change (Bleidorn, 2015:246). Conversely, according to a study by Bleidorn *et al.* (2018:83), other major theories propose that environmental factors have a long-term effect on personality traits due to what people experience in their life that may change an individual's feelings, thoughts and behaviour. There are, clearly, differing perspectives of trait theories which are interrelated but not identical.

Most importantly, the shared assumptions of trait theory are basically similar in the sense that people respond to situations in different ways, but with general tendencies (Pervin & Cervone, 2010:231). Another shared assumption of personality traits is that human behaviour can be organised in a hierarchical manner, as provided by Hans Eysenck (1970). His analysis suggests that general habits of people can be linked together and classified as a certain trait (Pervin & Cervone, 2010:232). Furthermore, trait theories determine individual differences by using personality tests which are measured on a scale of "high" versus "low" scores (Schiffman & Wisenblit, 2015:98). For instance, people with a strong tendency to be outgoing and act in a friendly manner are described as 'extroverts' and score high on these traits. In contrast, people who are more reserved are typically described as 'introverts' and score low on these traits (Pervin & Cervone, 2010:230-231).

## **2.6 Conceptual framework and hypotheses development**

Consumers with different personality traits might have different preferences and can then be motivated to try online shopping for many different reasons. Personality traits influence consumer motivations (or willingness) to purchase online as their interests in products or services vary according to their personality and self-image (Dobre & Milovan-Ciuta, 2015:73). The same could apply for online grocery shopping and consumer willingness to buy groceries over the Internet. Therefore, this study adopts a typology of the selected personality traits that were identified from the five-factor model to discover the relationship between consumer personality traits and willingness to purchase groceries online. The following hypotheses were developed.

### **2.6.1 Extraversion**

According to McAdams (2018:119), some characteristics and tendencies of extraversion include talkativeness, sociability, outgoing, assertiveness, active and lively. Moreover, extroverts show social adaptability and interpersonal involvement, whereas introverts are the opposite, more likely to be reserved, value their independence and prefer quiet environments

(Novikova, 2013:1). Introverts, preferring to do everything online in a comfortable and safe environment, are more loyal to online facilities than extroverts (Dali *et al*, 2020:19).

On the other hand, extroverts are generally more interested in social activities and more willing to engage with salespersons to collect information about products and services (Tseng *et al.*, 2017:68). Piroth *et al.* (2020:960) concur with this viewpoint that extroverts are more interested in interpersonal relationships and prefer social environments with groups of people whether online or offline. However, Piroth *et al.* (2020:960) postulate that extraversion has a negative relationship with online grocery shopping as it does not provide the advantage of interpersonal and social interaction that can be found in the offline shopping environment. Therefore, the researcher's hypothesis is:

H1: *Extraversion has a negative relationship with consumer willingness to buy groceries online.*

### **2.6.2 Agreeableness**

According to Anaza (2014:252), agreeableness and extraversion both indirectly influence consumer intention to shop online. In addition, people who score high on agreeableness tend to be sympathetic, kind, cooperative and trusting of other people's intentions. Disagreeable people, to the contrary, are sceptical and operate with a competitive approach to life (Novikova, 2013:1). Previous research by Tsao and Chang (2010:1801) suggests that more agreeable consumers are more easily trusting and influenced by attractive and appealing effects of websites, and find satisfaction when interacting with others while carrying out online purchases. Hence, the hypothesis is:

H2: *Agreeableness has a positive relationship with consume willingness to buy groceries online.*

### **2.6.3 Openness**

Consumers who score high on this trait are open to experience, generally more imaginative, curious and have a modern outlook and behaviour (Soliño & Farizo, 2014:2; Novikova, 2013:1). These customers are eager to try new things and absorb new experiences (Tseng *et al.*, 2017:68)t. Correspondingly, Tsao and Chang (2010:1802) highlight that these individuals seek intellectual pursuits, and frequently shop for bargains or value-for-money to compare on the Internet. Hence, people who are less open to experience are closed to new ideas and unwilling to trying new things. Therefore the researcher's hypothesis is that:

H3: *Openness (to experience) has a positive relationship with consumer willingness to buy groceries online.*

#### **2.6.4 Conscientiousness**

Consumers who score higher on conscientiousness are likely to be more organised, self-disciplined and persistent (Piroth *et al.*, 2020:959). However, according to the results of studies by Tseng *et al.* (2017:68), these consumers are conscious and deliberate about every purchase decision they make and will therefore collect all available information on a product before making a purchase decision. Furthermore, other studies by Turkyilmaz *et al.* (2015:101,104) found that conscientiousness has negative effects on online impulse buying because conscientious consumers are more risk averse.

Similarly, previous studies by Tsao and Chang (2010:1810) found that conscientious individuals tend to be careful and hold back on online purchases, typically because they are cautious, responsible individuals and may be concerned about the existence of perceived risks associated with online buying. In contrast, consumers with low levels of conscientiousness are likely to be more spontaneous, disorganised and rarely plan ahead (Novikova, 2013:1). Hence the following hypothesis is proposed:

H4: *Conscientiousness has a negative relationship with consumer willingness to buy groceries online.*

#### **2.6.5 Neuroticism**

People who score high on neuroticism are prone to depression and stress (Jani & Han, 2014:12). Moreover, people who score high on neuroticism are not very likely to use social chat rooms or social media as much as those who score low on this trait (Rauschnabel *et al.*, 2015:638). People who are neurotic are most likely to be tense, negative and worrisome (Soliño & Farizo, 2014:2; Novikova, 2013:1). Furthermore, individuals that score high on this trait are not usually comfortable with adopting new technology as they stress about things that could potentially go wrong (Rauschnabel *et al.*, 2015:640).

Therefore, it can be assumed that a negative relationship is expected from these consumers with their willingness to buy groceries online, because they will likely feel anxious to share personal information online. Hence, it is hypothesised that,

H5: *Neuroticism has a negative relationship with consumer willingness to buy groceries online.*

On the basis of the aforementioned literature and hypotheses inferred, the conceptual framework of this study is depicted in Figure 2.3 below,

## Consumer Personality Traits

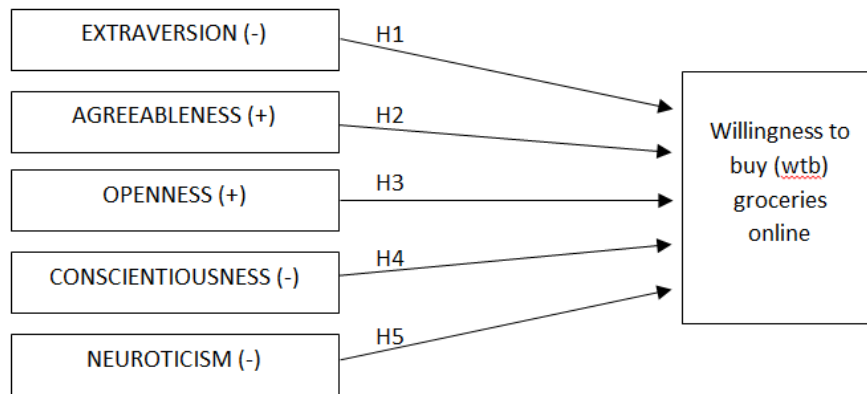


Figure 2.3: Conceptual framework (Own source)

### 2.7 Chapter summary

Grocery retailers are faced with many challenges as online grocery shopping is a relatively new phenomenon in developing countries like South Africa and consumers remain sceptical about this method of shopping. The logistics of perishable items remain expensive and more complex than other products such as apparel, electronics, and computer or media devices due to the perishability and variability of this type of product. However, many consumers already enjoy the benefits of online grocery shopping as it is convenient and saves time.

The literature briefly covered some aspects of the decision-making process in an online context to gain a better understanding of how consumers make purchasing decisions that are best suited for them, especially in light of psychological factors such as motivation, attitude and most importantly, personality traits that influence their purchasing decision or stimulate their need to engage in online grocery shopping.

Moreover, relevant literature also reveals the significance of segmentation tools such as psychographic segmentation, generational cohorts and gender that play an important role in the emergence of online grocery shopping. It is evident that online grocery shopping primarily attracts consumers from Generation X, millennials and Generation Z (Nguyen *et al.*, 2019:1), and that retailers can no longer rely only on traditional segmentation tools to identify and target the right consumer. That being said, personality is one of the main psychological and marketing characteristics used to effectively predict consumer preferences in the online context (Liu *et al.*, 2019:2).

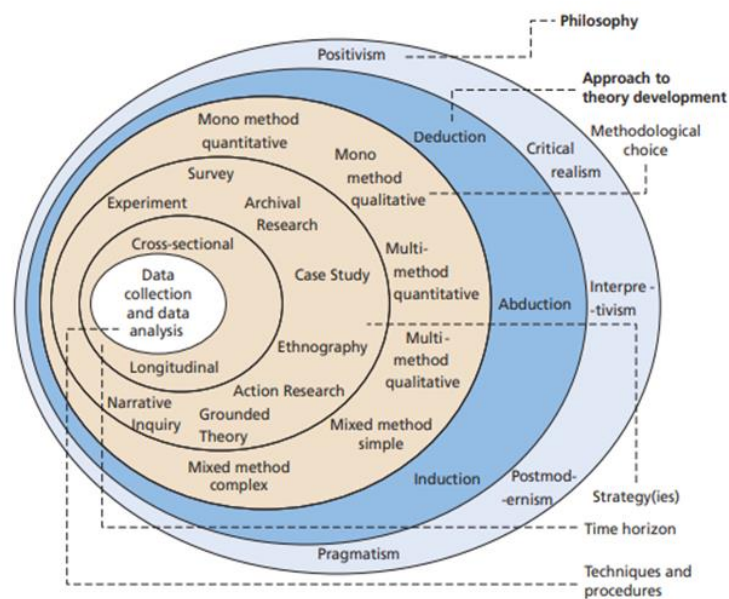
The literature further explored personality theories and more specifically psychographic segmentation based on the five-factor traits theory developed by McCrae and Costa (2008,

cited by Bleidorn, 2015:246). These traits represent the most basic dimensions of individual differences in personalities, thoughts, feelings and behaviour (Novikova, 2013:1; Gohary & Hanzee, 2014:167; Soto & Jackson, 2013). There are limited sources available in the literature concerning online grocery shopping in South Africa, especially how it is influenced by personality traits. This, therefore, is a gap in the literature that the study seeks to address.

The next chapter describes the research design and methodological procedures used to determine relationships concerning consumer personality traits and their willingness to buy groceries online.

## CHAPTER THREE RESEARCH METHODOLOGY AND DESIGN

The previous chapter reviewed existing literature pertaining to online grocery shopping and personality traits to gain an in-depth understanding of the phenomenon related to this study. This chapter will elaborate on the research methodology and design applied by the researcher in this study by following the “research onion” model developed by Saunders, Lewis and Thornhill (2019:130). According to Melnikovas (2018:30), this model serves as a step-by-step layer to develop a coherent justifiable research design. The research onion consists of six layers that move from research philosophy, approach to theory development, research method, research strategy, time horizon, and techniques of the researcher to collect data.



**Figure 3.1: Research onion**  
Source: (Saunders, Lewis & Thornhill, 2019:130)

### 3.1 Research paradigm

According to Kivunja *et al.* (2017:26), a *research paradigm* can be defined as the researcher’s perception about the world and reality (philosophy) that guides the research action and the ways the research should be conducted. Hence, the paradigm determines the research methods, how data will be generated and how analysed (Kivunja *et al.*, 2017:26). Additionally, Saunders *et al.* (2019:130) defines *research philosophy* as “a system of beliefs and assumptions about the development of knowledge”. In essence, these assumptions distinguish the research philosophy.



Rahi (2017:1) explains that, according to researchers like Myers and Avison (2002), it is important to use the best suited method for the research paradigm to have valid research and avoid dwelling in one's own philosophical assumptions. A credible research philosophy is well-thought through with consistent assumptions across the research procedures and methods used to form a logical research paper in which all elements fit together (Saunders *et al.*, 2019:131). According to Tuli (2010:99), the choice of research methodology rests on the research paradigm that guides a researcher's views and assumptions about the nature of reality and humanity (ontology), the theory and type of knowledge acquired that informs the research (epistemology), and as Hiller (2016:99) suggests, "how phenomena can come to be known". Lastly, how the knowledge will be gained refers to the methodology of the study (Tuli, 2010; Hiller, 2016).

Wahyuni (2012:71) draws a distinction between the different paradigms that can be used in research namely positivism, post-positivism, interpretivism and pragmatism. Firstly, positivists and post-positivists view social reality and science from an objective point of view and both test theory by creating hypotheses. However, the difference between the two paradigms resides with their philosophical assumptions (Wahyuni, 2012:71). Positivists believe in generating knowledge and understanding a phenomenon through existing theory, so research is conducted in a "value-free" way. They also strictly use quantitative methods for analyses (Saunders *et al.*, 2009:113). On the other hand, post-positivists, also known as "critical realists", believe that the social world is always changing (Wahyuni, 2012:71). Therefore, a phenomenon can be best understood if researchers study the social structures in the social world that created the existence of the phenomena (Saunders *et al.*, 2009:115).

The main objective of an interpretivist approach is for the researcher to gain an understanding of a phenomenon in its natural setting based on the interpretation of the researcher's observation and experience of the world. Therefore, interpretivists take a subjective stance to study human behaviour and become a participant in the research process (Kivunja *et al.*, 2017:33,34). On the contrary, pragmatism is an appropriate philosophical approach to undertake in applied research where action and change is required (Goldkuhl, 2012). The pragmatist paradigm uses quantitative and qualitative methods to gain an understanding of a problem at hand. Hence, this research approach adopts any paradigm that is most suitable to solve a specific problem (Wahyuni, 2012:71).

The research paradigm for this study is grounded on a positivist philosophical approach from an objective epistemological perspective based on the researcher's beliefs and assumptions that the phenomenon can be best understood through verifiable empirical data and interpreted through logic reasoning and scientific procedures. Tseng *et al.* conducted a study based on the same paradigm to examine the relationship between gender, personality traits

and customer knowledge preferences (Tseng *et al.*, 2017:65). Their findings attest that the selected personality traits have an important link with specific customer knowledge preferences. Moreover, their study suggests that customers not only buy products based on their motivation, but also according to their personality traits (Tseng *et al.*, 2017:72).

Saunders *et al.* (2019:135) describe positivism from an objectivist approach that reality and individuals exist independently of social entities and label them as objects. Positivists also strive to remain detached from their own values and beliefs in the process (Saunders *et al.*, 2019:136). Therefore, from a positivist point of view, the researcher remained unbiased and separate from the research process in a 'value-free way' to discover the true outcomes of the study based on the findings from the data that were collected from the population (Saunders *et al.*, 2019:146).

Nardi (2018:15) posits that decisions cannot depend only on intuition; they must be based on reliable observations to generalise and draw conclusions about a sample that represents a population. The observations must therefore be systematic, objective and replicable (Nardi, 2018:8). In addition, Haslam (2007:182-183) suggests that personality is unmeasurable because it is so elusive, but it can still be evaluated rigorously and quantified if data is collected through questionnaires or scales which are known as "personality inventories" (Haslam, 2007:185,187).

Axiology can be described as the ethical considerations that the researcher has imposed during the research process (Kivunja *et al.*, 2017). Saunders and others (2019:134) define *axiology* as "the role of values and ethics" and how the researcher's own views and beliefs are dealt with in the study. This is important, because it also determines the researcher's choice of data collection procedures and the extent to which the researcher's values influence the process (Saunders *et al.*, 2019:134). Thus, based on the axiological assumptions of the researcher's views, values and beliefs, this study has been conducted in an ethical way, as covered in an upcoming section addressing the study's ethical considerations.

### **3.2 Approach to theory development**

*Deduction* can be defined as an approach to theory development whereby the theory is tested through a set of propositions (Saunders *et al.*, 2019:153). Johnston argues that "a deductive process has an expectation of what is likely to occur" (Johnston, 2014:210). According to Neelankavil (2015:143), conclusive research is also used in quantitative methods, especially to examine descriptive research or to test cause-and-effect relationships and specific hypotheses. It is generally used for large sample sizes and decision making where the required data is clearly defined and analysed through statistical analysis.

Saunders *et al.* (2019:153-154) identifies six steps of a deductive approach to theory development in quantitative research:

- Develop a hypothesis, or idea, of the relationship between two or more variables that can be tested to form a theory.
- Use existing theory that is developed from academic literature to create propositions or hypotheses that can be tested.
- Apply a logical argument, comparable to existing theories, to form an understanding of the phenomenon.
- Collect relevant data for analysis and testing of the hypothesis.
- Reject the hypothesis if the results of analysis fail the test, and then the process can be modified or restarted.
- If the hypothesis is accepted, the theory is confirmed.

In light of the above, a deductive approach to theory development was applied in this study. It starts with a theoretical and conceptual framework to obtain an understanding of the phenomenon, from which hypotheses were created to test the theory of how personality traits relate to consumer willingness to purchase groceries online.

### **3.3 Research method**

According to Saunders *et al.* (2009:151), different methods can be applied in research depending on the purpose of the study and the research design. However, the most popular methods used in business and management research are quantitative and qualitative methods. Alternatively, a mixed method approach can be used by applying quantitative and qualitative techniques in a research design, also known as “triangulation” (Saunders *et al.*, 2009:154).

Quantitative methods, based on numerical data, are mainly used to present and interpret data using statistical techniques for analysis (Brannen, 2017). A similar study by Dani (2017), also using quantitative methods to study consumer attitudes towards online shopping, relied on a questionnaire to collect data from a sample that was geographically dispersed.

Qualitative methods, alternatively, provide researchers with contextual detail. This method is based on non-numerical data collected in the form of words to gain an in-depth understanding of people’s perceptions and experiences of a phenomenon (McCusker & Gunaydin, 2014:1). Qualitative data are time consuming and the quality is highly dependent on the researcher’s interpretation, as opposed to quantitative data that are carefully planned and more efficient (Dani, 2014; McCusker & Gunaydin 2014:1).

### 3.3.1 Mono quantitative method

The study adopted a mono method which is a quantitative method that consists of structured procedures and instruments for data collection (Queirós *et al.*, 2017:370). According to Queirós *et al.* (2017:369), quantitative research is an appropriate method for measuring variables from data that are quantifiable and for drawing inferences from a sample that represents a population.

Creswell (2012:13) highlights that quantitative research focuses on the research problem by testing theories, establishing whether a relationship exists between variables or how the variables might influence one another. However, Nardi (2018:15) argues that there are various methods to collect data which depend on the research question the study addresses, the nature of the study, the time and financial constraints and the amount of detail required for the study. The subsequent section will describe the population and sampling method that were used in this study.

### 3.3.2 Population

The population covered in this study consisted of consumers who are: 1) currently purchasing groceries online; 2) customer not purchasing groceries online but are willing to; 3) consumers who have purchased groceries online, but are no longer willing to; and 4) customer who have not purchased groceries online and are not willing to buy groceries online.

There are two groups of consumers under study: people who are willing to buy groceries online and people who are not willing to buy groceries online. The study focusses on consumers in South Africa, currently consisting of approximately 59.67 million people as of 2021 (Kemp, 2021). Therefore, participants must reside in South Africa and have access to the Internet to complete the survey. Data were collected through an online market research company, Springvale Online, that has the largest online consumer panel in South Africa.

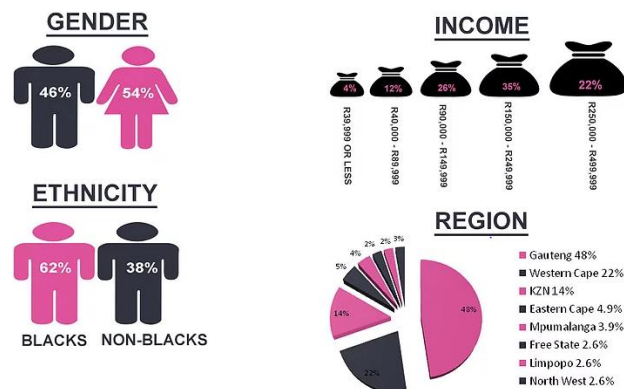


Figure 3.2: Respondent demographics (Springvale Online, 2018)

### 3.3.3 Sample and sampling considerations

*Sampling* can be defined as a “subset of the population that is used to estimate the characteristics of the entire population” (Schiffman & Wisenblit, 2015:421). Sampling comprises two methods, namely non-probability sampling and probability sampling that are categorised into different techniques to collect data from the population (Rahi, 2017:3).

The research was conducted on a total sample of 2788 of which 1992 were usable. Data was collected by means of random sampling through an online marketing research company. The panel consists of general consumers in South Africa who have access to the Internet, randomly selected from the population with the demographics left to fall away naturally as geographics were not a determining factor in the study. The key objective of the sampling method in this study was to find consumers in South Africa who are willing to buy groceries online and those who are not willing to buy groceries online in an effort to determine their differences and similarities, and to establish whether their personality traits impact their willingness to buy groceries online. However, the only demographics considered for this study were age and gender, as these were highlighted in numerous studies as significant factors for online grocery shopping at the time when the study commenced in 2019.

Non-probability sampling is well suited for in-depth studies with smaller sample groups, but it can also be used for large surveys when it is difficult to generate data from a random probability sample (Bernard, 2006:186). Alternatively, probability sampling allows that each unit of analysis has an equal chance to be selected and included in the sample (Rahi, 2017:3). Bernard (2006:147) adds that individual attributes for data requires probability sampling (2006:147). However, the researcher did not have individual attribute data of the respondents or a list of the total population, or any information about the population to draw the sample.

A sample is required in research because it is impossible to study the entire population (Acharya *et al.*, 2013:330). Acharya identifies different types of probability sampling techniques that highlight the advantages and limitations of each. Simple random sampling was the most suitable method to apply in this study for the following reasons:

- to reach a larger sample of the population on a national scale;
- it is difficult to identify respondents for this type of study;
- the researcher has little knowledge about the population; and
- it is ideal for an online survey for this study.

Numerous studies have similarities to this study. For instance, Dabija *et al.* (2018:194) used random sampling to collect data from two groups of consumers – namely, Gen X and

millennials – with a total of 775 people to analyse their communication behaviour on social media when purchasing food products versus tourist services in Romania.

Turkyilmaz *et al.* (2015:101), to study “the effects of personality traits and website quality on online impulse buying”, selected respondents from an online shopping website of which data was collected from 612 respondents. Additionally, a study by Rahi *et al.* (2020:556) examining drivers of the adoption of Internet banking by online consumers, made use of the “G-power software” tool to calculate the minimum sample size with a confidence level of 95%. They distributed their survey to 550 respondents and managed to collect 500 usable responses. Rahi *et al.* (2020:556) established that 500 responses is a very good sample size. Rahi (2017:3) further highlights that according to academic literature, the rule of thumb is that if a population consists of 1000 000 or 1800 000 people, the required sample size would be 384.

### **3.4 Time horizons**

Melnikovas (2018:34) defines *time horizons* of a study as the “time frame of a research” which can be a longitudinal study or a cross-sectional study, depending on the type of study. Longitudinal studies can be carried out over a long period of time, even a couple years or decades. This type of study is usually applied in observational or experimental research to measure the cause-and-effect relationship of variables or an individual (Caruana *et al.*, 2015).

In contrast, Levin (2006:24) describes *cross-sectional studies* as studies that are carried out at present on a short-term basis, so a cross-sectional design is often used in the form of surveys and to ‘get a picture’ of the phenomenon at a specific point in time. This is exemplified in the work undertaken by Chang *et al.* (2016:638) who conducted a cross-sectional study to determine the relationships between variables at that specific time. The purpose of their study was to assist a digital marketing department with understanding online consumer needs. However, other studies suggest that a longitudinal study may afford more insight to study the impact of a causal relationship.

Considering the nature and scale of this research study, a cross-sectional design was deemed suitable to gain an in-depth understanding of the phenomenon and the current state of online grocery shopping at this point in time, as online groceries have only recently emerged in South Africa. In addition, the researcher decided on this design due to time constraints in which to complete the study.

### 3.5 Data collection

This study adopted a survey method to collect data through an online questionnaire that will be discussed next.

#### 3.5.1 Survey method

Neelankavil (2015:143) and Rahi (2017:2) contend that survey methods are a flexible, popular technique for collecting data from a sample of respondents, and surveys are linked to a deductive approach. Nardi (2018:16) identifies several advantages and disadvantages of surveys as a method for a study, as depicted in Table 3-1 below.

**Table 3-1: Advantages and disadvantages of questionnaire**

METHOD	ADVANTAGES	DISADVANTAGES
Quantitative Surveys	<ul style="list-style-type: none"> <li>▪ Less costly to reach larger samples</li> <li>▪ Standardised questions</li> <li>▪ Ideal for asking about opinions and attitudes</li> <li>▪ Less labour intensive to collect data or train researchers</li> <li>▪ Can guarantee anonymity</li> <li>▪ Suitable for probability sampling and more accurate generalisability</li> <li>▪ Easier to code closed-ended items</li> <li>▪ Respondents can answer at own pace</li> <li>▪ Better for sensitive and personal topics</li> <li>▪ Easier to replicate a study</li> <li>▪ Can address multiple topics in one survey</li> <li>▪ Ideal for computer-based and online surveys</li> <li>▪ Easier to compare with other studies using similar questions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Self-report requires reading ability in the language</li> <li>▪ Possible gap between what people report they do and what they actually do</li> <li>▪ Return rate can be low for mailed and computer-based surveys, thus limiting generalisability</li> <li>▪ Closed-ended questions can be restrictive and culturally sensitive or dependent</li> <li>▪ Difficult to explain meaning of words and probe questions</li> <li>▪ Depend on asking recollected behaviour</li> <li>▪ More difficult to code open-ended responses</li> <li>▪ Cannot guarantee respondent answering it was the person intended to answer it</li> <li>▪ Requires skill in questionnaire design</li> <li>▪ Long and complicated surveys can be tiring to complete and lead errors</li> <li>▪ Easy to overlook and misinterpret questions</li> <li>▪ More difficult to generate reliability and validity for on-time-use questionnaires</li> </ul>

Source: (Nardi, 2018:16) Doing Survey Research

#### 3.5.2 Data collection instrument

Data was collected through a self-administered online questionnaire that contained two sections and several closed-ended questions. Survey invites were shared with participants in two waves: through email and WhatsApp. Participation was voluntary and anonymous; the survey took approximately five to ten minutes to complete. The data was collected within five weeks.

Section A included questions that identified the two groups of consumers based on their willingness or unwillingness to buy groceries online. Further to this section, respondents who answered “YES” to “Have you purchased groceries online?” were also asked to indicate whether they are purchasing or are willing to purchase groceries online due to the Covid-19 pandemic. This is an important factor to consider as it could have had a major impact on consumer willingness to buy groceries online and on this study as a result.

Section B consisted of a personality test in the form of a 5-point Likert scale that ranged from 'strongly disagree' to 'strongly agree'; respondents were asked to respond to 50 statements that best described them (e.g. "I am the life of the party"). Likert scales are generally used to measure attitudes and observations, and are seemingly more suitable for electronic surveys (Rahi, 2017:4). The personality traits questionnaire was drawn from Goldberg's (2001) International Personality Item Pool (IPIP) which consists of 50 questions representing the Big Five personality traits: extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N), and openness (O) with 10 questions each. Goldberg developed the IPIP to offer the items in the pool freely for any researcher to use as they are easily accessible through the Internet (Gow *et al.*, 2005:318).

### **3.5.3 Pilot testing**

Twenty-two respondents were selected to provide feedback on the questionnaire to ensure that the questions were clearly defined and understood, that the online survey design was set up correctly to identify errors and to determine the time that it takes for respondents to complete. Hazzi and Maldaon (2015) argue that not much evidence exists to serve as a guide as to the required sample size for a pilot test. However, Perneger *et al.* (2015) conclude that 22 participants is a reasonable sample size for a pilot test to discover at least 90% of the problems in a questionnaire.

Data was collected from a convenience sample that comprised colleagues at the workplace, students at CPUT, friends and family. The survey link was distributed to participants through email, WhatsApp and SMS and then shared with the research marketing company for testing.

### **3.6 Reliability and validity**

It is important to measure the quality and confidence levels of the variables that are tested; according to Haslam (2007:183) "a good personality measure is one that is both reliable and valid". Aligned with this view, Heale and Twycross (2015:66) affirm that a quality research study can be improved through measurements of reliability and validity.

Haslam (2007:183) defines *reliability* as "the consistency of a measure" that correlates well with others, while *validity* is concerned with the degree to which the data collection instrument accurately measures the constructs (Heale & Twycross, 2015:66).

Heale and Twycross (2015:67) note different ways to test reliability that comprise three attributes – internal consistency, stability and equivalence – as described in Table 3-2 below.



**Table 3-2: Attribute of reliability**

Attributes	Description
Homogeneity (or internal consistency)	The extent to which all the items on a scale measure one construct
Stability	The consistency of results using an instrument with repeated testing
Equivalence	Consistency among responses of multiple users of an instrument, or among alternate forms of an instrument

Source: (Heale & Twycross, 2015:66-67) *Validity and reliability in quantitative studies*

The study adopted Goldberg's 50-item pool in the questionnaire to determine consumer personality traits. As constructs were tested for internal consistency through Cronbach's alpha, the researcher was able to use this instrument in the study, as discussed in Chapter 4.

### **3.7 Data analysis**

There are many ways data can be measured to analyse quantitative data, but researchers often use statistical software packages like Statistical Package for Social Science (SPSS) for statistical analysis (Walliman, 2011:72). For instance, Chang *et al.* (2016:626) used SPSS version 20 to analyse the relationship between consumers' intrinsic and extrinsic motivation, satisfaction and purchasing intention with online shopping. Likewise, Gohary and Hanzee (2014:169) used SPSS version 21 to assess the relationship between personality traits and shopping motivations. In this study, the data were analysed through SPSS version 27 to assess the relationship between consumer personality traits and willingness to buy groceries online in South Africa.

### **3.8 Delimitations of the study**

The study was based on South Africa and did not include other countries. Therefore, the findings may not be applicable internationally as the market segments could differ from country to country. However, a similar study concept could be used to conduct an international study.

According to trait psychologists, there are several alternative models to the Big Five theory that can be used to measure personality, but this study was only underpinned by this particular trait theory; that is, based on the Big Five personality traits as this is the most popular model (Haslam, 2007:29).

Moreover, researchers discovered that even though the Big Five can be widely used, the trait dimensions might have different connotations in other cultures and languages. For instance, extraversion reflects a personality trait that is outgoing, but if it is translated from Japanese

into English, it means affectionate (Pervin & Cervone, 2010:263). The questionnaire in this study was only available in an English version. Furthermore, the study only focussed on the major grocery retailers in South Africa and since the Covid-19 pandemic in 2020, all three grocery retailers came on board with online groceries.

The methodology used is based on quantitative techniques to measure the impact of the selected traits on consumer willingness to buy groceries online. According to Goertzen (2017:12), as this method is used to measure attitudes, behaviours and relationships between variables, the results of the data can uncover behaviours. Retailers use this method to gain specific market insights.

Data was collected from online consumers by means of an online survey as it is a national study which makes it difficult to target a specific geographical area in South Africa. However, the focus of the study is not to identify demographics, but rather psychographics based on the selected personality traits of consumers in the country. In addition, it provides an opportunity for further studies to compare the various geographical areas in the country.

### **3.9 Limitations of the study**

According to Simon and Goes (2013:2), *limitations* of a study can be defined as the constraints or weaknesses that may affect the outcome of a study.

The population targeted for this study was difficult to reach and access to the data through grocery retailers was problematic due to company policies and security. Hence, the major challenge was in finding consumers who were making use of online grocery shopping at the time when the study commenced in 2019. Therefore, data was collected through a marketing research company that has access to a large panel of consumers in South Africa.

Moreover, due to the disruption of Covid-19 and lockdown in 2020, more consumers were converting to buying groceries online. As a result, the challenge was then to collect data from consumers who have not purchased groceries online and those that have, but are no longer willing to. Consequently, the population size was a limitation and the sample sizes were unequal. Consumers who were considered as unwilling numbered much fewer than consumers who were categorised as willing.

Budgetary constraints also limited the amount of data that could be collected and prolonged the timeframe of completion of this study which overlapped into 2021. Consumer lifestyles and shopping patterns have changed over time due to Covid-19. However, this has been taken into account during the timeframe of the study.

### **3.10 Ethical considerations**

Ethical considerations are a reflection of a researcher's morals and values and understanding of right and wrong during the research process (Kivunja *et al.*, 2017:28). The researcher's values and judgments can influence the credibility of the study (Saunders *et al.*, 2009:116). Therefore the following considerations will be taken into account.

#### **3.10.1 Anonymity**

According to Allen (2017a), *anonymity* means that the identity of an individual remains unknown to the researcher. Anonymity encourages people to express themselves freely without the fear of consequences, but it can also be misused to wrongfully and intentionally cause harm to others. The intention lies within one's morals, values and beliefs. It is especially important in survey research, because participation relies on respondents' perceptions and assurance of privacy of their responses to the survey (Whelan, 2007:7). Survey invites were shared by the marketing research company, with participants who double opted-in to complete surveys. Hence participation was completely voluntary and the researcher remained detached from the data collection process. The identity of individuals or legal entities and any information or other personal identifiers that were collected from those individuals who may be linked to the respondents are unknown to the researcher, and will in any event, be withheld to ensure anonymity.

#### **3.10.2 Informed consent**

*Informed consent* is an agreement of voluntarily participation in a research process that informs participants of any risks they may encounter, their rights and the purpose of the study (Varnhagen *et al.*, 2005:37). The researcher believes that people must be treated fairly and should in no way feel obligated to participate in any study or agreement with which they are not comfortable. Therefore, respondents have been informed that they have the right to participate voluntarily in this study and can, at any time, withdraw from the process.

#### **3.10.3 Confidentiality**

*Confidentiality* can be defined as private information of participants that may not be disclosed. Researchers are obliged to protect any information and privacy of participants that partake in a study by maintaining confidentiality (Bos, 2020:153,154). Likewise, Tripathy (2013) insists that the most important concerns of the use of secondary data are the degree to which the data is anonymous and confidential. Hence, if information is completely

unidentifiable or properly coded so that the researcher is unable to identify the respondents, the ethical board will not require a full review (Tripathy, 2013).

The data collected in this study was completely anonymous to the researcher; any and all identifiable information on participants is stored by the marketing research company in their database. The results of the survey in this study do not link the participants to any identifiable information used by the researcher.

#### **3.10.4 Plagiarism**

*Plagiarism* is an offence of academic dishonesty and theft which can be defined as copying the original author's intellectual work or ideas without referencing, presenting it as your own (Allen, 2017b). The researcher strives to master the skills of writing in an honest, rightful manner and ensures that each author or source of information used to conduct this research and to gain a better understanding of the phenomenon was referenced accordingly. Therefore, the information has been scanned through the prescribed plagiarism software, "Turn-it-in", to ensure that all work is referenced accordingly.

#### **3.10.5 Honesty and integrity**

Honesty and integrity are a reflection of a person's dignity, values and morals. According to Lawton and Gabriunas (2014:641), *integrity* is a critical factor in ethical leadership with leaders who are consistent in their beliefs and their behaviour. Moreover, integrity relates to "the way you collect, analyse and interpret data" in an honest manner which is important for the credibility of the research outcomes; a study only adds value if it is trustworthy (Walliman, 2011:43). All participants in this study have been treated with respect and the researcher has not fabricated, falsified or misrepresented any data or information from any author, journal or peer during the compilation of this study. The researcher also applied reliability and validity tests such as Cronbach's Alpha and other statistical measures to ensure credibility of the data and findings.

### **3.11 Chapter summary**

This study is grounded on a positivist philosophical approach. Thus, the researcher used existing theory to obtain an in-depth understanding of the phenomenon and followed a deductive approach to theory development. A conceptual framework was structured from the literature review and hypotheses were generated to test the theory of how personality traits relate to consumer willingness to purchase groceries online. The study adopted a quantitative research method by which data were collected through a self-administered

online questionnaire from a total sample of 2788, of which 1992 were usable. Furthermore, research was conducted confidentially through an online marketing research, Springvale Online. The panel consisted of general consumers in South Africa who have access to the Internet and the sample was randomly selected from the population. The study also adhered to ethical considerations based on anonymity, informed consent, confidentiality, plagiarism, honesty and integrity. This chapter also highlighted the limitations and delimitations of the study, followed by a brief discussion of the reliability and validity of the study. Finally, a brief introduction to the data analysis was provided which will be discussed further in detail in the subsequent chapter.

## **CHAPTER FOUR DATA ANALYSIS, INTERPRETATION AND FINDINGS**

### **4.1 Introduction**

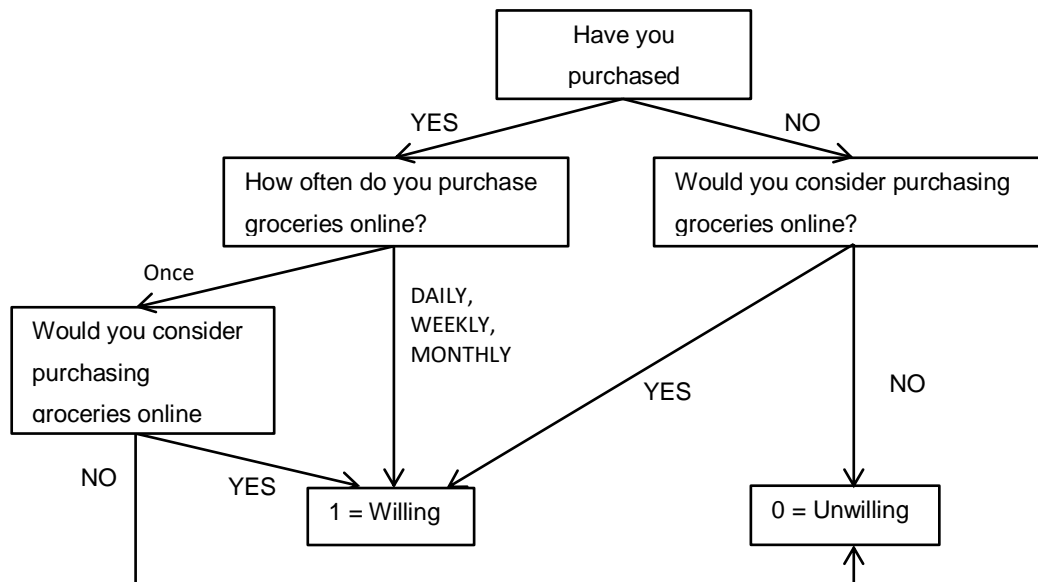
The previous chapter discussed the research methodology and research design used in this study. This chapter provides an analysis of the data collected for the study. The chapter also provides an interpretation of the results in detail. Firstly, the data cleansing procedure will be discussed briefly, followed by a discussion of the reliability of the data instrument. Secondly, specific demographics will be analysed to determine the generational cohorts and gender of respondents that fall within willingness and unwillingness categories for buying groceries online. Thereafter, a discriminant function analysis will be used to distinguish differences between the two groups and to determine whether a relationship exists between the Big Five personality traits.

As discussed in Chapter 3, an online survey was randomly distributed through a marketing research company to consumers who reside in South Africa and who have access to the Internet. The data was analysed and interpreted through Statistical Package of Social Science (SPSS) version 27.

### **4.2 Data cleansing and preparation for analysis**

A SQL query was written to extract the dataset for the study for data cleansing and preparation of the analysis that was executed as follows:

- i. Data was collected from 2788 participants, of which 1992 surveys were usable and 796 were eliminated from the dataset due to incomplete and non-qualifying responses from participants not residing in South Africa.
- ii. The Likert scale answers were coded for the personality test to applicable scoring, as presented in Appendix C.
- iii. Dummy variables were created for the demographic responses of age, gender and Covid-19 influence.
- iv. Responses were classified into applicable dependent groupings by assigning a binary indicator of 1 = willing to purchase groceries online and 0 = not willing to purchase groceries online. This was achieved through a set of questions as depicted by the willingness decision tree of the questionnaire (Figure 4.1).



**Figure 4.1: Willingness decision tree (Own source)**

- v. On completion of step “b” above, the sample size of 1992 was checked for any univariate and multivariate outliers using IBM – SPSS version 27 as described below.

#### **Univariate outliers**

The standard (Z) scores were calculated for each response across the five independent variables (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience). According to Hair *et al.* (2019:90), the rule of thumb is that any Z score of 4 and above is seen as an outlier for a sample size of greater than 80. As evident in Table 4-1 below, there are three cases of univariate outliers identified for agreeableness.

#### **Multivariate outliers**

Mahalanobis distance was used for each response to identify the multivariate outliers, as suggested by Hair *et al.* (2019:90). Therefore, Mahalanobis distances were divided by the degrees of freedom (in this study the degrees of freedom is five as there are five independent variables), and any values greater than four are reported in Table 4-1, which is a total of 23 multivariate outliers.

#### **Handling outliers in the study:**

After examining the identified outliers and taking into consideration the measurements of the independent constructs, it was decided to remove the outliers from the sample. All statistical tests in the study were run with the outliers excluded, and there was no statistical difference in the outcome. It is important to note that the highlighted outliers overlap; hence, a total of 24 responses were removed from the total sample of 1992.

**Table 4-1: Outliers**

	<b>Univariate Outliers</b>	<b>Multivariate Outliers</b>		
	Cases with Standardised Values Exceeding 4	Cases with a Value of D <sup>2</sup> /df Greater than 4 (df=5) <sup>a</sup>		
		Case	D <sup>2</sup>	D <sup>2</sup> /df
Extraversion	No cases	55	21.33983	4.27
Agreeableness	918, 1892, 1898	127	20.96737	4.19
Conscientiousness	No cases	576	22.27860	4.46
Neuroticism	No cases	592	20.78022	4.16
Openness to Experience	No cases	826	21.20099	4.24
		923	24.63269	4.93
		1036	26.04497	5.21
		1134	20.69680	4.14
		1190	22.16251	4.43
		1262	23.91751	4.78
		1471	24.58611	4.92
		1550	20.29055	4.06
		1591	20.71172	4.14
		1592	35.36019	7.07
		1840	26.91686	5.38
		1883	20.82690	4.17
		1892	46.33517	9.27
		1898	22.70629	4.54
		44	20.25210	4.05
		147	20.19139	4.04
		735	20.49012	4.10
		1622	20.76736	4.15
		1195	20,032	4.01

<sup>a</sup>Mahalanobis D<sup>2</sup> value based on the BIG FIVE personality trait constructs  
(Source: Author's own)

### 4.3 Reliability

The reliability of the questionnaire responses was tested using Cronbach's alpha. Vaske *et al.* (2017:163) explain that Cronbach's Alpha measures the internal consistency of rating scale items. This study adopted Goldberg's International Personality Item Pool (IPIP) which consists of 50 questions representing the Big Five personality traits constructed from five sub-scales – extraversion, agreeableness, conscientiousness, neuroticism and openness – with 10 questions each. Similarly, Goldberg's 50-item pool was used in a study conducted by Chew and Dillon (2013), confirming the internal consistency of the IPIP as tested in previous studies. The results from the test ranged between 0.77 and 0.86. According to Ursachi *et al.* (2015:681), an acceptable level of Cronbach's alpha ranges between 0.6 to 0.7 and any Cronbach's



alpha level of 0.8 and higher is very good. However, a reliability value of 0.95 and greater is not necessarily good (Ursachi, 2015:681).

Furthermore, reliability for this study was tested with an overall Cronbach's alpha that ranged between 0.638 and 0.787 across all constructs, as presented in the tables below (Table 4-2 to Table 4-6) at a confidence level of 95%. Hence, it is evident that the internal consistency is acceptable and that the data instrument used in this study was reliable.

**Table 4-2: Openness**

<b>Reliability Statistics</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.638	.658	10

(Source: Author's own)

**Table 4-3: Agreeableness**

<b>Reliability Statistics</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.654	.698	10

(Source: Author's own)

**Table 4-4: Conscientiousness**

<b>Reliability Statistics</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.742	.750	10

(Source: Author's own)

**Table 4-5: Extraversion**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.767	.766	10

(Source: Author's own)

**Table 4-6: Neuroticism**

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.787	.772	10

(Source: Author's own)

#### 4.4 Demographics and descriptive statistics

**Table 4-7: Demographics of age and gender**

		GENDER							
		Female		Male		Other		Total	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
WILLINGNESS	Unwilling	169	8.6%	66	3.4%	0	0.0%	235	11.9%
	Willing	1227	62.3%	504	25.6%	2	0.1%	1733	88.1%
	Total	1396	70.9%	570	29.0%	2	0.1%	1968	100.0%

		AGE									
		< 24		25 to 40		41 to 55		56 to 74		Total	
		Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %	Count	Table N %
WILLINGNESS	Unwilling	62	3.2%	145	7.4%	22	1.1%	6	0.3%	235	11.9%
	Willing	547	27.8%	1016	51.6%	145	7.4%	25	1.3%	1733	88.1%
	Total	609	30.9%	1161	59.0%	167	8.5%	31	1.6%	1968	100.0%

(Source: Author's own)

Table 4-7 above indicates that the majority of respondents completing the survey were females (70.9%). Interestingly, both males and females displayed equal willingness, at 88%, to purchase groceries online. Prior research conducted in other countries such as Indonesia indicated that women prefer to shop in-store (Gutama & Intani, 2017:24), and

in India it was found that males are more likely to use online grocery shopping than females. However, the findings from this study provide a clear indication that in South Africa, both male and females are willing to adopt online grocery shopping. It is also apparent that the majority of respondents are between the ages of 25 to 40 years (59%), an age which classifies them as millennials. These findings are in line with the viewpoint of Lim *et al.* (2017) who highlight that online grocery shopping is most popular amongst millennials due to the convenience that it offers.

**Table 4-8: Willingness due to Covid-19**

		COVID					
		Not influenced by Covid19		Influenced by Covid19		Total	
		Count	Table N %	Count	Table N %	Count	Table N %
WILLINGNESS	Unwilling	151	8.0%	84	4.4%	235	12.4%
	Willing	297	15.7%	1362	71.9%	1659	87.6%
	Total	448	23.7%	1446	76.3%	1894	100.0%

(Source: Author's own)

Not surprisingly, consumer lifestyles have changed dramatically as a result of the sudden Covid-19 eruption which also had a significant influence on online grocery shopping (Hobbs, 2020:1). Based on the total number of respondents who completed the survey for this study (n=1968) and the total number of respondents (Table 4-8 above), 3.76% (74) of the respondents did not specify whether their online grocery purchases were influenced by Covid-19 or not. However, 71.9% (1362) of the respondents who are willing to shop for groceries online indicated that their online grocery purchases were influenced by Covid-19, and 15.7% (297) indicated that their shopping was not influenced by Covid-19.

However, 4.4% (84) of the respondents who have purchased groceries online before but are no longer willing to (unwilling) have specified that their purchases were influenced by Covid-19. On the other hand, 8% (151) specified that their online grocery purchases were not influenced by Covid-19. Based on these results, it is clear that Covid-19 had a significant impact on consumer willingness to buy groceries online as the majority indicated that their online grocery purchasing was due to the Covid-19 pandemic.

**Table 4-9: Descriptive statistics of willingness**

**Between-Subjects Factors**

	Value	Label	N
WILLINGNESS	0	Unwilling	235
	1	Willing	1733

**Descriptive Statistics**

	WILLINGNESS	Mean	Std. Deviation	N
Extraversion	Unwilling	19.39	7.367	235
	Willing	20.07	6.522	1733
	Total	19.99	6.631	1968
Agreeableness	Unwilling	28.91	5.685	235
	Willing	29.94	4.870	1733
	Total	29.82	4.984	1968
Conscientiousness	Unwilling	28.78	6.202	235
	Willing	29.76	5.522	1733
	Total	29.64	5.615	1968
Neuroticism	Unwilling	20.01	6.894	235
	Willing	20.44	6.719	1733
	Total	20.39	6.740	1968
Openness_to_experience	Unwilling	27.14	5.173	235
	Willing	28.03	4.616	1733
	Total	27.92	4.693	1968

**(Source: Author's own)**

Table 4-9 above shows that the most dominant traits measured by the mean scores are agreeableness and conscientiousness across both groups of willing and unwilling grocery shoppers. Furthermore, the rankings of all five traits are identical for both groups based on mean scores. However, the least dominant trait with the lowest mean score is extraversion across both groups of willing and unwilling grocery shoppers. On the other hand, extraversion has the highest standard deviation in the unwilling group; the trait with the lowest standard deviation is openness to experience across both groups. Interestingly, neuroticism is ranked as the second lowest dominant trait across both groups with similar mean scores as well as a similar dispersion of scores around the mean. These results indicate that the two groups (willing and unwilling) are similar according to their willingness to buy groceries online. However, the most dominant personality traits across the two groups are agreeableness and conscientiousness which is interesting as agreeable people tend to be more cooperative and conscientious people tend to be more cautious (Novikova, 2013:1; Tsao & Chang, 2010:1810).

#### 4.5 Discriminant function analysis results

A discriminant function analysis was run to determine if any statistically significant relationships exist between the Big Five personality traits and consumer willingness to purchase groceries online. Discriminant function analysis (DFA) is a multivariate procedure that tests for dissimilarities between groups. It can be performed on personality attribute type data that comprise scores on multiple variables of different groups (Betz, 1987:394).

The predictors (independent variables) in this study are the five personality traits and the criterion or categorical groupings (dependent variables) are the groups who are willing and unwilling to buy groceries online.

The assumptions were observed as follow:

- Data was normally distributed with a fitted normal curve through measuring the levels of skewness (measurement of symmetry) and kurtosis (heavy or light tails) for each group of respondents (willing or unwilling) as can be seen in the histograms (Appendix D), and according to the data in Table 4-10 for overall normality.
- Univariate and multivariate outliers were identified as previously discussed in Table 4-1.
- Scatterplots displayed linear relationships between independent variables (Appendix E).
- Multicollinearity was assessed through the correlation matrix. Tables 4-13 and 4-14 below show that there was no multicollinearity and all correlations coefficients were  $|r| < .5$ .
- Box's M test in Table 4-15 below is statistically significant ( $p > .003$ ) which indicates homogeneity of variance-covariance matrices (Hahs-Vaughn, 2016:329).
- There were violations of the assumption of homogeneity of variances with extraversion, agreeableness, conscientiousness and openness to experience having a  $p < .05$  as assessed by the Levene's test of homogeneity of variances (Table 4-16). With the violation of this assumption as well as the fact that the group sizes are vastly different (1733 Willing to 235 Unwilling), the Welch t-test was used as a post-hoc test, as suggested by Delacre *et al.* (2017).

**Table 4-10: Overall normality**

		Statistics				
		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness_to_experience
N	Valid	1968	1968	1968	1968	1968
	Missing	0	0	0	0	0
Skewness		-.012	-.334	-.341	-.027	-.001
Std. Error of Skewness		.055	.055	.055	.055	.055
Kurtosis		-.087	-.010	-.291	-.255	-.013
Std. Error of Kurtosis		.110	.110	.110	.110	.110

(Source: Author's own)

**Table 4-11: Skewness and kurtosis for unwilling**

		Statistics <sup>a</sup>				
		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness_to_experience
N	Valid	235	235	235	235	235
	Missing	0	0	0	0	0
Skewness		.216	-.353	-.304	.068	-.003
Std. Error of Skewness		.159	.159	.159	.159	.159
Kurtosis		.140	.006	-.639	.014	-.048
Std. Error of Kurtosis		.316	.316	.316	.316	.316

a. WILLINGNESS = Unwilling

(Source: Author's own)

**Table 4-12: Skewness and kurtosis for willing**

		Statistics <sup>a</sup>				
		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness_to_experience
N	Valid	1733	1733	1733	1733	1733
	Missing	0	0	0	0	0
Skewness		-.046	-.303	-.332	-.040	.017
Std. Error of Skewness		.059	.059	.059	.059	.059
Kurtosis		-.141	-.089	-.250	-.289	-.030
Std. Error of Kurtosis		.118	.118	.118	.118	.118

a. WILLINGNESS = Willing

(Source: Author's own)

According to Mishra *et al.* (2019:70) if kurtosis and skewness measures fall outside of -1 and +1, distribution (pattern of responses) is assumed to be non-normal. Table 4-10 above highlights that the overall normality test for the independent variables has skewness measures between -.334 and -.001, and kurtosis measures between -.291 and -.010 which means that the distribution of the data is not too heavily or lightly tailed. Therefore, the data are considered to be normally distributed and the assumption for normality is satisfied.

**Table 4-13: Multicollinearity of the personality traits**

		Correlations				
		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness_to_experience
Extraversion	Pearson Correlation	1	.297	.157	.306	.277
	Sig. (2-tailed)		.000	.000	.000	.000
	N		1968	1968	1968	1968
Agreeableness	Pearson Correlation		1	.455	.232	.448
	Sig. (2-tailed)			.000	.000	.000
	N			1968	1968	1968
Conscientiousness	Pearson Correlation			1	.309	.413
	Sig. (2-tailed)				.000	.000
	N				1968	1968
Neuroticism	Pearson Correlation				1	.142
	Sig. (2-tailed)					.000
	N					1968
Openness_to_experience	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

(Source: Author's own)

**Table 4-14: Multicollinearity willingness**

		Correlations					
WILLINGNESS		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness_to_experience	
Unwilling	Extraversion	Pearson Correlation	1	.393	.178	.324	.406
		Sig. (2-tailed)		.000	.006	.000	.000
		N		235	235	235	235
	Agreeableness	Pearson Correlation		1	.542	.249	.480
		Sig. (2-tailed)			.000	.000	.000
		N			235	235	235
	Conscientiousness	Pearson Correlation			1	.321	.467
		Sig. (2-tailed)				.000	.000
		N				235	235
Neuroticism	Pearson Correlation				1	.291	
	Sig. (2-tailed)					.000	
	N					235	
Openness_to_experience	Pearson Correlation					1	
	Sig. (2-tailed)						
	N						
Willing	Extraversion	Pearson Correlation	1	.278	.152	.303	.253
		Sig. (2-tailed)		.000	.000	.000	.000
		N		1733	1733	1733	1733
	Agreeableness	Pearson Correlation		1	.438	.228	.440
		Sig. (2-tailed)			.000	.000	.000
		N			1733	1733	1733
	Conscientiousness	Pearson Correlation			1	.307	.402
		Sig. (2-tailed)				.000	.000
		N				1733	1733
Neuroticism	Pearson Correlation				1	.118	
	Sig. (2-tailed)					.000	
	N					1733	
Openness_to_experience	Pearson Correlation					1	
	Sig. (2-tailed)						
	N						

(Source: Author's own)

**Table 4-15: Box's M test**

**Box's Test of Equality of Covariance Matrices<sup>a</sup>**

Box's M	34.492
F	2.282
df1	15
df2	654248.215
Sig.	.003

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + WILLINGNESS

(Source: Author's own)

**Table 4-16: Leven's test**

**Levene's Test of Equality of Error Variances<sup>a</sup>**

		Levene Statistic	df1	df2	Sig.
Extraversion	Based on Mean	3.899	1	1966	.048
	Based on Median	3.759	1	1966	.053
	Based on Median and with adjusted df	3.759	1	1940.222	.053
	Based on trimmed mean	3.852	1	1966	.050
Agreeableness	Based on Mean	6.355	1	1966	.012
	Based on Median	6.265	1	1966	.012
	Based on Median and with adjusted df	6.265	1	1923.758	.012
	Based on trimmed mean	6.474	1	1966	.011
Conscientiousness	Based on Mean	7.727	1	1966	.005
	Based on Median	7.805	1	1966	.005
	Based on Median and with adjusted df	7.805	1	1960.466	.005
	Based on trimmed mean	7.742	1	1966	.005
Neuroticism	Based on Mean	.000	1	1966	.992
	Based on Median	.000	1	1966	.983
	Based on Median and with adjusted df	.000	1	1963.236	.983
	Based on trimmed mean	.000	1	1966	.987
Openness_to_experience	Based on Mean	6.379	1	1966	.012
	Based on Median	6.136	1	1966	.013
	Based on Median and with adjusted df	6.136	1	1958.963	.013
	Based on trimmed mean	6.334	1	1966	.012

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + WILLINGNESS

(Source: Author's own)



**Table 4-17: Pillai's trace**

Multivariate Tests <sup>a</sup>							
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.957	8829.382 <sup>b</sup>	5.000	1962.000	.000	.957
	Wilks' Lambda	.043	8829.382 <sup>b</sup>	5.000	1962.000	.000	.957
	Hotelling's Trace	22.501	8829.382 <sup>b</sup>	5.000	1962.000	.000	.957
	Roy's Largest Root	22.501	8829.382 <sup>b</sup>	5.000	1962.000	.000	.957
WILLINGNESS	Pillai's Trace	.006	2.462 <sup>b</sup>	5.000	1962.000	.031	.006
	Wilks' Lambda	.994	2.462 <sup>b</sup>	5.000	1962.000	.031	.006
	Hotelling's Trace	.006	2.462 <sup>b</sup>	5.000	1962.000	.031	.006
	Roy's Largest Root	.006	2.462 <sup>b</sup>	5.000	1962.000	.031	.006

a. Design: Intercept + WILLINGNESS

b. Exact statistic

(Source: Author's own)

Table 4-17 indicates that there was a statistically significant difference between the willingness groups on the combined independent variables:  $F(5, 1962) = 2.462$ ;  $p < .032$ ; Pillai's Trace = .006; partial  $\eta^2 = .006$  at  $\alpha = .05$  (significant level of 95%). The output of the discriminant function analysis is displayed in Table 4-18 to Table 4-21 below.

**Table 4-18: Wilk's lambda**

Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.994	12.283	5	.031

(Source: Author's own)

**Table 4-19: Canonical discriminant function coefficients of the Big Five personality traits**

Standardized Canonical Discriminant Function Coefficients	
	Function 1
Agreeableness	.500
Extraversion	.131
Conscientiousness	.314
Neuroticism	-.047
Openness_to_experience	.398

(Source: Author's own)

**Table 4-20: Structure matrix**

**Structure Matrix**

Function  
1

Agreeableness	.847
Openness_to_experience	.780
Conscientiousness	.710
Extraversion	.423
Neuroticism	.261

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions  
Variables ordered by absolute size of correlation within function.

(Source: Author's own)

**Table 4-21: Group classifications**

**Prior Probabilities for Groups**

WILLINGNESS	Prior	Cases Used in Analysis	
		Unweighted	Weighted
Unwilling	.500	235	235.000
Willing	.500	1733	1733.000
Total	1.000	1968	1968.000

(Source: Author's own)

**Classification Results<sup>a</sup>**

Original	Count	WILLINGNESS	Predicted Group Membership		Total
			Unwilling	Willing	
		Unwilling	133	102	235
		Willing	765	968	1733
	%	Unwilling	56.6	43.4	100.0
		Willing	44.1	55.9	100.0

a. 55.9% of original grouped cases correctly classified.

(Source: Author's own)

**Table 4-22: Welch t-test**

**Robust Tests of Equality of Means**

		Statistic <sup>a</sup>	df1	df2	Sig.
Extraversion	Welch	1.833	1	285.953	.177
Agreeableness	Welch	7.005	1	282.503	.009
Conscientiousness	Welch	5.215	1	286.566	.023
Neuroticism	Welch	.810	1	297.500	.369
Openness_to_experience	Welch	6.308	1	286.805	.013

a. Asymptotically F distributed.

(Source: Author's own)

The Welch test in Table 4-22 above indicates a statistically significant group difference between the means of agreeableness [ $t(1, 282.503) = 7.005, p = .009$ ]; conscientiousness [ $t(1, 286.566) = 5.215, p = .023$ ] and openness to experience [ $t(1, 286.805) = 6.308, p = .013$ ] at an  $\alpha = .05$ , however the group mean differences were statistically insignificant for extraversion [ $t(1, 285.953) = 1.833, p = .177$ ] and neuroticism [ $t(1, 297.500) = .810, p = .369$ ] at an  $\alpha = .05$ .

#### 4.6 Discussion

This study examined the relationship between the Big Five personality traits and consumer willingness to buy groceries online. It was hypothesised that extraversion, conscientiousness and neuroticism have a negative relationship with consumer willingness to buy groceries online (Hypotheses 1, 4 and 5, respectively) whereas agreeableness and openness to experience have a positive relationship with consumer willingness to buy groceries online (Hypotheses 2 and 3, respectively).

The findings suggest that there is a statistically significant difference between the groups and that the personality traits can be used as predictors of consumer willingness to buy groceries online. However, the Welch t-test in Table 4-22 demonstrates that agreeableness, conscientiousness and openness to experience are the only traits that are statistically significant predictors of willingness to buy groceries online. The standardised canonical discriminant function coefficients in Table 4-19 above revealed that agreeableness has a positive relationship with consumer willingness to buy groceries online. Similarly, Tsao and Chang (2010:1801) suggest that people with this trait find satisfaction when interacting with others while carrying out online purchases and hence H2 was accepted. Additionally, the results in Table 4-20 in the structure matrix indicate that agreeableness is the strongest predictor of consumer willingness to buy groceries online. Hence, this trait has the strongest relationship with willingness to buy groceries online. In addition, according to the literature reviewed, Anaza (2014:252) contends that agreeableness is one of the traits that indirectly influence consumer intention to shop online.

According to Turkyilmaz *et al.* (2015:101,104) conscientiousness has a negative effect on online impulse buying and consumers who score high on this trait tend to be more risk averse. However, the findings in this study show that conscientiousness has a positive relationship with consumer willingness to buy groceries online and hence the hypothesis for H4 has been rejected. The canonical discriminant function coefficients in Table 4-19 also demonstrate that openness to experience has a positive relationship with consumer willingness to buy groceries online and hence the hypothesis (H3) has been accepted. In line with this finding, Tseng *et al.* (2017:68) assert that consumers who score high on this trait are willing to try new things and are open to new experiences. Additionally, Tsao and Chang

(2010:1802) affirm that this kind of consumer is always shopping for bargains online. Surprisingly, the results for extraversion and neuroticism reveal no statistically significant differences between the groups and therefore these results will not be interpreted in this study.

Although significant differences were found in Table 4-17 of Pillai's trace and Table 4-22 of the Welch t-test, the prior probabilities of the group classifications in Table 4-21 were set equally at 50% to classify each response according to willingness based on the discriminant function created in the analyses. Moreover, according to the classification results, 55.9% of the responses were correctly classified into their correct groups based on personality traits. Hence, the DFA model only improved the classifications by 5.9% which indicates that personality traits are not good predictors of willingness to buy groceries online.

#### **4.7 Chapter summary**

This chapter presented a detailed interpretation of the data analysed from 1968 questionnaires through SPSS version 27. The findings indicate that both males and females are willing to adopt online grocery shopping in South Africa and that the majority (59%) of the respondents who are willing to buy groceries online are millennials. However, it is not surprising that consumer online grocery purchasing decisions were influenced by Covid-19 at the time of the survey as the majority (71.9%) of respondents indicated that their online grocery purchases were influenced by Covid-19, while only 15.7% indicated that Covid-19 did not influence their decisions with regards to online grocery shopping.

Furthermore, a discriminant function analysis was used to determine the differences between the groups and to determine whether a relationship exists between consumer personality traits and willingness to buy groceries online. The findings provided support for agreeableness, conscientiousness and openness to experience as there was a statistically significant difference between the groups for willing and unwilling. However, the group differences for extraversion and neuroticism were statistically insignificant and hence they are not interpreted in this study.

The next chapter will discuss overall findings of this study, provide a conclusion to the study and suggest possible directions for future research.

## **CHAPTER FIVE CONCLUSION AND RECOMMENDATIONS**

The previous chapter provided a comprehensive analysis, interpretation and findings of the data collected by means of an online survey. This chapter will present the conclusions and recommendations from the main findings that were discussed in the data analysis and the overall research study, and provide suggestions for further research emerging from this study.

### **5.1 Summary**

Online shopping has gradually gathered momentum while the complexity of consumers has changed significantly across different market segments (Chakraborty *et al.*, 2016). Retailers can no longer rely only on traditional segmentation techniques to find the right consumer (Datskova & Zhylinska, 2019:92). Online groceries are a relatively new concept in South Africa so consumers are still wary and sceptical about this way of shopping. However, with the sudden disruption caused by the Covid-19 pandemic, many consumers converted to purchasing groceries online (Hobbs, 2020:1). As previously discussed in Chapter 2, the findings of psychographic and attitudinal studies could aid retailers to better identify their customer profile based on their backgrounds, especially during the Covid-19 pandemic (Dali *et al.*, 2020:18). Personality has a major influence on consumer decisions and shopping behaviour as each individual has unique traits (Gohary & Hanzee, 2014:166).

The researcher noticed two gaps in online groceries in South Africa that provided an opportunity for research. Firstly, grocery retailers are facing numerous challenges in online grocery shopping, one of which pertains to customer uncertainty with regards to buying groceries online, and the increased competition from other “pure-play” grocery retailers adding even more pressure. Therefore, retailers must make an effort to gain an in-depth understanding of their online grocery consumer to develop relevant strategies that will appeal to these particular types of customers. Secondly, trait theories and the Big Five personality traits have been widely used in research across different cultures and countries, but little is known about online grocery shopping and personality traits in South Africa.

The next section will discuss the main findings of the objectives and recommendations will be provided based on findings of this study. The objectives that this study aimed to fulfil were as follows:

- To determine the relationship between the selected personality traits and consumer willingness to buy groceries online in South Africa.

- To determine the differences and similarities of consumer personality traits.
- To identify the dominant personality traits between the two different groups of consumers (willing or unwilling), as previously discussed, which consists of:
  - Consumers currently purchasing online and consumers who have not yet purchased groceries online but are willing to.
  - Consumers who have purchased groceries online before, but are no longer willing to continue purchasing groceries online and consumers who have not yet purchased groceries online and remain unwilling to purchase groceries online.

The subsequent hypotheses were created to test the relationship of the selected personality traits and consumer willingness to purchase groceries online:

- H1: *Extraversion has a negative relationship with consumer willingness to buy groceries online.*
- H2: *Agreeableness has a positive relationship with consumer willingness to buy groceries online.*
- H3: *Openness (to experience) has a positive relationship with consumer willingness to buy groceries online.*
- H4: *Conscientiousness has a negative relationship with consumer willingness to buy groceries online.*
- H5: *Neuroticism has a negative relationship with consumer willingness to buy groceries online.*

## **5.2 Key findings**

The main focus of the study was to determine if there is a relationship between consumer personality traits and willingness to buy groceries online in South Africa. The key findings will be discussed relative to the objectives of the study.

### **5.2.1 Objective 1: To determine the relationship between the selected personality traits and consumer willingness to buy groceries online in South Africa**

The findings demonstrate that the Big Five personality traits are indeed significantly related to consumer willingness to buy groceries online. However, only agreeableness, conscientiousness and openness to experience can be used as statistically significant predictors of willingness to buy groceries online. Furthermore, the findings indicate that agreeableness has a positive relationship with consumer willingness to buy groceries online and hence the hypothesis was accepted. As Tsao and Chang (2010:1802) contend, people with a higher level of agreeableness are friendly and trusting towards others and conversely,

people who score low on agreeableness are less trusting and more suspicious. Therefore, considering the uncertainty of online groceries in South Africa, consumers who score low on this trait may be more sceptical or unwilling to buy groceries online.

Additionally, consumers who score high on conscientiousness are more risk averse and cautious online (Turkyilmaz *et al.*, 2015:104; Islam *et al.*, 2017:513). Therefore the researcher hypothesised that consumers high on this trait will have a negative relationship with willingness to buy groceries online. However, the findings show that conscientiousness has a positive relationship with willingness to buy groceries online and consequently the hypothesis was rejected. This might be owing to the benefits of online groceries as Islam *et al.* (2017:513) also suggest that people high on conscientiousness are more focussed on achievements and meeting work-related deadlines. Thus, it can be concluded that conscientious people might be more attracted to the convenience and time-saving factors of online groceries (Pan *et al.*, 2017:1919) than they are concerned about the perceived risks (Tsao & Chang, 2010:1810). Conversely, consumers who are open to experience are less risk averse and tend to be more imaginative, curious and willing to explore new experiences (Islam *et al.*, 2017:513; Tseng *et al.*, 2017:68). Not surprisingly, the findings reveal that openness to experience has a positive relationship with consumer willingness to buy groceries online; hence, the hypothesis was accepted.

Furthermore, people that score high on extraversion tend to be more talkative, lively and prefer interpersonal relationships when collecting information on products and services (McAdams, 2018:119; Tseng *et al.*, 2017:68), hence the researcher hypothesised that extraversion has a negative relationship with consumer willingness to buy groceries online. The researcher also hypothesised that neuroticism has a negative relationship with consumer willingness to buy groceries online as people high on this trait tend to stress quickly about things that could go wrong and they are not comfortable with adopting new technology (Rauschnabel *et al.*, 2015:640). However, according to the findings, extraversion and neuroticism was statistically insignificant and could not be interpreted in this study which means that the hypotheses could not be accepted or rejected.

### **5.2.2 Objective 2: To determine the differences or similarities between the groups**

This study presented a few differences and similarities between the groups. Firstly, taking into consideration generational cohorts, the findings concur with the viewpoint of Lim *et al.* (2016:401) that online grocery shopping is more popular amongst millennials as the majority of respondents (59%) were between the ages of 25-40 years. In addition, 51.6% of the millennials indicated that they are willing to buy groceries online while only 7.4% are unwilling. Similarly, according to Peball (2017:23), millennials value the convenience of

online groceries and are willing to take risks. Interestingly, the findings also indicate that based on gender, women and men are both equally willing to buy groceries online in South Africa. However, previous research conducted in other countries determined males to be more willing to buy groceries online than females (Ahmed, 2016:83; Gutama & Intani, 2017:24; Prasad & Raghu, 2018:21,22). The findings also indicate that agreeableness, conscientiousness and openness to experience can be used as significant predictors of online groceries in this study and that all three traits have a positive relationship with consumer willingness to buy groceries online. Moreover, the results highlight that neuroticism has similar mean scores and a similar dispersion of scores around the mean between the two groups. Likewise, extraversion also has similar mean scores across both groups which suggest that each of these two traits is highly similar across both groups of consumers who are willing and unwilling to buy groceries online.

### **5.2.3 Objective 3: To identify the dominant traits between the groups**

The findings further reveal that agreeableness and conscientiousness are the two most dominant traits across both groups of consumers who are willing and unwilling to buy groceries online. However, according to the results in the structure matrix, agreeableness is the strongest predictor of consumer willingness to buy groceries online. This means that agreeableness has the strongest relationship with consumer willingness to buy groceries online. Contrarily, neuroticism was ranked as the second lowest dominant trait across both groups and extraversion the least dominant trait across both groups of consumers who are willing and unwilling to buy groceries online.

### **5.3 Recommendations**

The findings in this study suggest that more agreeable consumers are willing to buy groceries online and as recommended by other researchers such as Tsao and Chang (2010:1802) and Islam *et al.* (2017:514), they are easily influenced by attractive websites and interaction with others while carrying out online purchases. They also spend a substantial amount of time online. Therefore, online grocery retailers can design attractive websites that are user friendly and create a page that encourages customer engagement with their products and services.

Furthermore, Azhar and Bashir (2018:47) suggest that retailers can also add visual elements such as 3D images and video content of their products as customers are unable to directly feel and examine products online. These elements could also aid retailers to alleviate the perception of uncertainty and risks for consumers who are suspicious of online groceries. In addition, people who score high on conscientiousness tend to be more cautious online yet as previously mentioned, they are also more organised and concerned with meeting their work-



related deadlines. Hence, grocery retailers can add value to these customers by ensuring that quality products are delivered timeously.

The literature also suggests that conscientious individuals will collect information on a product before making an online purchase. Grocery retailers can target these consumers by marketing personalised products to them and communicating through their preferred channel, for instance, by means of emails. Alternatively, a customer who is open to explore prefers to shop for bargains and compare prices on the Internet. Thus, grocery retailers can add value to these customers by offering free delivery for their online service if customers spend x amount in one transaction. Retailers can also communicate daily deals on social media and through personalised marketing to entice these consumers with bargains.

Personalised-based information can be collected through surveys or, as most of the grocery retailers already do, by means of loyalty programmes. Shoprite for instance, implemented this through their Xtrasavings deals, whereas Pick n Pay collects information through their smart shopper card that offer customers points, and Woolworths through their Rewards card. Furthermore, retailers can use personality traits to offer a customer-centric experience on all touchpoints in a customer's journey. With these and other means, grocery retailers can improve their marketing strategies, gain a competitive advantage and retain existing customers.

#### **5.4 Implications for practice**

This study could potentially benefit retailers to better understand their target audience and the types of consumers who are willing to purchase groceries online. Furthermore, retailers could also identify possible opportunities for new product development and expansion by identifying new customer personas based on their personality traits. Retailers can also use this research to further investigate their own customers based on the personality traits identified in this study to determine their preferred communication channels or brands. As previously cited by Mpinganjira (2016:274), psychographic segmentation can aid retailers to understand how different customers think and what their similarities are. In this instance, people who are agreeable, conscientious and open to experience are those customers most willing to buy groceries online. Retailers can also use these findings to develop ideas that will entice those customers who are less agreeable and therefore more suspicious to buy groceries online by developing products that could break through these barriers or concerns.

#### **5.5 Implications for the body of knowledge**

This study could add potential value to the existing body of knowledge as it highlights the importance of personality traits as a psychographic factor in the consumer decision-making process. Moreover, this study can add value to more literature pertaining to online groceries in South Africa that is presently quite limited. Lastly, this research could also assist in

developing a more contemporary consumer decision-making framework for online shoppers from that which was initially developed by Smith in 2003 (Wei, 2016:113).

## **5.6 Concluding reflections**

The study suggests that the Big Five personality traits can be considered significant factors for retailers to gain a better understanding of their consumers and the way they think, feel and behave. Agreeableness is the strongest driver of consumer willingness to buy groceries online, followed by conscientiousness and openness to experience. Extraversion and neuroticism had no significant influence on consumer willingness to buy groceries online.

Although the findings suggest a significant relationship between these personality traits and consumer willingness to buy groceries online, the DFA model indicates that the traits are poor predictors of consumer willingness to buy groceries online. However, the results might have been different if the study was not focussed on willingness and instead only focussed on consumers who have and have not purchased groceries online before. Furthermore, the findings also reveal that 71.9% of consumers have purchased groceries online due to Covid-19 which potentially had a major impact on the outcome of this study. For instance, people who are neurotic tend to stress and worry about everything and hence due to the health risks associated with the Covid-19 virus, some consumers were more willing to purchase groceries online as opposed to stressing about the perceived risks. However, this study still presents opportunities for future research studies. Finally, the results also show that online groceries in South Africa are mostly popular amongst millennials and that both males and females are equally willing to buy groceries online.

## **5.7 Suggestions for further research**

Online groceries have only started to emerge in South Africa which, according to the limited research available, remains underexplored. Researchers may consider analysing other psychological attributes of consumers and online groceries in South Africa, such as their attitudes, beliefs or expectations. Furthermore, findings in the literature review suggest that it is difficult to segment the South African market due to the diversity of the population and widely disparate disposable incomes. Thus, this is an opportunity for researchers to examine the demographics of consumers of online groceries in South Africa across the country.

Researchers may also consider conducting a geographical segmentation study of online groceries in South Africa. Online groceries remain complex due to the nature and perishability of the products; therefore, grocery retailers encounter numerous challenges. Future research can possibly address these and other challenges of grocery retailers in South Africa to discover strategies and solutions to the problems faced. The literature review also highlights the importance of generational cohorts and gender for online groceries in

other countries, which is yet another opportunity for further exploration, specifically in the South African context.

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## APPENDIX A: Consent Form



Dear Survey Participant

### **RE: REQUEST FOR YOUR PARTICIPATION IN A QUESTIONNAIRE SURVEY**

I am a Master's student at the Cape Peninsula University of Technology (CPUT) and conducting a research study concerning the impact of consumer personality traits on consumer willingness to buy groceries online: A case study of online grocery shopping in South Africa.

The purpose of this study is to analyse the selected personality traits in order to determine which traits drive customers that buy groceries online and not buying groceries online. I therefore request you to complete the following questionnaire on this subject.

As an independent and external stakeholder, your valuable contribution will assist me in answering the research hypotheses and achieving the research objectives. I would therefore kindly appreciate your participation in this study. Completing the questionnaire will take approximately ten **(10)** minutes of your time.

Participation in this study is anonymous, therefore your identity is unknown and it is completely voluntary thus you can withdraw at any time during the survey process.

All the information that you will provide through your participation in this study will be kept confidential. There are no known or anticipated risks to participation in this study. If you have any questions about this study, or would like additional information to assist you in reaching a decision about participating, please feel free to contact me at [213153432@cput.ac.za](mailto:213153432@cput.ac.za), or at [geninecloete@gmail.com](mailto:geninecloete@gmail.com)

Thank you in advance for your cooperation in my research.

Yours sincerely

Ms. G Cloete

**RESEARCHER**

## **CONSENT FOR PARTICIPATION IN RESEARCH – ONLINE SURVEY**

I hereby give consent to participate in the study titled “the impact of personality traits and consumers’ willingness to buy groceries online: A case study on online grocery shopping in South Africa” and by voluntarily participating in the survey online I agree to the terms below.

I acknowledge that:

1. I have read the information provided to me as a participant.
2. I am free to withdraw from the project at any time during completion of the survey process.
3. Any information gained in this study will not be identified and individual information will remain strictly confidential.
4. All the information generated during the course of the research study is only for the purpose and use of this study and will be discarded safely thereafter.
5. There is no risk involved, or any harm in participation of this study.

**TAKE SURVEY NOW**

**APPENDIX B: Questionnaire**

**PERSONALITY TRAITS SURVEY**

Please complete the following questions truthfully in Section A and Section B.

Completing the survey will take approximately 8-10 minutes to complete.

Note: Results will not be displayed at the end of the survey.

**SECTION A**

**The answer in question 2 depends on your answers given, "Yes" or "No" in question 1.**

**Please use "X" to tick the appropriate box, only one answer is possible.**

1. Have you purchased groceries online?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

If question 1 = Yes, was your purchasing decision based on Covid?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

2. How often do you buy groceries online?

Once	<input type="checkbox"/>
Daily	<input type="checkbox"/>
Weekly	<input type="checkbox"/>
Monthly	<input type="checkbox"/>

3. If question 1 = No, would you be interested to buy groceries online?

Definitely	<input type="checkbox"/>
Probably	<input type="checkbox"/>
Possibly	<input type="checkbox"/>
Probably Not	<input type="checkbox"/>
Definitely No	<input type="checkbox"/>

If answer above = "Definitely", "Probably", "Possibly", is your decision due to Covid?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>



## SECTION B

Please indicate to what extent you agree or disagree with the statements in the table below by using the following scale:

1=disagree, 2=slightly disagree, 3=neutral, 4=slightly agree and 5=agree

Rating	I....	Rating	I.....
	1. Am the life of the party.		26. Have little to say.
	2. Feel little concern for others.		27. Have a soft heart.
	3. Am always prepared.		28. Often forget to put things back in their proper place.
	4. Get stressed out easily.		29. Get upset easily.
	5. Have a rich vocabulary.		30. Do not have a good imagination.
	6. Don't talk a lot.		31. Talk to a lot of different people at parties.
	7. Am interested in people.		32. Am not really interested in others.
	8. Leave my belongings around.		33. Like order.
	9. Am relaxed most of the time.		34. Change my mood a lot.
	10. Have difficulty understanding abstract ideas.		35. Am quick to understand things.
	11. Feel comfortable around people.		36. Don't like to draw attention to myself.
	12. Insult people.		37. Take time out for others.
	13. Pay attention to details.		38. Shirk my duties.
	14. Worry about things.		39. Have frequent mood swings.
	15. Have a vivid imagination.		40. Use difficult words.
	16. Keep in the background.		41. Don't mind being the center of attention.
	17. Sympathize with others' feelings.		42. Feel others' emotions.
	18. Make a mess of things.		43. Follow a schedule.
	19. Seldom feel blue.		44. Get irritated easily.
	20. Am not interested in abstract ideas.		45. Spend time reflecting on things.
	21. Start conversations.		46. Am quiet around strangers.
	22. Am not interested in other people's problems.		47. Make people feel at ease.
	23. Get chores done right away.		48. Am exacting in my work.
	24. Am easily disturbed.		49. Often feel blue.
	25. Have excellent ideas.		50. Am full of ideas.

## APPENDIX C: Measurements of the (IPIP) personality test

$$E = 20 + (1) \text{ \_\_\_\_\_\_} - (6) \text{ \_\_\_\_\_\_} + (11) \text{ \_\_\_\_\_\_} - (16) \text{ \_\_\_\_\_\_} + (21) \text{ \_\_\_\_\_\_} - (26) \text{ \_\_\_\_\_\_} + (31) \text{ \_\_\_\_\_\_} - (36) \text{ \_\_\_\_\_\_} + (41) \text{ \_\_\_\_\_\_} - (46) \text{ \_\_\_\_\_\_} =$$

$$A = 14 - (2) \text{ \_\_\_\_\_\_} + (7) \text{ \_\_\_\_\_\_} - (12) \text{ \_\_\_\_\_\_} + (17) \text{ \_\_\_\_\_\_} - (22) \text{ \_\_\_\_\_\_} + (27) \text{ \_\_\_\_\_\_} - (32) \text{ \_\_\_\_\_\_} + (37) \text{ \_\_\_\_\_\_} + (42) \text{ \_\_\_\_\_\_} + (47) \text{ \_\_\_\_\_\_} =$$

$$C = 14 + (3) \text{ \_\_\_\_\_\_} - (8) \text{ \_\_\_\_\_\_} + (13) \text{ \_\_\_\_\_\_} - (18) \text{ \_\_\_\_\_\_} + (23) \text{ \_\_\_\_\_\_} - (28) \text{ \_\_\_\_\_\_} + (33) \text{ \_\_\_\_\_\_} - (38) \text{ \_\_\_\_\_\_} + (43) \text{ \_\_\_\_\_\_} + (48) \text{ \_\_\_\_\_\_} =$$

$$N = 38 - (4) \text{ \_\_\_\_\_\_} + (9) \text{ \_\_\_\_\_\_} - (14) \text{ \_\_\_\_\_\_} + (19) \text{ \_\_\_\_\_\_} - (24) \text{ \_\_\_\_\_\_} - (29) \text{ \_\_\_\_\_\_} - (34) \text{ \_\_\_\_\_\_} - (39) \text{ \_\_\_\_\_\_} - (44) \text{ \_\_\_\_\_\_} - (49) \text{ \_\_\_\_\_\_} =$$

$$O = 8 + (5) \text{ \_\_\_\_\_\_} - (10) \text{ \_\_\_\_\_\_} + (15) \text{ \_\_\_\_\_\_} - (20) \text{ \_\_\_\_\_\_} + (25) \text{ \_\_\_\_\_\_} - (30) \text{ \_\_\_\_\_\_} + (35) \text{ \_\_\_\_\_\_} + (40) \text{ \_\_\_\_\_\_} + (45) \text{ \_\_\_\_\_\_} + (50) \text{ \_\_\_\_\_\_} =$$

The scores of the questions in the survey are calculated between zero (0) and forty (40) on a continuum of high and low.

Below is a description of each trait:

- **Extraversion (E):** is the personality trait that seeks interpersonal interaction with other. People that score high on this trait tend to be more sociable, and low scorers are more reserved.
- **Agreeableness (A):** reflects individuals that adjust their behaviour to suit others. People that score high on this trait are typically polite, trusting and like people. On the other hand, low scorers tend to be more straight forward and skeptical about things.
- **Conscientiousness (C):** is the personality trait of being honest and hardworking. High scorers tend to be organised and follow rules, but are also more cautious and tenacious. Low scorers may be disorganized, more spontaneous and rarely plan ahead.
- **Neuroticism (N):** is the personality trait of being emotional, worrying and stress about everything that could go wrong.
- **Openness to Experience (O):** is the personality of seeking new experience and intellectual pursuits. High scorers tend to be more curious and imaginative. Low scorers may be more down to earth and unwilling to try new things.

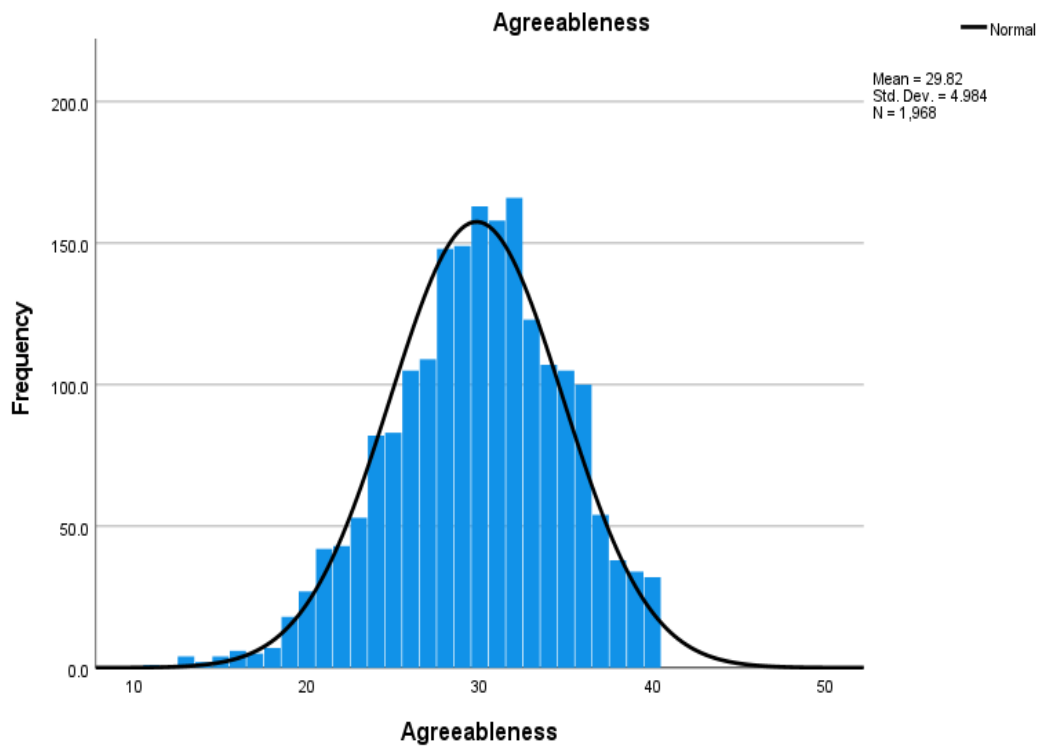
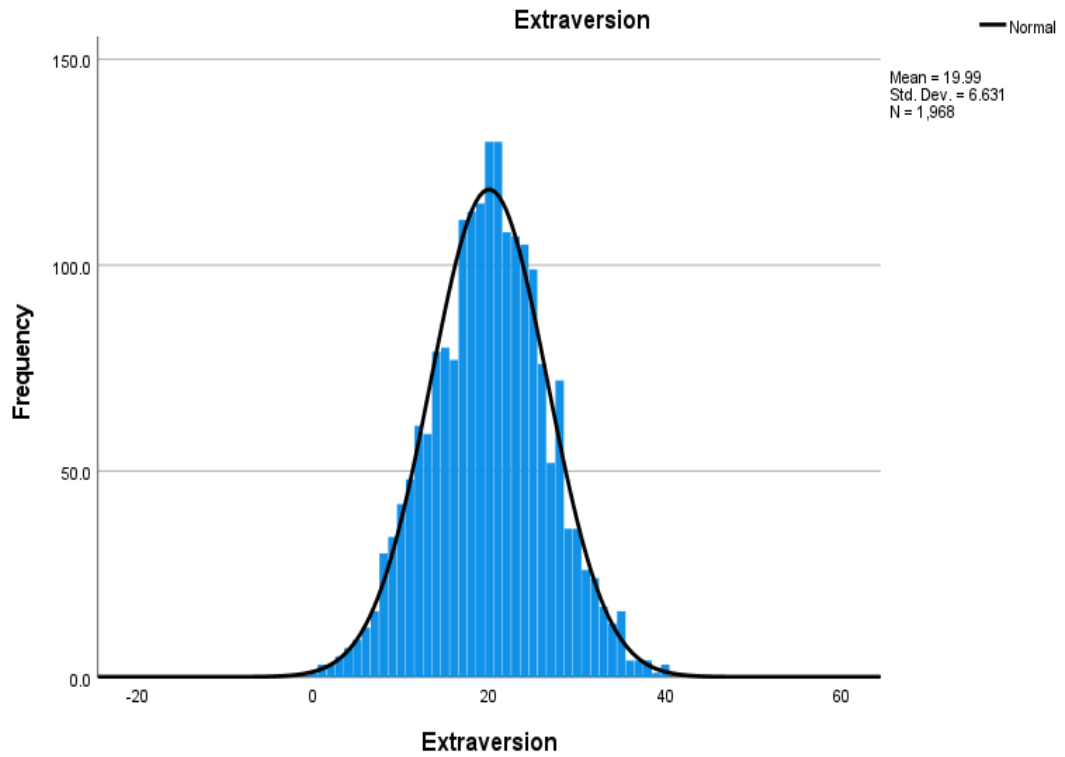
**For example:**

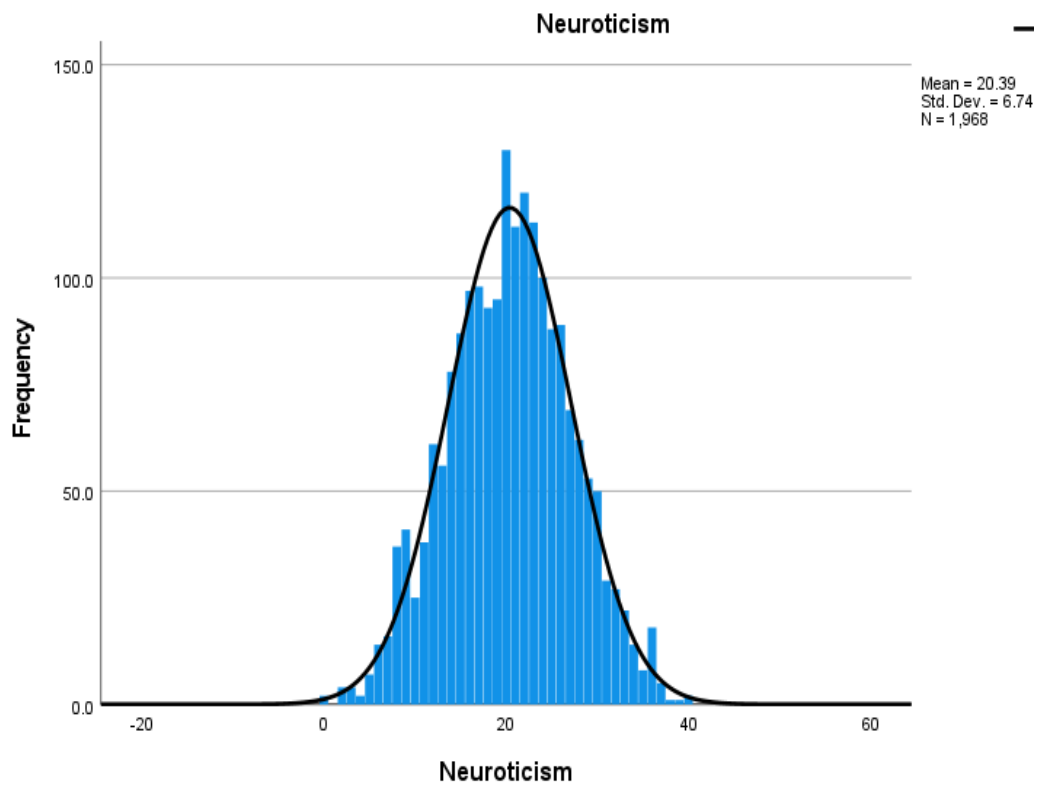
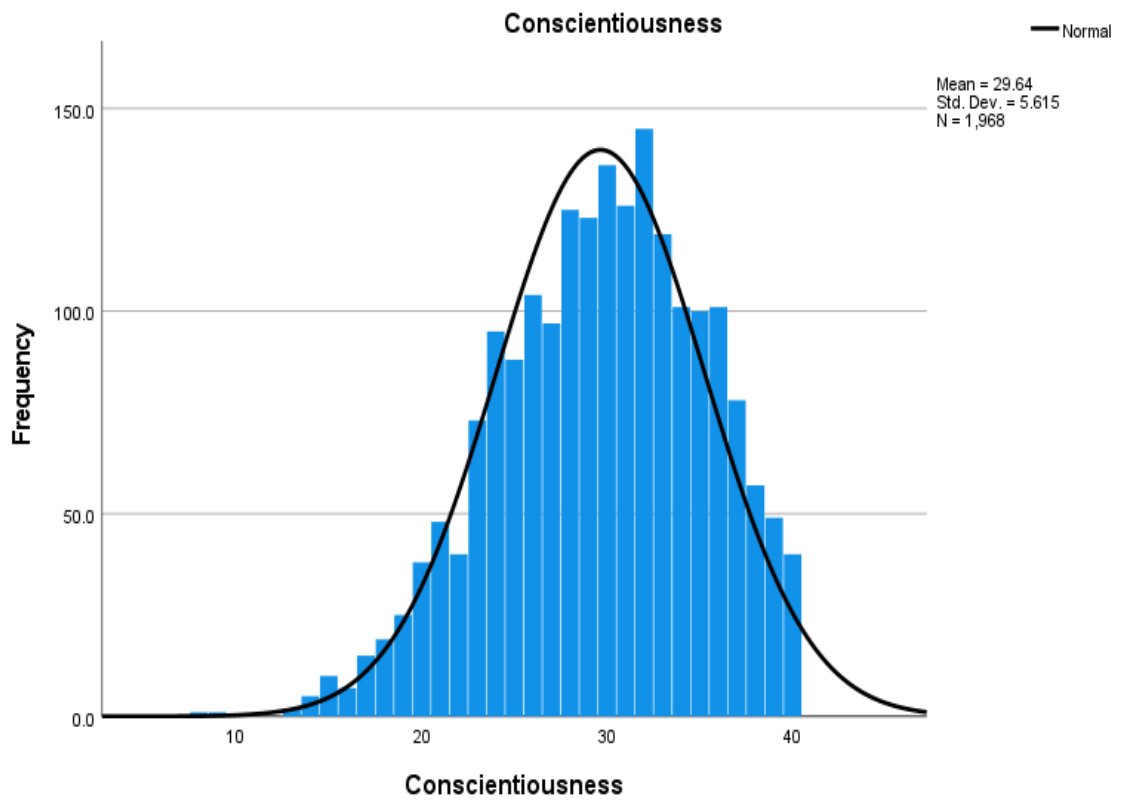
**Extraversion is measured by calculating the scores of the following questions:**

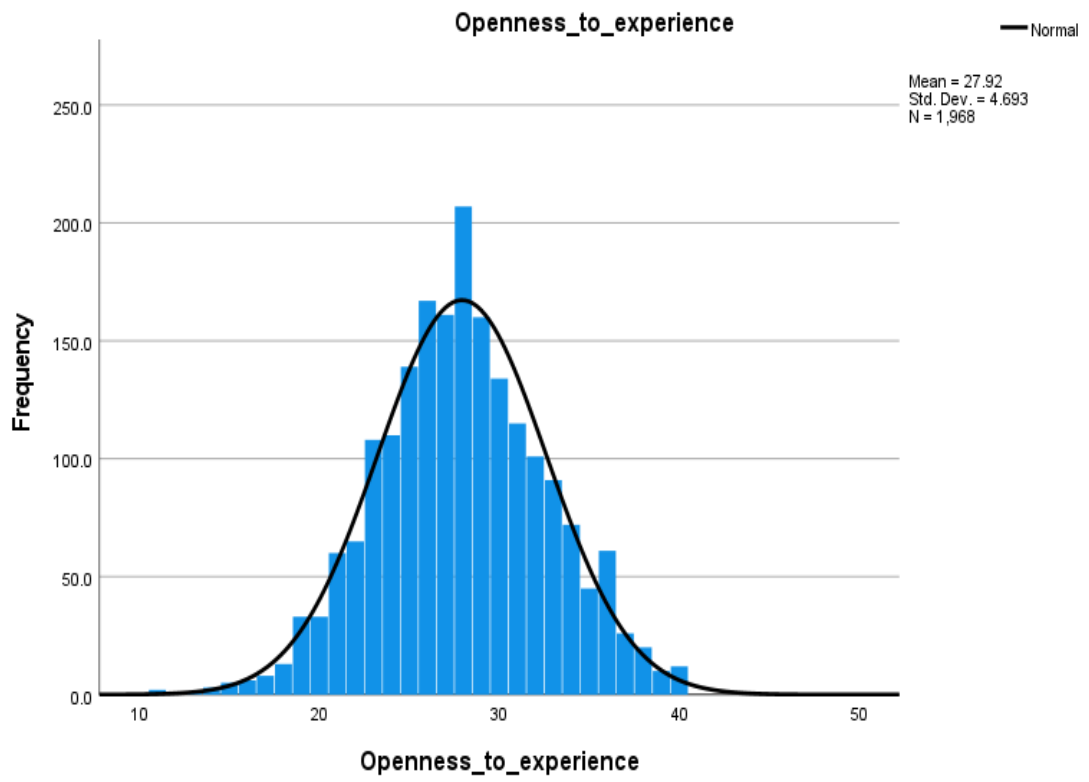
$$20+ (1)\_\_ - (6)\_\_ + (11)\_\_ - (16)\_\_ + (21)\_\_ - (26)\_\_ + (31)\_\_ - (36)\_\_ + (41)\_\_ - (46)\_\_ = \_\_\_$$

## APPENDIX D: Histograms of Normality

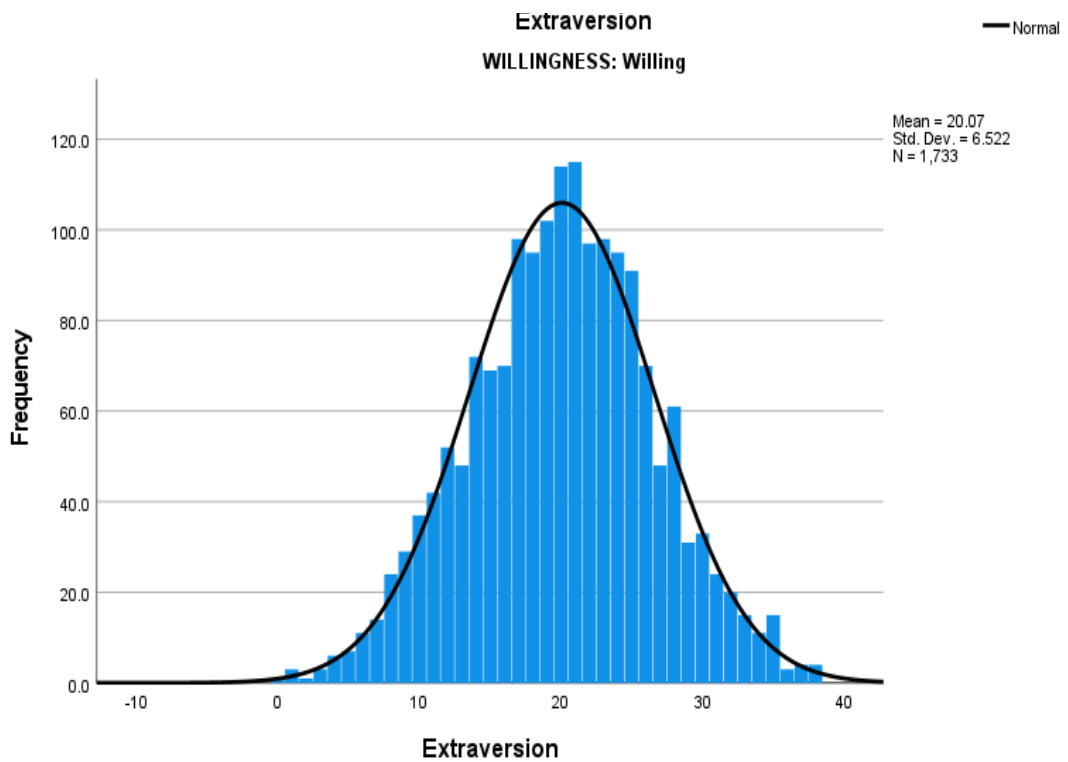
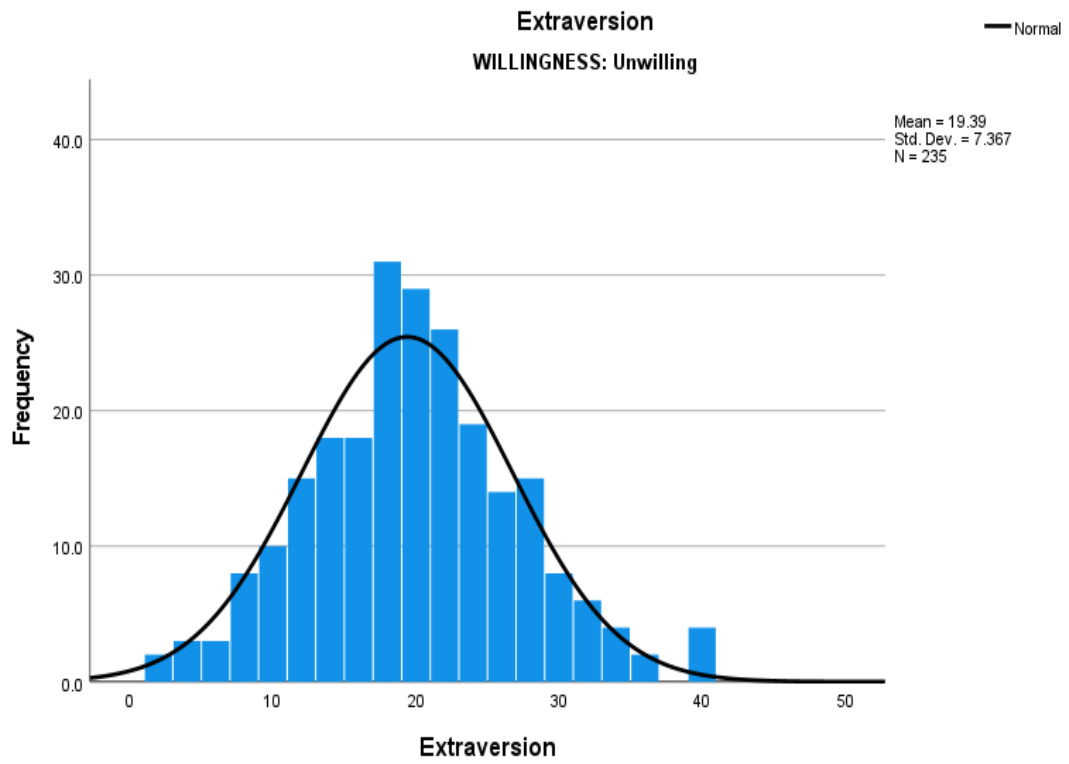
The following histograms below shows the overall Normality for all five personality traits

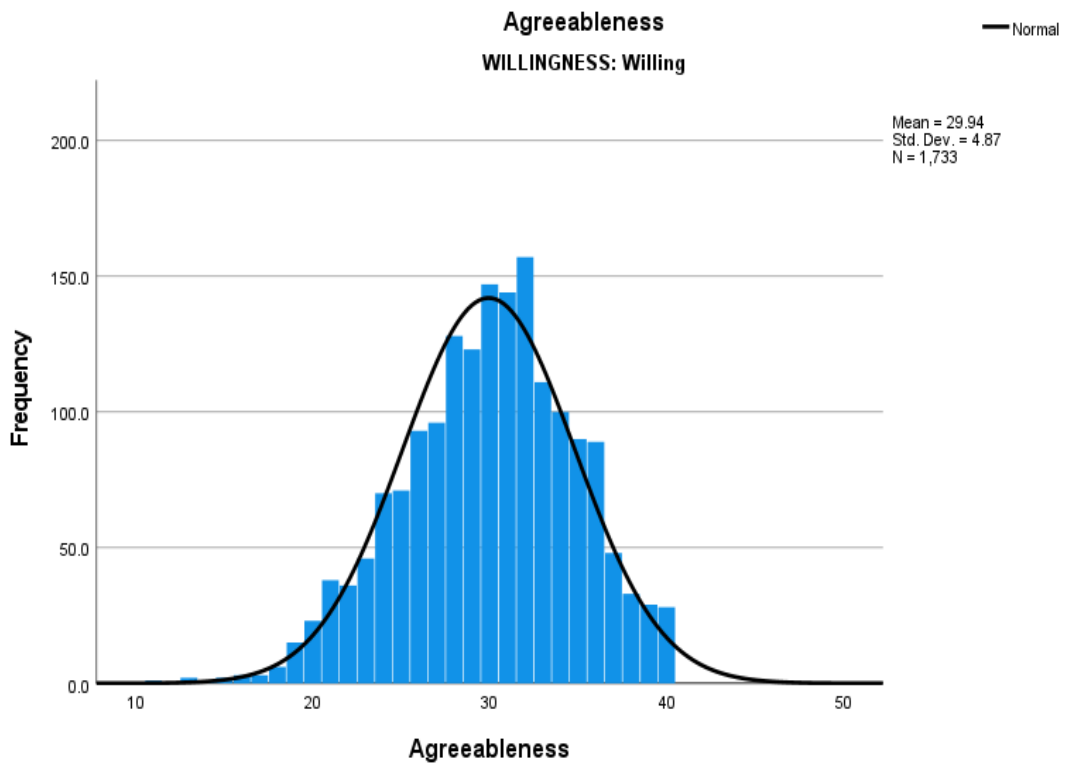
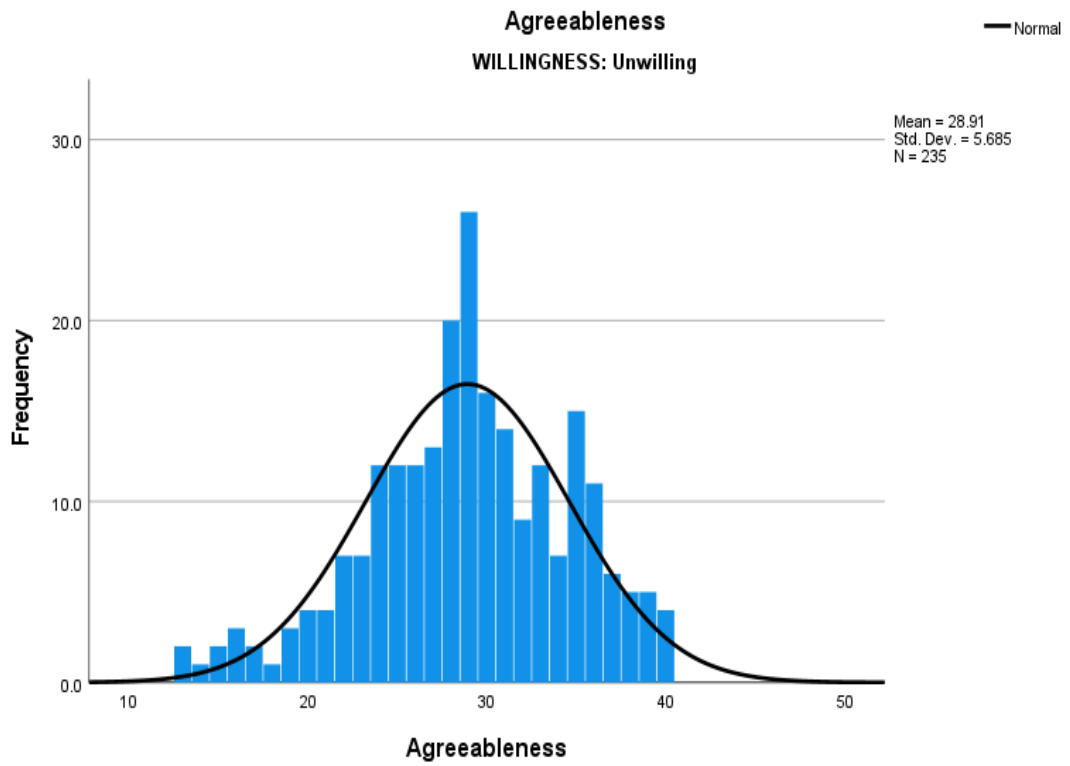


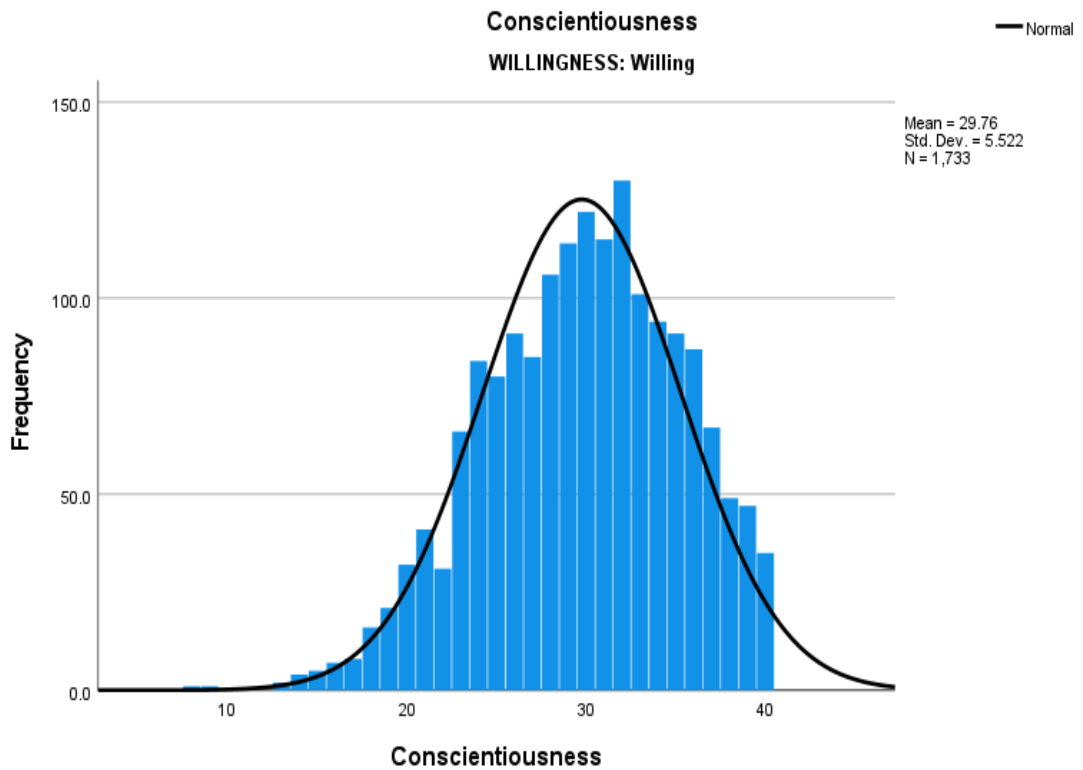
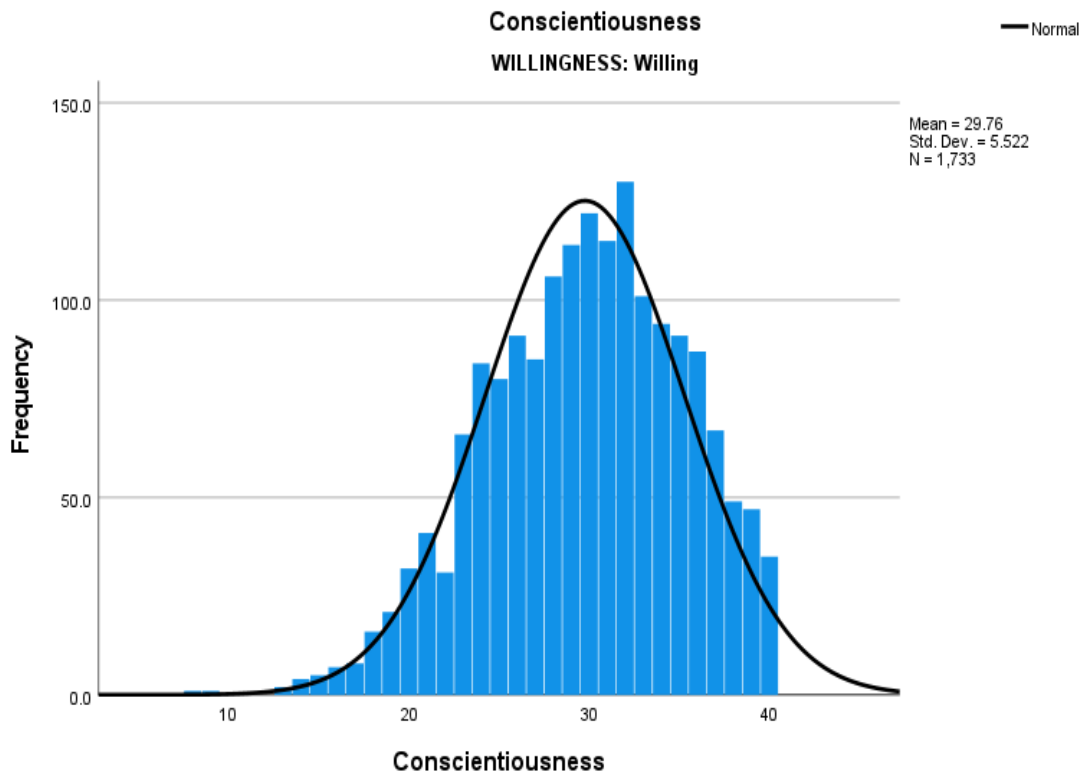




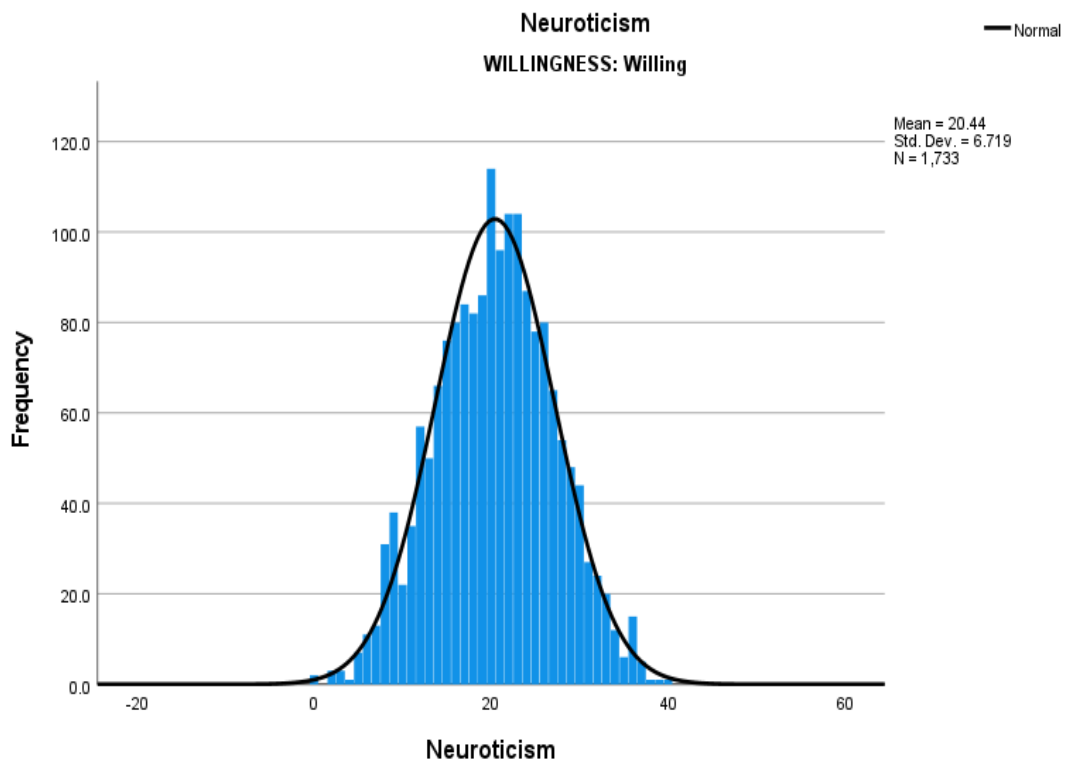
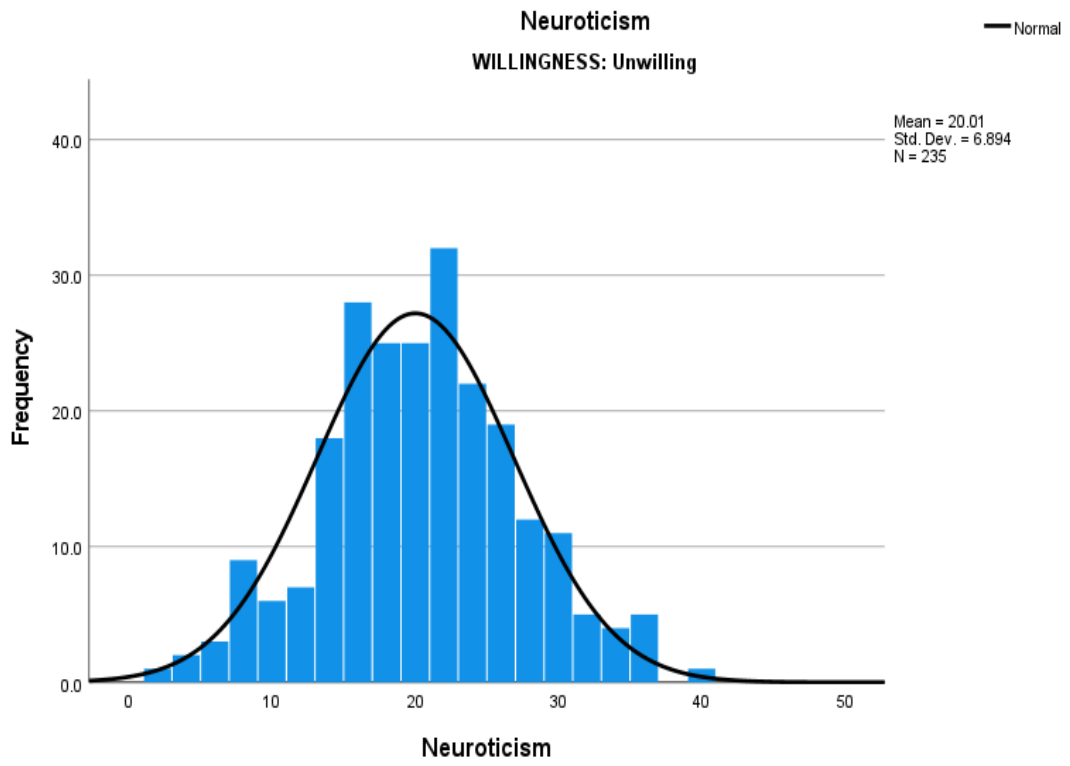
The histograms below show Normality for the five personality traits according to each group (willingness and unwillingness).

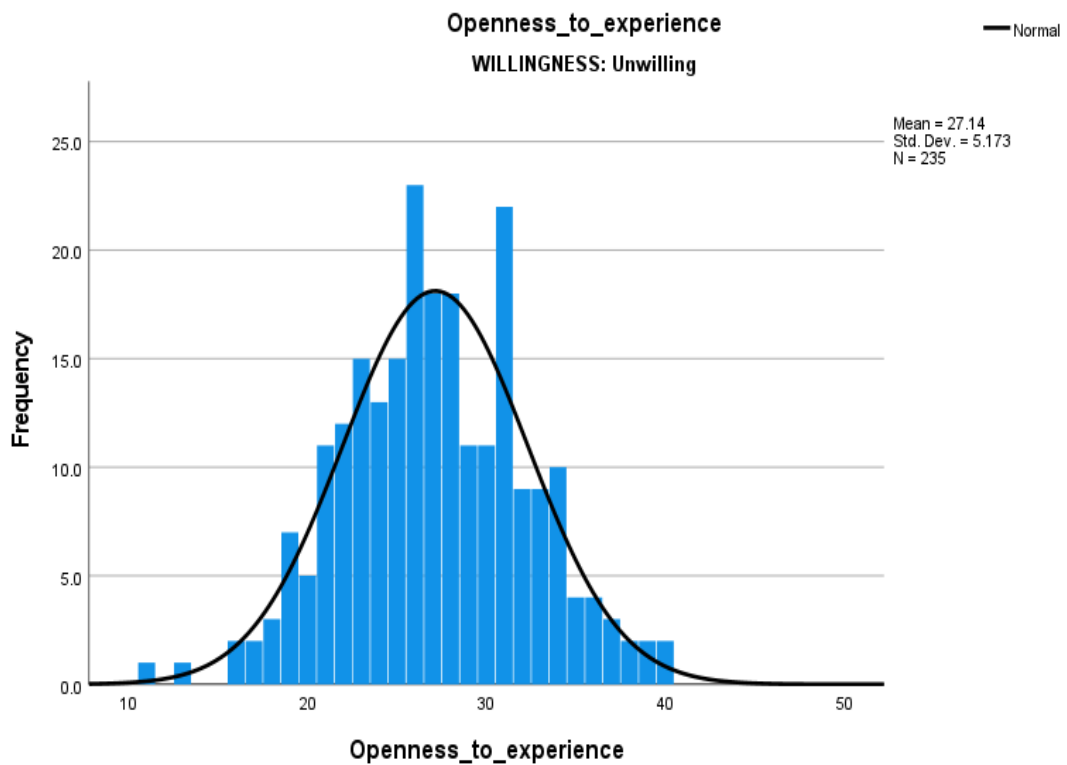
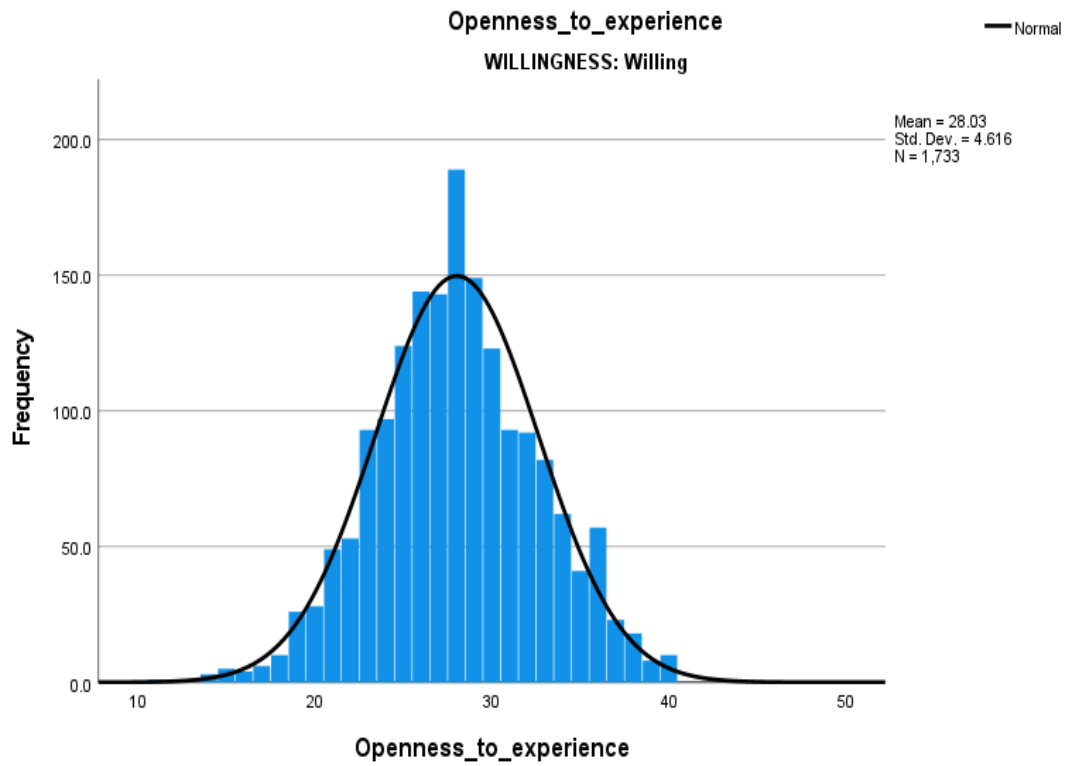




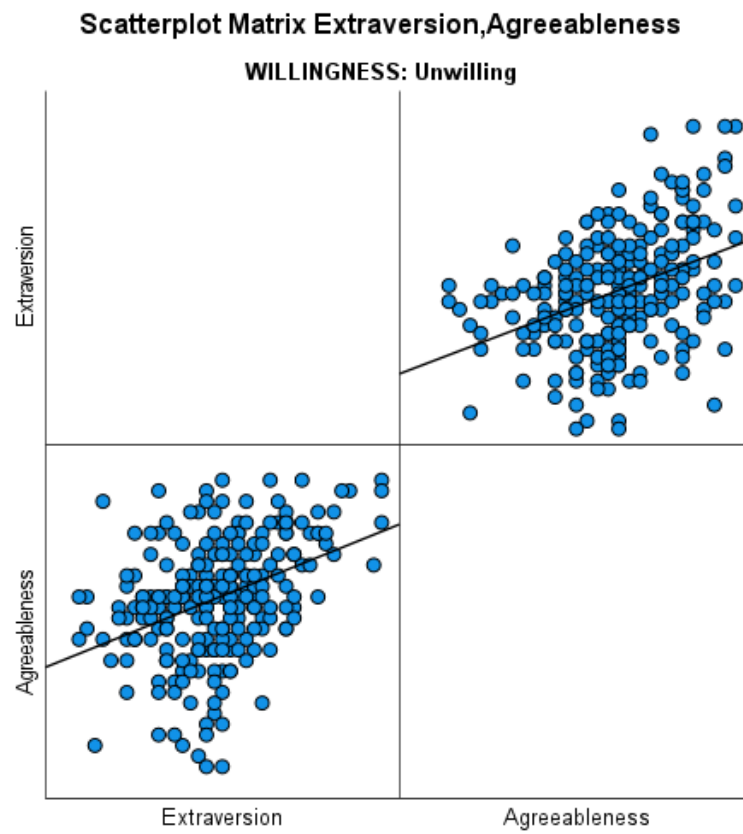






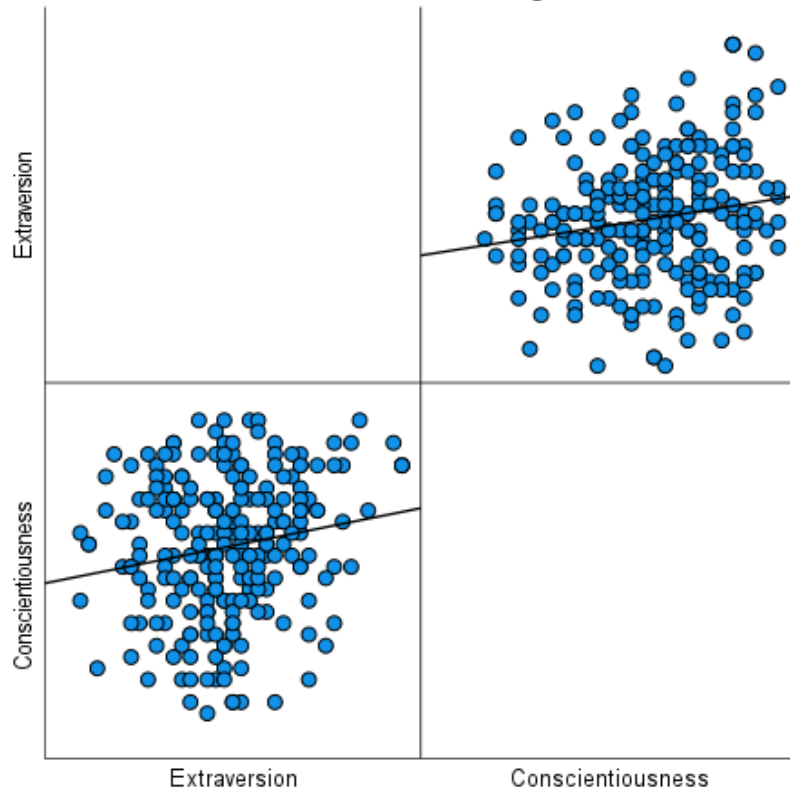


## APPENDIX E: Scatterplots matrix



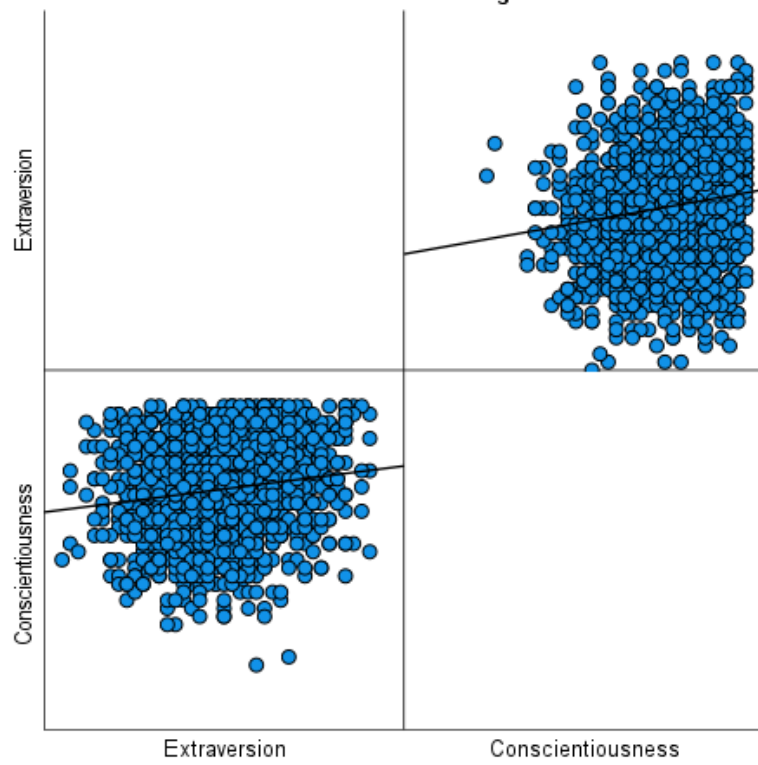
### Scatterplot Matrix Extraversion,Conscientiousness

WILLINGNESS: Unwilling



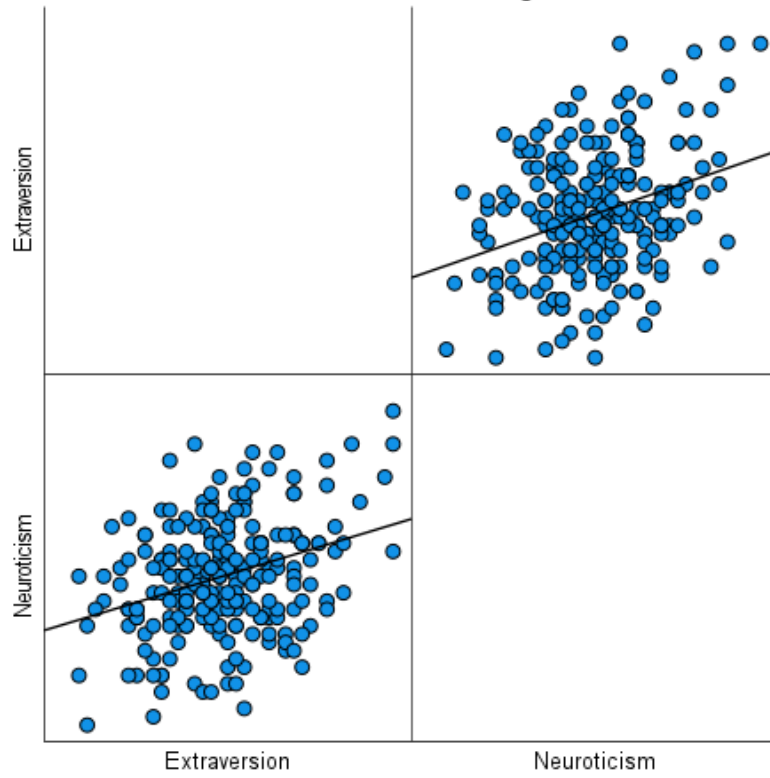
### Scatterplot Matrix Extraversion,Conscientiousness

WILLINGNESS: Willing



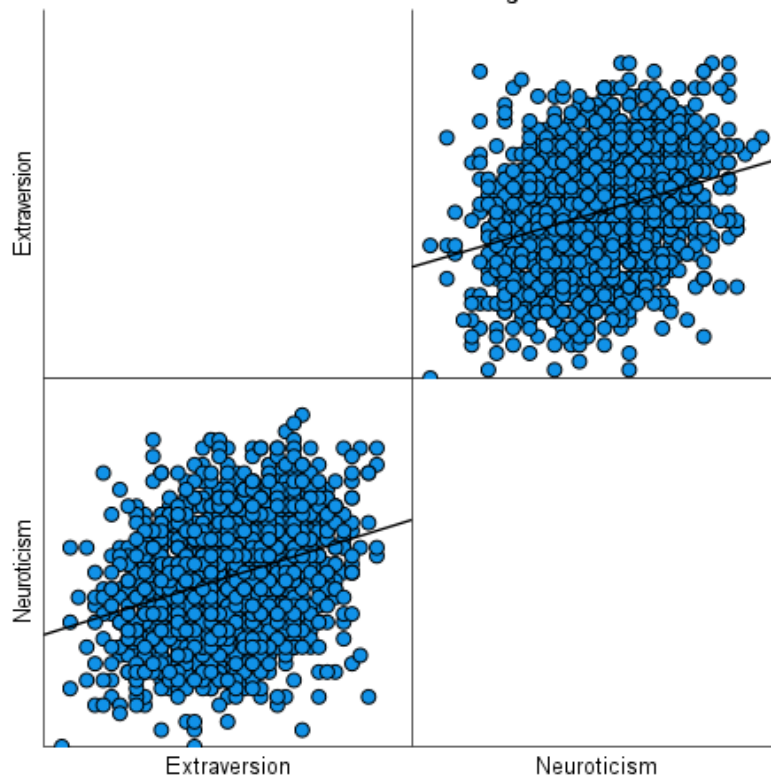
### Scatterplot Matrix Extraversion,Neuroticism

WILLINGNESS: Unwilling



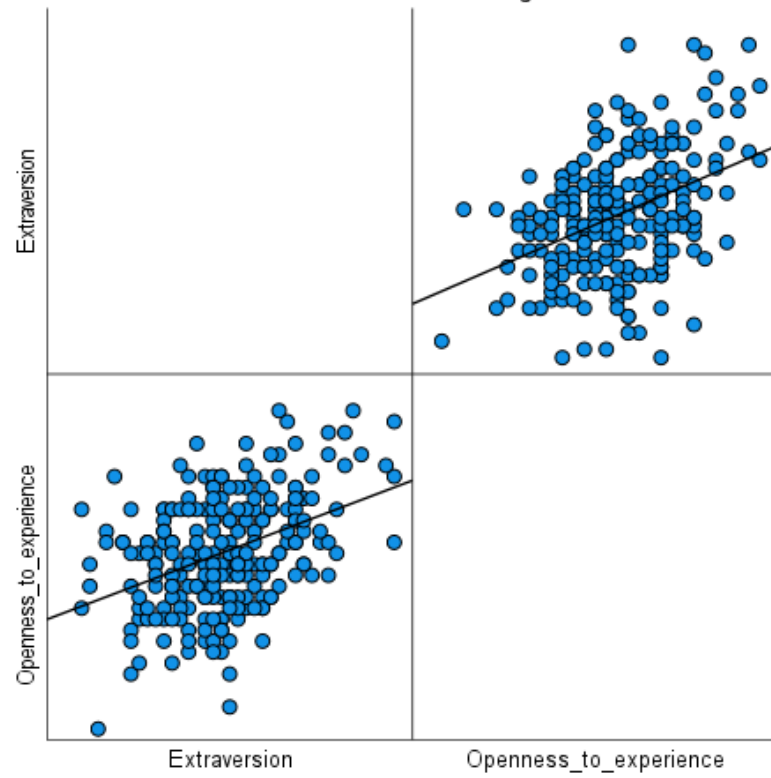
### Scatterplot Matrix Extraversion,Neuroticism

WILLINGNESS: Willing



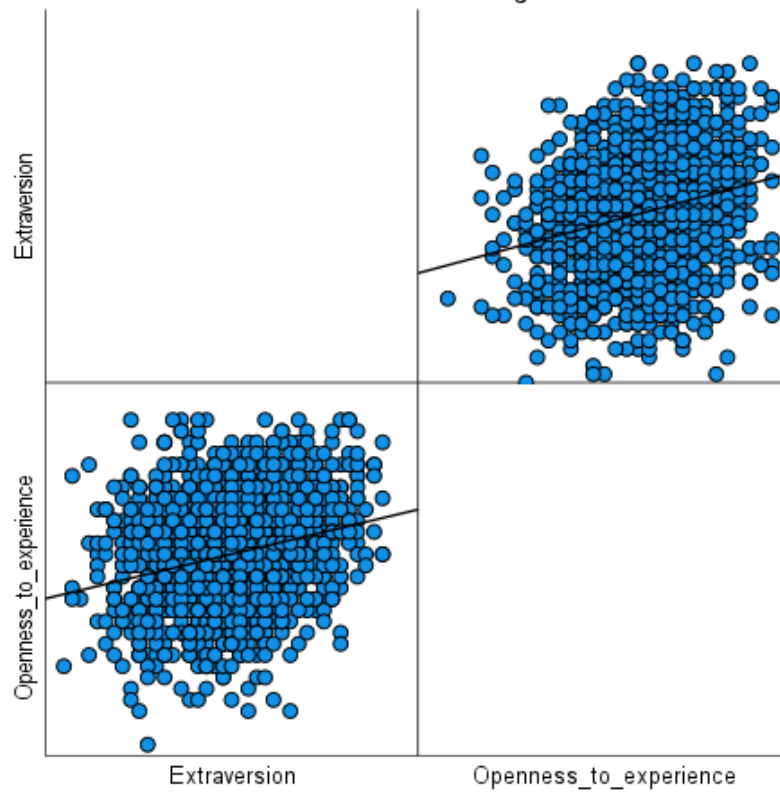
### Scatterplot Matrix Extraversion,Openness\_to\_experience

WILLINGNESS: Unwilling



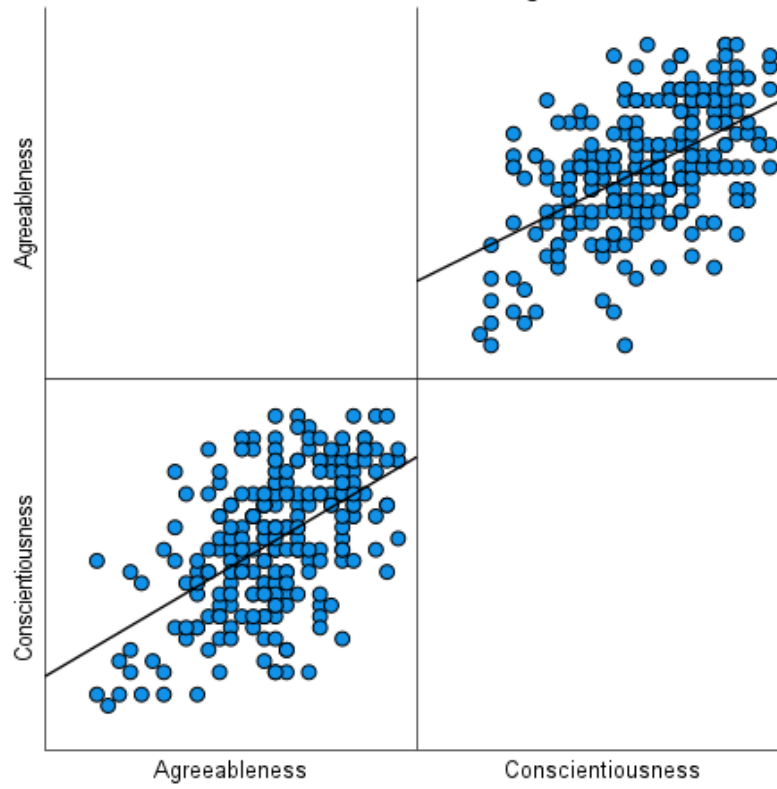
### Scatterplot Matrix Extraversion,Openness\_to\_experience

WILLINGNESS: Willing



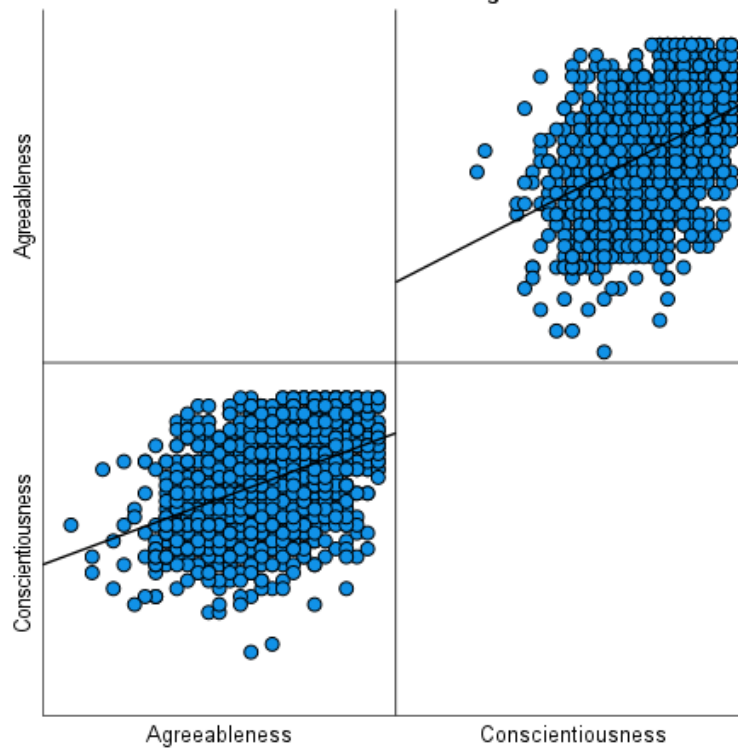
### Scatterplot Matrix Agreeableness,Conscientiousness

WILLINGNESS: Unwilling



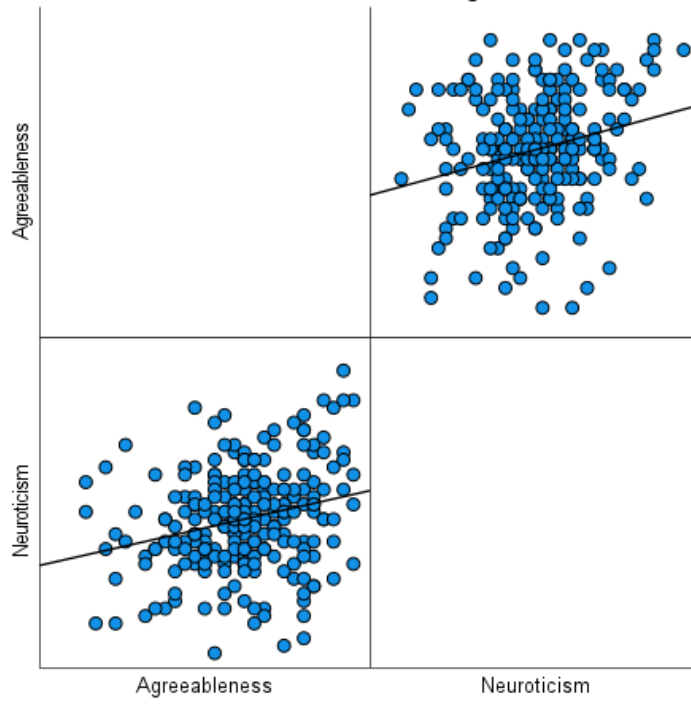
### Scatterplot Matrix Agreeableness,Conscientiousness

WILLINGNESS: Willing



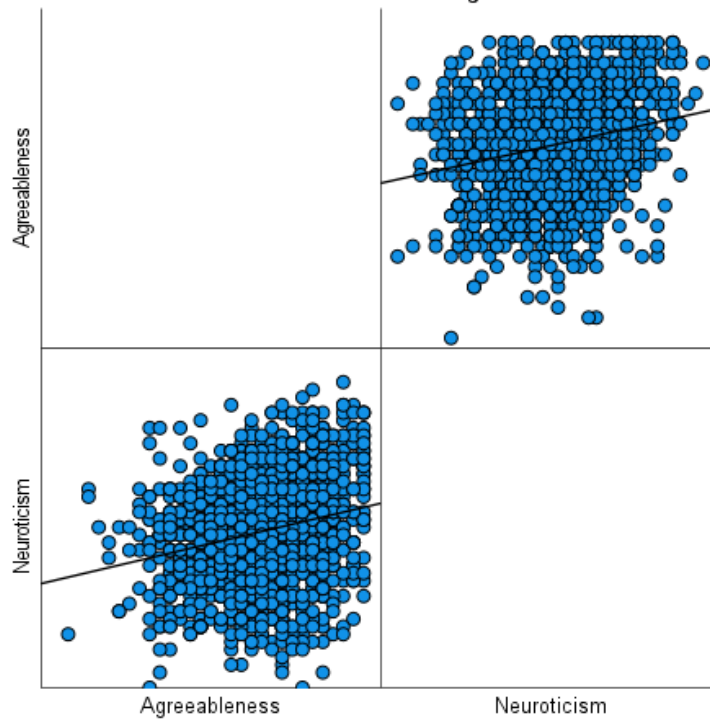
### Scatterplot Matrix Agreeableness,Neuroticism

WILLINGNESS: Unwilling



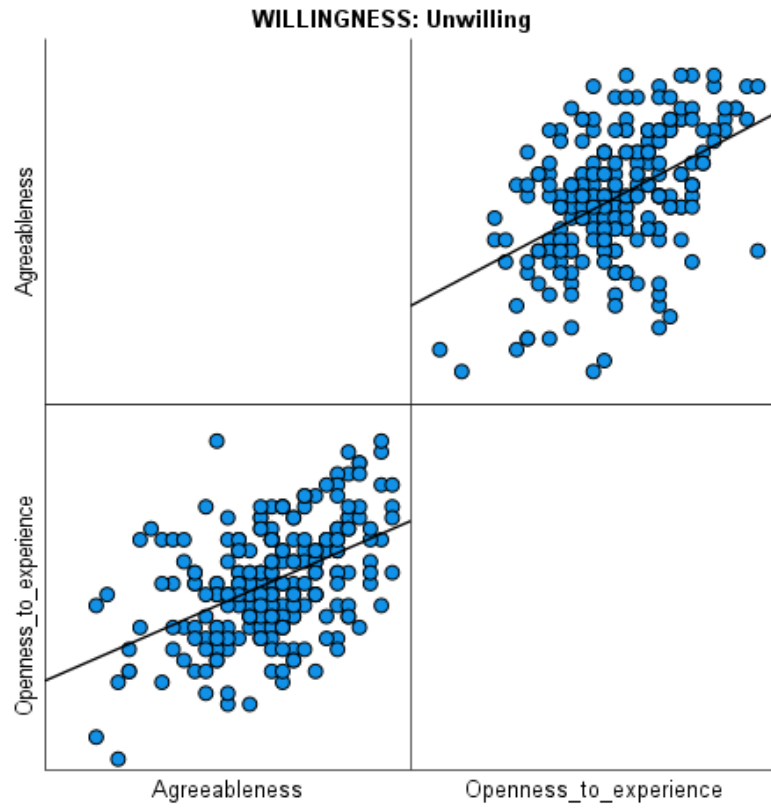
### Scatterplot Matrix Agreeableness,Neuroticism

WILLINGNESS: Willing

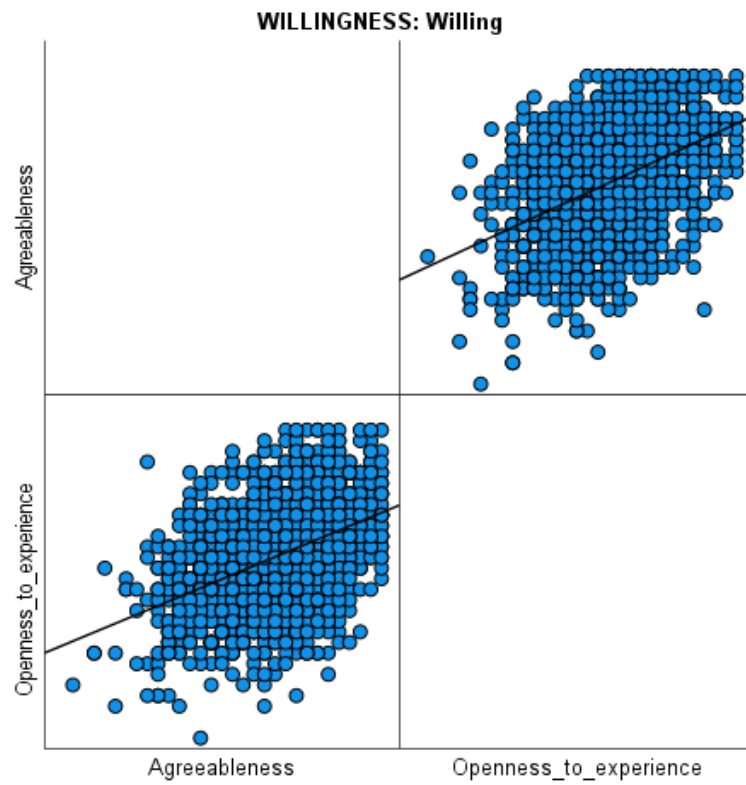




### Scatterplot Matrix Agreeableness,Openness\_to\_experience

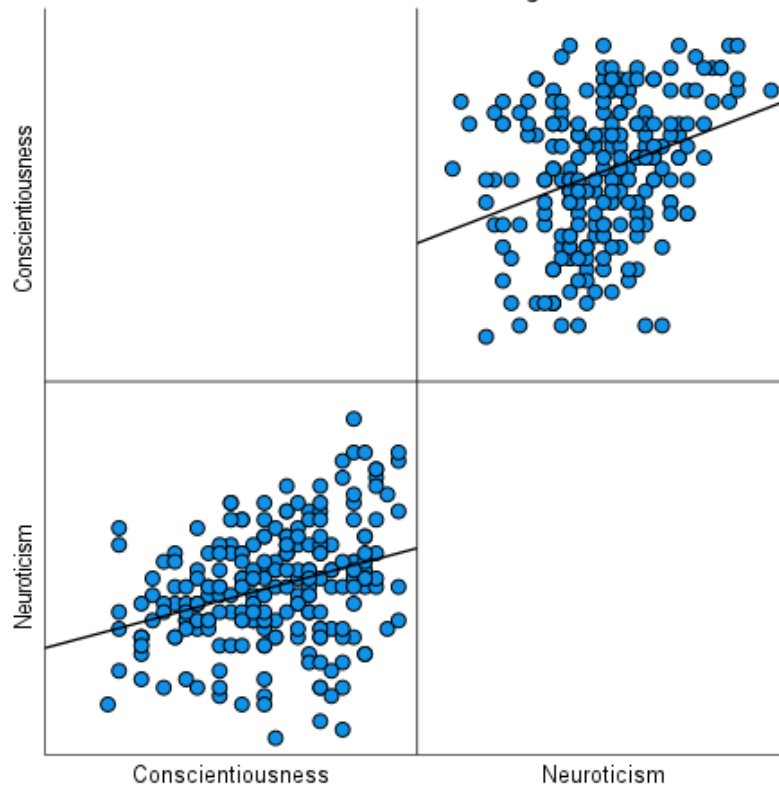


### Scatterplot Matrix Agreeableness,Openness\_to\_experience



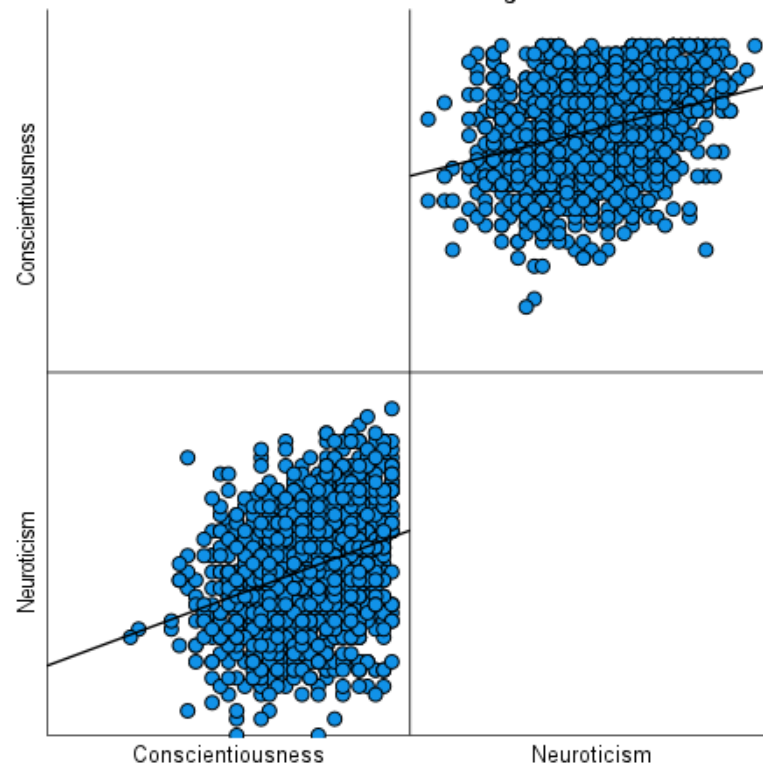
### Scatterplot Matrix Conscientiousness,Neuroticism

WILLINGNESS: Unwilling

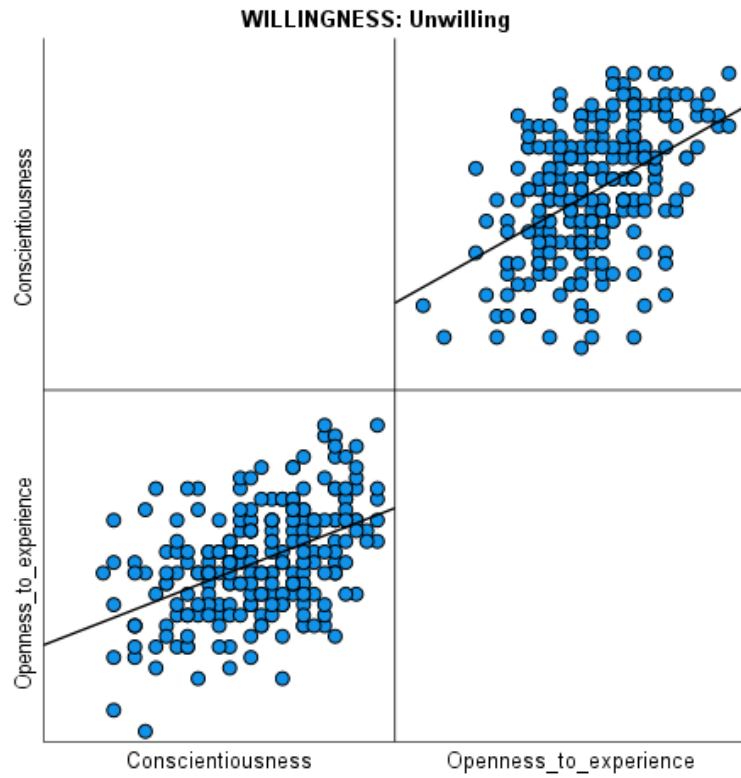


### Scatterplot Matrix Conscientiousness,Neuroticism

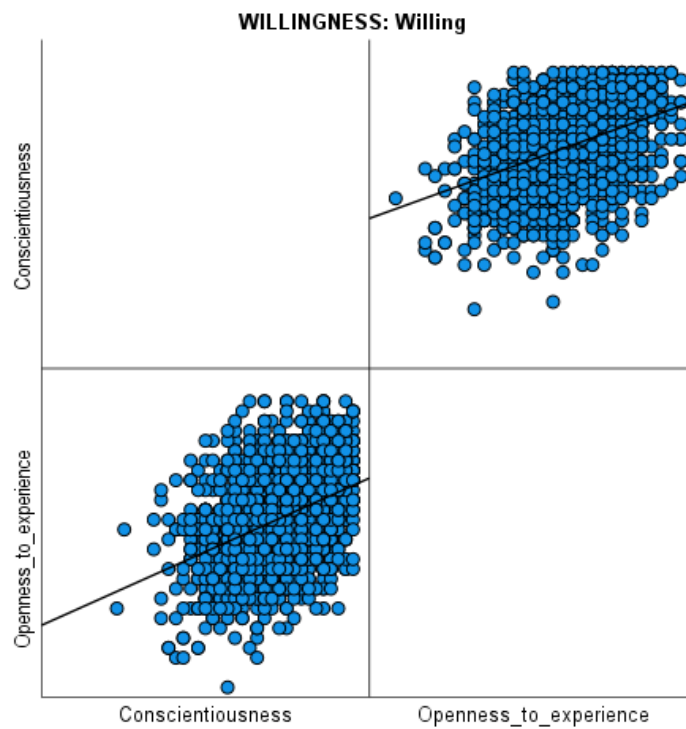
WILLINGNESS: Willing



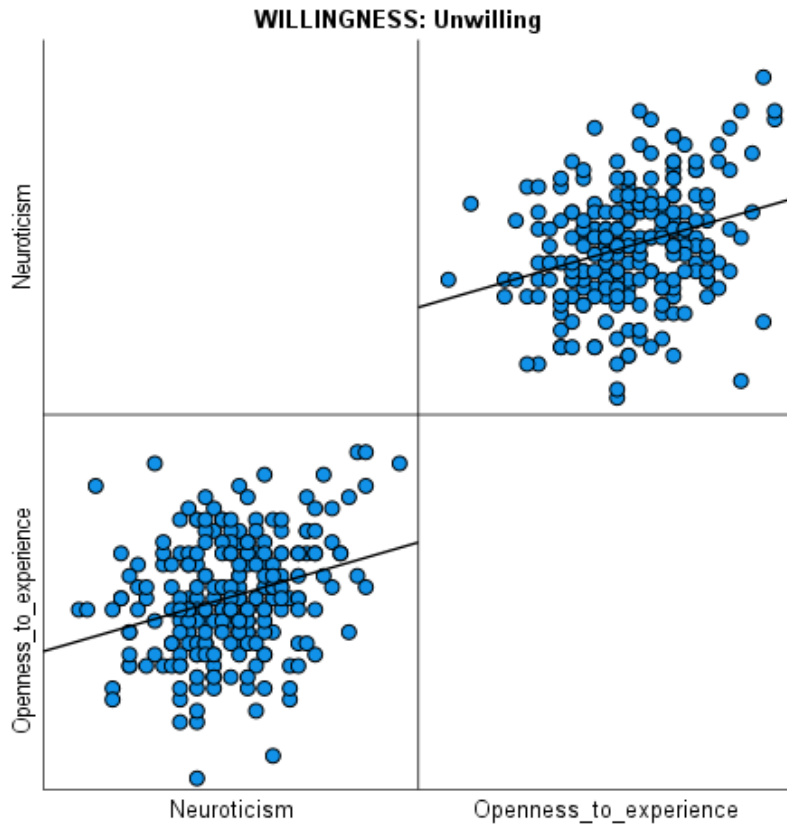
### Scatterplot Matrix Conscientiousness,Openness\_to\_experience



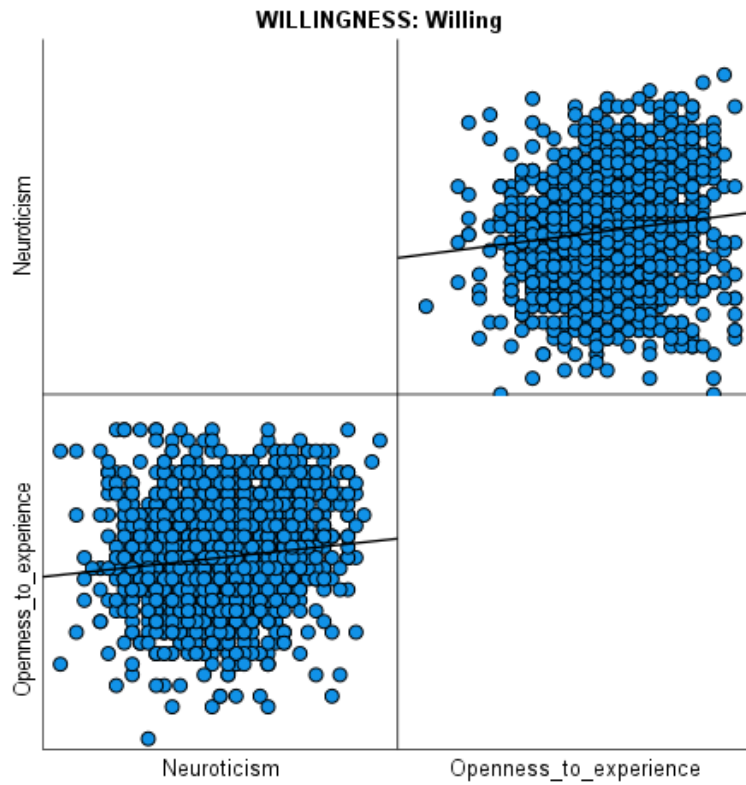
### Scatterplot Matrix Conscientiousness,Openness\_to\_experience



### Scatterplot Matrix Neuroticism,Openness\_to\_experience



### Scatterplot Matrix Neuroticism,Openness\_to\_experience



## APPENDIX F: Ethical Clearance Certificate



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P.O. Box 1906 • Bellville 7535 South Africa • Tel: +27 21 4603291 • Email: fbmsethics@cput.ac.za  
Symphony Road Bellville 7535


Office of the Chairperson Research Ethics Committee	Faculty: <b>BUSINESS AND MANAGEMENT SCIENCES</b>
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The Faculty's Research Ethics Committee (FREC) on **19 November 2019**, ethics **Approval** was granted to **Genine Cloete (213153432)** for a research activity for **Master of Retail Business** at Cape Peninsula University of Technology.

Title of dissertation/thesis/project:	<b>The influence of personality traits on consumers' willingness to buy groceries online: A case study of South Africa online grocery shoppers</b>  Lead Supervisor (s): Dr V Mugobo
---------------------------------------	--

**Comments:**

**Decision: Approved**

 <hr/> Signed: Chairperson: Research Ethics Committee	<b>19 January 2020</b> <hr/> Date
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## APPENDIX G: Editor's Certificate of Authenticity



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### *Certificate of Authenticity*

**CERTIFICATE: COA281121GC**

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To Whom It May Concern

This is to certify that **'The impact of personality traits on consumer willingness to buy groceries online: A case study of online grocery shopping in South Africa'** by Genine Cloete for the Cape Peninsula University of Technology: Faculty of Business and Management Sciences has been professionally edited by Dr. Laura Budler Kleinhans of ChickPea Proofreading and Editing Services for Students and Professionals.

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