



UNIVERSITY OF KWAZULU-NATAL

A study into prospective changes in consumer behaviour and buying patterns of graduate millennials due to COVID 19 in South Africa

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Declaration

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Abstract

The purpose this study is to determine the prospective changes in consumer behaviour and buying patterns of graduate millennials post COVID 19 in South Africa. To this end, a quantitative research project has been undertaken. Primary data was collected via a survey.

Several theories were discussed such as consumer behaviour models, the buy decision process and dynamic consumer journey to gain a better understanding of the research that was conducted. Additionally, technology adoption models such as the TRA, TPB, TAM, ETAM and in particular MOCA is discusses as the study is seeking to determine behavioural movement toward online purchasing because of the pandemic.

Research was conducted on the pandemic as well as the economy of South Africa as these are important consideration when conducting a study on consumer behaviour. This study seeks to contribute to the existing knowledge on technology adoption and consumer behaviour, particularly to determine whether the switch to online purchases during the pandemic is a permanent development or just as a result of consumers being forced to due to the pandemic.

These findings may prove valuable to retailers and developers. It could provide a new lens with which to inform their marketing decision as well as development plans for the future.

Keywords:

Consumer Behaviour, COVID 19, E-commerce, Millennials, Online shopping

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1 Introduction

1.1 Introduction

This research project aims to study prospective changes in graduate millennials behaviour and buying patterns of millennials in a post COVID 19 South Africa.

The reason that this group was chosen, is that millennials tend to be opinion leaders. This group is at the forefront of driving changes. This group has the economic buying power to affect the market and change the direction and plans of businesses. They are the first to experiment with change and are they most technological advanced population subset in South Africa.

This research paper has segmented millennials in social status and location within South Africa. The study seeks to determine the buying patterns and consumer behaviour of graduate millennials population in South Africa. This research paper has conducted applied research in finding a solution to the problem.

A quantitative research approach has been used. A survey was distributed to millennials to collect data. Non-probability sampling method was utilized to select participants for this study. The information obtained was then analysed to determine the view of millennials post COVID 19 with regards to their buying pattern and behaviours. This information can be beneficial to corporations to target consumers and increase sales.

1.2 Background

A new virus first appeared on December 31, 2019, in Wuhan City, in the Hubei province in China (NICD, 2020). This virus causes respiratory illnesses in people that it infects. The virus is known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The World Health Organisation officially named the disease COVID 19 on February 12, 2020. (Carmosino, 2020)

The virus is spread when infected people talk, cough, or sneeze. They expel droplets, which then enter another person through contact routes such as the nose, mouth, or eyes. It is very contagious (Carmosino, 2020).

Due to its level of contagiousness, the virus spread through the city of Wuhan rapidly. It then spread throughout the world in a matter of months. To date, it has infected over 317 million people in every continent in the world, which resulted in over 5.5 million deaths (Worldometer.info, 2022).

Due to the ease with which the virus spreads, many countries worldwide implemented a system where citizens and residences could not leave their homes for anything other than essentials services, such as food, medical needs, etc. Sporting events were cancelled, schools and universities were closed, and all non-essentials businesses were closed. This is known as the "lockdown."

This lockdown has had devastating effects on the worldwide economy. The worldwide economy is expected to contract by 4.9% (IMF, 2020). This resulted in the loss of many jobs across all sectors.

The virus arrived in South Africa on March 5, 2020. By March 15, 2020, the number of cases had grown to 61, at which time the president declared a state of disaster and

introduced measures to curb the spread of the virus, such as closing borders, schools and travel restrictions within the republic (TimesLive, 2020). On March 23, 2020, the president announced that South Africa would be going onto "lockdown" on March 27, 2020.

During the initial lockdown, known as level 5, there were strict regulations to limit people's movement, and the sale of alcohol and tobacco products was banned (TimesLive, 2020). People were ordered to stay at home unless venturing out for essential goods and services. These measures initially worked as the spread of the virus was curbed during the level 5 lockdown.

Then on May 1, 2020, the president announced that the nation would be moving to level 4 of the lockdown. This represented an easing of the restrictions, allowing more businesses to open. The lockdown levels were further dropped on May 24, 2020, to level 3 (TimesLive, 2020). As the lockdown restrictions began to ease, the cases started to rise. Today South Africa has had over 3.5 million infections and over 92000 deaths (Worldometer.info, 2022).

The impact on the South African economy has been severe. Gross domestic product for the 2nd quarter of 2020 in South Africa fell by 51%, with annualized growth to be -7.2% (Trading Economics, 2020) for the year 2020. To stimulate the economy, the president announced a stimulus package of R500 billion. This will lead to a government budget deficit of R761.7 billion (Mbowenbi,2020).

Therefore, the debt to GDP ratio will rise to 81.8% (Mboweni, 2020). This will make it more expensive for the government to borrow. All of the above indicators have painted a gloomy picture for the South African economy. As a result, business (BCI) and consumer (CCI) confidence are at an all-time low (Trading Economics, 2020).

Millennials make up the largest subset of the South African population. They are defined as people between the ages of 24 and 40 (Nisbet, 2020). They are tech-savvy, highly educated, and they are high earners. They are heading towards their maximum purchasing power as they climb up the corporate ladder (Nisbet, 2020). This group grew up in the age of the internet. This age is represented by a major disruption in almost every facet of life. The rate of change has been rapid as technology advances at an unrelenting pace.

The pandemic is changing the way people travel, work, and shop. But the question is, which of these habits are likely to be permanent (Puttaiah, 2021). Will old consumer behaviours and buy patterns die or will the new norms due to COVID 19 remain? The digital experience that consumers are experiencing as a result of organisations responding to the new policies have created expectations from consumers (Puttaiah, 2021). Experiences such as delivery within 60 min from major supermarkets, the expansion to delivery of almost all retailing, etc.

1.3 Problem Statement

Due to the pandemic in South Africa, people were forced to practice social distancing. Social distancing is a government policy which states that people need to keep a distance between themselves. As a result of these policies, many people opted not to go into crowded spaces such as shopping malls, supermarkets, butcheries, restaurants, etc. This has led to a sharp rise in online shopping because people were afraid to leave their homes.

Most organisation were unprepared for this and had to invest to expand their supply chain to accommodate the last mile delivery. Organisation such as Takealot experienced a surge in sales because they were equipped for the new policies. Other companies reacted well such as Shoprite with it Checker60 application. Many restaurants had to adapt to offer a delivery service.

Consumer buying pattern have also changed. Where there were busy periods, such as Friday evening and weekend, these have become blurry. People are shopping from home; therefore, it occurs at any time, and the high foot traffic periods in mall are becoming less so.

From a landlord's perspective, they will need to know what to expect in the future. How to invest in their respective stores. Weather to continue to invest in retail, or look at other types of stores such as restaurants, invest in ecommerce, etc.

The pandemic had caused a change in the shopping habits of consumers. This has resulted in a large uptake in online shopping. Are these changes permanent, or will consumers revert to traditional shopping once the pandemic has passed.

1.4 Significance of the study

Millennials are reported to display the highest average levels of status spending when it is compared to other generations (Giovanni *et al.*, 2015). As these millennials enter the prime years of earnings and spending, marketers will require an effective strategy to enable organizations to penetrate this large emerging and important consumer group.

Millennials are estimated to have a buying power of between US\$170 billion to US\$200 billion worldwide. This is predicted to eclipse all previous generations, such as the baby boomers (Fromm & Garton, 2013). They make up the largest part of the South African population (Duh & Struwig, 2015). This makes millennials a significant market segment for organizations, and they will require effective marketing strategies in order to promote to this large segment.

From a retail and development point of view, this research is significant as it will allow organisations to effectively plan for the future. Should the organisation invest more into brick-and-mortar stores or should investment go into an effective distribution channel to enable a better and faster online shopping experience. Should developers invest in new shopping malls or into warehousing to enable online shopping distribution.

The study was considered important as the research indicated that there are gaps in the knowledge of marketing strategy to engage with millennials in South Africa. The University of Kwa Zulu Natal databases were utilized to search for information and related articles.

Studies have been conducted regarding millennials globally; however, South Africa is unique, based on the past, resulting in one of the world's most unequal countries. The results are that millennials in South Africa come from all different backgrounds, social class, education levels, more so than other countries. As per Duh and Struwig (2015), these millennials make up the largest portion of the South African population. A study depicting the buying patterns to this large and diverse group will be highly beneficial to organisations in South Africa.

1.5 Research Questions

While developing the problem statement, the following are the key question that this research aims to answer in the study to be conducted:

1. Will graduate millennials continue to shop online or are they expected to return to brick and mortar establishments once the COVID pandemic is over?

To answer this question the following hypothesis were developed

- a. H_0 : Age groups and online shopping frequencies prior to COVID are independent
- b. H_1 : Online shopping frequencies

And

- a. H_0 : There is no difference in the shift of online shopping frequency across age groups
- b. H_1 : Different age groups shifted their online shopping habits differently to one another

And

- a. H_0 : There is no difference in the perception different age groups have in terms of how their future shopping habits will look, relative to their pre-COVID habits
- b. H_1 : Different age groups have a different outlook on how COVID will impact their future shopping habits, relative to their pre-COVID habits

- 2. Has the pandemic resulted in a permanent change in buying patterns?

To answer this question, the following hypothesis was developed

- a. H_0 : There is no difference in the shift of online shopping timing across age groups
- b. H_1 : Different age groups shifted their online shopping timing differently to one another

- 3. How are graduate millennials finding the online shopping experience?
- 4. Can the online shopping experience be improved?

1.6 Research Objectives

The research objectives of this study are to determine the following:

- 1. To determine the behaviour of graduate millennials, post COVID19 in relations to their preference in shopping methods
- 2. To determine if there will be a change in buying patterns.
- 3. To determine the experience of graduate millennials to online shopping.

4. To determine what graduate millennials, want from their online shopping experience.

1.7 Research Approach

A research approach is a plan that incorporates the steps from broad assumptions to a precise method of data collection, analysis, and the interpretation of said data (Creswell & Creswell, 2018). This plan requires many decisions about which specific approach should be used to study a topic.

The philosophies that this research has followed are positivism. Positivist regards science and scientific research as the way to get to the truth (Sekaran & Bougie, 2016). The approach was deductive. Deductive reasoning use for scientific reasoning and to test a theory (Sekaran & Bougie, 2016)

The study was conducted utilizing a survey in a non-contrived environment. A non-contrived environment means a study being conducted in the natural environment (Creswell & Creswell, 2018). The time horizon for this study was cross sectional as the results will be needed in the shortest possible timeframe. Cross sectional studies are when data is collected all at once or over a short period (Sekaran & Bougie, 2016).

A desktop study was also conducted utilizing the resources available at University of Kwa-Zulu natal library to access paper written on the pandemic, lockdown, buying patterns and millennials. In addition to a desktop study, surveys were sent out to targeted people (Graduate millennials) to gather information about income levels, geographical location and changes in their behaviour and buy patterns pre, during and post the pandemic.

There are three main approaches—namely, Qualitative, Quantitatively, and mixed-method approach (Creswell & Creswell, 2018).

Creswell and Creswell (2018) describe the three main approaches as:

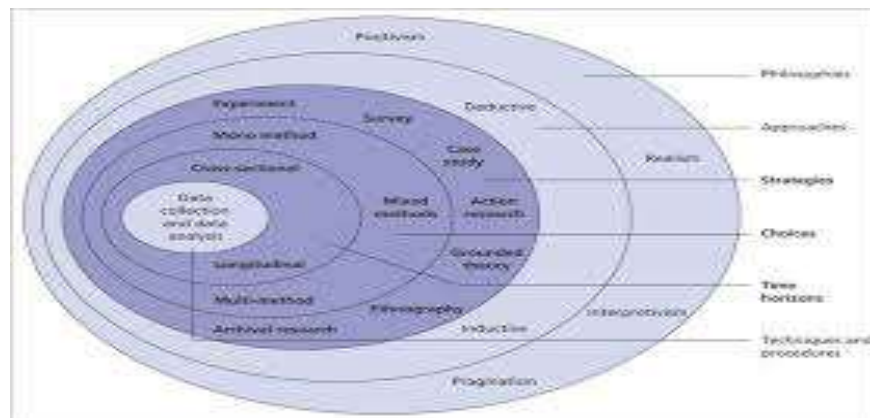
Qualitative research aims to understand a specific phenomenon like human behaviour; an example is how people remember.

Quantitative research, on the other hand, seeks to examine the relationship between different variables objectively. Accordingly, Quantitative research methodology emphasizes the objective measurements of statistical data and focuses on collecting numerical data in order to analyse it.

Mixed Methods is an approach that involves the collection of both qualitative and quantitative data, then integrating these two, and then using the data to create distinct designs that will incorporate theoretical and philosophical frameworks.

Considering the explanation of the three approaches above, the objective of this research paper is to demonstrate the effects of the pandemic (COVID-19) on consumer buying patterns and behaviours in South Africa. The two variables being the pandemic (COVID-19) as the independent variable and consumer buying patterns and behaviours being the dependent variable. As a result, the study was descriptive in nature, and the research method to be followed will be quantitative in nature.

Figure 1 The research onion



Source: Saunders and Lewis (2018)

1.8 Sampling Strategy

The sampling strategy that was used is non-probability sampling. Non-probability sampling is a situation when respondents are selected based on availability (Sekaran & Bougie, 2016). Not everyone has an equal chance of being chosen to be in the study. The study requires only graduate millennials. As a result, probability sampling cannot be used as each population member doesn't have an equal chance of being selected.

Under non-probability sampling, judgement and snowball sampling were used. Judgment sampling involves choosing a subject that is in the most advantageous place to provide information that will be required (Sekaran & Bougie, 2016). This study lends itself to the buying patterns and consumer behaviour of graduate millennials; therefore, choosing respondents from the sector will provide the most favourable response and the most accurate information.

Snowball sampling, which is also known as chain-referral sampling, is a method that is used when the target population is rare and difficult to find (Research-Methodology, 2020). The strategy involves finding someone in the target population sample group

then asking that person for referrals. These referrals are then requested to make more referrals. This creates a snowball effect.

The initial respondent was attracted to this study via the MBA class. Once the researchers has attracted and vet the first wave of respondents utilizing the judgment sampling strategy, snowball sampling will be utilized to attract more respondents to the study. The survey was be posted on survey monkey for easy access and an easy collection of the results.

1.8.1 Target Population

This study's target population included millennials who have a graduate degree throughout South Africa to determine their buying patterns and changes in their behaviours in the aftermath of the pandemic.

1.9 Ethical Considerations

The study will align itself to all proposed in the University of Kwa-Zulu Natal's Graduate School of Business and Leadership's ethical guidelines. Approvals will be sort from the University before any research is conducted. Wherever gate keeps letters are required to survey respondents, the researcher has to obtained these before any respondents were approached. All respondents to the surveys will be regarded with the strictest confidentiality. All involvement is voluntary, and participants are able to opt-out at any time.

1.10 Conclusion

The research was conducted on the changes in buying patterns and consumer behaviours of graduate millennials in the aftermath of the CVOID 19 pandemic in South Africa. The research believes that the best approach for this research is a qualitative research method. The best method for collecting the data required has been determined to be surveyed.

Non-probability sampling will be utilized, with snowball sampling methods carried out. General survey will be released for anyone in South Africa to be able to respond.

2 Literature Review

The primary objective of this study is to determine the prospective changes in consumer behaviour and buying patterns of graduate millennials due to COVID 19 in South Africa. Literature that is relevant to the topic is reviewed in order to gain a better understanding and answer the research question presented in chapter 1. Specifically, this study aims to determine whether graduate millennials will continue to purchase online or return to brick and mortar store post the pandemic.

Consumer behaviour theories are investigated to determine what drive purchasing decision as well as the medium to make these purchases, the buying process and technology adoption models are discussed. The review first starts with a background of the pandemic and defines millennials on whom this study is based.

2.1 Covid 19 pandemic

2.1.1Origin of pandemic

COVID 19 is a new virus that has disrupted the lives of almost every person in the world. It is officially known as SARS-Cov-2. The virus was first detected in the Chinese city of Wuhan in December 2019. Wuhan is a city of 11 million people and is known as the cultural and economic hub of central China. On the 31st of December 2019, the World Health Organisation (WHO) was notified about of a cluster of pneumonia like cases in Wuhan city (Chaplin, 2020). The virus was identified to be part of a large family of viruses known as Coronavirus (Bhargava, 2020).

Coronaviruses have been known to scientist for many years, with some forms of the virus causing known illnesses such as the common cold. The COVID 19 variant, the same that was discovered in Wuhan, China, is officially known as SARS-CoV-2. It is believed that the variant originated in bats. Other Coronaviruses that caused the

Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS) were also originated in bats (Bhargava, 2020).

The symptoms of COVID 19 include fever and chills, fatigue, sore throat, congestion or a runny nose, diarrhoea, and shortness of breath (CDC, 2021). These symptoms are generally mild in most people, and they recover in a few weeks. However, some people suffer from more severe symptoms and require hospitalisation. The death rate for the virus is around 2% (CDC, 2021).

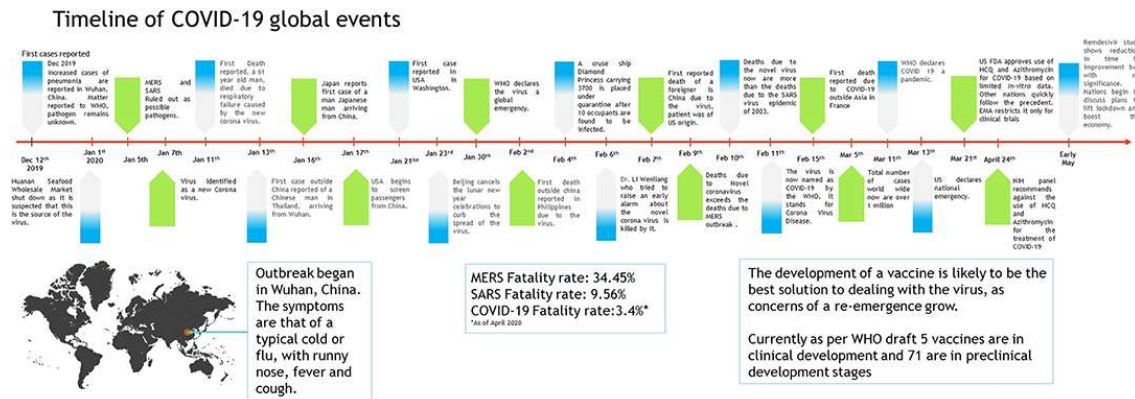
People with underlying condition and the elderly are particularly susceptible to experience server symptoms from the virus. The virus is spread between people in several ways. It can be spread when an infected person speaks, sneeze, and breath via small droplets. These droplets vary from smaller aerosols to larger respiratory droplets (Maragakis, 2020).

COVID 19 represents an enormous global challenge. It required levels of interventions from governments on a scale that has never been seen before. The virus poses a significant threat to humans as it is regarded as a novel virus, therefore humans have no immunity, it can spread very quickly, it carries a significant mortality rate therefore has the ability to overwhelm health care services worldwide (Chaplin, 2020).

2.1.2 Spread of pandemic

COVID 19 has spread to nearly every country in the world. First discovered in China in December 2019, has spread throughout the world in a matter of months. The first death from the virus outside of China was reported in the Philippines on the 2 February 2020. The next country to experience the severity of the pandemic was Italy in February 2020. Iran was the next country that saw major surge in cases at the end of February 2020. From there the virus spread worldwide which caused a major strain on the health care system worldwide.

Figure 2 Timeline of the spread of COVID 19



Source Keni *et al.*, (2020)

2.1.3 Covid 19 pandemic in South Africa

The virus arrived in South Africa on March 5, 2020, with the first reported case. By March 15, 2020, the number of cases had grown to 61, at which time the president declared a state of disaster and introduced measures to curb the spread of the virus, such as closing borders and schools and travel restrictions within the republic (TimesLive, 2020). On March 23, 2020, the president announced that South Africa would be going onto "lockdown" on March 27, 2020.

During the initial lockdown, known as level 5, there were strict regulations to limit people's movement, and the sale of alcohol and tobacco products was banned (TimesLive, 2020). People were ordered to stay at home unless venturing out for essential goods and services. These measures initially worked as the spread of the virus was curbed during the level 5 lockdown.

Then on May 1, 2020, the president announced that the nation would be moving to level 4 of the lockdown. This represented as easing the restrictions, allowing more businesses to open. The lockdown levels were further dropped on May 24, 2020, to

level 3 (TimesLive, 2020). As the lockdown restrictions began to ease, the cases started to rise.

South Africa has fluctuated between the various levels of lockdown since the beginning of the pandemic. Moving down to level one on the first of March 2021 and then moving back up gradually to level 4 as the country moves into the different waves. South Africa is the worst affected country on the African continent with over 2.5 million confirmed cases and 80 000 deaths from the virus.

South Africa began to administer the vaccine against COVID 19 in May 2021. The vaccine rollout was phased, starting with medical personnel as they were deemed high risk and essential in the fight against the virus. The elderly was next and steadily moving down the age groups. The South African government aims to vaccinate 60% of the population by December 2021 to achieve herd immunity. The South African government expects normality to return once herd immunity is achieved.

2.2 Millennials

Millennials can be defined as people that are born between the mid-1970s and early 2000s. They are known as the Generation Next, Gen Y, Trophy Generation, Echo Boomers, and the Internet Generation (Mapule, 2017). The population will soon comprise of fifty percent of the global workforce (Nolan, 2015).

With the increasing presence of millennials and their financial clout in the workplace and marketplace, considerable attention is being paid to millennials' priorities such as lifestyle, technology adoption, environmental issues, buying patterns and behaviours and activities. They are regarded as a frugal generation when it comes to spending habits (Garikapati *et al.*, 2016).

Millennials have grown up in the technological age and are considered to be controversial because they grew up in a time of prosperity in South Africa. Millennials

are known for instant gratification and are thought to be doubting of long-term work commitments. They are the first to participate in the gig economy (Kaifi *et al.*, 2012).

Unlike the generation before them, millennials have almost every aspect of their lives shaped by technology. They require instant gratification, therefore their medium of choice is mobile. They require information instantly, be it investment performance, online tracking of goods and services or research. They grew up in a digital world, from making payments, to dating, it's all online for millennials (IOL.co.za, 2019).

Millennials are seduced by technology that has the potential to make their lives easier. This is done through innovative technology and efficient apps. They always need to be connected. As a result of the need to be continuously connected and the introduction of ICT channels of communication, millennials have altered the way they interact with organisations which has led to broad lifestyle changes (Duffett & Wakeham, 2016).

In South Africa, changes in the political state of the country post 1994, have resulted in a change of choices available to millennials in terms of their education and their participation in the labour market. There are over ten million millennials in South Africa. The majority of them have smart phones with 75% of all millennials having internet access (Duffett & Wakeham, 2016).

They have enjoyed greater benefits than the previous generation since the country has changed to democracy (Statistics South Africa, 2020). According to Mapule (2017), millennials are the most technologically advanced and educated generation.

The biggest achievement for millennials has been in education compared to previous generations. Close to half of all millennials in South Africa are employed (49.5%), while 23.8% of millennials are unemployed and 26.7% are not economically active. 20.4% of all millennials are in possession of tertiary qualification (Statistics South Africa,

2020). Being the most educated generation in South Africa lends itself to the importance of this generation since higher education has a positive correlation to higher income potential (Duffett, 2015).

For the purposes of this research paper, the researcher will use individuals born between 1980 and 1996, i.e., respondents need to be between the age of 25 and 41.

2.3 Buying Patterns and Consumer Behaviour

Due to the lockdown and social distancing policies to combat the pandemic, consumer behaviour has seen significant disruptions. Consumption is now time and location bound. Consumers are time flexible, and location bound, this has led to consumers learning to improvise in innovative and creative ways. The work life boundaries which have existed before are now blurred as consumers work from home, study at home, and relax at home (Sheth, 2020).

As this line blur, consumers will adapt to house arrest for such a prolonged period and therefore have adopted new technologies to facilitate study, work, and consumption in a more convenient manner. Embracing digital technologies is likely to lead to modifying existing habits (Sheth, 2020). This aim of this study is to determine if consumer behaviour has been modified.

2.3.1 Consumer Behaviour Defined

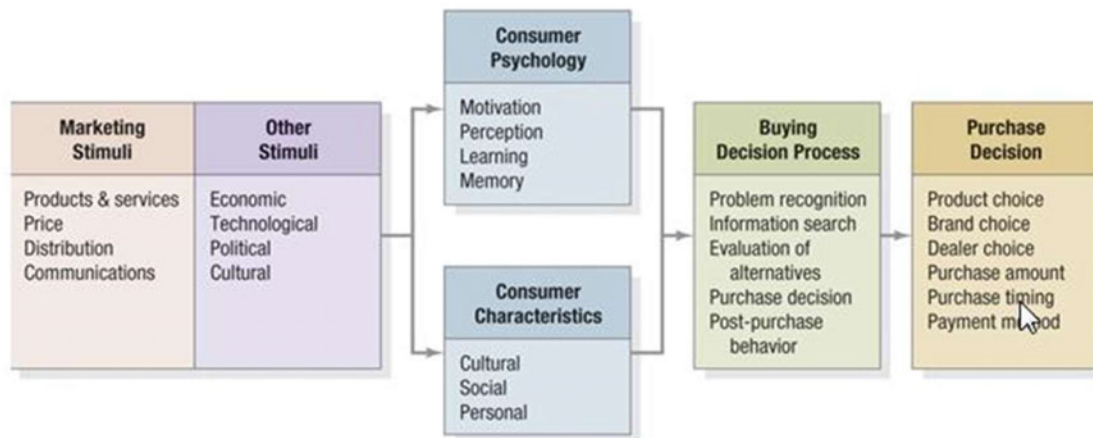
A consumer can be defined as an individual that will identify a need, want, or desire, then will make a purchase to fulfil the need and finally will dispose of the product or service in the consumption process (Mehta *et al.*, 2020).

“Consumer behaviour is the study of the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires (Bamossy & Solomon, 2016).”

2.3.2 Model of Consumer Behaviour

According to Alharthey, (2015), understanding the various facets of consumer behaviour is very important for marketers to be able to influence and interact with their consumers in order to achieve their goals. The model shown in Figure 3 below shows how consumers interact with marketing stimuli in order to influence their decisions.

Figure 3 Consumer behaviour model



Source: Kotler and Keller, 2012

2.3.2.1 Marketing and Other Stimuli

The traditional 4 P's of the marketing mix, product, price, place, and promotions and the 7 P's of service marketing, which is made up of the previous 4 and people, processes and physical evidence are the marketing stimuli with which consumers are exposed to. According to Bahman *et al.*, (2013), the emphasis of marketing

stimuli is to ensure that the right product is available at the right time, place, and price. With these elements marketers should then be able to cultivate an understanding of consumers within the target market (Kotler & Keller, 2012)

2.3.2.2 Factors influencing consumer behaviour

Consumer behaviour is strongly influenced by 4 factors. These are cultural, social, personal, and psychological factors.

Cultural factors

Culture is a basic set of values, wants and perceptions that is learned by members of a society such as family and friends. Culture is a part of every society and is an important cause of the wants and behaviour of individuals. The cultural influence on buying behaviour varies between countries and researchers need to be mindful in analysing different countries, region, and groups (Jisana, 2014).

Within each culture, there are different subcultures, these include nationalities, religions, racial groups, and geographical regions. Social classes, which represent a hierarchical arrangement of a society into different divisions, which represent a social standing or status. Social classes play an important role in determining consumer behaviour and buying patterns (Jisana, 2014).

Social Factors

Social factors also influence consumer behaviour. An individual's reference group has an indirect or direct influence on their behaviour and attitude. People use these groups as a reference point in learning behaviour, attitudes, and beliefs. Families are considered as the primary reference groups for individuals as most people have the most interactions with families (Jisana, 2014).

Colleagues, friends, and neighbours are secondary reference groups. Each individual possesses a different role and status within society which is dependent on their social groups, families, and organisation to which they belong. This role and status have a profound effect on consumer behaviour and purchasing decisions (Jisana, 2014).

Personal Factors

Personal factors also have an effect on consumer behaviour. An individual's age and life cycle will have an effect in consumer behaviour. People choose different products and service with the passage of time. Life cycle consists of the different stages in a consumer's life such as childhood, bachelorhood, newlyweds, parenthood, old age, etc. (Jisana, 2014).

The occupation of an individual is a significant factor in determining consumer behaviour (Jisana, 2014). An example is a CEO will look to purchase suits whereas a low-level worker will look for rugged clothing. The economic situation of individuals is of great influence on buying behaviour. High income earners will look to purchase more expensive products and services. Conversely, low income earners will look to purchase inexpensive products. (Małgorzata *et al.*, 2012).

The lifestyle of an individual is another important determinant of consumer behaviour. Lifestyle is the way a person lives in a society and expressed by their surroundings. This shapes their interests, activities and opinions and the way they interact with the world (Małgorzata *et al.*, 2012).

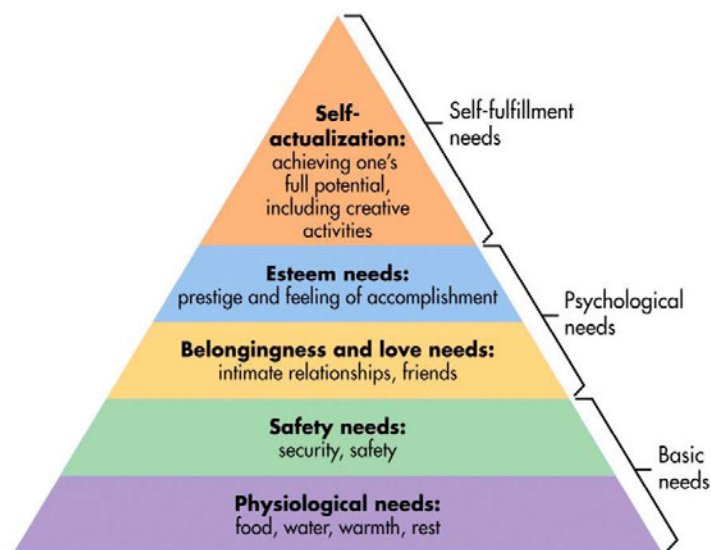
Psychological Factors

The four important psychological factors affecting consumer behaviour are motivation, perception, attitudes, and beliefs.

An individual's level of motivation has an effect on their buying behaviour. People have different needs such as social, biological, and physiological. The nature of these need means that some are more important and pressing than others. Therefore, needs will become motives when they are more pressing than others and will drive a person to seek satisfaction (Małgorzata *et al.*, 2012).

Maslow's motivation theory describes why individuals are driven by particular needs at certain times. He developed a hierarchy of needs, based on their importance. These needs are divided into physiological needs, safety needs, social needs, and self-actualization needs. People will start at the bottom of the pyramid and move up as they fulfil their needs at each level (Małgorzata *et al.*, 2012).

Figure 4 Maslow's hierarchy of needs

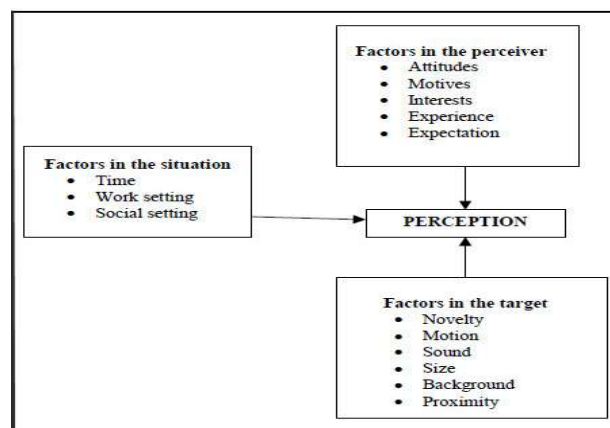


Source: Jisana, 2014

A person's perception is the way he or she interprets information. It is used to make decisions and make decisions that are meaningful to him or her. There are three different processes which are called selective attention, selective retention, and selective distortion. The former two involve paying attention to information that's of use to them, while the third one, which is selective retention, refers to the process of remembering certain details (Jisana, 2014).

During the pandemic, there was a surge in panic buying which resulted in many consumers stocking up on essential. This can be linked to Maslow's theory in that consumer reverted back to the physiological needs for food, water, warmth, and the safety needs to avoid heading out into crowded spaces to avoid infection.

Figure 5 Factors affecting consumer perception



Source: Robbins and Judge, 2015

Since the opinions and beliefs of customers affect the buying behaviour of various products, marketers are interested in changing these behaviours. This is because these issues can affect the brand image of a company (Jisana, 2014).

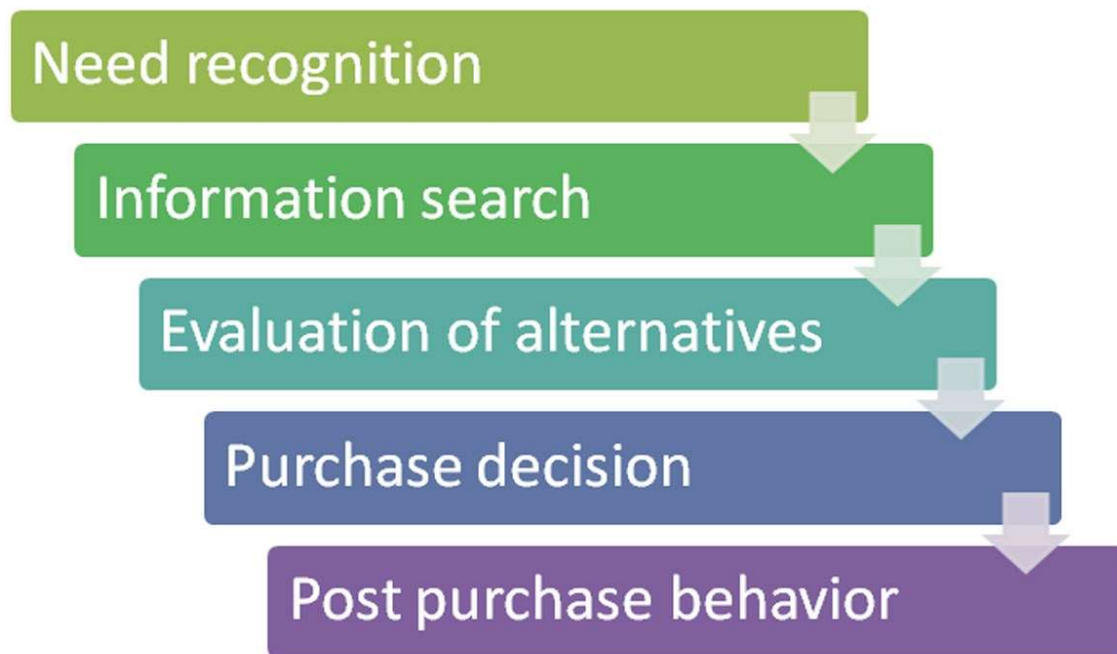
2.3.2.3 The Buying Decision Process

The decision-making process of consumers have long been of interest to researchers. Earlier research focused on the economic perspective and the act of a purchase. Utility theory, the most prevalent model, proposed consumer choices are made based on the expected outcome. Consumer only concern is on self-interest and are regarded as rational decision makers (Bray, 2018). While the utility theory views a consumer as a rational economic man, contemporary research on the subject will consider a wide

range of factors that influence consumers and will acknowledge a wide range of activities beyond purchasing (Bray, 2018).

Once a consumer identifies a problem, the buying decision process starts. Consumers then begin to solve the problem by looking at products or services to address their needs. Information is sourced about the intended purchase. These products which are identifies are then evaluated to find the products which offers the best solution to the problem. The consumers experience and feeling about the purchase will provide feedback and this, will influence future purchases. These feelings and experiences are known as post purchase behaviour (Boone & Kurts, 2015). The figure below represents the buying decision process.

Figure 6 The buying decision process



Source: Adapted from Kotler and Armstrong 2016

Need Recognition

The start of the buying decision process is initiated by the identification of a need or problem which is triggered by an external or internal stimuli (Kotler & Armstrong, 2016). As discussed above, society has aspiration to reach higher levels of Maslow's hierarchy of needs and will therefore, always aspire to reach the top of the pyramid, which is esteem and self-actualisation (Taormina & Gao, 2013).

When it comes to e-retailing, the need recognition of consumers would entail the desire to purchase products and services without physically going to the brick-and-mortar store in a bid to avoid crowds due to the COVID 19 pandemic.

Information Search

This step entails the search to fulfil the need or want that a consumer has identified in the first step from a variety of sources. Promotional experience, personal experience, referrals, word of mouth are some the sources that consumer would use (Taormina & Gao, 2013). Consumers can engage in online searches to gather information for their purchases to avoid contact with others during the pandemic.

Due to the instantaneous nature of digital communication, reviews and opinion can spread very rapidly. For these reasons most major corporation maintain an online presence via social media to address and provide feedback to consumers. Websites such as Hello Peter provide consumer with valuable information such as reviews.

Evaluation of Alternatives

This stage involves the evaluation of the alternatives which a consumer has identified using the information search in the previous step. There are several techniques that can be used to evaluate the products or services which depend on the characteristics of the consumers psychology as well as the situation that the consumer finds themselves in (Kotler & Armstrong, 2016). The ease of use of websites and app are some on the criteria that consumers of e retailing will utilise when choosing products for online purchases.

Purchase Decision

Most consumers will make a purchase decision after evaluating all the alternative available. This will be based on the desirability of the products on offer. There are several factors that a consumer will consider such as dealer choice, brand choice, product choice, quantities, the timing as well as the method of purchase (Brijball & Roberts-Lombard, 2015). The consumer will choose the product that best satisfies the initial needs or want first identified.

Post Purchase Decision

After the consumer has passed through the previous four stages of the buying decision process, they enter the final stage, which is the post purchase evaluation of the product or service they have acquired. The evaluation is done based on the criteria identified. This process is based on the learning and storing of information, which will be used when making future purchases and in advising others in relation to the product or service (Brijball & Roberts-Lombard, 2015).

Due to COVID-19, and the restriction based on contact, more consumers opted to make purchases online. This has enabled quicker purchases as well as the faster sharing of information and sentiment, either positive or negative (Brijball & Roberts-Lombard, 2015). Due to this, a new buying decision model needed to be introduced, named the dynamic consumer decision journey (Brijball & Roberts-Lombard, 2015).

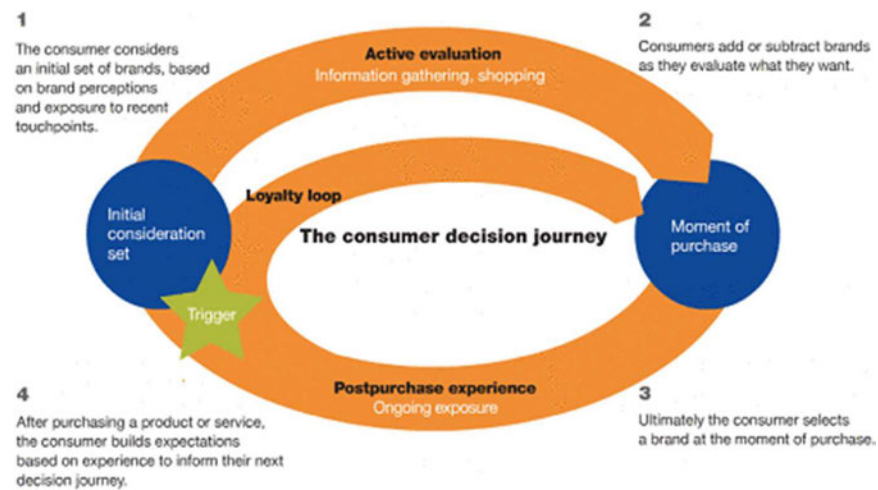
2.3.3 Dynamic Consumer Decision Journey

It is important to understand the decision-making processes of online buying. Due to the pandemic, many consumers have begun to purchase more goods online, and this paper seeks to determine if the trend will continue once the pandemic is over. In the technological and digital environment of today, the sequential model of the buying

decision process is believed to have a limited adequacy in the capturing of consumers actual decision-making process (Santos, 2020).

Consumers do not only rely on the information provided by an organisation that is stored in memory, instead they search for new information via digital means such as ratings sites and social media. Based on these digital influences, Mckinsey and Company have developed a circular decision-making journey which better represents the decision-making processes of today's consumer who are better informed and empowered (Santos, 2020).

Figure 7 Dynamic consumer decision journey



Source: Santos, (2020)

The dynamic consumer decision journey has four stages namely:

1. Consider Stage
2. Evaluate Stage
3. Buy Stage
4. Post Purchase Stage

Consider Stage

During this stage, a consumer is exposed to numerous social media touch points, with the most successful campaigns able to drive traffic to the organisation's website (Santos, 2020). An example will be the roll out of the Checkers60 service, a grocery service aimed at delivering within an hour of ordering offered by South Africa largest supermarket chain by sales, Shoprite Checkers. With the relevant marketing campaign to activate consumer to the service during the pandemic, this led to over 1 million downloads of the application. (Shoprite, 2021).

Evaluate Stage

During this stage of the journey, consumers scan the various sources of information to gain a better understanding of whether a product or service is aligned to the decision-making criteria which is offered by a supplier. They will also look at recommendation and reviews on social media and websites. Since the reviews and recommendation are produced by like-minded individuals, a consumer will place a great value on these recommendations over traditional means. Reviews and recommendation available to consumer online are instantaneously, in real time, which offer a level of objectivity based on real consumer experiences, this offers greater respectability to them (Yoo, *et al.*, 2015).

The Buy Stage

After consumers pass through the consider and evaluate stages, they are ready to make the purchase. However, this is not guaranteed. Critical factors to ensure the purchase takes place are the ease of navigation of website or sell interface, it must be understood by consumers, delivery times and the process should not be cumbersome or slow. By ensure these factors are dealt with, this will facilitate a smoother transaction and encourage consumers (Court *et al.*, 2009).

The Post Purchase Stage

Based on technological advancement via multiple digital touch points, a more intimate connection will be established between a consumer and the organisations as

consumers are able to interact with the organisation easily. This is where the enjoyment and bonding take place. An example is Yuppieschef who provide handwritten notes thanking consumers for their business.

2.4 Theoretical Framework

Due to the pandemic, many consumers opted not to venture out to purchase goods and services to avoid being in crowded places. This has led to an increase in online shopping. This section of the literature review seeks to explain technology adoption amongst consumer by examining popular theories and models of technology acceptance.

There have been several studies conducted and models developed to explain acceptance of technology such as the Theory of Reasoned Action (TRA), The theory of Planned Behaviour (TPB), The Technology Acceptance Model (TAM), The Extended Technology Acceptance Model (ETAM) and The Model of E-Commerce Adoption (MOCA).

These different models which are across the spectrum of communications, advertising, management, and technology will provide the theoretical framework of this paper. These models will explain the enablers (drivers, factors, motivators, incentives) as well as the barriers of technology adoption (Wymer & Regan, 2005).

2.4.1 Technology Adoption Models

2.4.1.1 Theory of Reasoned Action (TRA)

The model was first developed in 1975 by Fishben and Azjen for psychological and sociological research. Recently it has become the foundation to investigate an individual's IT usage behaviour. The model is based on the predictability of human behaviour in three main cognitive components, namely, attitudes, the favourableness

or unfavourableness of an individual's feeling for the behaviour, social norms, these are the social influences an individual is exposed to, and intentions, the decision to do or don't a behaviour. The theory highlights an individual's attitude as the driver towards technology (Taherdoost, 2018). For this research, the context is the negative attitude towards the adoption of technology as a means to change consumer behaviour to purchase more online

2.4.1.2 Theory of Planned Behaviour (TPB)

This theory states that behaviour is not always voluntary and under an individuals' control, it can be planned and deliberate. It introduces a new component of perceived behavioural control. It is associated with the extent to which consumers believe that they have control of the external and internal factors that will hinder or enable behavior performance. One's attitude towards subjective norms, behaviors and control share an individual's intentions and behaviors. While TRA and TPB may seem similar, the addition of perceived behavioral control distinguishes them (Taherdoost, 2018). This will be important in the study in understand consumer adoption of technology.

2.4.1.3 Technology Acceptance Model (TAM)

This is the most widely used and adopted model. The model is based on the Theory of Reasoned Action (TRA), and it deals with the users' acceptance and use of technology. This theory differs in that it uses various connect factors in explaining the user's acceptance of new technologies, such as external variables which affect the perceived usefulness, the perceived ease of using the technology and the user's attitude in using technology (Guzzo *et al.*, 2016).

Perceived usefulness refers to the perception that the technology in question will improve a user's ability to complete daily tasks. The attitudes towards technology adoption highlights an individual's appeal to the use of certain technologies while the ease of use refers to the effort required in the mind of the individual. These are both

subjective measures and therefore, will determine the consumers behaviour to engage with the technology (Venkatesh *et al.*, 2003).

2.4.1.4 Extended Technology Acceptance Model (ETAM)

This model introduces 6 additional constructs to the TAM model, namely, hedonistic, attitudinal, social, self-efficacy, task, and trust. The hedonistic construct is of particular importance to this study as it is an extension of millennials who seek instant gratification. Wentzel *et al.*, (2010) defined it as “related to personal reward, fun and enjoyment experienced through the execution of an activity or task”. A consumer must be able to derive joy from the process of interacting with the technology (Agnieszka, 2014).

2.4.2 Model of E-Commerce Adoption (MOCA)

MOCA is a new model of technology adoption based on the TAM model. It identifies enablers of online behaviour for consumers and predicts the reasons for ecommerce adoption. MOCA is a technology adoption model that is focused specifically on online purchasing. This theory is important to this study as it demonstrated the changes in online shopping based on social changes that have occurred during the pandemic, i.e., social distancing policies. (Guzzo *et al.*, 2016).

The theory has identified six main enablers to e-commerce, these are:

Social influence

Social influence can be defined as the process in which changes in consumer behaviour occurs after an interaction and influences by other individuals, organisation, and society. These influences have a direct and indirect effect on an individual's intention and frequency to access online purchasing and media (Guzzo, *et al.*, 2016).

According to Guzzo, Ferri and Grifoni, (2016), social influence can be characterised by three main features,

Conformity – When individuals express an opinion in order to meet the expectations of other people even, they the individual does not totally agree with the opinion.

Power – Is forcing individuals to behave in a certain way by controlling the individual's outcomes, and,

Authority – Which is the legitimate power to control individuals that are subject to it.

Social interactions and the environment have a very powerful effect on an individual's behaviour and are always influenced by them.

Usability

Usability can be defined as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use” (ISO 1998,6).

According to Guzzo *et al.*, (2016), for a technology to be deemed as usable in needs to satisfy the following three characteristics:

Effectiveness – The technology needs to be able to complete specific goals with both accuracy and completeness.

Efficiency – It needs to be able to complete task with minimal effort and time spent.

Ease of use and storage – Individuals need to be able to interact with the technology in the simplest way without needing to start from scratch.

If a system is easy to use, consumers will be more accepting of the system. Self-confidence will decrease if the system is too complicated to use, as users will spend too much time and effort on the system (Venkatesh *et al.*, 2003). Users' mood will be spoiled, and the user will stop using the service or product.

Perceived Usefulness

Perceived usefulness can be defined as ‘the degree to which a person believes that using a particular system would enhance his or her job performance’ (Davis, 1989).

Usefulness refers to the perceived benefits that consumers gain by using electronic commerce more than alternatives during the course of their lives.

The main perceived usefulness that consumers receive when compared to traditional shopping is the possibility to be able to shop anywhere and anytime and the convenience of not having to go to the store, the store will come to you. (Guzzo *et al.*, 2016). When shopping online, consumers have a wider choice, they can easily look at different websites to compare products and prices without having to go to different stores.

Trust

Trust can be defined as “individuals’ belief and willingness to act on the basis of words, the actions and decisions of another” (Lewicki & Wiethoff, 2000). As a result of the interdependence of people, the need for trust arises. Consumer can only see websites, they cannot touch and feel products, and there is no human contact, therefore trust becomes an important enabler for ecommerce.

Different websites and the characteristics of these different websites have an influence on whether consumers trust or distrust the websites. Consumers behave differently to websites based on whether they trust or distrust the websites (Chang & Fang, 2013). If a consumer trusts a website, they are more likely to visit the website for online shopping and recommend the website to other people. Trust, therefore, increases technology acceptance rates (Guzzo *et al.*, 2016).

Perceived Risk

An important enabler of consumer acceptance of ecommerce is the perceived risk they face. Consumers expect risk when making online purchases. Examples are unsafe payments, stealing credit card details, not receiving the items purchased, and fraud (Guzzo *et al.*, 2016).

A model which integrates technology acceptance constructs (ease of use and perceived usefulness) with perceived risk and trust as a direct antecedent of intention to transact which suggest the key component of e commerce adoptions is a reduction of uncertainty and risk (Pavlou, 2003). Other studies by Jarvenpaa and Tractinsky (1999) indicate that perceived risk has a negative influence on ecommerce.

Satisfaction

Satisfaction is an individual's feeling about their past online shopping experiences. It can be defined as “the consumer confirmation of expectations based on their experiences and the perceived usefulness from the initial use of an information system” (Chang *et al.*, 2005). Satisfaction is a greater predictor than perceived usefulness of a consumers continued use because the effect of perceived usefulness decreases over time (Guzzo *et al.*, 2016). It can therefore be regarded as an extension to address long term continuance of ecommerce.

Satisfaction is an important enabler of ecommerce, helping to build a long-term relationship which drives ecommerce adoption. Additionally, satisfied consumers influence other to adopt e commerce (Guzzo *et al.*, 2016).

2.5 Consumer behaviour, the buying decision, the dynamic consumer journey, and technology adoption implication for this study

This study is aimed at understanding the changes in consumer behaviour and buying patterns of graduate millennials in South Africa post COVID 19. Consumers were forced to find alternative means to make purchases to avoid infection, i.e., E-Commerce. It is therefore important to understand the consumer behaviour model as well as the buying decision, the dynamic consumer journey, and technology adoption models to gain better insight of the study.

2.6 The South African Economy

Since this research is based on consumer behaviour and buying patterns, it is important to understand the economic context that this study was conducted under. Hence an overview of the South African economy will help gain an understanding of the economic conditions that were present during the study.

The South African economy was recently rebased against the US dollar and the results show that the economy is larger than previously thought. However, the economy is still smaller than pre pandemic levels. It is estimated that the economy contracted by 11% due to COVID 19 and the restrictive policies of the government. This has resulted in an added 2 million people in South Africa falling below the poverty line. (Stats SA, 2021)

The Economy has shed 1.4 million jobs in 2020 and face the risk of jobless growth. Based on historical linkages between economic growth and employment, it is estimated that the economy will add 400 000 jobs in 2021. However, the country recorded a loss of almost 300 000 formal jobs in the first half of 2021. This had led to South Africa being recognised as the country with the highest unemployment rate in the world (PricewaterhouseCoopers, 2021).

The country entered the pandemic after several years of low growth. This low growth resulted in increased government borrowing, which stands at over 75% of GDP. All three major rating agencies have downgraded South African bonds to sub investment grade which has led to increased borrowing costs (Trading Economics, 2021).

The economy expanded by 1.2% in the second quarter of 2021. With this expansion, the country has recorded a growth in each of the last four quarters, despite this growth, the economy is still 1.4% smaller than pre pandemic levels. The economic impact of

the economic disruption caused by the unrest in KZN, and Gauteng in July is yet to be considered and will only become known in December when the 3rd quarter results are released. The negative impact is expected to be huge (STATS SA, 2021).

Consumer confidence in South Africa is at -10. This has increased slightly from -13 in the previous period mainly due to the faster roll out of the COVID 19 vaccine as well as support from government for employees which has helped to counter the impact of the July 2021 unrest. Most notably, there is a sharp demand for big ticket purchases such as cars and electronics (Trading Economics, 2021).

2.7 Results from similar studies

In a study conducted by McKinsey and Company, (2020), titled “Survey: South African consumer sentiment during the coronavirus crisis” has revealed the following finding:

There has been a shift from consumers to value and essentials, a move from consumer to digital and omnichannel, 60% of consumers are not willing to resume normal activities. South African consumers are more pessimistic when compared to other emerging markets. Due to the pandemic, consumers continue to see a reduction in income, spending and savings.

Consumers are aggressively adopting habits to save, such as research online to seek the best deals and reduce spending on non-essentials. Most consumers expect a significant increase in online shopping and intent to continue once the pandemic subsides (McKinsey & Company, 2020). South African consumers have acquired new habits such as restaurant deliveries and home deliveries, click and collect and drive throughs. Around 79% have tried new shopping behaviour and intend to continue beyond the crisis.

In another study conducted by Jo *et al.*, (2020), titled “Changes in Consumer Behaviour in the Post-COVID-19 Era in Seoul, South Korea”, an analysis was conducted on consumer behaviour by analysing credit card data to determine purchasing trends of consumers. The study concluded that no significant correlations between changes in consumer behaviour and the effects of the pandemic were found from the analysis that was conducted in Seoul, South Korea.

2.8 Literature Limitation

The author of the study is aware that there is a risk that the literature being outdated due to this being a new field of study and one that is rapidly changing as the pandemic rages on. Additionally, due to the scarcity of research and knowledge on the topic being relatively new, much of the literature review is broadly applied. The dearth of information has necessitated the inclusion of independent study in order to gain the best possible understanding of the research topic.

3. Research Methodology

This study was aimed at understanding the prospective changes in consumer behaviour and buying patterns of graduate millennials due to COVID 19 in South Africa. This chapter will discuss the methodology that was followed in the study. It discusses the type and design of the study. The study was descriptive in nature and was designed to gain a better understanding of the prospective changes of consumer behaviour and buying patterns of graduate millennials.

3.1 Research Questions and Objectives

A recap of the research question and objectives are shown below as a means to provide a better understanding of the methodology that is required to fulfil them.

1. The research questions that are required to be answered are:
2. Will graduate millennials continue to shop online or are they expected to return to brick and mortar establishments once the COVID pandemic is over?
3. Has the pandemic resulted in a permanent change in buying patterns?
4. How are graduate millennials finding the online shopping experience, Can the online shopping experience be improved?

Based on the question asked, the objectives of this study are:

1. To determine the behaviour of graduate millennials, post COVID19 in relations to their preference in shopping methods
2. To determine if there will be a change in buying patterns.
3. To determine the experience of graduate millennials to online shopping.
4. To determine what graduate millennials, want from their online shopping experience.

The purpose of this study is to gain a better understand of the prospective changes in the behaviour of graduate millennials due to COVID 19 in South Africa, particularly with regards to e commerce.

3.2 Choice of Design and Methodology

The philosophies that this research has followed are positivism. Positivist regards science and scientific research as the way to get to the truth (Sekaran & Bougie, 2016). The approach was deductive in nature. Deductive reasoning use for scientific reasoning and to test a theory (Sekaran & Bougie, 2016).

The study was conducted utilizing a survey in a non-contrived environment. A non-contrived environment means a study being conducted in the natural environment (Creswell & Creswell, 2018). The time horizon for this study was cross sectional as the results will be needed in the shortest possible timeframe. Cross sectional studies are when data is collected all at once or over a short period (Sekaran & Bougie, 2016).

A desktop study was also conducted utilizing the resources available at University of Kwa-Zulu natal library to access papers written on the pandemic, lockdown, consumer behaviour, buying patterns and millennials. In addition to a desktop study, a survey was sent out to targeted individuals (Graduate millennials) to gather information about income levels, geographical location and changes in their behaviour and buy patterns pre, during and post the pandemic.

This research methodology that was chosen for this paper was quantitative and exploratory in nature. The researcher aims to seek some new insight on a new virus which altered people's behaviour and ask new questions such as will the behaviour last as more people become vaccinated against the virus. Exploratory research will

provide tentative answers to the question being asked; however, this should be followed up with a more details study to provide a more dependable answer.

The basis for selecting these approached is the belief that the learning that are obtained from this paper may shed new light on the attitude and perceptions of consumers toward e-commerce post the COVID 19 pandemic, which will lead to more effective decision making by organisation

3.3 Population

A population can be described as the complete set of a group from which the sample will be drawn during the survey (Saunders *et al.*, 2012).

For this study, the population consisted of millennials that have a graduate degree who reside within the borders of South Africa. Millennials can be defined in many ways as stated in the previous chapter. For this research paper, respondents between the age of 24 and 41 was used. The total population for this study will include all South African graduate millennials who reside in the country. According to Stats SA, (2018), South Africa has a millennial population of 20.4 million people. Based on data from Deloitte, (2021), 59% of millennials in South Africa have tertiary qualification. This equates to a total population of 12 million people for this study.

To ensure that the survey targets the correct respondents, qualifying question were utilised. These questions ensure that only respondent that are relevant to the study were surveyed and included in the sample (Saunders *et al.*, 2012). The three qualify question that were asked were:

- How old are you?
- What is you highest qualification?
- In which province do you reside?

Respondent were sourced through the UKZN MBA class as well as the network of individuals that the researcher knew being a millennial as well. The survey was sent out to a number of potential respondent as they were in turn ask to send it to their network of friends and colleagues.

The perceptions of graduate millennials respondent will be valuable as they can provide an understanding of attitudes and perceptions towards e-commerce. They are the most technological advance generation and are entering the prime year of earning, thereby make millennials trend setters (Garikapati *et al.*, 2016).

For the purposes of comparability and an increased likeliness of statistical significance in the analysis, individuals who are outside of the millennial age band have been retained in the analysis. This allows the author to assess not only the position that graduate millennials find themselves in, but also if there is a difference in graduate millennial behaviour relative to typical graduate in a different age category.

3.4. Unit of Analysis

Sekaran and Bougie (2016), define a unit of analysis as the most basic element in a scientific research paper. It can be described as what or who (subject) of the study. In this research paper, the subjects are individuals in South Africa that are between the ages of 24 to 41 that have a graduate degree. The reason for selecting these individuals has been discussed previously in this paper.

3.5 Sample Strategy

A sample can be defined as a sub-set of the population (Weiers, 2016). A sub-set is used because it would be costly and impractical to approach every individual of the population. This research is paper is based on graduate millennials. As a result, not the entire population qualifies to partake in the sample. Therefore, non-probability sampling technique is used. Non-probability sampling can be defined as a sample design where elements of the population that do not have a predetermined change of being selected for the study (Sekaran & Bougie, 2016). In this case, respondents need to be between the ages of 24 to 41, must possess an undergraduate qualification and live in South Africa.

In order to gain respondents, the researcher use a snowball technique to attract participants. Snowball sampling or chain-referral-sampling begins with identifying initial subjects. These initial subjects serve as seeds, through which a first wave of new respondent is recruited, this first wave of new respondent will recruit the second wave of respondent and the sample size expands wave by wave, like a snowball rolling down a hill (Abubakar *et al.*, 2015). Snowball sampling can thus be defined as non-random sampling.

The size of the sample was 99 respondents, of which 18 dropped off before answering 20% of the survey questions. Based on the population size of 12 million people, this indicates an 85% confidence level and 8% margin of error.

3.6 Research Instruments

When designing the survey question, the question should be adapted from similar studies conducted or needs to be designed to be study specific (Saunders et al, 2012). The research has adapted question from previous studies as well as designed some study specific questions. The question in the survey were kept short and easy to read. Respondent were asked to answer question on their past and present circumstance

and opinions, as this allowed a more accurate and valid data collection process. The questions were designed not to be over taxing when thinking about responses.

3.7 Data Gathering Process

The research survey was distributed to graduate millennials in the researchers MBA class via a link to Survey Monkey online surveys. These individuals were then asked to send the link to other graduate millennials that they know. The link to the survey was also sent to graduate millennials that the research was familiar with, and they were also asked to send the link to other graduate millennials that they may know.

Not everyone in the target population has an equal chance of being chosen to be in the study. The target population for this paper is “graduate millennials”, and probability sampling would require access to the entire population, such that every South African degree-holder between the ages of 24-40 would be able to be selected for the survey. Random probability sampling would be extremely challenging, costly, and time consuming.

In order to ensure that the correct respondents took part in the survey, qualifying question were asked at the beginning of the survey. Qualify question that were ask are age, level of education and location to ensure that the data was accurate.

Under non-probability sampling, the author’s subjective judgement has been used. The sampling methodology for this paper is conducted in two phases.

- **The initial phase** utilises Judgment sampling (also known as “purposive sampling”), in which subject(s) are selected who are in the most advantageous place to provide information that will be required (Sekaran and Bougie, 2016). The initial respondent will be attracted to this study via the MBA class.
- From initial judgement sampling, snowballing is implemented as the **second phase** of the sampling for this paper. Snowballing is a sampling methodology

in which each participant is requested to share the survey with additional participants in their network who fit the target profile, with subsequent requests made to each follow-on participant. This creates a “snowball” effect. Snowball sampling, which is also known as “chain-referral sampling”, is a method that is used when the target population is rare and difficult to find (Research-Methodology, 2020).

Non-probability sampling is acknowledged to provide a biased representation of the target population (in this case is, graduate millennials). Due to the lower level of rigour in non-probability sampling relative to probability sampling, the findings will not be fully generalisable to the entire population. Non-probability sampling is frequently used to gather initial insights into a target population, and pilot studies utilise this approach for convenience, and cost. Likewise, through the combination of Judgement sampling, and snowballing, the needs of the research paper will be met. This study lends itself to the buying patterns and consumer behaviour of graduate millennials; therefore, choosing respondents from the sector will provide the most favourable response and the most accurate information, and this is purported by the author to be the most efficient manner by which data from the target population could be gathered.

3.8 Analysis Approach

The results of the survey were first captured and then analysed using SPSS 28 software. SPSS is a software that enables researchers to manage and analyse data by calculating a wide range of statistics. The data is test against relationship between the proposed question in the survey that was used. The data was cleaned and then presented in frequency counts as well as percentages. Pearson’s Chi-squared test was the statistical analysis undertaken.

3.9 Data Analysis

The data which was collected was analysed by a professional satisfaction with whom the researcher worked very closely. The following test were applied to the data:

3.9.1 Frequency Test

A frequency is defined as the number of times an event occurs. The analysis forms part of descriptive statistics. It deals with the number of occurrences or frequency of the occurrences.

3.9.2 Chi Squared Test

The researcher has decided to use the *Pearson's Chi-squared test of independence* to provide insight into the relationship between variables. Other tests that could have been used include the *Fisher's exact test* which is more conservative than the chi-squared test and cannot be used on a large number of subjects (Mathworld, 2016).

The chi-square is a way in showing the relationship between two variables. In statistics, there are 2 types of variables, namely numerical and non-numerical variables. Hence, the test allows for conclusion on the independence of variables. This will allow the researcher to determine if there is a difference in the distribution of responses between those with explanatory variables of trait A vs trait B.

3.10 Conclusion

Quantitative research was conducted utilizing a survey to collect primary data in order to answer the research question as stated in Chapter 1. A non-probability sampling method was used. The population of the study includes graduate millennials in South Africa. The technique which was found to be the best suited for data collection was the snowballing method. The results were analysed by using SPSS 28 to gain a better understanding of the data.

4.Presentation of Results

4.1 Data Overview

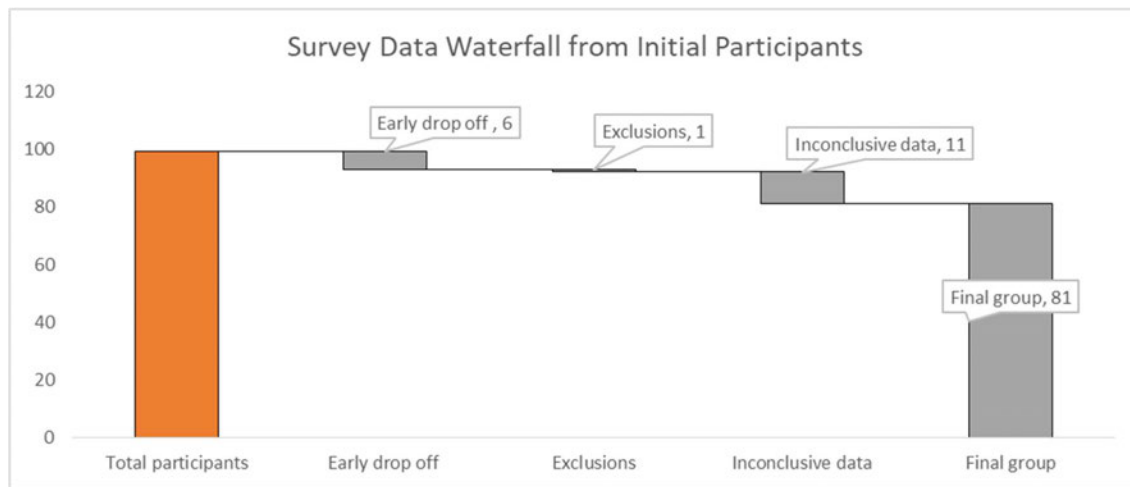
To assess the problem statement outlined above, the survey results were analysed with various statistical tools which will be unpacked throughout this section.

The initial survey was conducted with due process, ethical clearance was obtained, and the survey was distributed for 14-day duration, between 21 October and 3 November 2021. The last response received was on 29 October. The total population for this study will include all South African graduate millennials who reside in the country. According to Stats SA, (2018), South Africa has a millennial population of 20.4 million people. Based on data from Deloitte, (2021), 59% of millennials in South Africa have tertiary qualification. This equates to a total population of 12 million people for this study.

4.1.1 Survey Data Waterfall

We begin with an introduction of the survey responses received back. From the survey, we received 99 respondents, several of whom rapidly dropped off, or were excluded from the analysis.

Figure 8 Survey data waterfall from initial participants



- Total participants: 99 participants agreed to participation in the survey
- Early drop off: 6 participants did not complete any questions beyond inputting age
- Exclusions: This MBA dissertation is focussed on the impact of graduate participants who did not meet the criteria required for this dissertation were excluded. Although participants of all age groups are retained in the survey as a control to which millennial behaviour is compared; data collection was intentionally limited to university graduates, and the individual with a highest qualification as high school was excluded.
- An additional 11 participants dropped off prior to completing 20% of the survey question, and are hence also removed from the analysis, leaving a total of 81 participants. Hence this study has an 85% confidence level and 8% margin of error.

4.1.2 Engagement limitations

The survey was conducted on a purely opt-in basis, and no incentives were provided for full, or partial completion. Questions 11, regarding apps used; as well as question 12, regarding online categories, and question 18, regarding prohibiting reasons for

participating online, were not answered by all 81 remaining participants. The author hypothesizes that this may be due to the 1-2 individuals who skipped these questions, being unfamiliar with the online environment and not recognising the options provided.

Further investigation of the cause of the lack of full participation is beyond the scope of this dissertation; however, the results will not be negatively impacted by the participation anomaly of the 1-2 participants.

4.2 Initial view of data

Figure 9 Overview of survey results

Question	Respondents	Description
Q2	81	Age
Q3	81	Highest Qualification
Q4	81	Gender
Q5	81	Current Residential Province
Q6	81	Environment description as Metro, Urban, Semi-rural or Rural
Q7	81	Employment Status
Q8	81	Income Group (before tax)
Q9	81	Online Shopping Frequency - Pre-COVID-19 pandemic
Q10	81	Online Shopping Frequency - Post-COVID-19 lockdown in March 2020
Q11	79	App and Website List
Q12	80	Online Shopping Categories
Q13	81	Online Shopping Timing - Pre-COVID-19
Q14	81	Online Shopping Timing - Post-COVID-19 lockdown in March 2020
Q15	81	Reversion to Traditional Shopping
Q16	81	Post-COVID-19 Envisioned Large Shopping Trips in-Store
Q17	81	Online Shopping Sentiments
Q18	80	Online Shopping Prohibiting Factors
Q19	81	Biggest Incentive for Online Shopping
Q20	81	Open Ended: How Could a Store Encourage your Online Shopping
Q21	81	Post-COVID-19 Envisioned Shopping Distribution

This survey was broken down in 3 sections:

Section A – Age, demographics, education, and income levels of respondents (Question 2 to 8).

Section B – Consumer behaviour and buy patterns regarding online shopping pre, during and post covid (Question 9 to 16 and 21).

Section C – Respondent's sentiment to online shopping (Question 17 to 20).

4.2.1 Age, demographics, education, and income levels of respondents.

This section of the survey details the respondent age, level of education, location, and income. Although this is not central to this study, it helps in contextualising the findings and in formulation an appropriate recommendation for the study.

4.2.1.1 Age

Table 1 Respondents Age

Age Band	Responses	
18 to 24	3.70%	3
25 to 32	24.69%	20
33 to 40	62.96%	51
41 to 48	7.41%	6
49 to 56	1.23%	1
57 to 99	0.00%	0
	Answered	81

This study was based on millennials therefore the majority of the respondent were millennials. Based on the data received, the majority of respondents can be classified as upper millennials with 51 respondents (62.96%), those aged 33 to 40 years old and millennials ages 25 to 32 coming second with 20 respondents (24.69%)

4.2.2.2 Gender

Table 2 Respondents Gender

Gender	Responses	
Male	46.91%	38
Female	51.85%	42
Non-binary	0.00%	0
Prefer not to say	1.23%	1
	Answered	81

A total of 81 respondent answered this question. The gender split was fairly close with female coming out on top. 42 respondents (51.85%) were female, 38 respondent (46.91%) were male with 1 respondent (1.23%) who prefers not to say.

4.2.1.3 Education Level

Table 3 Respondents Level of Education'

Level of Education	Responses	
Primary School	0.00%	0
High School	1.08%	1
Diploma/Graduate Degree	37.63%	35
Post Graduate Degree	61.29%	57
	Answered	93

Question three had 93 respondents. 1 respondent (1.08%) only had a high school qualification, 35 respondents (37.63%) had a diploma or graduate degree, and 57 respondents (61.29%) had a post graduate qualification.

4.2.1.4 Location of respondents

Table 4 Location of Respondents (Province)

Province	Responses	
KZN	69.14%	56
GP	25.93%	21
Western Cape	3.70%	3
Eastern Cape	1.23%	1
Free State	0.00%	0
Limpopo	0.00%	0
Mpumalanga	0.00%	0
Northern Cape	0.00%	0
North-West	0.00%	0
	Answered	81

Question five had 81 respondents. The majority of the respondents reside in Kwa Zulu Natal with 56 (69.14%), followed by Gauteng with 21 respondents (25.93%), Western Cape with 3 respondents (3.70%) and Eastern Cape with 1 respondent (1.23%).

Table 5 Location of respondents (Metro, Urban, Semi-rural or Rural Environment)

Answer Choices	Responses	
Metro	60.49%	49
Urban	37.04%	30
Semi-Rural	2.47%	2
Rural	0.00%	0
	Answered	81

Question six had 81 respondents. 49 (60.49%) indicated they live within a metro, while 30 (37.04%) stated they live in an urban area and 2 (2.47%) live in semi-rural areas.

4.2.1.5 Employment Status and Income levels

Table 6 Employment Status of Respondents

Employment Status	Responses	
Employed full time	87.65%	71
Self Employed	9.88%	8

Employed part time	1.23%	1
Unemployed/Looking for work	0.00%	0
Unemployed/Not looking for work	0.00%	0
Retired	0.00%	0
Full time student	1.23%	1
	Answered	81

Question seven had 81 respondents. The majority of respondent were employed full time with 71 (87.65%), while 8 (9.88%) respondents were self-employed, and 1 (1.23%) respondent was a full-time student. None of the respondent were unemployed.

Table 7 Income Level of Respondents

Income Level	Responses	
Less than R10000	6.17%	5
R10000 to R30000	23.46%	19
R30000 to R 50000	33.33%	27
R50000 and over	37.04%	30
	Answered	81

Question eight had 81 respondents. The majority of respondent were high income earners with 30 (37.04%) indicating they earn more than R30000 per month, 27 respondents (33.33%) earn between R30000 and R50000 per month, 19 respondents (23.46%) indicating they earn between R10000 and R30000 per month and 5 respondents (6.17%) earn less than R10000 per month.

4.2.2 Consumer behaviour and buy patterns regarding online shopping pre, during and post covid

This part of the survey details Consumer behaviour and buy patterns regarding online shopping pre, during and post covid. This section is central to the study in determining if there are any changes in buying patterns during and post the pandemic. Question was asked regarding habits pre, during and post COVID 19.

4.2.2.1 Consumer behaviour with regards to online shopping

Table 8 Shopping Habits pre-COVID 19

Shopping Habits Pre Covid	Responses	
Daily	0.00%	0
1 to 3 time per week	7.41%	6
2 to 3 time per month	25.93%	21
Once a month	27.16%	22
Less than one a month	29.63%	24
Never	9.88%	8
	Answered	81

Question nine had 81 respondents, in which 24 respondents (29.63%) indicated they shopped online less than once a month pre COVID 19. 22 respondents (27.16%) stated they are shopping once a month, 21 respondents (25.93%) shopping 2 to 3 times per month and 6 respondents (7.41%) shopping 1 to 3 times per week per COVID 19.

Table 9 Shopping Habits during COVID 19

Shopping Habits During Covid	Responses	
Daily	2.47%	2
1 to 3 time per week	17.28%	14
2 to 3 time per month?	35.80%	29
Once a month	16.05%	13
Less than one a month	19.75%	16
Never	8.64%	7
	Answered	81

Question ten had 81 respondents. 29 respondents (35.80%) indicated they shopped 2 to 3 times per month since COVID 19. 16 respondents (19.75%) indicated they still shop online less than once a month, 14 respondents (17.28%) shop online 1 to 3 times per week, 13 respondents (16.05%) shop once a month and 2 respondents (2.47%) shop online daily since COVID 19.

Table 10 Return to Traditional Shopping Centres post-COVID 19

Return to traditional shopping centres	Responses	
Yes	65.43%	53
No	34.57%	28
	Answered	81

The majority of respondents indicated that they would return to traditional shopping centres post covid. 53 respondents (65.43%) indicated yes while 28 respondents (34.57%) respondents indicated that they will not.

Table 11 Prospective Changes in Consumer Behaviour

Prospective changes in consumer behaviour	Responses	
Return to traditional shopping only	8.64%	7
Continue to shop online only	9.88%	8
Return to traditional shopping centres however shop online to a greater extent than prior to COVID 19	60.49%	49
Return to traditional shopping centres however shop online to a less extent than prior to COVID 19.	20.99%	17
	Answered	81

The majority of respondent have indicated that they will return to shopping centres, however, will shop online to a greater extent with 49 respondents (60.49%). 17 respondents (20.99%) have indicated that they will return to traditional shopping centres and shop online to a less extent.

Table 12 Most popular websites or app used by respondents

Websites/Apps	Responses	
Zando	16.46%	13
Woolworths's dash	8.86%	7
Woolworths	36.71%	29
Checkers60	44.30%	35
Pick 'n Pay (Boots)	15.19%	12
Uber Eats	54.43%	43
Mr D	51.90%	41
Take a Lot	77.22%	61
Makro	26.58%	21
	Answered	79

Respondents were asked which is the websites or apps that they use the most to shop online. Results indicate that Takealot is by far the most popular with 77.22% of respondent indicating they use it. Second most popular are food delivery apps UberEATS and Mr D. Online grocery shopping was only introduced by Shoprite once the pandemic started but has come in third most used app.

Table 13 Categories of online purchases

Answer Choices	Responses	
Groceries	60.00%	48
Electronics and appliances	61.25%	49
Flights	48.75%	39
Airtime	40.00%	32
Clothing	52.50%	42
Utility Bills	35.00%	28
Books	27.50%	22
Flowers/ Gifts	36.25%	29
Household goods e.g., kitchenware	50.00%	40
	Answered	80

Respondent were asked to indicate what they purchase online. Electronics and groceries were the top categories of purchases made by respondents. Clothing, Flights and Airtime were also popular online purchases.

4.2.2.2 Buying patterns

Table 14 Shopping times pre-COVID 19

Answer Choices	Responses	
Weekend	58.02%	47
After work	35.80%	29
Anytime	32.10%	26
During work hours	4.94%	4
	Answered	81

When asked about when the respondents did their shopping prior to COVID 19, 47 respondents (58.02%) indicated they shopped during weekends. 29 respondents (35.80%) indicated they did their shopping after work, 26 respondents (32.10%) shopped anytime while 4 respondents (4.94%) shopped during working hours.

Table 15 Shopping times during COVID 19

Answer Choices	Responses	
Weekend	29.63%	24
After work	16.05%	13
Anytime	51.85%	42
During work hours	18.52%	15
	Answered	81

When asked about when the respondents did their shopping during to COVID 19, 42 respondents (51.85%) indicated they shopped anytime. 24 respondents (29.63%) indicated they did shop during weekends, 15 respondents (18.452%) shopped during working hours and 13 respondents (16.05%) shopped after work.

Table 16 Revision to traditional shopping hours

Answer Choices	Responses	
Highly Likely	11.11%	9
Likely	17.28%	14
Neutral	30.86%	25
Unlikely	37.04%	30
Highly Unlikely	3.70%	3
	Answered	81

When asked about respondents' revision back to traditional shopping hours i.e., weekends and after work, 30 (37.04%) respondents indicated they were unlikely, 25 (30.86%) were neutral, 14 (17.28%) respondents were likely to return, 9 (11.11%) were highly likely and 3 respondents were highly unlikely to return.

4.2.3 Consumer sentiments towards online shopping

Section 3 of the survey details the respondents' sentiments toward online shopping. This section will enable the understanding of what consumers require from online merchants to ensure growth. Questions were asked about sentiments, reasons prohibiting online shopping and the most important criteria to enable online shopping.

Table 17 Sentiments toward online shopping

	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total
Shopping online saves time	48.15%	39	41.98%	34	6.17%	5	2.47%	2	1.23%	1	81
It is a great advantage to be able to shop at any time of the day	59.26%	48	39.51%	32	1.23%	1	0.00%	0	0.00%	0	81
I prefer traditional shopping to online shopping	16.05%	13	16.05%	13	37.04%	30	24.69%	20	6.17%	5	81
Online shopping is risky due to fraud	11.25%	9	32.50%	26	28.75%	23	22.50%	18	5.00%	4	80
The delivery cost for online shopping is high enough to deter me from spending	6.17%	5	25.93%	21	32.10%	26	28.40%	23	7.41%	6	81
I do not find sufficient information online about products	6.25%	5	22.50%	18	30.00%	24	28.75%	23	12.50%	10	80
When shopping online, I hesitate to give my credit card details	16.46%	13	24.05%	19	24.05%	19	27.85%	22	7.59%	6	79
It is easy to make comparisons with other retailers when shopping online	31.65%	25	46.84%	37	15.19%	12	5.06%	4	1.27%	1	79
The website layout helps me in searching for the right product online	27.85%	22	51.90%	41	13.92%	11	5.06%	4	1.27%	1	79
Supermarkets do not make shopping for groceries online easy	11.39%	9	25.32%	20	29.11%	23	27.85%	22	6.33%	5	79
When shopping online I get frustrated as the store don't deliver the stock I want	15.00%	12	27.50%	22	35.00%	28	18.75%	15	3.75%	3	80
										Answered 81	

Respondent were given statements regarding online shopping. They were asked to indicate their level of agreement with each statement. Ranging from strongly agree to strongly disagree. In total, 81 respondents answered this question which will be analysed and discussed in the next chapter.

Table 18 Reasons prohibiting online shopping

Answer Choices	Responses	
Ease of use	12.79%	11
Faster Delivery	5.81%	5
Free Delivery	20.93%	18
Competitive pricing	12.79%	11
Better Security for online payments	12.79%	11
Better Size guides for clothing	4.65%	4
East returns options	8.14%	7
Better availability of stock	12.79%	11
More honest customer reviews	1.16%	1
Allow to select delivery time for convenience	4.65%	4
Cash on delivery	1.16%	1
Collection points for products ordered	2.33%	2
	Answered	86

Respondents were asked for the top three reasons that prohibits online shopping. Delivery cost was the main reason followed by ease of use, pricing and security tied for second most important reason.

Table 19 Important criteria for online shopping

Answer Choices	Responses	
Delivery times	52.50%	42
Delivery cost	56.25%	45
Payment security	58.75%	47
Price	55.00%	44
Ease of access	32.50%	26
Convenience	56.25%	45
	Answered	80

When asked what the respondents consider important criteria when shopping online, delivery times, delivery costs, payment security, price and convenience were all listed as important. Ease of access was considered less so.

Figure 10 Ways to improve websites/apps



The final question asked to respondents was as open-ended question asking for suggestion to improve websites. The data was collated and place into a graph. The most suggested improvement that was free delivery followed by ease of use. Pricing, stock availability and security were also suggested as important.

5. Analysis of Data

5.1 Problem statement

This study looks towards modelling and understanding the shift in buying behaviour of graduate millennials. As a control group, we will look at the shifts of millennials relative to gen x and gen z.

The objectives of this study are expanded as:

- To determine the behaviour of graduate millennials, post COVID-19 in relation to their preference in shopping methods.
- To determine if there has been or is indication of future shift in buying patterns.
- To determine the experience graduate millennials, have with online shopping (and therefore sentiments held)
- To determine what graduate millennials desire from their online shopping experience, and if this desire is met

5.2 Data pre-processing pipeline

5.2.1 Data Pre-processing:

Data was converted into a multiindex pandas DataFrame, for ease-of-access. Survey answers in this format share the formatting advantages of one-hot encoding, in which no information has been lost, and the data is interpreted as a binary (present or not present) for every category provided per question. Formatting being left in this manner allows for consistent treatment of questions which allow for multiple options to be selected, or for a single choice to be selected.

A dictionary was constructed, replicating the Question order and naming convention in the raw data. This allows for a quick look-up on a question level, whilst using question numbers as a loop for any analysis needing to be repeated question-by-question; and finally, a simplified label was used for all cases as the label on graphs generated.

Data Cleaning:

Data was analysed and assessed for missing data, and irrelevant data, such as the exclusion categories in the data waterfall were identified (and executed) in the cleaning step.

Data cleaning is performed to ensure that data is consistent, well labelled, and able to be used in subsequent modelling (if required) and visualisation. Although a predictive model is not required for the scope of this dissertation, that data is formatted such that a predictive model could be fit onto the data to investigate relative importance of factors in determining a target, such as whether a group of graduates are prone to wish to return to pre-COVID-19 shopping habits.

Feature Engineering:

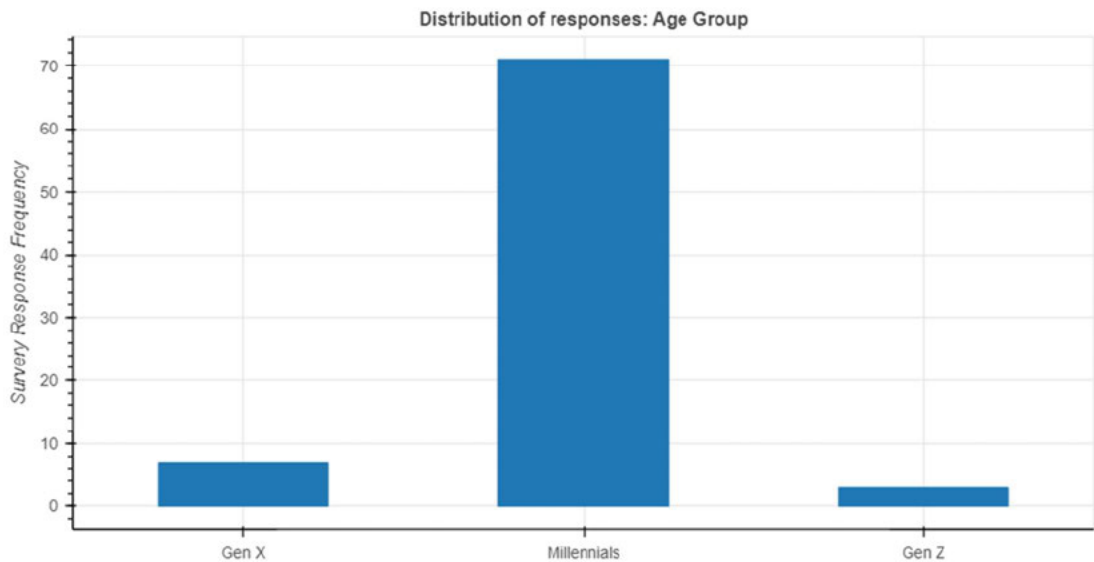
Construction of age variations was completed. There were three alternative age categorisations which were considered during the analysis.

Age Group - This was constructed under the definition of the generational age-bands.

Table 20 Age band of respondents

Age Band	Age Group	Count
18 - 24	Generation Z	3
25 - 40	Millennial	71
41 - 56	Generation X	7
57 - 99	Baby Boomer	0

Figure 11 Distribution of responses : Age groups

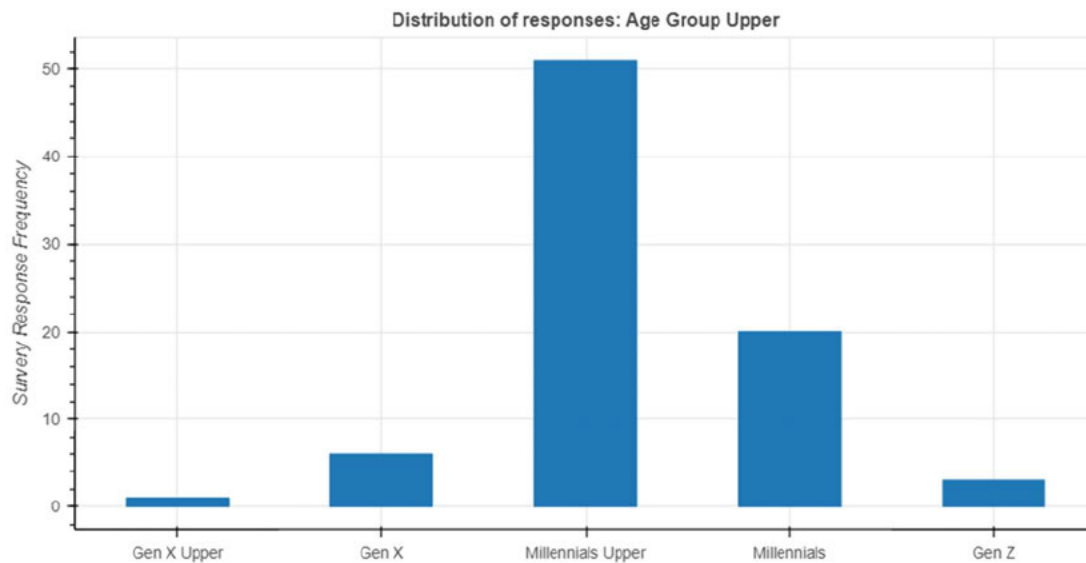


Lenient Age Group - With the objective of separating out the distribution into more manageable groups; equidistant groupings were attempted - but due to a very high clustering of individuals in the upper-end of the Millennial age band, it was decided that this split added little value.

Table 21 Ages band of respondents 2

Age Band	Age Group	Count
18 - 24	Generation Z	3
25 - 32	Millennial	20
33 - 40	Millennial Upper	51
41 - 48	Generation X	6
49 - 56	Generation X Upper	1
57 - 99	Baby Boomer	0

Figure 12 Distribution of response: Age group upper



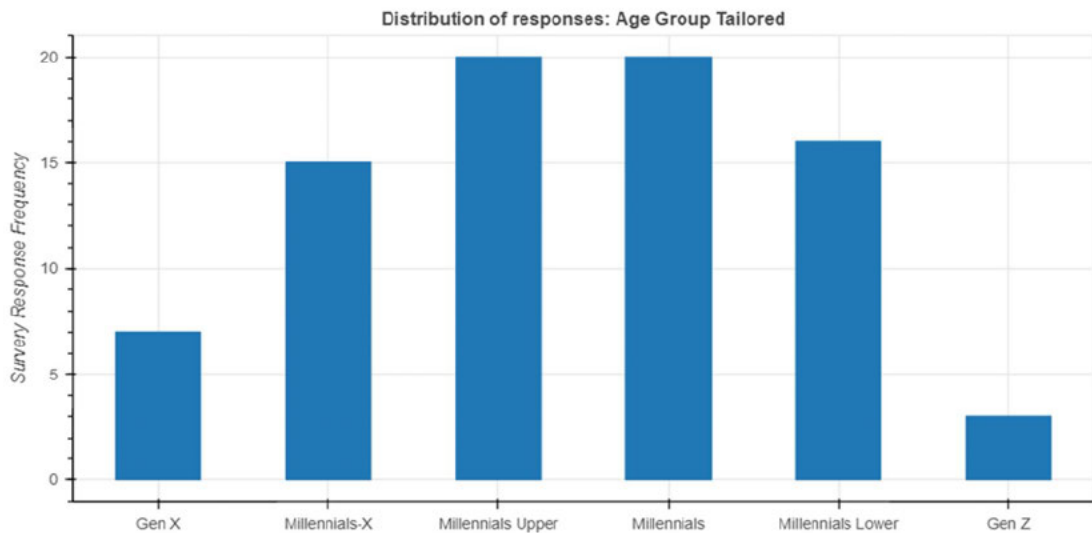
Tailored Age Group - After assessment, indicating that the majority of participants (51 of the original) fall into the "Upper millennial" age group; an additional separation

will be utilised - separating millennials into three (roughly) equal groups. The age bands of each group are therefore not equally split.

Table 22 Age band of respondents 3

Age Band	Age Group	Count
18 - 24	Generation Z	3
25 - 31	Millennial Lower	16
32 - 35	Millennial	20
36 - 37	Millennial Upper	20
38 - 40	Millennial-X	15
41 - 56	Generation X	7
57 - 99	Baby Boomer	0

Figure 13 Distribution of response: Age group tailored



5.3 Data Analysis

Exploratory data analysis, pioneered by John Tukey in 1977, is the process by which an individual screens data, looking for patterns, anomalies, and insights to lead to either conclusions on the current data, or directions / gaps to be filled through subsequent data gathering.

In the data analysis section of this dissertation, we break up the analysis into three sections - these are for Univariate analysis and Multivariate analysis. In the univariate analysis section, we analyse individual variables, looking for the frequency at which various categories were indicated. In the multivariate section, assessment into the relationships between pairs of variables. Finally, in the statistical analysis section, we look at the 3 key relationships which have been presented from the analysis in the preceding sections, and we test the statistical significance using the Chi-Squared test for independence.

5.4 Univariate analysis

5.4.1 Demographics

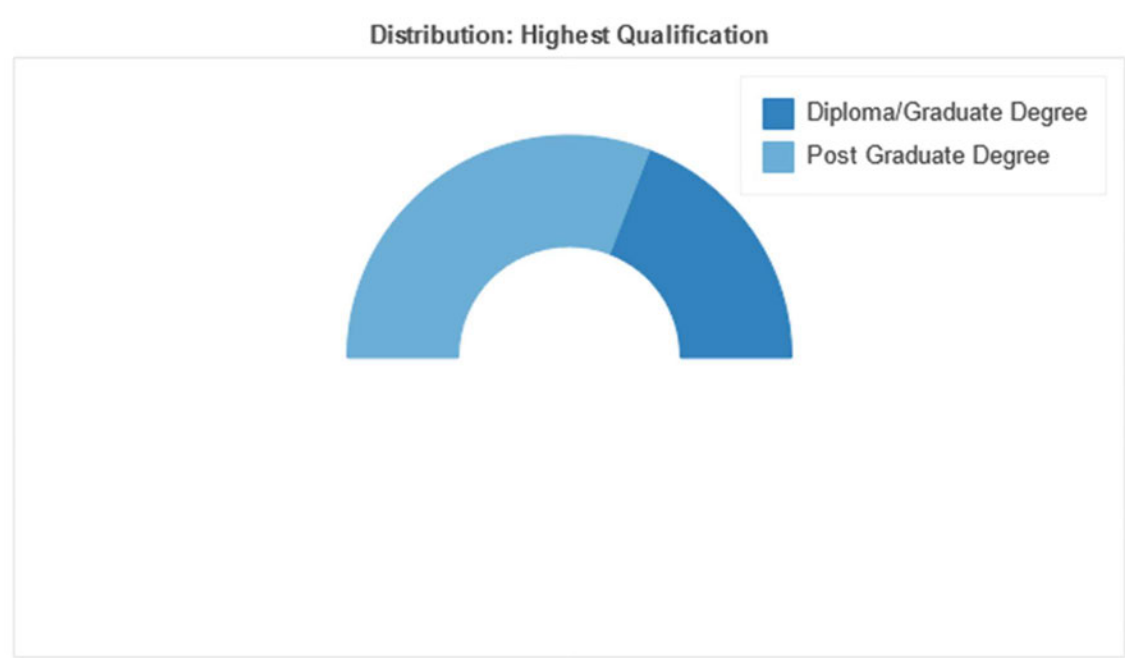
We remind the reader that snowball sampling was implemented. Due to this sampling methodology - the typical respondents are naturally prone to not be independent of one another, and are hence, relatively clustered similar in their demographic.

This will be explored in more depth through this section.

Of the 81 final participants, 31 held a Diploma or Graduate degree; and the majority (50) held a Post Graduate degree. This ranged from Honours, to Masters or Doctorate. The only distinction of interest in this study was the existence of extended studying

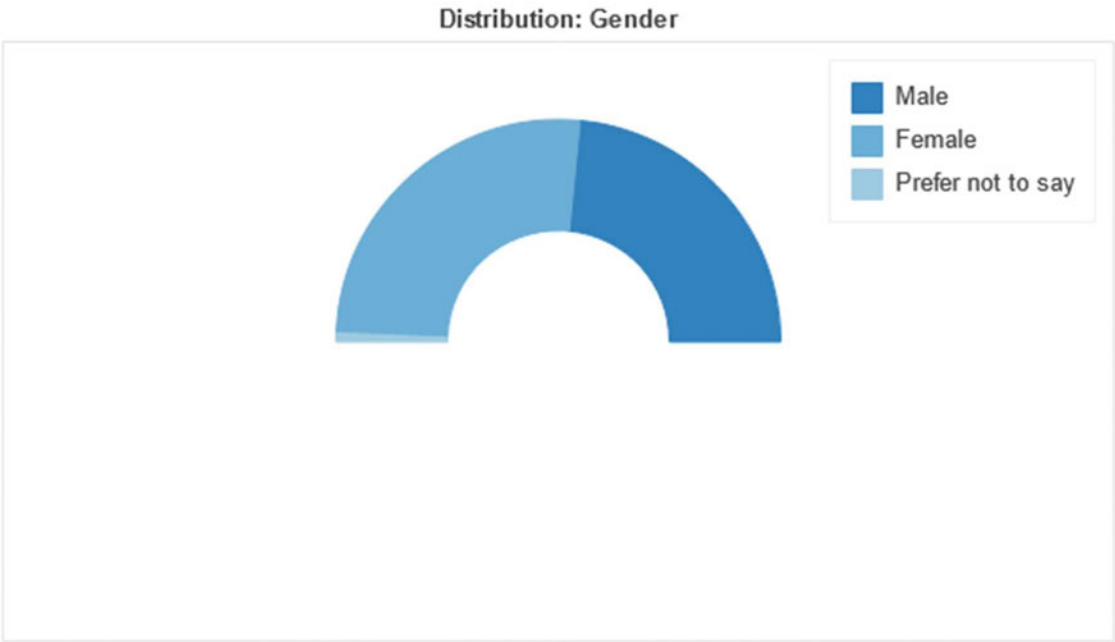
beyond the initial qualification - the initial qualification, being a requirement to be a part of this study.

Figure 14 Distribution: Highest qualification



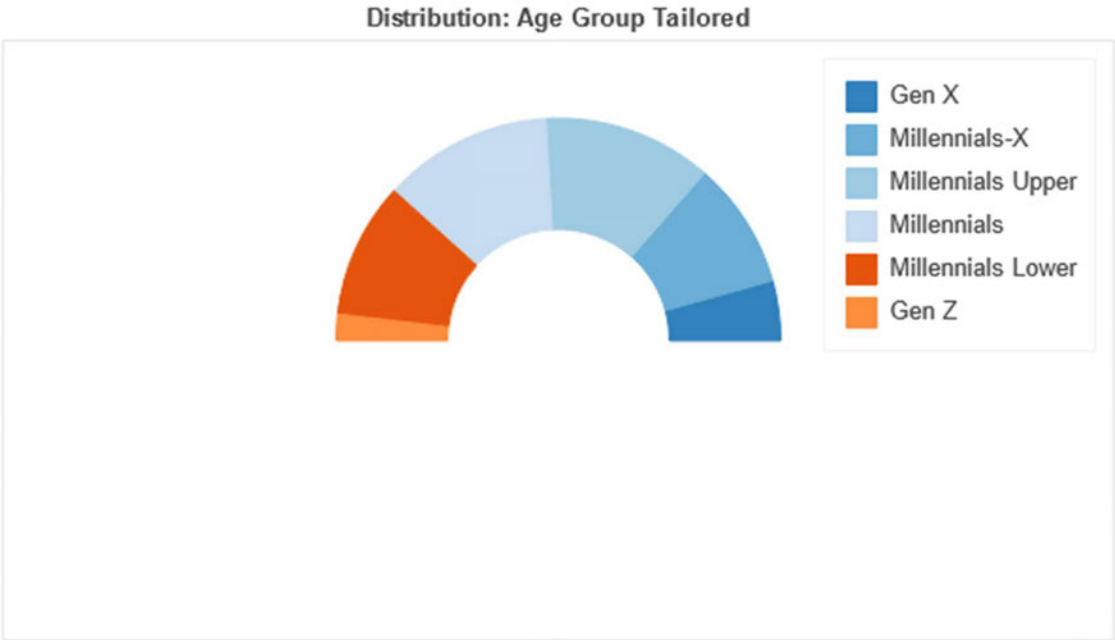
There was a roughly even gender split, with 42 males and 38 females participating. Differences in gender dynamics would be of interest when assessing shopping habits and may impact branding directives. The good representation of both males and females will allow for statistical significance to be reliably calculated for the differences seen across genders.

Figure 15: Distribution: Gender



As described in the Feature Engineering section, age group available was not immediately useful due to the. The age spread was divided into more equal groupings, leaving us with the spread indicated below:

Figure 16: Distribution: Age group tailored



One of the more controversial topics to be able to gather data on - is salary bands. Through this process, we have been extremely fortunate that the participants were willing to disclose salary bands, due to the anonymity of the survey. When considering online shopping, we can theorise approximately, that salary will impact online shopping accessibility due to a higher disposable income, and a higher likelihood to have been exposed to technology. However, since the sample is restricted to graduates, there may be an assumption of technological exposure from all - so the question as to whether salary (amongst *graduates*) impacts engagement with online shopping will be interesting to assess.

Figure 17: Distribution: Income group (Before tax)

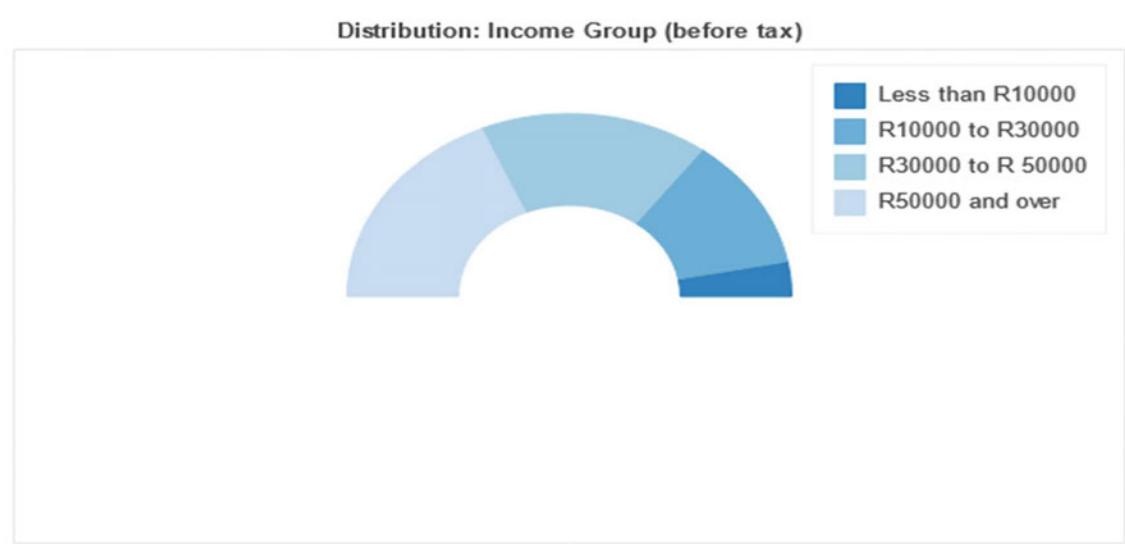
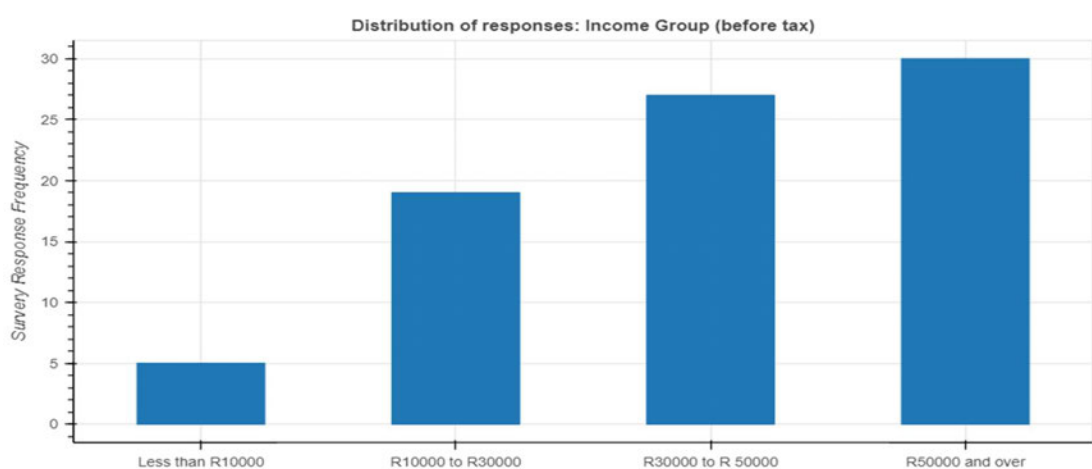


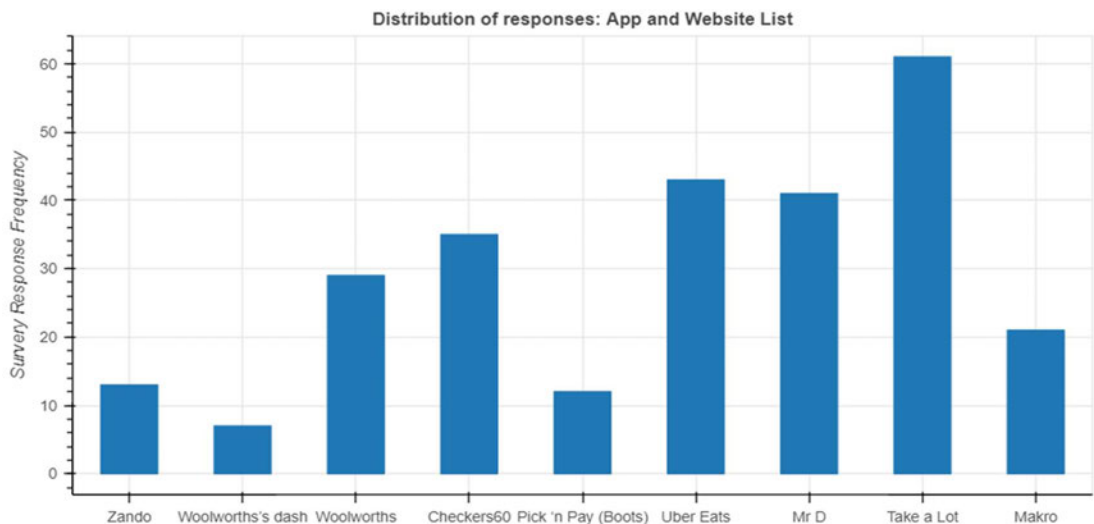
Figure 18 Distribution of responses: Income group (Before tax)



5.4.2 Online Shopping

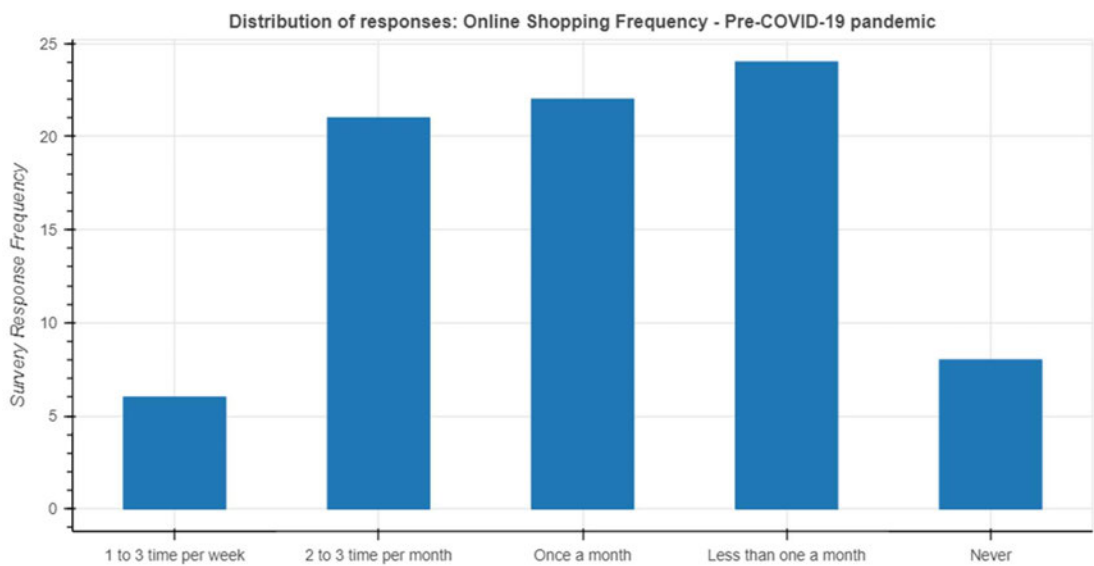
A variety of online stores are accessed by our sample. This extends across both mobile apps, and websites. The majority (at 75.3%) of participants use Takealot, with a large gap to the second most popular, (at 53.1%) being the take-out app UberEATS.

Figure 19 Distribution of responses: App and website list



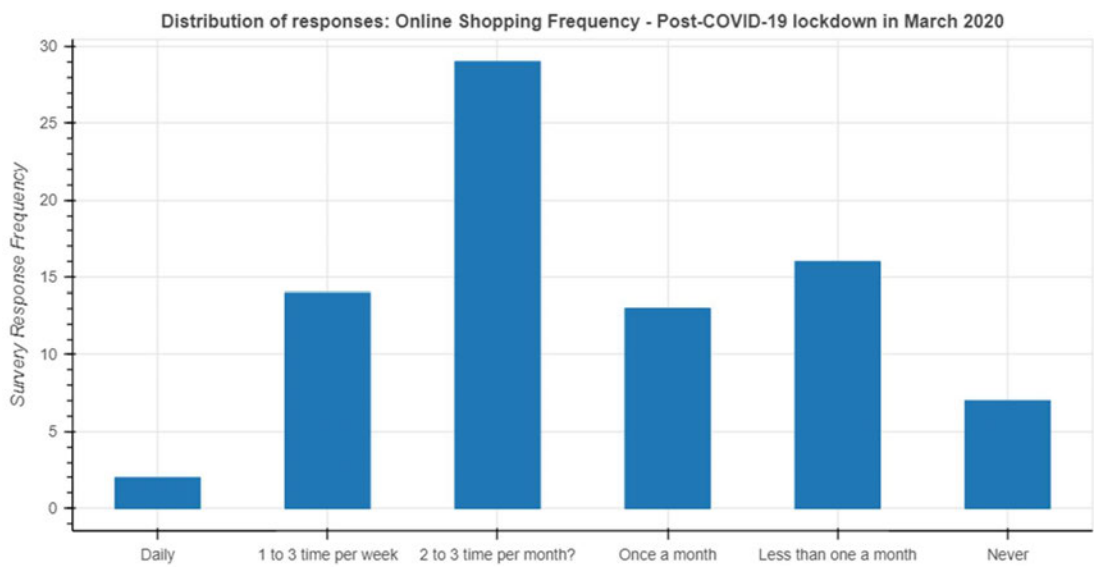
When we investigate further, we see that prior to the pandemic online shopping was an activity which was not associated with “regular” shopping, as only 7.4% of the surveyed individuals would shop on a weekly basis.

Figure 20 Distribution of responses: Online shopping frequency - pre-COVID 19 pandemic



Following COVID-19 entering the survey participant’s lives, there was a notable uptick in engagement, with a 250% increase in likelihood to be doing weekly shopping online, as we jump from 6 to 21 in the weekly count, and only 21 participants i.e., roughly a quarter (25.9%) did not use online shopping on a monthly basis of more frequently.

Figure 21 Distribution of responses: Online shopping frequency - post-COVID 19 lockdown March 2020



Participants were tasked with assessing 10 sentiments and providing feedback. The feedback has been transformed and aggregated into a numerical score, between -1 for “Totally Disagree” to +1 for “Absolutely Agree”.

Table 23 Weighted sentiment towards online shopping

Sentiment	Sentiment Score
Shopping online saves time	0.67
It is a great advantage to be able to shop at any time of the day	0.79
I prefer traditional shopping to online shopping	0.06
Online shopping is risky due to fraud	0.11
The delivery cost for online shopping is high enough to deter me from spending	-0.02
I do not find sufficient information online about products	-0.09
When shopping online, I hesitate to give my credit card details	0.07
It is easy to make comparisons with other retailers when shopping online	0.50
The website layout helps me in searching for the right product online	0.49
Supermarkets do not make shopping for groceries online easy	0.04

It is clear that there is a high affiliation to online shopping, for the purposes of flexibility, and convenience. Online shopping is finding resistance as well - in that not all participants are secure and find the process safe and user friendly. This is an opportunity for businesses who have extended themselves into online shopping - to improve their online presence.

5.5 Multivariate analysis

In this section of the analysis, we look to decipher how various groups engaged differently. There are three key factors which are going to be investigated:

1. Millennials (or more specifically, our tailored age-groups)
2. Gender
3. Salary

To understand possible differences across each level for the 3 key factors above, we will begin by looking into the forward-looking perspective across the levels. In this, we see who has been convinced disproportionately, that online shopping is a positive (indicated by an unlikely perception of opting to revert to traditional shopping). There is neither a gender-difference; nor a generational difference, in desirability to continue shopping online vs returning to a traditional in-store shopping.

Figure 22 Distribution of responses: Gender by reversion to traditional shopping

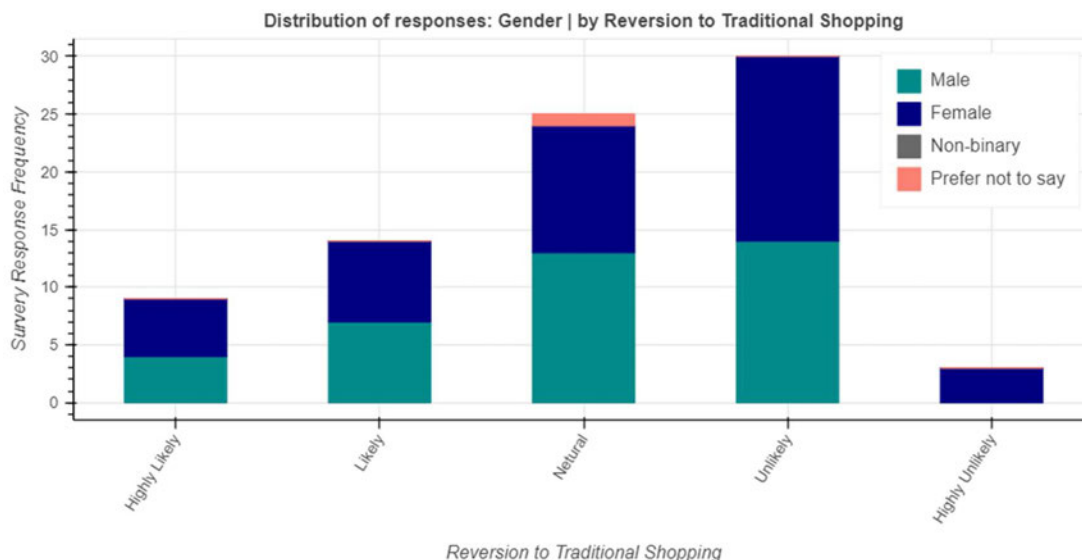
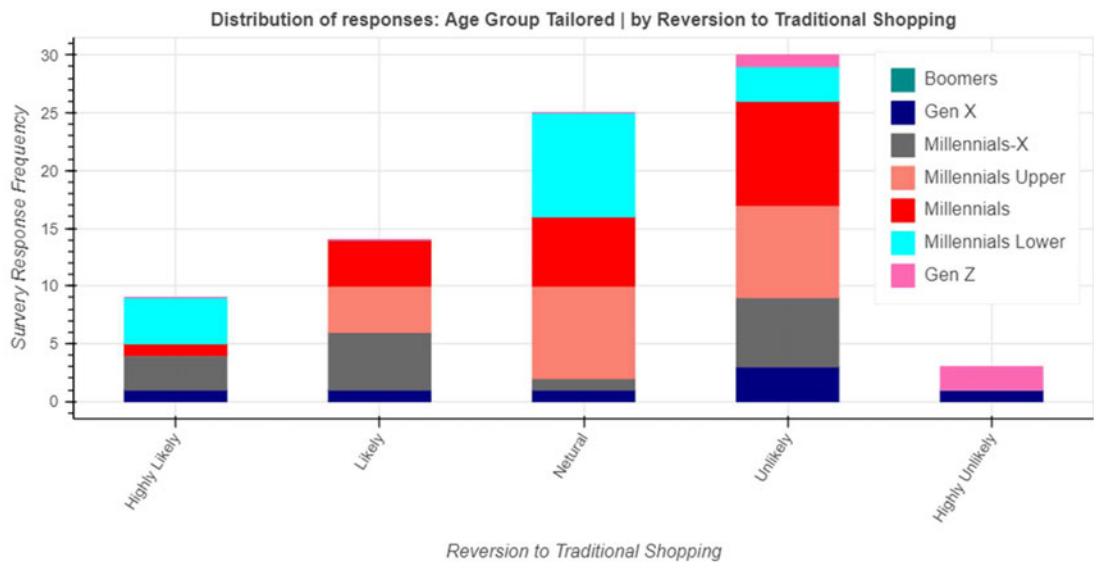
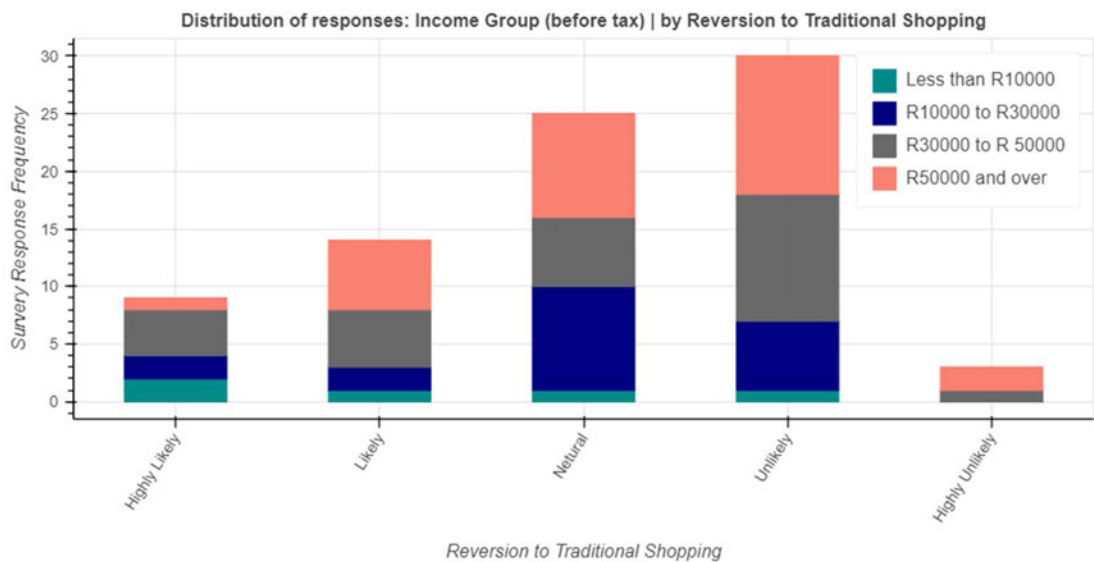


Figure 23 Distribution of responses: Age group tailored by reversion to traditional shopping



Individuals with a higher income were benefited by the shift to online shopping, as seen by their higher propensity to be “unlikely” to wish to revert back to traditional shopping in a post-COVID world.

Figure 24 Distribution of responses: Income group (before tax) by reversion to traditional shopping



The gender-based differences stand out in online shopping categories - with females being marginally more likely to purchase in any category than men (with the exception of electronics).

In the more extreme case - we see that 73.8% of female responders (31 of 42) doing clothing shopping online, relative to a fraction of male responders, 28.9% (11 of 38) doing clothes shopping online. This category is shown below, alongside books which females were more prone to purchasing.

Figure 25 Distribution of responses: Gender by online shopping categories



One of the initial hypotheses we have, was that millennials would be faster, and more reactive to shifts in the digitisation process (stores going online). The shift we see, is indeed an uptick in interest in shopping online - with a large increase, across all “tailored millennial” groups, to online shopping more frequently.

Figure 26 Distribution of responses: Age group tailored by online shopping frequency - pre-COVID 19 pandemic

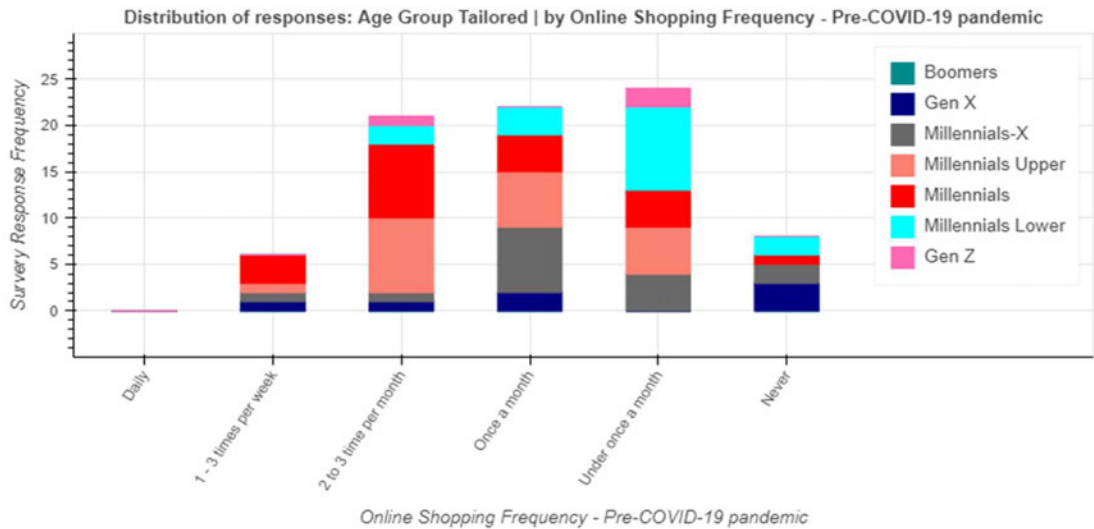
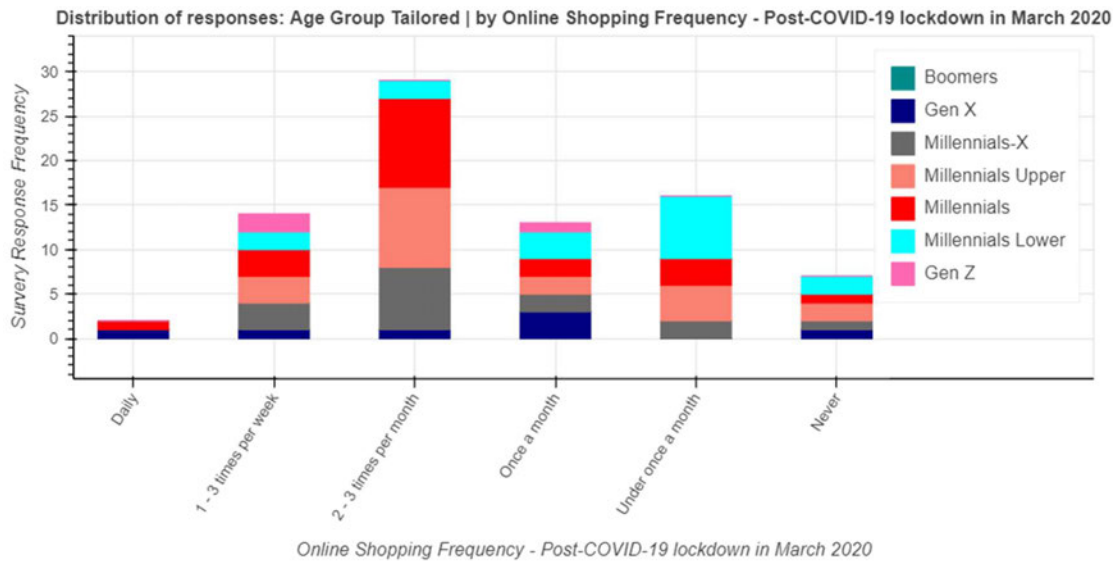


Figure 27 Distribution of responses: Age group tailored by online shopping frequency - post-COVID 19 lockdown in March 2020



For the final section of the multivariate analysis, we revert to the definitions of the age groups, with “Millennials” classified as falling into the age group between 24 - 40 years old. There were 5 millennials who never shopped online prior to the start of the pandemic. Contrary to logic - this number increased to 6, after the start of COVID.

Even if the survey participant incorrectly understood the question and provided a data capturing error - the statement stands that Millennials did not interact with online shopping for the first time as a result of COVID, but they have increased their frequency, with the typical number of online shopping occurrences rising from less than once a month, to 2-3 times per month.

Interestingly, the opposite is true for Generation X. There was no increase in frequency of online purchases, but there were 2 individuals (2 out of 7 is a whopping 29%) who used online shopping for the first time as a result of COVID.

Figure 28 Distribution of responses: Online shopping frequency - pre-COVID 19 pandemic by age group

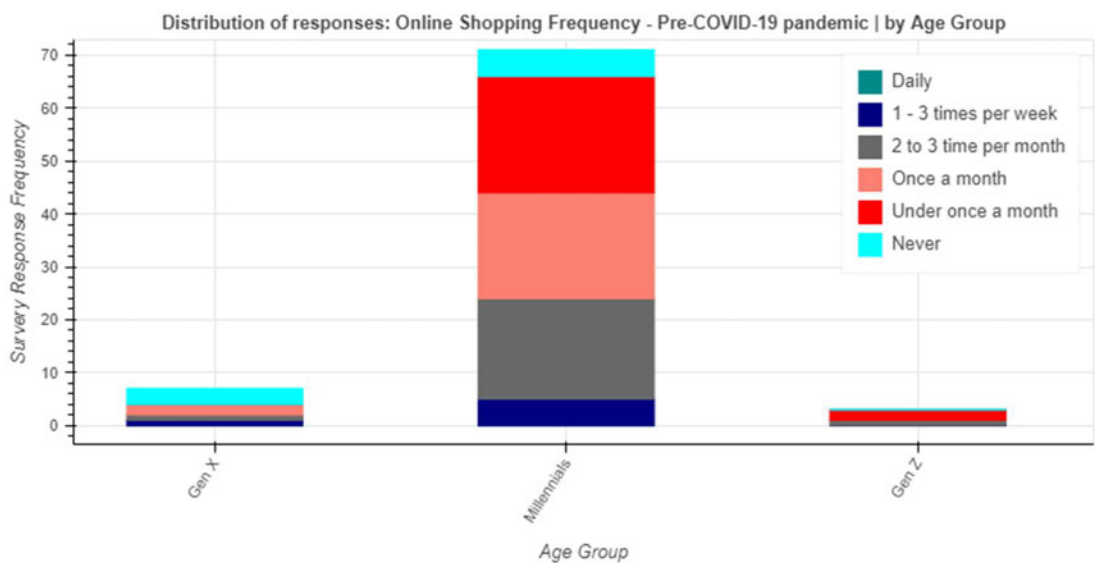
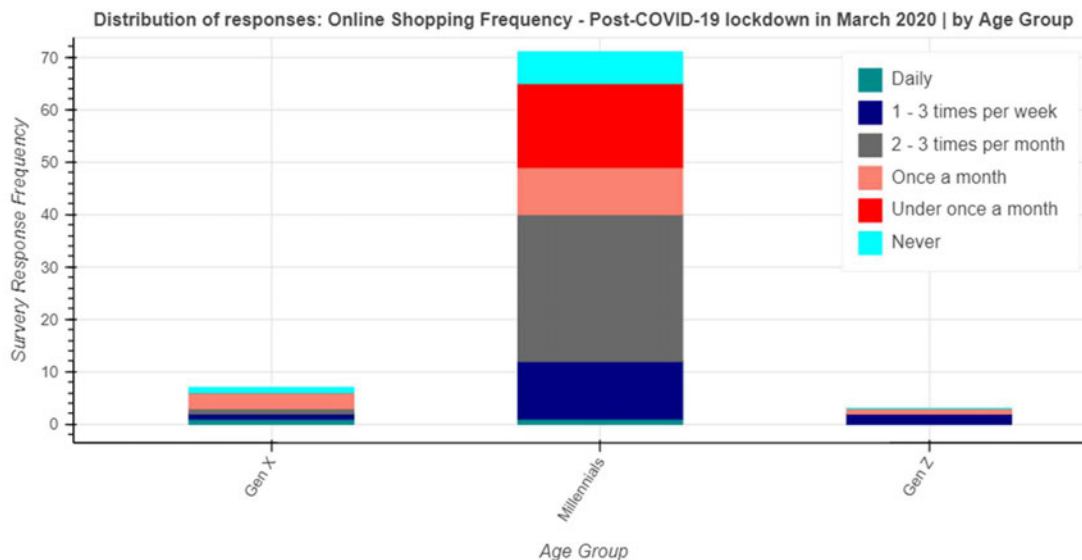


Figure 29 Distribution of responses: Online shopping frequency - post-COVID 19 lockdown in March 2020 by Age group



5.6 Statistical analysis

In this section we introduce the tests, which is used to determine independence, the steps to implementing the test as well the variables which the test is being applied to.

Purpose of the Chi-squared test

The purpose of the Chi-Squared test of independence is to determine if a difference in observed counts in a variable of interest (depending on the value a second variable takes) are due to chance, or whether they are due to a relationship between the variables. In the same way that the *Pearson correlation* can be calculated between numeric variables to quantify their relationship, so too the *Pearson Chi-square* test of independence allows us to calculate a statistical measure of the relation between variables.

For the Chi-squared test of independence, we will have two variables, and we construct a contingency table across the combined levels of the variables. At a high-

level, we are assessing the distribution of variable A, and seeing if the distribution changes depending on the level of variable B.

There are 7 steps in the Chi-squared test:

1. Construct the null hypothesis and alternative hypothesis:
 - a. H_0 : Variable A and variable B are independent (no association)
 - b. H_1 : Variable A and variable B are not independent (association exists)
2. Construct a contingency table from the data - which will provide the observed cell counts
3. Calculate the expected cell counts, under H_0
 - a. For each row k , and column j : the k^{th} category of variable A and j^{th} category of variable B, we calculate the expected observations
 - b. The expected value is the row total, multiplied by the column total, divided by the grand total.
 - c. Mathematically, this is calculated as follows: $E_{jk} = \frac{\sum_j O_{jk} \times \sum_k O_{jk}}{\sum_{jk} O_{jk}}$

4. Calculate the test statistic:

$$\chi^2 = \sum_{i \in G} \frac{(O_i - E_i)^2}{E_i}$$

O_i = observed value

E_i = expected value

G = Variable groups

5. Calculate the Chi-square degree of freedom $(r - 1)(c - 1)$
6. Calculate the Chi-square p-value as $P(\chi^2 > \chi^2_{(r-1)(c-1)})$
7. Conclude a rejection, or failure to reject, the null hypothesis

The calculation from a Chi-squared test will allow for the assertion that categorical variables are not independent of one another, if the null hypothesis is rejected through the test.

The Chi-squared test has the following assumptions:

- Two variables are used, which are measures categorically
- When the contingency table is constructed, the data in the cells should be frequencies, or counts
- Cells in the table are mutually exclusive
- Values in the cells should be greater than 5 in at least 80% of cells
- As with most statistical tests, there is an assumption of random sampling, and when this assumption is violated, in order to retain confidence in the result, several replication studies should be performed with similar results being obtained.

Variables being tested

There are 3 tests being implemented. We will break down the steps and calculations in detail as we work through them over the calculation section.

- Pre-COVID shopping habits (frequencies) vs age
- Post-COVID shift in habits (frequencies) vs age
- Post-COVID shift in timing of shopping online vs age
- Perception of future shopping-based vs age

For the questions to be answered, two variables were engineered to allow for the flexibility to do this. The first is age groups - to ensure that there was an adequate representation in the age groups. The restriction of having the majority of cells populated with a count greater than 5 does not allow for “millennials vs others” but we

are able to partition ages into three roughly equal groups at the division of individuals younger than 33, between 33 and 38, and over 38.

The second variable was the construction of the “shifts” in which a direct comparison was made between Questions 9 and 10 (pre- and post-COVID frequencies) as well as questions 13 and 14 (pre- and post-COVID timings of purchases).

5.7 Statistical calculations:

5.7.1 Test 1: Pre-COVID shopping habits vs age

2. Construct the null hypothesis and alternative hypothesis:
 - a. H_0 : Age groups and online shopping frequencies prior to COVID are independent
 - b. H_1 : Online shopping frequencies
3. Construct a contingency table from the data - which will provide the observed cell counts

Observed Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Infrequently / never	14	8	9	31
Once a month	4	9	9	22
Several times per month	10	13	4	27
Grand Total	28	30	22	80

4. Calculate the expected cell counts, under H_0
 - a. For each row k , and column j : the k^{th} category of variable A and j^{th} category of variable B, we calculate the expected observations

b. The expected value is the row total, multiplied by the column total, divided by the grand total.

c. Mathematically, this is calculated as follows: $E_{jk} = \frac{\sum_j O_{jk} \times \sum_k O_{jk}}{\sum_j O_{jk} \sum_k O_{jk}}$

Expected Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Infrequently / never	10.85	11.625	8.525	31
Once a month	7.7	8.25	6.05	22
Several times per month	9.45	10.125	7.425	27
Grand Total	28	30	22	80

5. Calculate the test statistic:

$$\chi^2 = \sum_{i \in G} \frac{(O_i - E_i)^2}{E_i} = 15.715$$

6. Calculate the Chi-square degree of freedom $(r - 1)(c - 1) = (4 - 1)(3 - 1) = 8$

7. Calculate the Chi-square p-value as $P(\chi^2 > \chi^2_{(r-1)(c-1)}) = 0.0466$

8. We reject the null hypothesis at the 5% significance level and conclude that there is a significant difference between the distribution of shopping frequencies prior to COVID.

5.7.2 Test 2: Post-COVID shift in frequency vs age

2. Construct the null hypothesis and alternative hypothesis:
 - a. H_0 : There is no difference in the shift of online shopping frequency across age groups
 - b. H_1 : Different age groups shifted their online shopping habits differently to one another
3. Construct a contingency table from the data - which will provide the observed cell counts

Observed Frequencies				
Shopping frequency	15 ≤ x < 33	33 ≤ x < 38	38 ≤ x	Grand Total
Increased frequency	13	13	16	42
Same or lower frequency	15	17	6	38
Grand Total	28	30	22	80

4. Calculate the expected cell counts, under H_0
 - a. For each row k , and column j : the k^{th} category of variable A and j^{th} category of variable B, we calculate the expected observations
 - b. The expected value is the row total, multiplied by the column total, divided by the grand total.
 - c. Mathematically, this is calculated as follows: $E_{jk} = \frac{\sum_j O_{jk} \times \sum_k O_{jk}}{\sum_{jk} O_{jk}}$

Expected Frequencies				
Shopping frequency	15 ≤ x < 33	33 ≤ x < 38	38 ≤ x	Grand Total
Increased frequency	14.7	15.75	11.55	42
Same or lower frequency	13.3	14.25	10.45	38
Grand Total	28	30	22	80

5. Calculate the test statistic:

$$\chi^2 = \sum_{i \in G} \frac{(O_i - E_i)^2}{E_i} = 5.034$$

6. Calculate the Chi-square degree of freedom $(r - 1)(c - 1) = (3 - 1)(2 - 1) = 2$
7. Calculate the Chi-square p-value as $P(\chi^2 > \chi^2_{(r-1)(c-1)}) = 0.081$
8. We reject the null hypothesis at the 10% significance level and conclude that there is a significant difference in the shifts of the distribution of shopping frequencies, from prior to COVID. We would not be able to reject the null hypothesis at the 5% significance level, so we interpret the shifts as less consistent than the consistent differences in online habits pre-COVID.

5.7.3 Test 3: Timing of shopping vs age

1. Construct the null hypothesis and alternative hypothesis:
 - a. H_0 : There is no difference in the shift of online shopping timing across age groups
 - b. H_1 : Different age groups shifted their online shopping timing differently to one another
2. Construct a contingency table from the data - which will provide the observed cell counts

Observed Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Same timing	10	16	7	33
Shift in timing	18	14	15	47
Grand Total	28	30	22	80

3. Calculate the expected cell counts, under H_0
- For each row k , and column j : the k^{th} category of variable A and j^{th} category of variable B, we calculate the expected observations
 - The expected value is the row total, multiplied by the column total, divided by the grand total.
 - Mathematically, this is calculated as follows: $E_{jk} = \frac{\sum_j O_{jk} \times \sum_k O_{jk}}{\sum_{jk} O_{jk}}$

Expected Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Same timing	11.55	12.375	9.075	33
Shift in timing	16.45	17.625	12.925	47
Grand Total	28	30	22	80

4. Calculate the test statistic:

$$\chi^2 = \sum_{i \in G} \frac{(O_i - E_i)^2}{E_i} = 2.969$$

5. Calculate the Chi-square degree of freedom $(r - 1)(c - 1) = (3 - 1)(2 - 1) = 2$
6. Calculate the Chi-square p-value as $P(\chi^2 > \chi^2_{(r-1)(c-1)}) = 0.226$

7. We fail to the null hypothesis even at the 10% significance level and conclude that there is no significant difference in the shifts of the timing at which different age groups shop online.

5.7.4 Test 4: Perception of future shopping-based vs age

2. Construct the null hypothesis and alternative hypothesis:
 - a. H_0 : There is no difference in the perception different age groups have in terms of how their future shopping habits will look, relative to their pre-COVID habits
 - b. H_1 : Different age groups have a different outlook on how COVID will impact their future shopping habits, relative to their pre-COVID habits
3. Construct a contingency table from the data - which will provide the observed cell counts

Observed Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Anticipate heightened return to traditional shopping	8	8	8	24
Anticipate lower return to traditional shopping	20	22	14	56
Grand Total	28	30	22	80

4. Calculate the expected cell counts, under H_0
 - a. For each row k , and column j : the k^{th} category of variable A and j^{th} category of variable B, we calculate the expected observations
 - b. The expected value is the row total, multiplied by the column total, divided by the grand total.
 - c. Mathematically, this is calculated as follows: $E_{jk} = \frac{\sum_j o_{jk} \times \sum_k o_{jk}}{\sum_{jk} o_{jk}}$

Expected Frequencies				
Shopping frequency	15 <= x < 33	33 <= x < 38	38 <= x	Grand Total
Anticipate heightened return to traditional shopping	8.4	9	6.6	24
Anticipate lower return to traditional shopping	19.6	21	15.4	56
Grand Total	28	30	22	80

5. Calculate the test statistic:

$$\chi^2 = \sum_{i \in G} \frac{(O_i - E_i)^2}{E_i} = 0.610$$

6. Calculate the Chi-square degree of freedom $(r - 1)(c - 1) = (3 - 1)(2 - 1) = 2$
7. Calculate the Chi-square p-value as $P(\chi^2 > \chi^2_{(r-1)(c-1)}) = 0.737$
8. We fail to the null hypothesis even at the 10% significance level and conclude that there is no significant difference in how COVID is perceived to impact the future shopping behaviour, relative to age.

6. Discussion of Results

In the previous chapters the results from the research conducted were presented and the data was analysed. The primary data that was collected was quantitative in nature. The data was collect based on the methodology that was outlined in Chapter three for the purpose of this research paper, which was to answer the research question presented in the first chapter. In this chapter, the results of the research will be discussed in relation to the theoretical framework identified in Chapter two and the research problem outlined in Chapter one.

6.1 Research Questions

The problem statement outlined in the first chapter was formulated to gain a better understanding of the prospective changes in millennials behaviour post COVID 19. Therefore, the following research question were developed,

1. Will graduate millennials continue to shop online or are they expected to return to brick and mortar establishments once the COVID pandemic is over?
2. Has the pandemic resulted in a permanent change in buying patterns?
3. How are graduate millennials finding the online shopping experience?
4. Can the online shopping experience be improved?

Question 1 and 2 deals with the changes of consumer behaviour and buying patterns of gradate millennials in South Africa once the danger of the pandemic passes while question 3 and 4 deal with their sentiment towards online shopping.

6.2 Question One: Will graduate millennials continue to shop online or are they expected to return to brick and mortar establishments once the COVID pandemic is over?

In order to answer this question, a hypothesis was created in which the relationship between age and frequency of online shopping pre and during COVID 19 were explored, as discussed in the previous chapter. The first hypothesis tested the relationship between pre-COVID 19 shopping habits (frequencies) vs age. The null hypothesis was rejected with a p value of 0.0466 which indicates a significant relationship at a 5% cut off level. This implies that there is a significant difference between distribution of shopping frequencies prior to COVID 19.

The second hypothesis tested the relationship between post-COVID 19 shifts in frequency vs age. The null hypothesis was rejected with a p value of 0.081 which indicates a significant relationship at a 10% cut off level. It can be concluded that there is a significant difference in the shifts of the distribution of shopping frequencies, from prior to COVID 19. We would not be able to reject the null hypothesis at the 5% significance level, so we interpret the shifts as less consistent than the consistent differences in online habits pre-COVID.

The results of this indicate that there has been a shift in consumer behaviour toward online shopping since the start of the pandemic. Individuals have increased the frequency of their online shopping habits. This relates to the MOCA theory developed by Guzzo, Ferri and Grifoni, (2016), discussed in chapter two. One of the enablers of ecommerce is social influences. The government had imposed a “lock-down” on the movement of individuals.

This lockdown can be represented by one of the three main features of social influences, namely, authority. Authority is when a legitimate power, in this case, the government, has the power to control behaviour, which they did, via the lockdown. As

a result of this social influence, the behaviour of graduate millennials was forced to change.

When analysing the frequency data, it is clear that there was an uptick of 250% in the frequency of respondents that engaged in online shopping once the pandemic has started by shopping online at least weekly. Most respondent (65.43%) indicated that they are likely to revert back to traditional establishment once the pandemic is over, however, to a lesser extent than before the pandemic with (60.49%). This therefore means, the growth in online shopping will continue.

These results also speak to the ETAM model of hedonistic construct, which indicate that consumer want instant gratification. Once they see the convenience and ease of online shopping, they will continue to shop online.

A hypothesis testing age and perception of future shopping was conducted. The P value was 0.737. At this level we could not fail the null hypothesis even at a 10% significance level. This indicates there is no significant difference in how COVID is perceived to impact the future shopping behaviour, relative to age.

6.3 Question Two: Has the pandemic resulted in a permanent change in buying patterns?

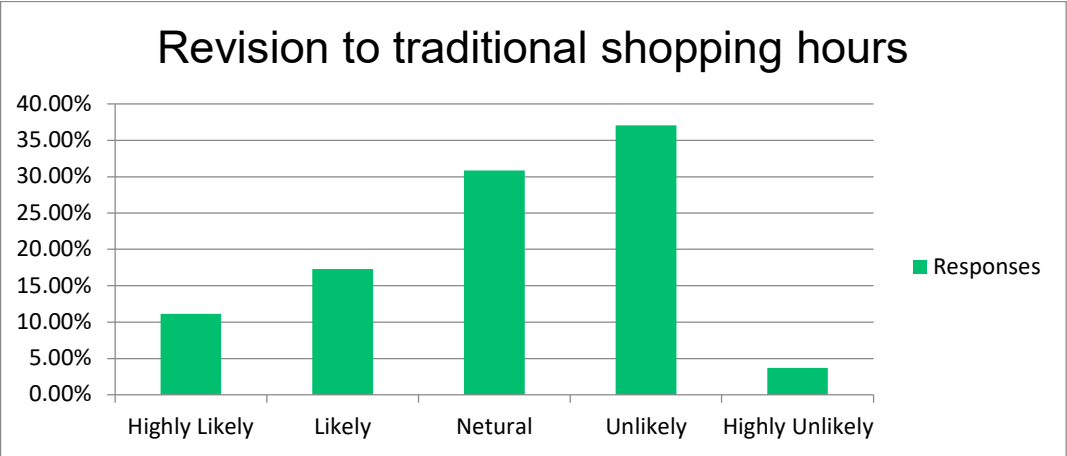
Buying patterns refers to the timing of consumer purchases. To answer this question, the researcher looked at frequency analysis of the changes in the timing of shopping pre and during COVID 19. Pre COVID 19, most of the respondents did their shopping during traditional shopping hours, namely, after work and weekends with 71.70% indicating so.

A hypothesis testing age and timing of shopping was conducted. The P value was 0.226. At this level we could not fail the null hypothesis even at a 10% significance

level. This indicates that there is not difference in the shifts of the timing at which difference aged millennials shop online

During COVID 19, the majority of respondents (60.60%) indicated that they do their shopping either anytime or during working hours.

Figure 30 Revision to Traditional Shopping



When asked whether they will revert back to traditional shopping hours, most responses where between neutral and unlikely. The majority (40.75%) indicated they were unlikely to highly unlikely, 30.86% were neutral and 28.39% where likely to highly likely. This represents a shift in consumer buying patterns away from traditional shopping hours of graduate millennials in South Africa.

This relates to the perceived usefulness of the MOCA theory of the enablers of ecommerce. Perceived usefulness is the level to which the new technology will enhance performances (Davis,1989). With the ability to shop anytime and anywhere, together with the convenience of not having to travel to the store, consumer save time, and money.

6.4 Question Three: How are graduate millennials finding the online shopping experience?

Respondents were asked question about their online shopping experience. The results of these question were listed in chapter 4 and analysed in chapter 5. The data indicated that respondent have a high affiliation to online shopping. They are attracted to the flexibility and convenience.

This is consistent with the enablers of the MOCA theory as proposed by Guzzo, Ferri and Grifoni, (2016). Satisfaction is the level the consumers feeling about past experiences. It is clear that respondents were happy with the past experiences of ecommerce.

Some of the main concerns raised during the survey by respondents are the delivery fees, pricing, security, and stock availability. Guzzo, et al, (2016) stated as one of the enablers of ecommerce is perceived risk and trust. Payment security is a concern for millennials who engaging in ecommerce. Trust also plays a role in the adoption of ecommerce.

The larger companies such as Naspers (Take a Lot and MrD) and Uber seem to have a larger market share since these companies are well known in South Africa hence is trusted more. Take a Lot (previously Kalahari.net) in particular has a high affiliation to consumer being one of the oldest ecommerce platforms in South Africa. The larger supermarket chains have just entered this space with their delivery service.

6.5 Question Four: Can the online shopping experience be improved?

When looking at the main reason prohibiting online purchased, free delivery is the most common reason. Ease of use, pricing, stock availability and security are other notable reasons prohibiting online purchasing

Respondent indicated areas which they believe to be critical for the success of ecommerce stores. Payment security is regarded as the most important criteria when engaging in ecommerce. As discussed in the previous question regarding perceived risk as an important enabler of ecommerce. Delivery, both cost and times are the second most important criteria.

When asked what ecommerce companies could do to encourage more online shopping, free delivery was the most suggested response. The other notable responses were security, stock availability, ease of use and pricing. Therefore, these are ways for the online shopping experience to be improved.

7.Conclusion

7.1 Key findings

The author has been able to determine that the sample of graduate millennials have been impacted by COVID and they are all aware of it, however, the engagement with online shopping has been noted to be statistically different in some areas. The key findings which were extracted from the survey participants, is that there was a statistically significant difference in the pre-COVID engagement with online shopping, and there was a statistically significant shift in online shopping frequency. From the differing starting point across the groups, the older of the three age groups was the most prone to shift in their uptake (or increase) of online shopping. There appears to be a consistent impression across the age groups, of what the future looks like. 70% of the participants indicated that they anticipated a lower return to traditional shopping, as opposed to prior to the pandemic, and this feeling did not differ across the age groups.

Across graduates, general awareness of online shopping, and of technology has not been raised as a concern at all. So, it seems as though having tertiary-level critical decision-making ability may be a correlated factor with general awareness and tech-savviness. What has been mentioned as a deterrent, Gen-X has indicated that the difficulty in returning an item; as well as liking to “see and touch” products are key drivers for their comfort. In addition, safety concerns have come up with a few of the older participants. The shared issue with millennials, interestingly, is issues in returning an item.

Unlike other generations, millennials are comfortable to shift back to purchasing in store or remain as we operate now. The key elements millennials prioritise is convenience and related concepts, such as delivery times. There is less concern from millennials for the “price”, as there is likely an innate trust of a store’s online systems to resemble their systems in-store.

Millennials are known as the generation who moved with technology - growing up with the big developments and innovations of the web, personal computing, and mobile technology. Due to the exposure millennials have continuously had to use technology - there appears to have been no impact from COVID on introducing new behaviour to this group. What has happened however, is that millennials have adapted, and they have adapted much faster, and done so with much more comfort, than the generation above them.

User experience is an element which is prohibitive for older generations but is (if anything) even more valued by millennials, who are convenience oriented. Where awareness, advertising, and security are critical for the older generations, the elements which are noted to be detrimental to millennial preference of online shopping are:

- A website which is not user-friendly
- Delivery costs
- Incentives (online discounts)

7.2 Theoretical Implications

This study utilized the Model of Technology Adoption to discuss the results that were presented in chapter 5 and 6. Additionally Consumer Behaviour Models, the Buying Decision Process and the Dynamic Consumer Journey were discussed to gain a better understand of consumer behaviour and buying pattern.

This research paper contributes to the fields of e-commerce, technology adaptation, consumer behaviour and buying patterns. The finding in the previous chapter is consistent with prevailing literature, this study contributes to a broader theory by focusing on changes in consumer behaviour and buy patterns of gradate millennials

in South Africa post the pandemic. The study was undertaken to investigate these changes, what can be done to drive change and what prohibits these changes (Bush and Genetic, 2015).

A theoretical contribution was made by testing the Model of Technology Adoption (MOCA) as developed by Guzzo, Ferri and Grifoni, (2016) to graduate millennials adoptions to ecommerce due to the pandemic. The study confirmed the enablers of ecommerce to encourage a greater adoption of technology, particularly ecommerce.

7.3 Recommendations for Management

This research paper has important implication for management. For starters, Ecommerce adoption is growing. It has always been projected to grow; however, the pandemic has accelerated the growth, with online retail share of total sales increasing by 3% in a 2020 (UNCTAD, 2021). Traditional retailers need to invest and develop e commerce capabilities.

There is a clear hindrance for online shopping to fully take-off - and it is a hindrance as opposed to antagonism, as there is a neutral score. Online stores have the opportunity to increase their customer engagement and spend - if they manage to beat their competitors in enhancing a customer-oriented value proposition.

Based on the finding of the research paper, it is clear that management need to focus on three key areas in order to realise the full potential of an online store. These being a user-friendly interface to facilitate ease of use, any business able to provide sufficient information about the products, especially for complicated products, and an exceptional supply chain infrastructure to ensure the last mile delivery is both cost effective, efficient, and is able to secure products at competitive pricing so that this

can be pass on to consumers, as well as assure customers of the safety of online shopping, will be able to acquire a higher online shopping revenue stream

7.4 Suggestions for future studies

Future research will benefit by broadening the scope of the study to include other generation. This will provide a greater understanding of the ecommerce environment in South Africa. Research could also be conducted on each category in the retail environment to provide these sectors with better information to make decisions.

With a sample size of 81, which as adequate for this study based on the time constraints, future studies could increase the sample size from a more diverse location of respondents throughout South Africa to provide a more representative perspective. Additionally, the snowballing technique was utilised for this study, which resulted in clustering sample size. Future studies could look at a more representative sampling technique.

7.5 Limitations of Study

The final sample participant counts being at 81 means that subdividing the group into smaller subsets is extremely challenging, and conclusions for smaller sub-groups cannot be made in several circumstances when the groups are too small. No reliable conclusions can be drawn for the groups Generation Z, as well as individuals with Income levels below R10,000, amongst others.

Due to the snowball sampling - we had little control over the inclusion, and exclusion of demographics. There was a large skew of the data to KZN, with over 70% of participants from this area. In addition, there was a low representation of younger

millennials, as well as very few Generations Z, who may be the most prone to using technology.

Analysis is limited to the scope of the population represented by the sample gathered, and snowball methodology is limited in generalizability of results. It is not possible to determine upfront the generalisability of these findings to “all graduates”, but it is possible to use these findings to understand some of the reactions which millennials have to COVID-19, and how some millennials may have shifted their shopping habits. One can create insight sufficient to drive a well-designed survey with stratification across population groups, to repeat this which may be of interest.

Finally, the interpretation of “generational differences” is challenging considering that over 70% of the participants were in the 10-year band of 30 - 39 years old. The survey has indeed been focussed on understanding millennial shifts, but it has been focussed on this group to the extent that a baseline group to compare millennials to, was not well represented.

7.6 Conclusion

The research paper set out to address the research problem that was raised in Chapter 1 and establish how the research objectives were achieved. Consumer behaviour and buying patterns of millennials in South Africa pre, during COVID 19 and the prospective changes post COVID were explored in order to gain a better understanding so that the relevant theories can be tested.

Key theories were identified, such as technology acceptance models and consumer behaviour were discussed in Chapter 2. These were used to interpret and test the results of the survey in Chapters 4, 5 and 6. Key findings and recommendation were given to management based on the findings. The limitation of the research and possible future studies were then presented in chapter 7.

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9. Appendix 1 – Gate Keepers Letter



14 September 2021

Ushir Lakman (SN 202501367)
Graduate School of Business and Leadership
College of Law and Management Studies
Westville Campus
UKZN
Email: 202501367@stu.ukzn.ac.za

Dear Ushir

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN) towards your postgraduate studies, provided Ethical clearance has been obtained. We note the title of your research project is:

"The prospective changes in consumer behaviour and buy patters of graduate millennials due to COVID 19 in South Africa."

It is noted that you will be constituting your sample by handing out questionnaires to students at UKZN (Taking in account the regulations imposed during the lockdown ie restrictions on gatherings, travel, social distancing etc. ZOOM, Skype or telephone surveys recommended).

Please ensure that the following appears on your notice/questionnaire:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using the 'Microsoft Outlook' address book. Identity numbers and email addresses of individuals are not a matter of public record and are protected according to Section 14 of the South African Constitution, as well as the PAIA and POPI Act. For the release of such information over to yourself for research purposes, the University of KwaZulu-Natal will need express consent from the relevant data subjects. Data collected must be treated with due confidentiality and anonymity.

Yours sincerely

Dr KE CLELAND: REGISTRAR

Office of the Registrar

Postal Address: Private Bag X54001, Durban, 4000, South Africa
Telephone: +27 (0)31 260 7971 Email: registrar@ukzn.ac.za Website: www.ukzn.ac.za

Founding Campuses: Durban Pietermaritzburg Westville

INSPIRING GREATNESS

10. Appendix 2 – Survey Questions

1. How old are you?
2. What is your highest qualification?
 - a. Primary School
 - b. High School
 - c. Diploma/Graduate Degree
 - d. Post Graduate Degree
3. What is your gender?
 - a. Male
 - b. Female
 - c. Non-binary
 - d. Prefer not to say
4. What province do you currently reside?
 - a. KZN
 - b. GP
 - c. Western Cape
 - d. Eastern Cape
 - e. Free State
 - f. Limpopo
 - g. Mpumalanga
 - h. Northern Cape
 - i. North-West
5. In this a Metro, Urban, Semi-rural or Rural Environment?
 - a. Metro
 - b. Urban
 - c. Semi-Rural
 - d. Rural
6. What is your work status?
 - a. Employed full time
 - b. Employed part time
 - c. Unemployed/Looking for work
 - d. Unemployed/Not looking for work
 - e. Retired
 - f. Full time student

7. What is your income level before tax?
- a. Less than R10000
 - b. R10000 to R30000
 - c. R30000 to R 50000
 - d. R50000 and over
8. How often did you shop online before the COVID 19 pandemic?
- a. Daily
 - b. 1 to 3 time per week
 - c. 2 to 3 time per month
 - d. Once a month
 - e. Less than one a month
 - f. Never
9. How often do you shop online since the announcement of lockdown restrictions in March 2020?
- a. Daily
 - b. 1 to 3 time per week
 - c. 2 to 3 time per month?
 - d. Once a month
 - e. Less than one a month
 - f. Never
10. How many of the following apps/websites do you use?
- a. Zando
 - b. Woolworths's dash
 - c. Woolworths
 - d. Checkers60
 - e. Pick 'n Pay (Boots)
 - f. Uber Eats
 - g. Mr D
 - h. Take a Lot
 - i. Makro

11. Which of the following categories do you purchase online?

Groceries	Electronics and appliances
Flights	Airtime
Clothing	Utility Bills
Books	Flowers/ Gifts
Household goods e.g., kitchenware	

12. When did you normally do your shopping before COVID 19?

- a. Weekend
- b. After work
- c. Anytime
- d. During work hours

13. When do you do shop during COVID 19?

- a. Weekend
- b. After work
- c. Anytime
- d. During work hours

14. If your shopping habits have changes due to COVID 19, i.e., shopping outside of traditional shopping hours (after work and weekends), how likely are you to go back to the traditional shopping hours?

15. After COVID 19, do you see yourself returning to traditional shopping centres to conduct week/monthly shopping?

- a. Yes
- b. No

16. Please select your level of agreement to the statements below.

Strongly Agree 5 Agree 4 Indifferent 3 Disagree 2 Strongly Disagree 1

- a) Shopping online saves time
- b) It is a great advantage to be able to shop at any time of the day
- c) I prefer traditional shopping to online shopping
- d) Online shopping is risky due to fraud
- e) The delivery cost for online shopping is high enough to deter me from spending
- f) I do not find sufficient information online about products
- g) When shopping online, I hesitate to give my credit card details
- h) It is easy to make comparisons with other retailers when shopping online
- i) The website layout helps me in searching for the right product online
- j) Supermarkets do not make shopping for groceries online easy
- k) When shopping online I get frustrated as the store don't deliver the stock I want

17. Please list the top 3 reasons that are prohibiting you from purchasing online:

- a. Cost of internet
- b. Difficulty in returning the item
- c. Inconvenient delivery times
- d. The website is difficult to navigate
- e. I believe the product will not be fresh when delivered
- f. Delivery costs
- g. I didn't know that I could shop online for groceries
- h. I intend to shop online but when it is time to shop it slips my mind
- i. I like to touch and see the products
- j. I am concerned that not all the products I order online will be delivered
- k. The products I order are often not delivered/ not in stock
- l. Online security concerns
- m. Other, please specify

18. What are the most important criteria that you look for when shopping online?

- a. Delivery times
- b. Delivery cost
- c. Payment security
- d. Price
- e. Ease of access
- f. Convenience
- g. Other, please specify

19. What could a website or app do to encourage you to shop more online?

20. How happy are you with the current shopping situation brought on by COVID 19, are you looking forward to returning to stores or will you continue to shop online at the rate you have been over the past year?

- a. Return to traditional shopping only
- b. Continue to shop online only
- c. Return to traditional shopping centres however shop online to a greater extent than prior to COVID 19
- d. Return to traditional shopping centres however shop online to a less extent than prior to COVID 19.

11. Appendix 3 - Turnitin Similarity Index

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12. Appendix 4 – Ethical Clearance



22 September 2021

Ushir Lakman (202501367)
Grad School Of Bus & Leadership
Westville Campus

Dear U Lakman,

Protocol reference number: HSSREC/00003267/2021

Project title: A study into prospective changes in consumer behaviour and buying patterns of graduate millennials due to COVID19 in South Africa

Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 26 August 2021 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. **PLEASE NOTE:** Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 22 September 2022.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,



Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/4557/3587 Email: hssrec@ukzn.ac.za Website: <http://research.ukzn.ac.za/Research/Ethics>

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