UNIVERSITY OF KWAZULU-NATAL

The perception of customers from Giba Business Park with regards to the effect of self service kiosks in fast food restaurants.

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DECLARATION

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ABSTRACT

Internationally fast food retailers have begun rolling out and implementing in store self service technology systems, in the form of kiosks, to supplement their customer experience. This automation in the ordering system has proven to increase sales, increase productivity and decrease overall meal delivery times. It was found that customers internationally opted to frequent fast food outlets that offered this automated service more often than those that did not. With the success found, fast food conglomerates such as McDonalds, have already indicated the roll out of self service kiosks will follow in 2018 in their South African franchises.

In South Africa, the fast food industry is a profitable entity with impressive annual increasing sales and customer numbers. The country is suffering however with low economic growth, increasing poverty and major inequalities with regards to living standards and education. Thus inclusion of self service technology into the fast food industry within South Africa, which is a developing country, as a result of the profitable execution of the systems in developed countries, led to this research study.

The researcher set out to investigate whether local customers of fast food within Giba Gorge Business park in the province of KwaZulu-Natal, South Africa, felt there was a need to improve speed of service within restaurants and whether customers would accept and adapt to using kiosk technology as a solution to improve said service. The findings of the study overwhelming, through all socio demographic representations, concluded that these customers view speed of service at fast food restaurants substandard and requiring improvement. Kiosks were further indicated as the preferred means to enhance customer experience and satisfaction. It was thus concluded that local customers are surprisingly tech savvy and a roll out of self service kiosks locally would be positively received and accepted.

CONTENTS

List of Figures

List of Tables

CHAPTER 1 - INTRODUCTION

1.1. Introduction

This chapter serves to give a brief understanding on the research topic and highlight the purpose of the study. A background is provided to illustrate the gaps in the study upon which the study problem statement has arisen. Further significance into the research is emphasized to validate the importance of this study whilst a breakdown of the study into the research methods used and the research objectives and questions followed, to adequately answer and guide the study, is done.

1.2. Background

In the last 10 years there has been a rapid expansion of the delivery of products and services through the use of technology (Wentzel, Diatha & Yadavalli, 2013). These technological advancements include the use of the World Wide web, cell phones, self service kiosks and the like. Internationally the fast food retail industry has begun to use self service kiosks to improve sales and productivity and address overall customer satisfaction. Thus the revolution of self service technologies within the South African business sectors is inevitable. It is imperative that South African companies embrace these technologies within the market to address the growing need for customer convenience whilst controlling spiraling customer support costs and ultimately remain competitive (Wood, 2008).

Fast food restaurants have expanded globally, have become increasingly more accessible and have westernized the diets of the world leading to a drastic change in food consumption patterns (Jeon, Meiseberg, Dant & Grünhagen, 2016). In the US, it has become progressively common for families to eat out leading to an inflated 50% of food expenditure being attributed to fast foods (Steyn, Labadarios & Nel, 2011). The consumption patterns of South Africans further lend to the realization that the custom of home-cooked meals has decreased and is continually dwindling with an estimated 40% of consumer food spend being attributed to fast food retailers (Sharebox, 2017). In a study done by Murray (2017), it was identified that 88% of South African adults purchased fast

food at least once a month in contrast to 66% in 2009, denoting an extensive increase in the frequency of fast food purchases by 33%.

McDonalds is the leading fast food franchise within the country and has begun a self service kiosk initiative in their international franchises with positive results which highlights that the fast food industry within South Africa will soon adopt similar concepts. Thus combining the propensity of South Africans for fast food with the technological advancements in the retail industry leads to the research problem statement described below.

1.3. Problem Statement

With a World-Wide movement towards technological advancements in service delivery, South African fast food retailers have not utilized the technology which feature in their international franchises. McDonalds chain restaurants for example have begun implementing self service kiosks to enhance service delivery in Europe and America whilst their South African franchises are behind the trends (Mlot, 2016). There have been no feasibility studies done to determine whether South Africans are geared and ready to accept self service technologies for in-store purchases in the fast food industry. This then leads to the research problem: With the inevitable inclusion of in-store self service technology in the fast food industry, will this technology be accepted by patrons of fast food restaurants locally and do these patrons of fast food agree that this technology has a role to play in improving speed of service?

1.4. Aim of the Study

The aim of the study was to establish whether patrons and employees of the Giba Gorge Business Park view self service technologies, such as kiosks, as an acceptable mechanism to enhance the speed of service currently experienced at local fast food restaurants as well as correlate their preferences to using self service systems over traditional employee assisted transactions.

1.5. Research Objectives

- To establish whether patrons and employees of the Giba Gorge Business Park, KZN view the speed of service encountered at local fast food restaurants as acceptable.
- To establish which factors affect the speed of service experienced in fast food restaurants according to patrons and employees that frequent the Giba Gorge Business Park.
- To establish local consumers' inclination to use and adopt new technology within the retail sector.
- To gather information regarding local customers' preferences to ordering in store through restaurant employees or via the use of self service kiosks.
- To provide recommendations to improve the speed of service experienced in fast food restaurants within KZN based on the views correlated from patrons and employees of the Giba Gorge Business Park, KZN.

1.6. Research Questions

- Do patrons and employees of the Giba Gorge Business Park, KZN view the speed of service encountered at local fast food restaurants as acceptable?
- Which factors affect the speed of service experienced by customers in fast food restaurants according to patrons and employees that frequent the Giba Gorge Business Park?
- What is the local consumers' inclination to use and adopt new technology within the retail sector?
- Do local customers prefer to place their in-store orders through the use of technology such as self service kiosks or through restaurant employees?
- What recommendations can be made to improve the speed of service experienced within KZN fast food restaurants, based on the views correlated from patrons and employees of the Giba Gorge Business Park, KZN?

1.7. Significance of the study

This study added value to the board of knowledge on service delivery within the fast food industry of South Africa. It further provides franchise owners/managers with cutting edge

technological advancements to aid in better service delivery in South Africa. The study most importantly, also highlighted the consumer's views on the speed of service experienced and whether the use of self service technology can improve said service. This has provided a basis upon which feasibility studies for the implementation of such technological advancements can be done, in order to establish whether these self service systems are beneficial and sustainable to both consumers and institutions in a local context. The findings of this research have also added to the literature available for academics with regards to customer preferences towards technology with socio demographic comparisons, the quality of speed of service as viewed by these customers and the South African fast-food industry status quo. This provides academics investigating within any of these parameters further literature to base their studies on.

1.8. Research methodology

The study was conducted within the Giba Gorge Business Park in Westmead, KZN. It was based on the consumers of the local fast food restaurants within this geographical area. The area was used due to the variation and numbers of personnel that visit the park on a daily basis and satisfy the characteristics of the study population. The people that frequent this area also rely on fast food services throughout the business day as quick convenient nourishment. In this study, the researcher considered all research methods but a quantitative research approach was employed in which non-probability sampling was used to accurately address the research objectives. This is further descriptively discussed in Chapter 3.

1.9. Definitions of terms

Self service kiosk (SSK) – A device setup to allow consumers to order and pay for their meals without being assisted by an employee. This is done by the user following the on-screen prompts to choose and pay for the products and services to be rendered.

KZN – The acronym for the province of KwaZulu-Natal in South Africa.

Speed of service – The length of time experienced by patrons and consumers of fast food restaurants from waiting in line to order to receiving their orders (Kumar, 2005).

Giba Gorge Business Park – The business park located off of Stockville Road in Westmead KwaZulu-Natal. The park is zoned into three areas of business, namely industrial, conservation and tourism areas. There are 26 unique companies and suppliers that operate from within these areas (Harburn, 2017).

LSM – Living Standard Measures, this is used to characterize groups of people for marketing purposes and to determine target populations (Vermeulen, Schonfeldt & Pretorius, 2015).

NQF - National Qualification Framework, is used to characterize the level of education individuals possess (Ensor, 2003).

1.10. Structure of the study

Chapter 1: Introduction

This chapter introduces the topic and highlights the purpose of the study whilst illustrating objectives to be targeted in order to holistically address the problem statement.

Chapter 2: Literature review

Collection of relevant currently available literature is presented in this chapter to highlight the gaps in the literature and formulate a knowledge base upon which the research instrument has been designed.

Chapter 3: Methodology

This chapter indicates the research methods considered and finalized upon to effectively collect and analyze the data in a manner that generates the most accurate representation of results.

Chapter 4: Presentation of Results

The collection of results from the study instrument is systematically presented in this chapter for further analysis and discussion.

Chapter 5: Discussion of results

In this chapter, the relevance of the results shown in Chapter 4 is discussed and points of significance drawn from a critiqued analysis.

Chapter 6: Conclusion and recommendations

The concluding views regarding the study along with the recommendations to improve speed of service will be described and established in this final chapter.

1.11. Conclusion

This chapter gave an overview on the research topic and the purpose of the study. The aim, research objectives, research questions, significance of the study, research methodology, definitions of terms and scope of the study has been described and highlighted. These sub headings form the guidelines in which the study was followed to sufficiently address the problem statement. The next chapter discusses the available literature pertinent to the research topic and crucial to the basis upon which the research methodology, to address the research objectives, is designed.

CHAPTER 2 – LITERATURE REVIEW

2.1. Introduction

The ensuing chapter gathers and presents the available literature relevant to the research topic. The implementation of self service technologies in fast food restaurants within a local context requires the broad knowledge base available to be refined to focal investigation areas namely:

- A brief overview of the fast food industry within South Africa.
- A breakdown of the local demography as obtained from StatsSA (2016) with relevance to deciphering the targeted population for the study.
- An in depth look at the Giba Gorge Business Park and its significance to the study.
- Objective 1 & 2: An investigation into speed of service within fast food restaurants
- Objective 3: A look at the relationship between technology and the South African consumer
- Objective 4: Lastly an investigation into in-store self service technologies such as kiosks with specific impact on the fast food industry.

2.2. Overview of the South African fast food market

In a South African study conducted in 2011, Steyn *et al* (2011) describe the difference between street food vendors and fast food restaurants and illustrates fast food restaurants as generally located off the street within formal buildings and structures whilst offering either, or both, eat-in and takeaway services. Fast food restaurants can also be referred to as quick service restaurants (QSR) or fast food outlets (Steyn *et al.*, 2011). These restaurants offer convenience and quality food at affordable prices - albeit are commonly regarded as unhealthy (Van Zyl, Steyn & Marais, 2010).

The fast food industry within the African continent is growing at a rapid pace (Holton, 2000). International and African chains have noted the growth opportunities within this sector and have begun to expand causing increased competition within the market (Jacobs, 2014). The South African fast food market whilst competitive, is still not overcrowded and international fast food chains further consider South Africa as a gateway

to the other African Countries (Kahn, 2011). In South Africa alone, over 25 million people purchase from fast food outlets every month (Jacobs, 2014). This leads to a net worth of R 300 billion for the South African fast food industry with a R 170 billion realizable income every year and an estimated growth of 9% yearly (Murray, 2017). Mataranyika (2016) further highlights that the average sales growth for fast food restaurants in some regions is experiencing 20% growth annually. Within this fast food industry, chicken accounts for 50% of the total market which can be credited to KFC due to their status as the largest fast food retailer in SA and their extensive number of outlets, influence and reach throughout the country (Insight-Survey, 2017).

With a rise in household incomes and living standards, it is evident that fast food purchases increases as can be expected (Soon & Tee, 2014). South Africa however, has experienced notable periods of declining Gross Domestic Product (GDP) growth and recessionary downturns of late (Tyson, 2016). With this, it would be anticipated that consumers would alter spending habits and industries such as the fast food industry would experience declining sales growth. This is not the case however as cash strapped consumers are opting to purchase fast food brands that offer greater value for money rather than not purchase fast food at all, highlighting that fast food is chosen not purely on affordability (Soon & Tee, 2014). Further evidence of the continued growth of the fast food industry, amidst poor economic progression, can be seen in the recent inclusions of international fast food franchises such as Domino's, Burger King, Dunkin Donuts, Crispy Crème and the like. This reiterates the potential and opportunity that still exists within the fast food industry.

2.3. Characteristics of customers of the fast food industry

Fast food consumption in South Africa has become more prevalent with a recent study confirming roughly 18% of South African adults eat at franchised fast food outlets once a week (Insight-Survey, 2016). Steyn *et al* (2011) establishes a further 6.8% of South Africans have confirmed eating at fast food restaurants more than twice weekly. Acknowledging such behavior is not easy as fast food purchasing has a stigma of unhealthy eating and we can thus assume that a truer reflection on the numbers of

customers eating at fast food restaurants weekly is significantly more. Another separate longitudinal study conducted over 5 years in Soweto and Johannesburg, by Feeley *et al* (2012), discovered that there was an increase in the propensity of the participants to eat fast food with time. Relationships between increased tendency to eating fast food and aging could be identified, as well as evidential change in family dietary patterns leading to families being more likely to adopt convenience of eating out rather than preparing home cooked meals (Feeley, Musenge, Pettifor & Norris, 2012).

Steyn *et al.* (2011) concludes the following from his study conducted regarding South Africans tendencies to purchase from street food vendors and fast food outlets:

a) Indians (14%) and Whites (12.5%) displayed the highest tendencies of the race groups to eating out weekly.
b) Blacks scored the least on the same criteria (5.4%) whilst showing more significant results in purchasing from street vendors than all the other racial groups.

This can be explained by the population breakdown of South Africa. The Black racial group comprises of 80.7% of South Africa's 55.7 million population and there is over 40% unemployment within this racial group (StatsSA, 2017). This coupled with the fact that fast food outlets are formalized settings with higher cost and pricing structures that often are not affordable to the low-income strata of South Africans, we can grasp the reasoning behind greater tendencies to purchase from street vendors within the Black race group (Steyn *et al.*, 2011). Further argument for this stance can be viewed by not only the low unemployment rates within the White and Indian race groups with 9.1% and 15.8% respectively but also in the very small percentages of employed individuals within these race groups having low-skilled and low paying jobs in comparison to the Black and Coloured race groups (StatsSA, 2017). Less than 4% of working Whites are in low-skilled jobs and less than 7% of working Indians are in low-skilled jobs whilst Africans and Coloureds range from 30-43% of their workers falling in the low-skilled categories (StatsSA, 2016). Insight-Survey (2016) concludes from a similar study that 80% of consumers classed in the lower living standard measure (LSM) groups chose to purchase street vendor foods over purchasing from fast food outlets. It is thus noted that fast food purchases are more frequent with higher living standard measure (LSM) groups (Steyn *et al.*, 2011). There is however an argument that mid to low LSM groups do frequent fast

food outlets with 42% of employed participants surveyed, in a study conducted by Steyn *et al* (2011), earning R5000 per month or less yet have confirmed to spending R200 per month on fast food with a further 31% reported to frequenting fast food restaurants 2 to 3 times monthly. This monthly earning is aligned with LSM group 4 (SAARF, 2012).

Fast food has generated a lot of attention over the years with regards to being unhealthy and a cause for concern in obesity and disease or ailments caused from poor diet (Figueroa, Sosa, Cordova, Wilmoth, He & Wu, 2014). Internationally and locally there has been a move to introduce healthier options of meals at fast food restaurants as well as initiatives done to make consumers aware of the health risks caused from fast food consumption (Schrempf, 2014). Conversely a study done on adolescents in Cape Town in 2006 found that while participants from higher LSM groups were more likely to establish which foods were unhealthy or healthy, they were still no more likely to purchase healthy foods over the lower LSM groups (Temple, Steyn, Myburgh & Nel, 2006). OECD (2017) obesity update report has stated that one in every four people in South Africa is obese leading to South Africa being one of the countries repeatedly in the top 10 for obese nations which reiterates South Africans propensity for fast food.

Even though there are very few studies regarding fast food consumption in South Africa, the limited results can induce some trends regarding the socioeconomic and sociodemographic groupings of fast food customers (Steyn *et al.*, 2011). It can be formulated from the available literature that customers of fast food within South Africa are employed members of the public ranging from low to high LSM groups across all race groups, education levels and working age groups, with more frequent users being middle to high LSM groups of White and Indian ethnicity with English being most prominent language. The study will be conducted within the Giba Gorge Business Park which falls within the eThekwini Municipality. The following summary is adapted from StatsSA (2016) and lists the breakdown of population within the eThekwini Municipal area of KZN:

Table 2.1:: Demographic Breakdown of KwaZulu-Natal eThekwini Municipality

Working Age Population	2392000					
Employed	1178000					
Unemployment rate	28.70%					
Race Group	Black	Coloured	Indian	White		
	87.0%	1.2%	7.9%	3.9%		
Language	Afrikaans	English	isiSotho	isiXhosa	isiZulu	Other
	1.0%	12.5%	0.5%	3.1%	82.5%	0.4%
Education	No Schooling	Primary	Secondary	Bachelor's Degree		
	6.2%	58.1%	33.3%	2.3%		

2.4. Giba Gorge Business Park

The Giba Gorge Business Park is a developing area situated on the outskirts of Westmead in KZN and consists of multiple businesses within (Roberts & O'Donoghue, 2016). Development of the area began in 2004 and it is still continuing to expand today (Roberts & O'Donoghue, 2016). It is home to 26 businesses that vary in their services and products offered as well as in their structures and operations (Harburn, 2017). The entire park is divided into 3 zones, namely an industrial, tourism and conservation zone (Harburn, 2017). The industrial zones house businesses that range from construction services, container depot, storage facilities, fabrication and the like to research and development (Chinzila, 2015). A tourism zone attracts many avid visitors to their restaurants, team building areas, mountain bike courses etc. whilst the conservation zone is setup to attract more eco-tourists and adventurers (Chinzila, 2015).

The business park has estimated that there is an approximate average of 500 visitors a day entering into its premises which could be employees from the businesses within, visitors to these businesses or visitors to the tourism and conservation zones (Harburn,

2017). While there are no empirical studies quantifying the demographics of these daily visitors, it can be assumed that these members of the eThekwini public are employed individuals that are spread across the sociodemographic groups. It is also highlighted that both visitors to, and employees of this business park rely heavily on fast food in their weekly schedules due to the readily accessible fast food outlets in and around the Westmead/ Pinetown area.

2.5. Objective 1 and 2: Factors affecting speed of service

It is evident that the fast food industry is a significant player within the South African economy and increased saturation and competition within this market will create a need for differentiation strategies such as innovation in product and experience offering (Walker & Mullins, 2011). Hardy (2014) states that South African consumers have not only become price sensitive as a result of the challenging economic climate but have also become so accustomed to innovation that there is an expectance for further accelerated innovation. The winning algorithm for fast food restaurants is the focus and development of their key competencies and marketability which is producing high volumes of orders with speed and at low cost (Gosser, 2011). Mocker, Weill & Woerner (2014) explained that customer satisfaction and loyalty is influenced more by how the company delivers the basics rather than on the extra and over features in terms of services offered. Customers have a greater tendency to penalize bad service than reward good service which highlights that restaurants should focus on improving their basic food service delivery and limit their energy on added inessential benefits (Mocker *et al.*, 2014). This then leads to the study objective with an investigation into the speed of service experienced at fast food restaurants.

Speed of service denotes the time taken for a customer to receive his/her order from entry into the restaurant and is considered the most critical factor in ensuring adequate customer service (Kanyan, Ngana & Voon, 2016). This is linked directly to the operations of the restaurant and thus can be bettered through high quality and production management systems which is ultimately the core function of the business.

Kanyan *et al* (2016) lists the main causes of slow delivery of food to customers as follows:

a) Employees incorrectly taking down customer orders causing back-ups in food preparation due to correction of orders.
b) Cashiers not able to effectively and efficiently operate tills causing prolonged payments which leads to congestion at ordering tills and food preparation areas leading to slow delivery of food.
c) Insufficient staff to adequately address the influx of customers both at the ordering till and food preparation areas. This can be seen by employees rushing to cope with the numbers of customers and leads to congestion and slow delivery. Kanyan *et al* (2016) also highlights that employees are required to maintain routine activities such as cleaning and washing dishes which cannot be neglected in peak times. Often restaurant managers overlook the requirement of such employees which can lead to overexertion and exhaustion of employees, resulting in further errors in customers' orders and slower speed of service experienced.
d) Incompetent or laissez faire (uninvolved, laid back) attitude of supervisors that allows employees to neglect quality of food produced or arrangements of orders. This leads to repeated orders for correction and results in slow delivery of orders (Northouse, 2015).
e) Poor food scheduling which leads to prolonged food preparation times.

Deutsch (2014) has added further the menu mix, equipment adequacy, layout of operation and pickup counter as added barriers to efficient speed of service. With regards to menu mix, it is understood that certain meals may not be standard and hence require longer production times. Beran (1995), recommends that meals listed on menus should be clear, concise and commonly prepared items to limit order errors. Customers should also be informed on longer food preparation times for customized or irregular meal choices (Beran, 1995). As in any effective supply chain setup, the equipment used, facilities of operation and layout of the food fabrication and preparation areas should be sufficiently capable of producing meals in quick succession during peak times, whilst employees should be dedicated to the pick-up counter workstation to prevent backlogs of produced meals (Fisher, 1997).

Gosser (2011) has expressed that employee training and engagement is key to resolving most, if not all, the obstacles that affect speed of service in restaurants. Helpscout (2016), a marketing company that develops marketing reports, has confirmed this by illustrating that customers' most requested improvement in their dealings with businesses is better human service. Training done at all tiers of employment will equip the employees to identify and rectify areas slowing down speed of service (Venkatesh, 2007). Management training for example and specific supply chain or operations training may assist to alleviate errors in understaffing or overstaffing as well as inadequacies found in food preparations areas. Management have an important role in establishing the capacity required for the restaurants and ensuring acceptable meal preparation times. Employee training can also greatly influence speed of service (Davis, Lockwood, Pantelidis & Alcott, 2013). Ensuring employees are well versed in their required daily activities as well as able to diversify to other activities in periods of shortfalls can enhance flexibility and improve speed of service during both peak and off peak times (Venkatesh, 2007).

Whilst fast food restaurants have grown, changed and are constantly innovating their product offering and service, the industry is still largely employee based with human interaction considered the most crucial element of the service experienced by customers (Tan, Oriade & Fallon, 2014). This leads to the research topic of integrating self service technology, such as self service kiosks, in fast food restaurants to reduce the role of human interaction in services rendered and enhance speed of service.

2.6. Objective 3: Technology and South African Consumers

Technology is vastly changing the plain fields of business (Simon, 2015). An era of digital evolution has advanced businesses by streamlining the services offered to customers to suit convenience and lowered operational costs (Cordon, Garcia-Milà, Vilarino & Caballero, 2016). Accelerated innovation is intensifying the tech space and improving customer service (Bajada & Trayler, 2015). It is now understood that customers place as much, if not more, importance on the purchasing experience than merely the product with approximately 69% of customers recording their change in brands due to poor user experience (Writer, 2016)

South African consumers are recognizing the convenience and enhanced safety of using technological means to complete their retail requirements (Tucker, 2017). Online shopping, e-commerce and other technological pay applications have become preferred mechanisms for groups of customers' worldwide (Narang & Arora, 2017). This trend has filtered into South Africa and it is expected that sales through online platforms will increase by 40% over the next decade highlighting an inevitable transformation of the purchasing behavior of South Africans to opt for the convenience of technological means of shopping over traditional in store purchasing (Tucker, 2017). Contrasting this, Helpscout (2016) have listed 67% of customers have ended phone calls without resolution because they were not put through to a real person as they preferred human interaction over the automation. This may not however be evidence of customers' rejection of technology but merely an indication that the automated user experience in customer call lines need to be revisited.

Davis, Bagozzi & Warshaw (1989) produced the theory of the Technological Acceptance Model which assists with listing and understanding which factors influence consumers/employees to adopt and use newly introduced technology. Venkatesh & Bala (2008) upon examination of this 'Technological Acceptance Model' described these factors as:

a) The perceived usefulness of the technology. How this technology will improve the experience or service over the traditional mechanism, will influence a customer's decision to adopt the technology through a feeling of value adding benefits. Customers will also switch quicker to introduced technological means that are considered higher value added.
b) The perceived ease of use. The relative ease at which the customer can operate or master the technology will also influence a customer's decision to, and the speed at which they, adopt new technology.
c) The perceived risk of usage. How trustworthy and risk-free the customer considers the technology will influence a customer's decision to, and the speed at which they, adopt new technology. This can also be viewed as how risk averse the customer is as no system can be completely risk-free (Chiu, Wang, Fang & Huang, 2014).

Thus if the convenience and value added experience is significant but the system poses some risks then the decision to adopt the technology will be based on how risk averse the customer is.

In understanding this model, South Africans have been bombarded of late with armed robbery, fraud, card cloning and the like. With notable further language barriers and ethnic group tensions that exist in this rainbow nation, South Africans would see technology as less risky and more useful than traditional in store purchasing and this could explain why a third world country such as South Africa is fast tracking their technological savviness. South Africa has been ranked 33rd in the world for digital readiness (Shelf, 2017). The measurement of which is aligned with the country's ability to support e-commerce and digital payments (Ojanpera, Graham & Zook, 2016). South Africa has showed major strides in technological acceptance with the number of country wide internet users in 2016 at approximately 26.84 million which accounts for a 49% penetration into the population (Shelf, 2017). Considering the impoverished, uneducated and low skilled nature of the majority of the population with a 27.7% unemployment rate, this is an impressive result which highlights the enthusiasm of South Africans towards technology (StatsSA, 2017).

E-commerce in South Africa is expected to increase in consumer popularity in the succeeding years, as consumers are demanding more convenient ways to shop (Dlodlo, 2017). Their purchasing behavior is changing to not only accept, but also to prefer the evolution of shopping applications and the greater varieties offered online by e-tailers (Narang & Trivedi, 2016). This depicts the demand for self service technologies in South Africa and highlights the potential that exists in the fast food industry to introduce such technology.

2.7. Objective 4 & 5: Self service technologies in the fast food sector

2.7.1. About self service technology

Self service kiosks are a result of technological advances in the service sectors globally and have seen rapid growth over the last decade (Otekhile & Zeleny, 2016). These

technological advances have stemmed from the implementation of ATM's in the banking sector many years ago and are now transforming other industries by providing automated services (Fishman, 2004). Such industries that have become heavily reliant on the self service kiosks are airports, telecommunications, healthcare, entertainment and retail sectors. Services typically include e-ticketing stations and at-point purchases (Mlot, 2016). In an ever growing global economy, businesses of all sizes need to remain innovative, competitive and operationally efficient (Rapport, 2006). The introduction of self service technology for in store automation and efficiency is thus inevitable (Fishman, 2004).

Companies are offering a growing range of self service technology alternatives which include websites, ATM's, cell phones, Interactive Voice Response (IVR) and kiosks (Wood, 2008). Whilst the use of the World Wide Web is the most cost-effective means for self service options, it is not appropriate for all situations and customers (Wood, 2008). In store automation has thus been developed through the use of self service technologies such as kiosks. Most fast food restaurants have implemented simple examples of self service technology in the form of digital menu boards and online ordering (Peters, 2014). In store digital menu boards have been extensively developed and provide canvases upon which large quantities of information can be relayed to the customers in real time (Peters, 2014). Such examples include specials, promotions, menu changes and pricing updates that can be updated quickly and possibly even done remotely (Hardy, 2014). Slim Chickens, a fast food restaurant originating in Arkansas in the US, have installed these real time digital menu boards and recorded a decrease in order times due to the availability of information to customer (Hardy, 2014). A decrease in order times has resulted in faster throughput times, overall increased revenue and it was further noted that a greater quantity of promoted items was sold than when traditional boards were used (Hardy, 2014).

The 2007 survey titled 'Self Service Strategies in South Africa 2007' highlighted that South Africa's larger organizations are embracing self service technologies (Wood, 2008). The survey comprises of results from leading banks, insurers, retailers and

telecommunications within the country and measures their affinity towards self service technologies (Wood, 2008). The results identified that a decrease in customer churn was the priority benefit of self service technologies for the banking sector (Wood, 2008). Whilst the insurance and telecommunication sector listed customer experience their highest rated benefit (Wood, 2008). The retail sector listed cost reduction, transaction automation and account payment acceleration as its top reasons to consider the implementation of self service technologies. The use of self service kiosks within the retail industry is thus an integral component for future success within South Africa (Rapport, 2006).

2.7.2. Self service kiosks

McDonalds, a fast food retailer that originated from the US and has grown into a global corporation success, discovered that for the first time in 40 years they experienced a fall in their sales and earnings per share for their international results in the 2nd quarter of 2015 (Page, 2015). Subsequently they had planned to close restaurants and shrink the number of franchises (Page, 2015). There had been a slow decline in their sales since the documentary “Super Size Me” in 2004 and McDonalds had not changed to suit the changing needs of their consumers (Page, 2015). Compounded to their overall declining sales internationally is the loss of profits caused by the recent minimum wage hikes resulting in doubled payroll expenditure experienced in the US (Falkner, 2015). McDonald’s attempt to regain their former success and market share has resulted in their strategic execution to revert to basics to provide quality goods, lower costs and raise efficiency. In line with their strategic plans, the introduction of self service kiosks has been successfully implemented and adopted in Europe, with reports of 40% in store sales done via kiosks during busy hours, and subsequent follow on installations in the US (Wong, 2015).

These self service kiosks implemented in McDonalds are stand-alone touch screen units that perform the service of the sales clerk as follows (Wong, 2015):

a) Consumers enter into store, approach Kiosk unit and tap screen to initiate.
b) Consumers select items according to their taste preference.
c) Confirmation order to proceed.

d) Payment is done via on screen prompts and are aligned to accept newer age payment methods for the customers such as Apple and google pay as well as traditional debit and credit card payments (Shahbazi, Ericksen & Goncalves, 2006)

e) Receipt is printed with the order number and produced from the machine for consumer to take.

f) Consumer can now simply wait for order number to be called from counter for pickup.

These self service kiosk units have been reported to cost McDonalds roughly $60 000 each to install (Hardy, 2014).

Consumers have reacted positively to these self service kiosks as they afford more time to the consumer to browse the menu with significantly less pressure compared to ordering from a sales clerk (Wong, 2015). Reports have also shown that consumers using self service kiosks spend up to $1 more versus using clerks and furthermore 20% of customers that did not initially order a drink would order one when offered by the kiosk (Falkner, 2015). This increase in order amounts is confirmed by other competitors using self service technologies such as Taco bell who have developed a mobile app to increase customer ease of ordering and subsequent sales (Wong, 2015). Titbit (2017) confirms that the installation of the Titbit kiosk application used in most self service kiosks can reduce the ordering times experienced by customers and induces impulse buying leading to increased revenue. In a 2011 study, survey results indicate that order times were 7secs faster on the self service kiosks than dealing with a sales clerk (Falkner, 2015). This fractional decrease in order times can increase McDonald's market share by 1-3% overall which equates to millions of dollars (Falkner, 2015). A further indication as to why McDonalds has planned to expand the self service kiosks to 2000 locations in 2015/2016 and 2017 with implementation in South Africa to follow (Page, 2015).

The global debate however is whether these kiosks will reduce employment and be a means for jobless recovery for businesses, or will the automation make services better for the workers and customers alike (Otekhile & Zeleny, 2016). In some reports done, employment has increased in service businesses that have been automated, which is

counterintuitive to the current perception that these kiosks will replace operating clerks and decrease employment (Fishman, 2004). The argument for this increased employment highlights that these kiosks remove the need for frontline workers, but these worker's efforts can be focused on more complex tasks and improve productivity (Fishman, 2004).

The introduction of the self service kiosks within McDonalds in the US has sparked allegations that the implementation is due to the recent minimum wage hikes (Falkner, 2015). There are claims from franchise owners in the US that labour costs have to reduce by up to 30% due to the increased minimum wage (Peterson, 2017). It is however a culmination of dealing with the increased labour costs and attempting to remain competitive whilst staying afoot of the eventual advancements of automated technology. This has promoted the use of these new kiosks (Falkner, 2015).

Wendy's fast food retailer in the US have also begun implementation of their own self service kiosks and issued a statement that they plan to install these self service kiosk units in 16% of their restaurants across the US before the end of 2017 (Marks, 2017). This equates to approximately 1000 restaurants (Marks, 2017).

The review following on will highlight the benefits of self service kiosks in terms of the customers and store owners and provide insight into the benefits of the implementation of these kiosks.

2.7.2.1. Benefits of Self Service Kiosks for Consumers

The reasoning behind the successful adoption of the self service kiosks globally by customers can be attributed to:

a) Kiosks afford the customer privacy in the order process and drastically reduce potential embarrassment associated with calling out orders (Rapport, 2006). The kiosks also provide private secure payment options that best suit the customer's preferences (Page, 2015).

b) Self service kiosks ensure quicker ordering times and eliminate waiting at counters in order queues. This assists to remove unnecessary anxiety and pressure that the customers may experience in waiting or rushing their confirmation of their order due to the queue behind them (Rapport, 2006).

c) There is an added convenience to using self service kiosks as some people are more comfortable interfacing with technology than with order clerks (Rapport, 2006). It has been established that younger customers prefer to use kiosks over employee assisted transactions and the demand for self service is greater in younger age groups (Marks, 2017).

d) The kiosks remove or minimize the need for communication which is beneficial especially in cases of language barriers (Rapport, 2006). Kiosks also eliminate misunderstanding of orders due to communication errors or human error and therefore further eliminate frustration for consumers in this regard (Peterson, 2017).

e) Kiosks allow for precision and accuracy of orders and consumers are able to get what they have ordered exactly. It creates a greater allowance and control for customization of orders without errors (Peterson, 2017). This significantly decreases human error in terms of order discrepancies (Rapport, 2006).

2.7.2.2. Benefits to Store Owners

The two main benefits in the implementation of self service kiosks to storeowners comprise of streamlined operations through increased efficiency and realizing return on investment within quicker timeframes (Rapport, 2006). The other benefits include:

a) Productivity – Kiosks limit an employee's time spent in conversation with customers or inputting data for orders thus maximizing their productivity (Rapport, 2006). Multiple Kiosks can also take orders simultaneously and speed up the ordering process thus increasing productivity requirements for the retailers (Sauter, 2014). The order clerks can also be used to maximize efforts in meeting these increased productivity requirements and thus sales and output significantly increases without the need to employ more people (McWilliams, Anitsal & Anitsal,

2016). Self service kiosks implementation must thus be used to increase sales, productivity and efficiency and must not be used to eliminate jobs (Otekhile & Zeleny, 2016).

b) Lower Labour costs – The order clerks no longer need to focus their efforts on receiving orders and can be used to perform other tasks and improve customer care around the store thus benefiting to further increased sales and customer loyalty without the need to employ more resources (Page, 2015). As mentioned previously, the same employees can be used in the production of increased orders (McWilliams *et al.*, 2016). Whilst labour costs will remain the same, revenue should increase and hence labour cost vs output will be lessened.

c) Ordering accuracy – Self service Kiosks allow for accurate ordering which limits human error (Kanyan *et al.*, 2016). It also allows greater customization of orders from customers without errors and prevents customer dissatisfaction in receiving incorrect orders (Peterson, 2017). Orders that have had to be remade due to errors bottleneck production and slow down delivery (Kanyan *et al.*, 2016).

d) Self service kiosk implementation allows the store owners more freedom to decide whom they prefer to hire. Due to the kiosks, hired employees no longer need people skills but can be used to push production (Rapport, 2006).

e) Up-selling – Self Service kiosks automatically offer up-sell choices to the customer more frequently than the order clerks (Rapport, 2006). Increasing chances to earn greater sales. Employers can also use the kiosks to track buyer's habits and preferences which can assist with possibly removing meal choices that are not popular or profitable (Nelson, Kirk, Farr, Keehan & Erlinder, 2013).

f) Inventory tracking – more advance systems of kiosks can report on store inventories and worker productivities as well as monitor individual employee performance (Rapport, 2006).

g) Calculating the return on investment is simple. The time taken to break even can be calculated by adding the increase in sales after installation and the savings from the order clerk man-hours and then dividing by the cost of the system (Wei, Torres & Hua, 2017). Results vary due to variance in the cost of the system but many stores have alleged to have broken even within 8 to 12 months (Marks, 2017).

Thus the 2nd year of operation is pure profit (Rapport, 2006). Wendy's fast-food giant has confirmed that their self-service kiosks will realize return on investment within 2 years (Marks, 2017).

h) Perception of faster service – In some instances these kiosks do not necessarily decrease waiting times as the fabrication lines for the product may still be the same. The consumer however no longer waits in lines to order and can preoccupy this time performing other tasks which perceives the service as faster because the consumer has accomplished more in the same time (Peterson, 2017).

2.7.3. Self service kiosk implementation in South Africa

Fast-food retailers in South Africa will need to keep ahead of the competition and technological advancements, such as self service kiosks, may set them apart (Sakas, Vlachos & Nasiopoulos, 2014). While there are no indications that kiosks will be implemented locally, South African franchises generally mimic their international counterparts with regards to technological advancements and hence an expectation exists that McDonalds and the like will test such kiosks in South Africa in the near future.

These kiosks have been very successful in the McDonalds franchises in Europe and in some parts of the US. South Africa however has 75% of their McDonalds restaurants as 24 hour drive through (McDonalds, 2014). A drive through can account for roughly 70% of sales for these franchises (Addady, 2015). Thus these self service kiosks will only be available to 30% of the clientele as they are situated within the restaurant (Addady, 2015). Hardy (2014) has stated that units and systems implemented for drive throughs cost 2.5 times more than the same units installed within the restaurants. South Africa's propensity towards drive through makes it difficult to determine profitability and return on investment for self service kiosks that will be installed and a feasibility study would have to be done in order to establish this.

South Africa has gone through recent economic turmoil which has caused businesses to be cautious in their approach to research and development and opting to rather decrease prices to remain competitive (Bamiatzi, Bozos, Cavusgil & Hult, 2016). Corporations and

business owners are currently less likely to invest in technology and untested automation with most preferring to critically analyze a competitor's adoption of technology before following suit (Hardy, 2014). This can be problematic however as fast-food retailers that follow this strategy expose themselves to the risk of being left behind by the competition who have selected to pursue such technology first and vigorously (Barber, Metcalfe & Porteous, 2016). Self service kiosks can be a game changer in the fast food industry and will be determined by South African customers' readiness to adopt and change to in-store automation such as this.

It must be noted that there are few empirical studies available to statistically quantify any introduction of self service kiosks within the fast food industry in South Africa as well as limited surveys done to highlight consumer perception towards the use of these units over sales clerks. This study serves to fill this gap and expand the knowledge in this regard.

2.7.4. Summary

This chapter has summarized the relevant available information with regards to the research topic and study objectives. It has further stressed the gaps within this literature with regards to the topic in a local context, upon which an appropriate research design could be formulated to address the research problem. A research instrument has been designed to determine the preferences of South African customers to use self service technologies in fast food restaurants over using traditional employee assisted transactions. It endeavors to decipher if South African customers believe the speed of service experienced in fast food restaurants requires improvement and whether self service kiosks are believed to be an accepted improvement. Chapter 3, which follows, will describe and illustrate the methodology, as well as considerations, used to address the research objectives.

CHAPTER 3 – METHODOLOGY

3.1. Introduction

The following chapter discusses and describes the methodological procedures and strategies that were used in order to accurately address the research questions and hence answer the research problem. The research approach, design and methods used in this study is discussed in detail to highlight all the considerations and subsequently justify the choices made. Further insight is given into the parameters of the study and instruments used such as the study setting, targeted population and the sampling techniques. The reliability and validity of data collection instruments is also discussed as well as the measures put it place to remove bias from the results. Lastly the ethical considerations with regards to the stakeholders that participated or may have been affected by the outcome of the study is explored.

3.2. Aim of the Study

The aim of the study, as listed in chapter one, was to explore the views of patrons and employees of the Giba Gorge Business Park in KZN with regards to the speed of service currently experienced at local fast food restaurants as well as correlate their preferences to using self service systems to enhance and improve the speed of service. The study involved gathering and comparing literature on service delivery within fast food restaurants locally and internationally as well as literature on in store automation in supply chain management. Collection of data, namely the views of patrons and employees of Giba Gorge Business Park as customers of fast food restaurants, was done with a research instrument in the form of a questionnaire to establish trends.

3.3. Objectives of the study

As per Section 1.5, the objectives of the study were as follows:

- To establish whether patrons and employees of the Giba Gorge Business Park, KZN view the speed of service encountered at local fast food restaurants as acceptable.

- To establish which factors affect the speed of service experienced in fast food restaurants according to patrons and employees that frequent the Giba Gorge Business Park.
- To establish local consumers' inclination to use and adopt new technology within the retail sector.
- To gather information regarding local customers' preferences to ordering in store through restaurant employees or via the use of self service kiosks.
- To provide recommendations to improve the speed of service experienced in fast food restaurants within KZN based on the views correlated from patrons and employees of the Giba Gorge Business Park, KZN.

3.4. Research Questions of the study

As per Section 1.6, the research questions of the study were as follows:

- Do patrons and employees of the Giba Gorge Business Park, KZN view the speed of service encountered at local fast food restaurants as acceptable?
- Which factors affect the speed of service experienced by customers in fast food restaurants according to patrons and employees that frequent the Giba Gorge Business Park?
- What is the local consumers' inclination to use and adopt new technology within the retail sector?
- Do local customers prefer to place their in-store orders through the use of technology such as self service kiosks or through restaurant employees?
- What recommendations can be made to improve the speed of service experienced within KZN fast food restaurants, based on the views correlated from patrons and employees of the Giba Gorge Business Park, KZN?

3.5. Location of the study

The study has been conducted within the Giba Business Park in Westmead, in KZN. It is based on the consumers of the fast food restaurants within this geographical area. Many fast food retailers and shopping malls declined participation in the study whilst the Giba Gorge Business Park granted full access to the visitors, patrons and employees that

frequent the premises. The area was subsequently chosen due to the variation and numbers of personnel that visit the park on a daily basis which rely on fast food services throughout the business day as quick convenient nourishment. Giba Business Park has 26 unique companies and suppliers that operate from within the industrial, conservation and tourism zones. Each Zone brings a diverse set of visitors, customers and employees. The nature of the business park is such that most employees and visitors frequent fast food restaurants for their on-the-move nourishment as well as meetings and the like. This business park not only then gives access to people with extensive experience in dealing with fast food restaurants but also to a diverse population that can participate which leads to results that can be used to extrapolate findings to accommodate a broader target area.

3.6. Target population and participants of the study

Feeley *et al.* (2012) recognizes that the frequency of fast food restaurant visits has drastically increased from generation to generation and millennials are more likely to frequent fast food restaurants than the generations before. Fast food has also become increasingly convenient and affordable which has seen greater dispersion of consumers of fast food over the Living Standard Measure (LSM) groupings (Feeley *et al.*, 2012). This then highlights that consumers of fast food are a diverse group that can be categorized by employed individuals within the LSM group 4 to 10 parameters (Vermeulen *et al.*, 2015). For this study, all visitor's, employees and patrons of the Giba Gorge Business Park were considered potential participants and the only exclusion was the age group below 18 years.

There is a large population that can be considered fast food customers within KZN and retrieving permission to perform studies within highly trafficable areas proved to be difficult. Thus a smaller group was decided upon in which results could be used to mirror those of KZN subject to the accurate representation of subgroups within the study area. Giba Gorge Business Park was used due to the variation and numbers of personnel that visit the park on a daily basis and satisfy the characteristics of the study population such as LSM 4-10 grouping. The thriving fast food retailers within the business park and in the

surrounding areas suggest that the populace utilizing this park are frequent fast food customers.

There are on average 500 visitors to the Giba Gorge Business Park on a daily basis. These visitors consist of the employees of the 26 companies that work within, visitors to the different conservation zones and patrons of the leisure and tourism areas. For this study, the target population was thus considered to be 500 people.

3.7. Research design

The research design is discussed below to highlight the considerations made, research strategies adopted and methods decided upon to effectively address the research problem.

3.7.1. Research methodology and type of data

A mono method quantitative research design was chosen to address the research objectives. With this type of research design, data is collected by the use of a suitable research survey instrument to numerically formulate trends (Saunders, Lewis & Thornhill, 2015). This method was chosen because general hypotheses can be drawn from past supply chain literature on the use of technology and in-store automation in service delivery. This then leads to deductive reasoning in which theory is tested, unlike induction in which theory is created (Saunders *et al.*, 2015). As discussed in Chapter 2, SSK's greatly benefit both customers and franchise owners. There is however limited case studies into the use of SSK's or customer's views towards using self service technologies in fast food restaurants locally. A deductive approach has thus been followed to test the theories of beneficial implementation of SSK's in improving speed of service delivery for customers that frequent Giba Gorge Business Park within Durban, KZN.

A survey strategy through the use of a questionnaire has been used to collect data. Limited archival research and few case studies on the topic derives the need to survey customers' perceptions and formulate trends therein. It thus takes into account not only customers' views on the current levels of speed of service but also their preferences and

inclinations towards using technology with emphasis on introducing technology to improve speed of service. In consideration of research strategies, another possible strategy was action research which denotes action based on the outcome of the study and may affect the participants as well as the organization (Saunders *et al.*, 2015). This study cannot be considered an action research strategy however as it is purely an academic paper which formulates the recollection of data from customers with regards to the efficiency of the service they have experienced, as well as their views on the use of self service systems within local fast food restaurants. Feasibility cannot be immediately drawn from the results of, or holistic solutions brought about in this study, and further extensive feasibility studies must be done to facilitate all stakeholders of the organization thus further emphasizing that this is not an action research strategy.

With regards to the time horizon of the research design, this study has collected and correlated data as per what is currently available and hence is identified as a cross-sectional study. Cross-sectional studies are described as those in which the data is collected from a population or sample at a specific point in time (Saunders *et al.*, 2015). It is recommended that ensuing investigations to scrutinize the conclusion of this dissertation may invoke longitudinal studies to record changes in trends and perceptions of customers over time and after advancements in technology.

3.7.2. Research Paradigm

Research paradigms consist of the philosophical assumptions or beliefs that orientates and influences the practice of research (Creswell, 2014). Researchers themselves influence the structure of the studies through their own life experiences and views on existing literature (Creswell, 2014). It is imperative that researchers understand the purpose of the study and reflect on the underlying assumptions they themselves possess about research. Amongst the paradigms, it is scientific investigation that centers this study which can be attributed to the positivist and post positivist worldviews (Creswell, 2014). These types of worldviews link to not only the research approach of deductive reasoning as described above but also to the researcher's affinity toward theory development through validation which is borne by knowledge base and life experiences. Both these

worldviews parallel the researcher's scientific knowledge base, skillsets, experience and research ideals which stems from acquiring an engineering degree (Creswell, 2014). Like positivism, post positivism gathers and collates numerical data to validate or disprove theory. They differ however in that positivism requires purely objective data collection methods whilst post positivism assumes traces of subjectivity in all reasoning (Saunders *et al.*, 2015). For this study data has been collected via a customer questionnaire and available literature. It is thus assumed that subjectivity is within both data collection sources which is aligned with the core beliefs of the post positivist worldview.

Other worldviews were considered, namely constructivism, transformative and pragmatism, but these did not align with the required research design. Constructivism is attributed to inductive reasoning, theory generation and qualitative research designs whilst a transformative worldview lends itself to political and change oriented research (Creswell, 2014). Pragmatism, while problem-centered and oriented to real-world practice, supports multiple data collection methods to correlate and explain holistically the problem statement (Creswell, 2014). The chosen research approach, method and strategy is supported by the post positivism worldview.

3.7.3. Sample of the study and sampling methodology

The method known as non-probability sampling was used since random sampling could not be ensured. Purposive sampling was considered but was decided against as this type of sampling involves the selection of participants according to certain parameters such as a particular subgroup in which all the sample members share a specific similarity (Creswell, 2014). As mentioned in deciphering the target population, consumers of fast food can be categorized as employed individuals within the LSM groupings 4-10. Giba Business Park represents this target population effectively as there are working class and middle class employees as well as upper class personnel that frequently visit for meetings and to explore the ecotourism sectors.

Probability sampling such as Simple Random sampling could not be done as there was no method to gauge the potential participants to select from. Convenience sampling was

thus used within this area due to access, proximity and availability to participants (Saunders *et al.*, 2015). This sampling is also known as the “man on the street’ survey sampling method in which only persons that are encountered or accessible are given the opportunity to participate (Granato, de Araújo Calado & Jarvis, 2014). This sampling technique assisted the researcher in terms of costs associated with participation as well as limiting down time of employees in the business park to conduct the instrument.

The required sample size was calculated as follows as adopted by Kadam & Bhalerao (2010):

$$n = \frac{\frac{z^2\, p(1-p)}{e^2}}{1+\frac{z^2\, p(1-p)}{e^2 N}}$$

Confidence Level (95%)	z =	1.95
Percentage Value	p =	0.5
Population Size	N =	500
Margin of Error	e =	0.05
Required Sample	n =	216

The sample size required is 216 respondents.

The response rate was considered to be 50% due to the busy nature of the persons frequenting the Giba Business park. Thus the number of respondents to receive the research instrument was calculated as follows as adapted by Kadam & Bhalerao (2010):

$$I = \frac{\text{No. of Respondents required}}{\text{expected \% Response rate}}$$

Required Sample	n =	216
expected % Response rate	% Res =	0.5
No. of Respondents to be asked	I =	432

The number of respondents to receive the survey instrument in order to achieve the required sample number was 432.

3.7.4. Construction of the research Instruments

Research instruments to be used are chosen and designed according to the specific study requirements and characteristics (Saunders et al, 2015). This study which is set in Giba Gorge Business Park, KZN, required the views from the customers and patrons of fast food restaurants regarding the speed of service experienced and the use of self service technology. It was realized that a questionnaire would best suit the participants. A questionnaire was further promoted to be used by the explanatory nature of the research. An explanatory study created the need for a questionnaire with close end questions as this would best address the research objectives whilst ensuring ease of data collection and quantitative trend analysis (Saunders et al, 2015). The instrument chosen was a self-completed questionnaire with Likert style rating questions for ease of rating (Saunders et al, 2015).

In construction of the questionnaire, a list of statements was generated using an iterative process for each study objective to ensure responses of such would address these research objectives adequately. This design mechanism is known as a data requirements table (Saunders et al, 2015). The testing variable for each statement in the data requirements table is listed so as to establish whether the variable is based on the respondent's attitude and/or opinion, or based on the respondent's reflection on past, present and future events (Saunders et al, 2015). This is important to note as analysis of the responses to the statements is scrutinized according to the variables collected.
The final statements chosen from the data requirements table were grouped into three categories:

Scoring Series A – Statements used to determine the respondent's attitude towards the speed of service experienced in fast food restaurants locally. Questions 1-12 are scored in this category using Likert Scale rating. This series also provided a dual function in which the factors mostly strongly identified by the participants as significantly affecting speed of service were recorded for discussion and analysis.

Scoring Series B – Statements used to determine the respondent's likelihood to use technology and their inclination towards new technology systems currently used in the retail industry. Questions 13-17 were scored in this category using Likert Scale rating.

Scoring Series C – Statements used to determine the respondent's likelihood to use, and attitude towards in-store self service ordering systems over the conventional employee assisted transactions. Questions 18-24 were scored in this category using Likert Scale rating.

In construction of the research questionnaire, the demographic particulars required from each participant for trend analysis was added to the final draft.

3.7.5. Pretesting

The draft questionnaire was given to both the UKZN supervisor and the management team of the Giba Gorge Business Park. Both parties assisted with minor adjustments in the wording of the questionnaire to ensure legibility and unambiguity. An adjusted questionnaire was then approved, agreed and issued to a trial set of participants to be utilized in the study. The trial set of participants consisting of the management staff at the investigators place of work, were given the questionnaire to fill in whilst under observation to highlight any items of concern. No additional items were highlighted and the draft questionnaire was finalized.

3.7.6. Administration and collection of the research instrument

Questionnaires were used to conveniently and quickly collect data in a nonintrusive, non-threatening manner. These documents were sent through via electronic versions to the company email addresses within the Giba Gorge Business Park. Hardcopy surveys were placed within the leisure and tourism centers to be filled in by patrons within these zones. The investigator also personally handed out hardcopies to visitors of the Giba Gorge Business park. A box was placed at the management center to collect filled in questionnaires. This afforded the participants the opportunity to answer the questionnaire at their own leisure which adds to the reliability of the results (Saunders et al, 2015). Emailed surveys also remove added pressures or influence caused by the presence of

the researcher, which further ensures true responses from the participants (Saunders et al, 2015). This data collection procedure also added the possibility of anonymity on the part of the respondent. All emailed responses were filed by the researcher and printed for ease of data formulation and analysis.

3.7.7. Reliability and validity

No compensation was offered to participants in anyway which eliminated the possibility of results being distorted due to this added influence (Creswell, 2014). Influence in this form can occur by the receiving participants attempting to answer the questionnaire favorably for the researcher. Conversely, participants who are not content with the compensation or did not receive whilst others did, may answer the questionnaire begrudgingly (Creswell, 2014). The researcher also issued many questionnaires to the different companies, organizations, visitor centers and customers zones within the Giba Business Park to eliminate the following possible threats to validity:

1) Gathering large numbers of respondents helps normalize and reduce the effect of extreme scoring participants which ensures reliable results (Creswell, 2014)
2) Affording equal opportunity for all demographic subgroups to participate, assists with identifying any trends and bias scoring borne by group characteristics, beliefs and predispositions (Creswell, 2014).
3) Distributing the questionnaire to all areas of the Giba Business Park ensures that the results are not distorted due to communications between participants from certain areas and groups (Creswell, 2014). Diversity in the respondents removes the effect of in-group, out-group members (Northouse, 2015).

The research instrument was constructed as a self-completed questionnaire which further adds to the reliability and validity of the results. This afforded the participants the ability to complete the questionnaire at their own leisure which ensured the researcher did not impose his own influence on the participants through interaction, observation and time constraints (Saunders et al, 2015).

3.8. Analysis of data

Following on from collection of data is the mechanism of analyzing the raw data. The number of respondents was determined to verify against the required sample and the results of the questionnaires were tabulated to establish general trends. The results of such are in the follow on chapters. Creswell (2014) recommends that a wave analysis be done to highlight the changes in the responses through the weeks to determine whether response bias has significantly altered the results. Response bias is linked to the effect that nonresponses have in changing the outcome of the results (Fowler Jr, 2013). It is considered that as the study continues over time, nonrespondents may decide to participate and participants of the last collection of surveys can be considered possible original nonrespondents (Creswell, 2014). Thus results were tabulated week by week to record changes. Microsoft Excel has been used to illustrate these results.

3.9. Ethical Considerations

Certain institutions and corporates declined involvement in the study and disallowed access for the continuation of the research within their vicinities and/or corporate structure. The researcher has adhered to these rejections and barriers to conduct the research and has continued to research the topic of interest through permissible channels. The integrity and objectivity of the researcher has been shown in this regard as well as through the honest and open interactions with participants (Saunders et al, 2015).

All participants were informed of the purpose of the research, made aware that participation was voluntary and provided consent to use their responses in this study. Information gathered was done with self-completed questionnaires and hence was done without influence whilst ensuring confidentiality for the participants as well as allowing anonymity (Saunders et al, 2015). All data has been analyzed and reported accordingly in a manner that responsibly shows the true results of the questionnaires whilst withholding personal information of the participants in the interest of ensuring privacy, anonymity and confidentiality is maintained (Saunders et al, 2015). Lastly permission was obtained by the University of KwaZulu Natal and Giba Gorge Business Park to undergo this study.

3.10. Summary

This chapter listed and discussed the considerations taken in formulating the methodical research procedures adopted. The suitability of the research approaches, paradigms and strategies was explored to justify the choices made. The study setting, sample size and techniques used in this study to adequately address the research objectives was then explained with subsequent description of the construction of the research instrument, data collection and data analysis tools. Finally, ethical considerations for the execution of the research was discussed with an exploration of how reliability and validity of the results was guaranteed. The following chapter will present the results of the research instrument for later analysis.

CHAPTER 4 – PRESENTATION OF RESULTS

4.1. Introduction

This chapter serves to list and present the results of the self-completed questionnaires within the Giba Gorge Business park. The results are shown in summarized forms and graphical representations for ease of comparison and discussion. Ethical clearance was achieved on the 11th September 2017 to conduct the study. The Questionnaires were then issued over a 6-week period from the 18th September 2017 to the 27th October 2017. Over this period 181 respondents were collected.

4.2. Response Rate and Level of Confidence Calculation

Using the formulas from *section 3.7.3*, we determine that the response rate was worse than anticipated with a 36.2% response rate which is a 27.6% (13.8 %-points) deviation from the anticipated. This was calculated below as adapted by Kadam & Bhalerao (2010):

$$\%\ Res = \frac{\text{No. of Respondents required}}{\text{Questionnaires Handed Out (I)}}$$

Achieved Sample	n =	181
expected % Response rate	% Res =	36.2%
No. of Questionnaires handed Out	I =	500

Revised margin of error calculation as adapted from Krejcie & Morgan (1970):

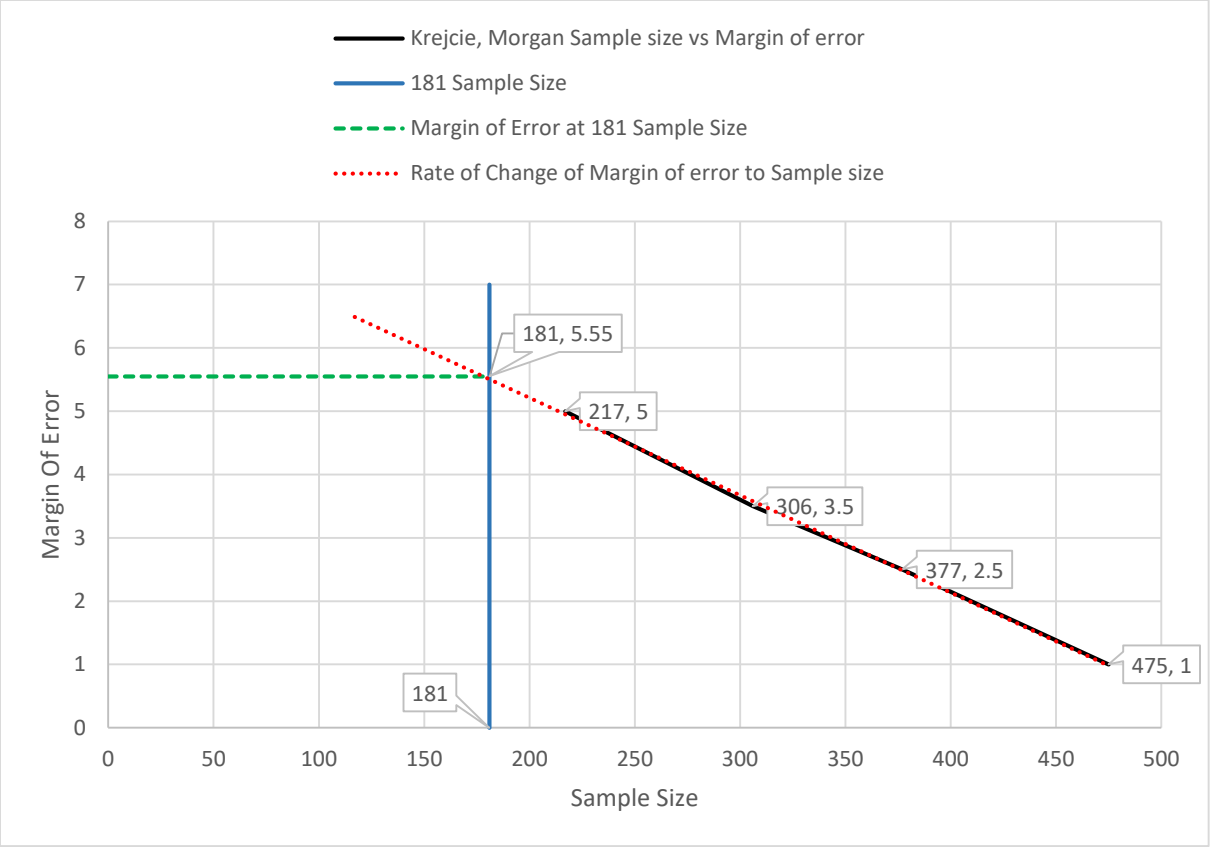

Figure 4.1: Calculation of Margin of Error for Sample size collected

This highlights that the Margin of Error for the research instrument has increased to 5.6% with a confidence level of 95% due to lower than required number of samples collected. The response rate was lower than assumed and the researcher attempted to issue more questionnaires to compensate for this. Despite these attempts however, the sample collected was 16.2% less than the required to achieve the 5% margin of error with 95% confidence level.

4.3. Total Respondents Summary

The following section serves to collate and summarize the filled in questionnaires. Table 4.1 below summarizes the demographics of the respondents whilst the ensuing figures graphically illustrate the apportionment.

Table 4.1: Demographics Summary of Respondents based on the particulars filled in the questionnaire

Race	African	Asian	Coloured	Indian	White	Other	
	26.52%	7.73%	4.42%	37.02%	24.31%	0.00%	
Age Group	18-21	22-30	31-40	41-50	51-62	Older	
	0.55%	21.55%	33.15%	27.62%	14.92%	2.21%	
Home Language	English	Afrikaans	Zulu	Xhosa	Sotho	Other	
	72.93%	1.66%	21.55%	2.76%	1.10%	0.00%	
Qualifications	NQF-4	NQF-5	NQF-6	NQF-7	NQF-8	NQF-9	N/A
	28.73%	11.60%	23.76%	16.57%	9.94%	2.21%	7.18%

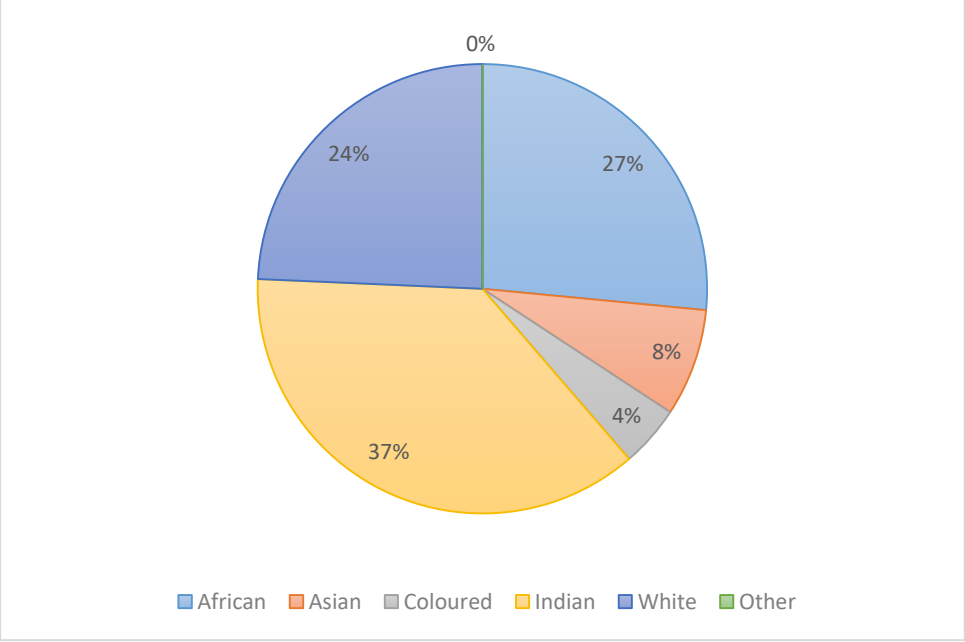

Figure 4.2: Percentages of Respondents according to Race

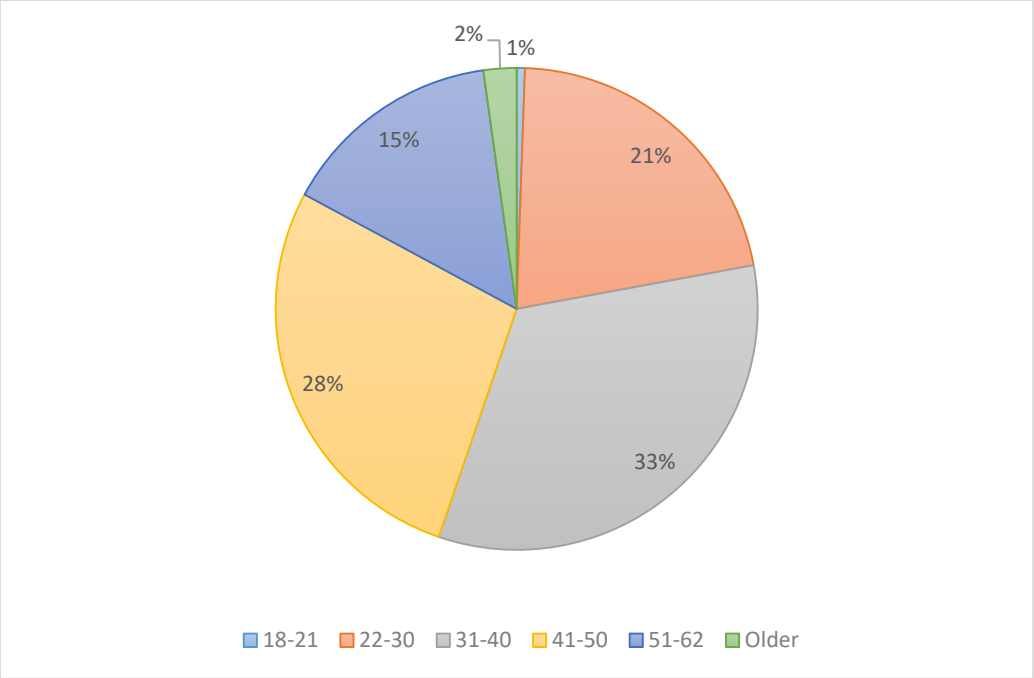

Figure 4.3: Percentages of Respondents according to Age

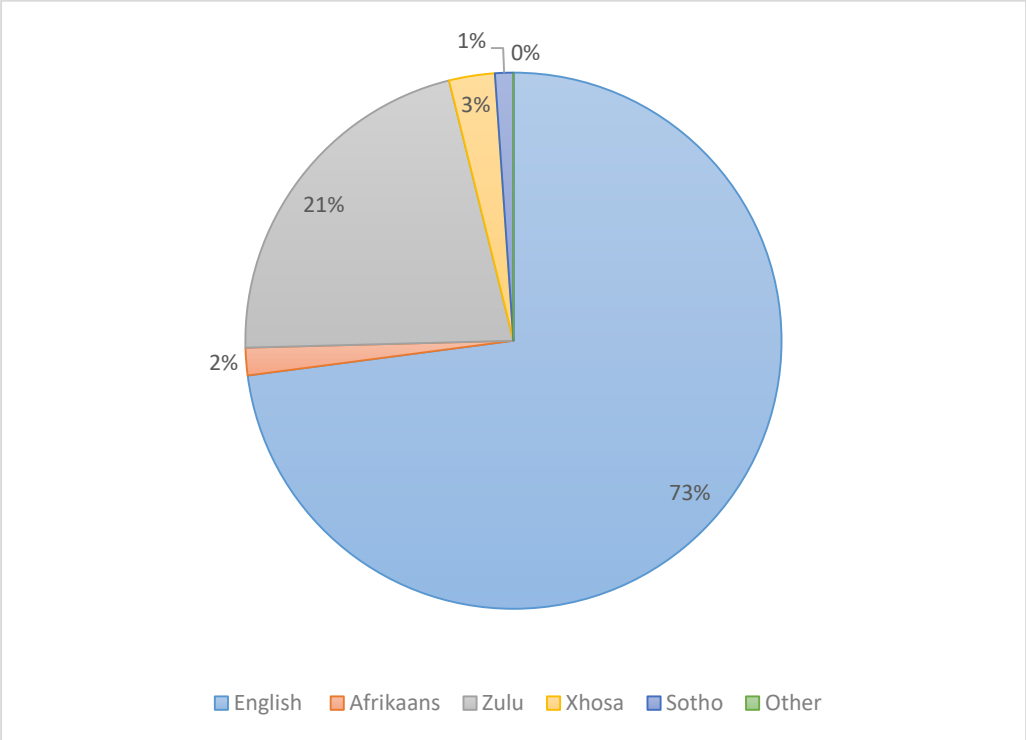

Figure 4.4: Percentages of Respondents according to Home language spoken

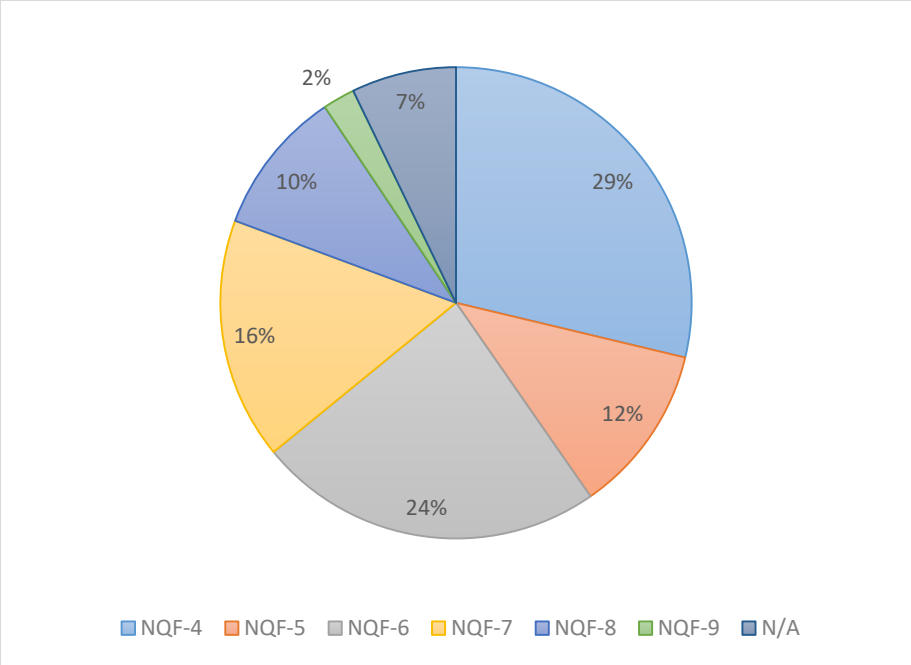

Figure 4.5: Percentages of Respondents according to Level of Education

The figures above allow for a basis upon which a discussion and interrogation of the results can be done with regards to representation of societal groups. A summary of the answers provided to the research questions overall is shown below in table 4.2. The questionnaire is shown in appendix A.

Table 4.2: Summary of the answers from the 181 participants, shown in percentages

1	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.97%	16.02%	17.13%	44.75%	17.13%	20.99%	17.13%	61.88%
2	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	9.39%	17.68%	45.86%	22.65%	13.81%	17.68%	68.51%
3	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	33.70%	29.28%	24.86%	7.73%	38.12%	29.28%	32.60%
4	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.97%	11.60%	14.36%	52.49%	16.57%	16.57%	14.36%	69.06%

5	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.31%	4.42%	14.36%	39.23%	38.67%	7.73%	14.36%	77.90%
6	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	17.13%	12.15%	38.12%	28.18%	21.55%	12.15%	66.30%
7	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	2.21%	9.39%	20.44%	47.51%	20.44%	11.60%	20.44%	67.96%
8	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	1.66%	9.39%	22.10%	44.20%	22.65%	11.05%	22.10%	66.85%
9	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	5.52%	18.78%	48.07%	23.20%	9.94%	18.78%	71.27%
10	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	7.18%	34.25%	14.92%	36.46%	7.18%	41.44%	14.92%	43.65%
11	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.87%	34.81%	20.99%	35.91%	4.42%	38.67%	20.99%	40.33%
12	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	37.02%	34.25%	20.99%	3.31%	41.44%	34.25%	24.31%
13	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	2.21%	10.50%	23.20%	35.91%	28.18%	12.71%	23.20%	64.09%
14	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.97%	8.84%	30.94%	38.12%	17.13%	13.81%	30.94%	55.25%
15	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	6.63%	11.05%	16.02%	43.65%	22.65%	17.68%	16.02%	66.30%
16	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.31%	9.39%	27.62%	41.99%	17.68%	12.71%	27.62%	59.67%

17	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.87%	7.18%	26.52%	37.57%	24.86%	11.05%	26.52%	62.43%
18	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.87%	8.84%	13.81%	46.96%	26.52%	12.71%	13.81%	73.48%
19	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	5.52%	17.13%	17.13%	35.36%	24.86%	22.65%	17.13%	60.22%
20	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.42%	11.60%	14.92%	39.78%	29.28%	16.02%	14.92%	69.06%
21	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	4.97%	5.52%	13.26%	47.51%	28.73%	10.50%	13.26%	76.24%
22	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	2.76%	3.87%	11.60%	45.86%	35.91%	6.63%	11.60%	81.77%
23	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.87%	5.52%	27.07%	39.23%	24.31%	9.39%	27.07%	63.54%
24	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Disagreed	Neutral	Agreed
	3.87%	3.87%	22.10%	41.44%	28.73%	7.73%	22.10%	70.17%

This summary above shows the percentages of respondents that answered a statement in a certain way. This is helpful but cannot be easily used to measure, interpret and correlate trends to effectively address the research objectives. Thus a Likert Scale scoring mechanism was used to resolve the challenge of measurability and comparison.

4.4. Scoring Mechanism

The Likert scale statements were categorized into three scoring series, namely A, B and C as described in *section 3.7.4*. The following figures highlight the scoring limits for each series and the significance of the scores that fall within these thresholds with regards to addressing the research objectives.

The average results from the total number of respondents for the scoring categories are as follows:

Table 4.3: Average Scores for total respondents

Total Averages		
Scoring Series A	Scoring Series B	Scoring Series C
41.7	18.3	26.8

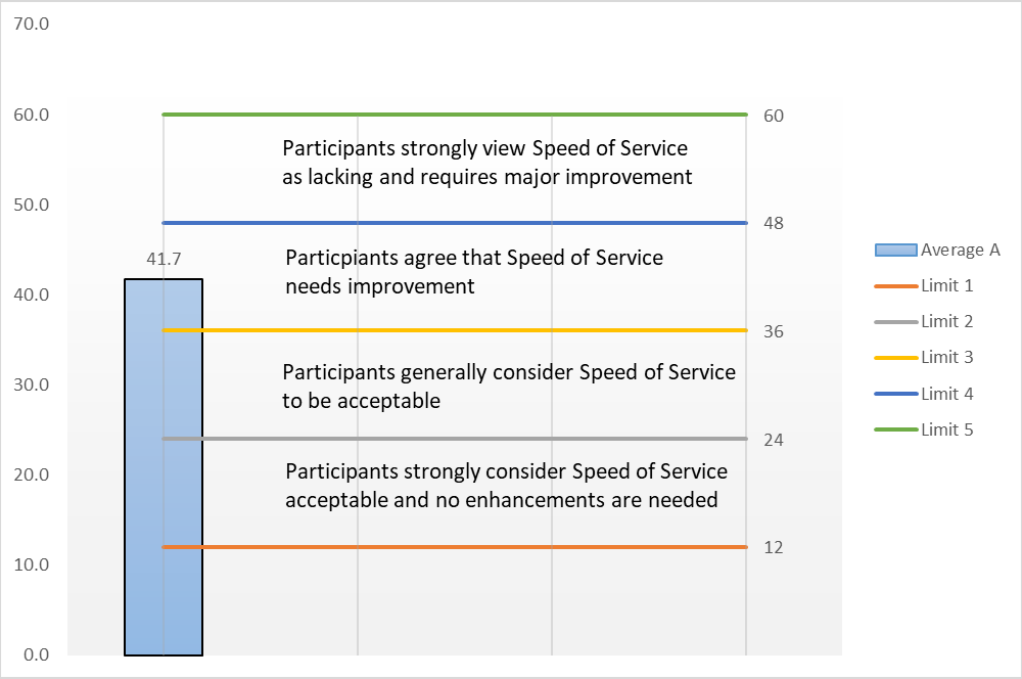

Figure 4.6: Scoring Series A Average and thresholds with corresponding descriptions of scores within the thresholds.

Figure 4.6 portrays the scores obtained from the sample group and indicates that participants felt slightly aggrieved with the speed of service encountered at fast food restaurants and believed some improvements could be made.

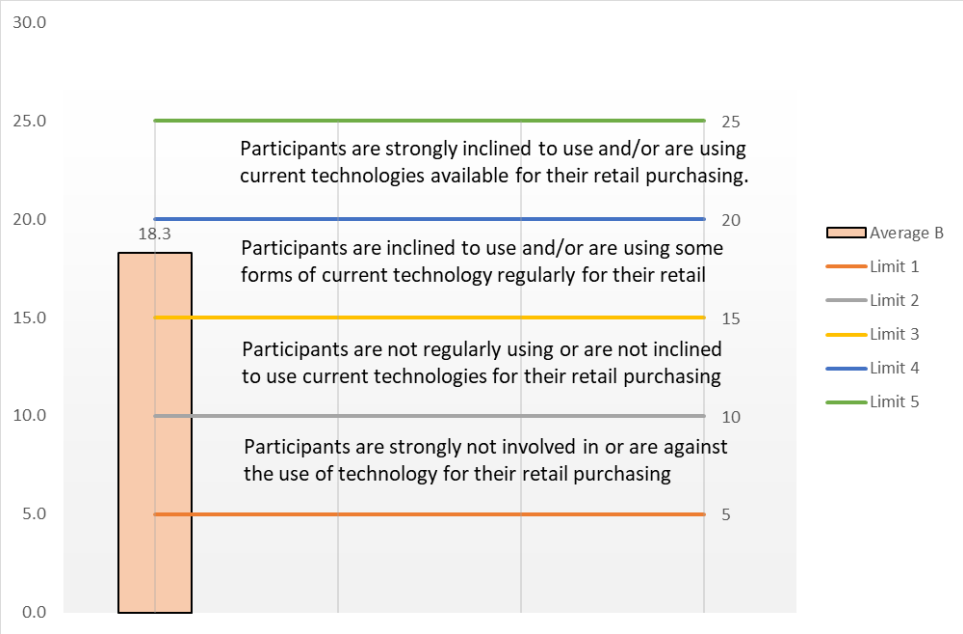

Figure 4.7: Scoring Series B thresholds and corresponding descriptions of scores within thresholds

Figure 4.7 portrays the scores obtained from the sample group and indicates that participants are using or would use current forms of technology available for their retail shopping experience. This highlights an overall inclination to use technological means.

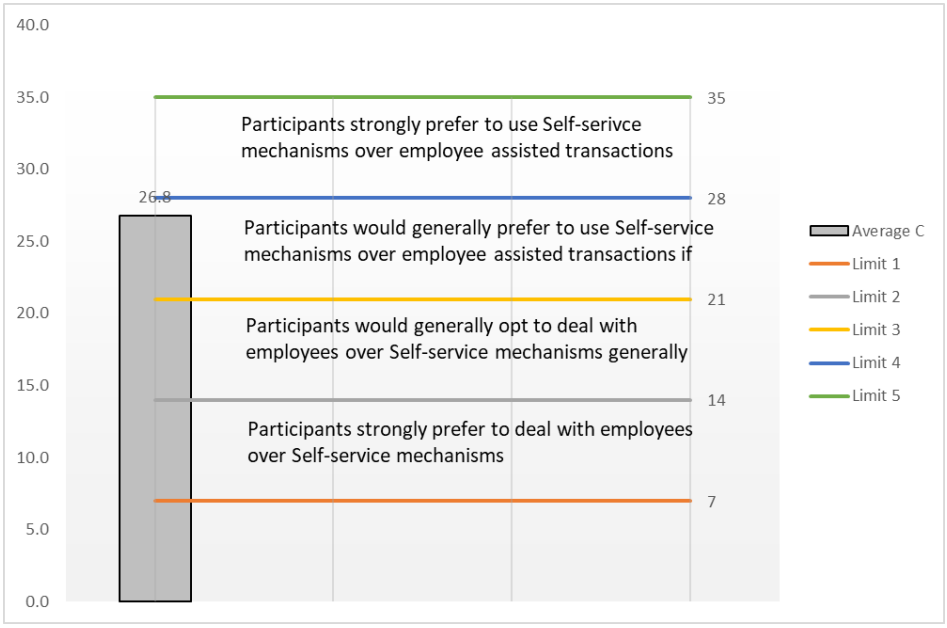

Figure 4.8: Scoring Series C thresholds and corresponding descriptions of scores within thresholds

Figure 4.8 portrays the scores obtained from the sample group and indicates that participants are generally more inclined to use self service technology over employee assisted transactions if the choice was offered.

4.5. Wave Analysis

Creswell (2014) considered nonrespondents may have altered the results of the study if they had participated and thus a wave analysis should be done to determine this effect. As a study continues over time, nonrespondents may decide to participate and thus participants of the last collection of surveys may be considered possible original nonrespondents (Creswell, 2014). The number of respondents were tabulated week on week and the average scores calculated to establish the trends.

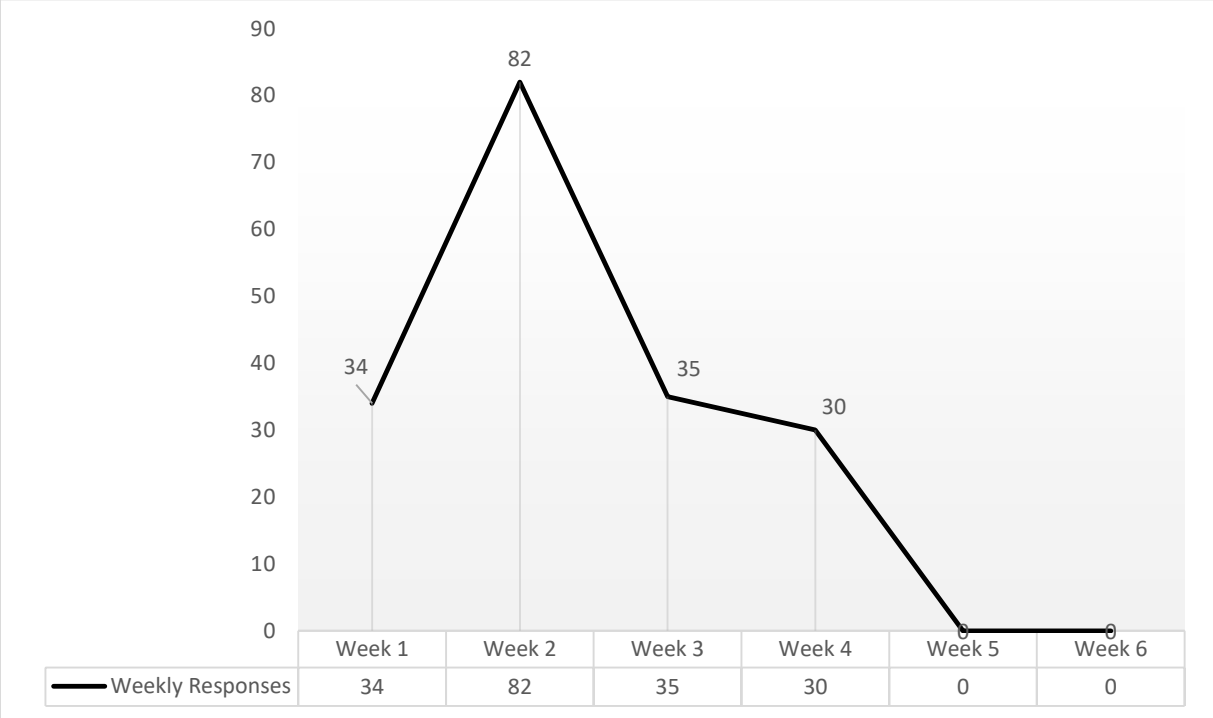

Figure 4.9: Number of respondents received Weekly to make 181 Total.

Week 5 and Week 6 have been removed from the Average scoring due to zero responses.

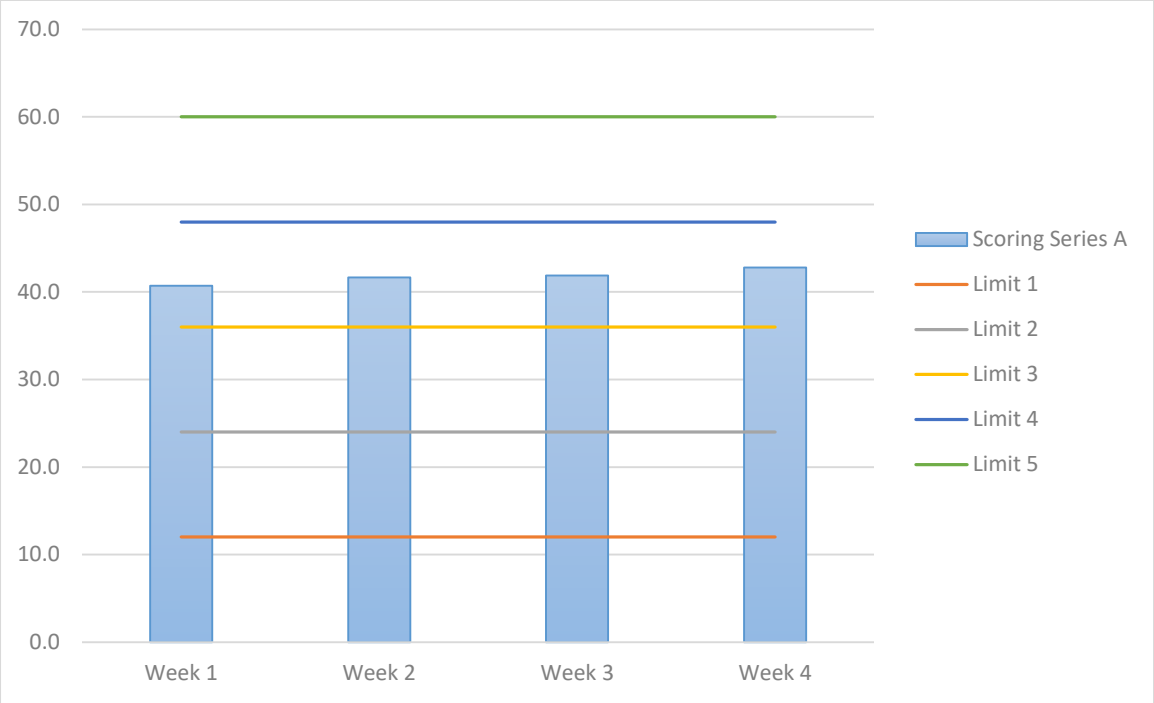

Figure 4.10: Scoring Series A Week on Week Changes

Figure 4.10 above highlights that there is very little change over time with the respondent scores in Category A. Albeit a slight increase in Week 4, all the scores still fall into the slightly agree threshold area.

Figure 4.11 and 4.12 below further emphasize that respondents over time have produced scores that are aligned with the same direction as the overall sample but with stronger levels of agreement than week 1. Despite this, the results week on week fared similarly.

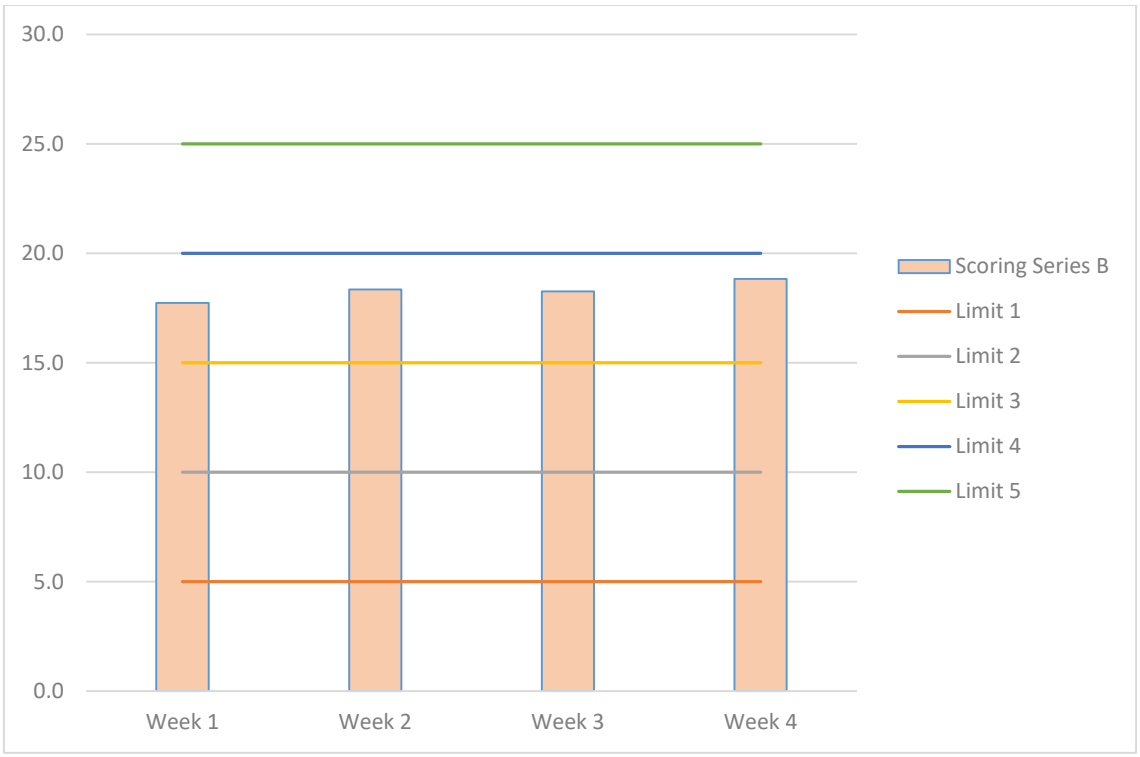

Figure 4.11: Scoring Series B Week on Week Changes

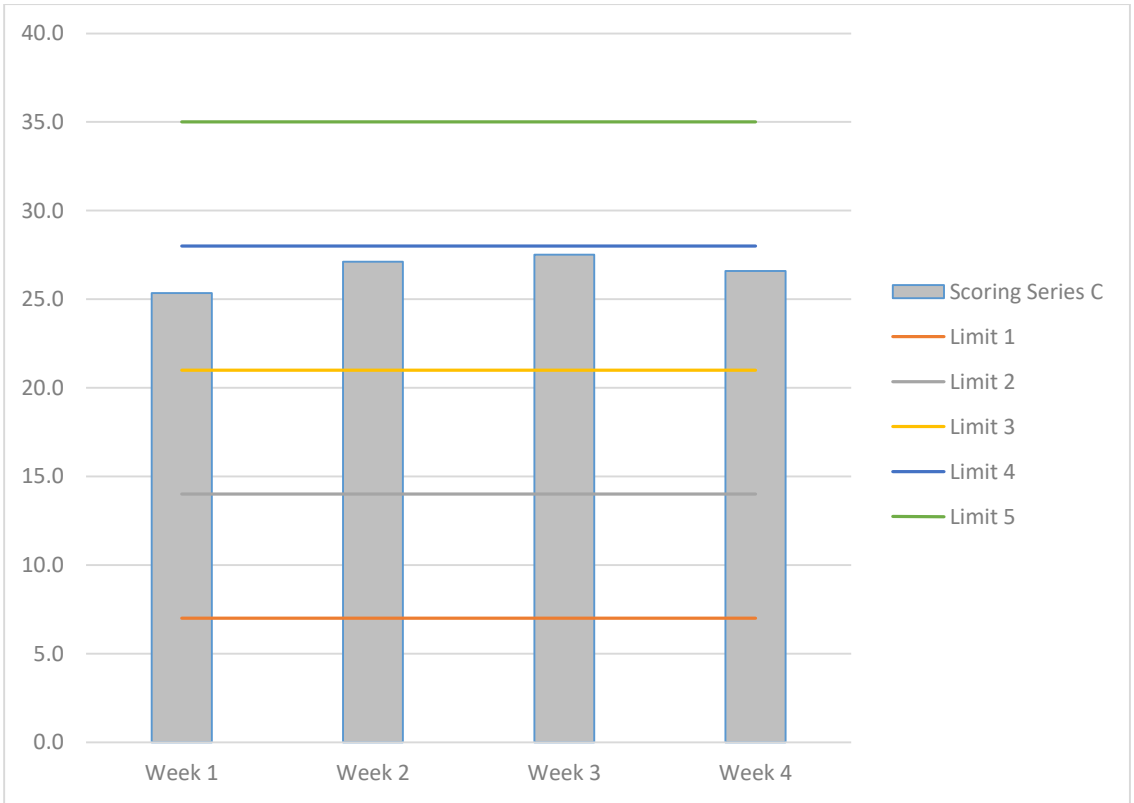

Figure 4.12: Scoring Series C Week on Week Changes

4.6. Scoring by Societal Groups

The results have been further collected and tabulated according to socio demographic elements that have been provided by the respondents. This allows the scoring of each socio group to be represented for comparison and discussion.

4.6.1. Scores determined by Age Group

Results were grouped according to the age groups of participants. The following table summarizes the average scores for each scoring series for each age group.

Table 4.4: Scoring Series Results per Age Group

	a	b	c
18-21	46.0	20.0	35.0
22-30	42.0	18.8	27.3
31-40	41.2	18.0	26.7
41-50	41.9	18.3	26.5
51-62	42.3	18.8	27.4
Older	40.3	16.3	21.5

These results have been graphically shown in the subsequent figures to illustrate how each age group scored in comparison to each other, to the total sample averages and to determine within which threshold the scores for each group is positioned.

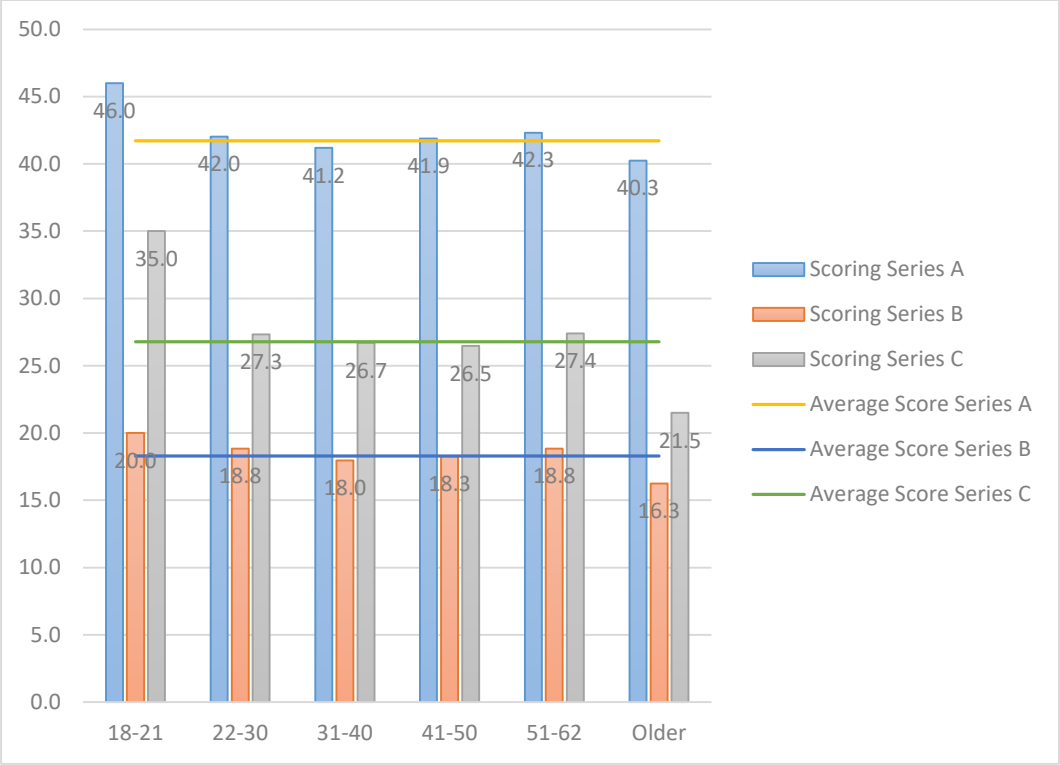

Figure 4.13: Scoring of Each Age Group and Comparison to Total Averages

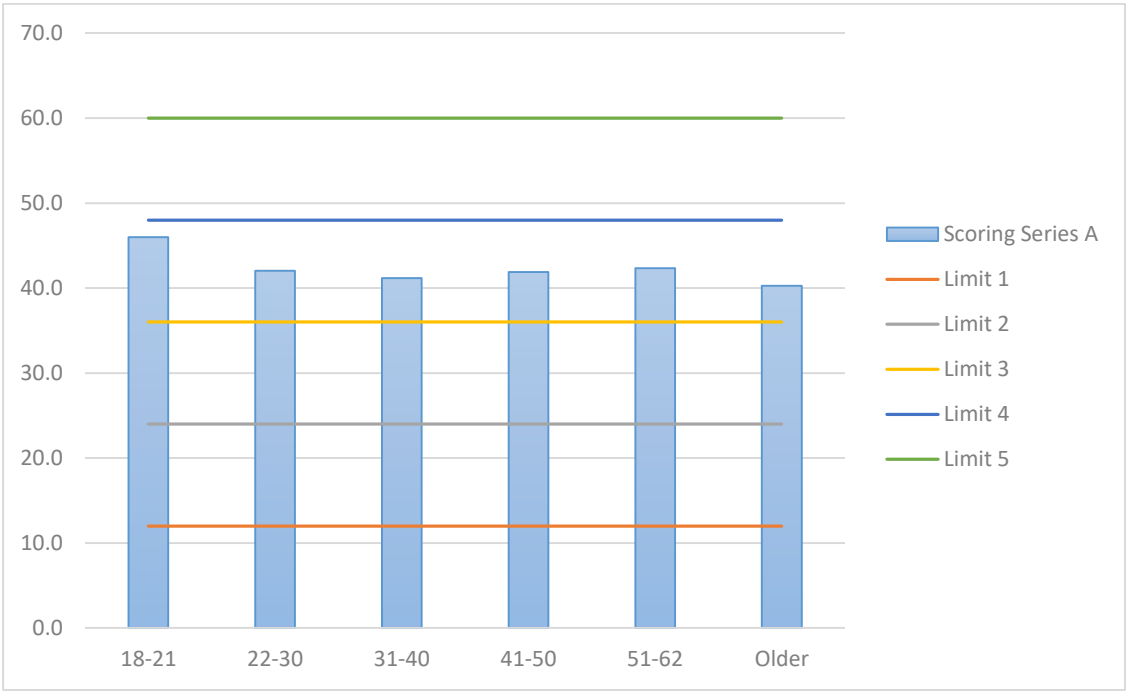

Figure 4.14: Scoring Series A for Each Age group and placement within Scoring thresholds

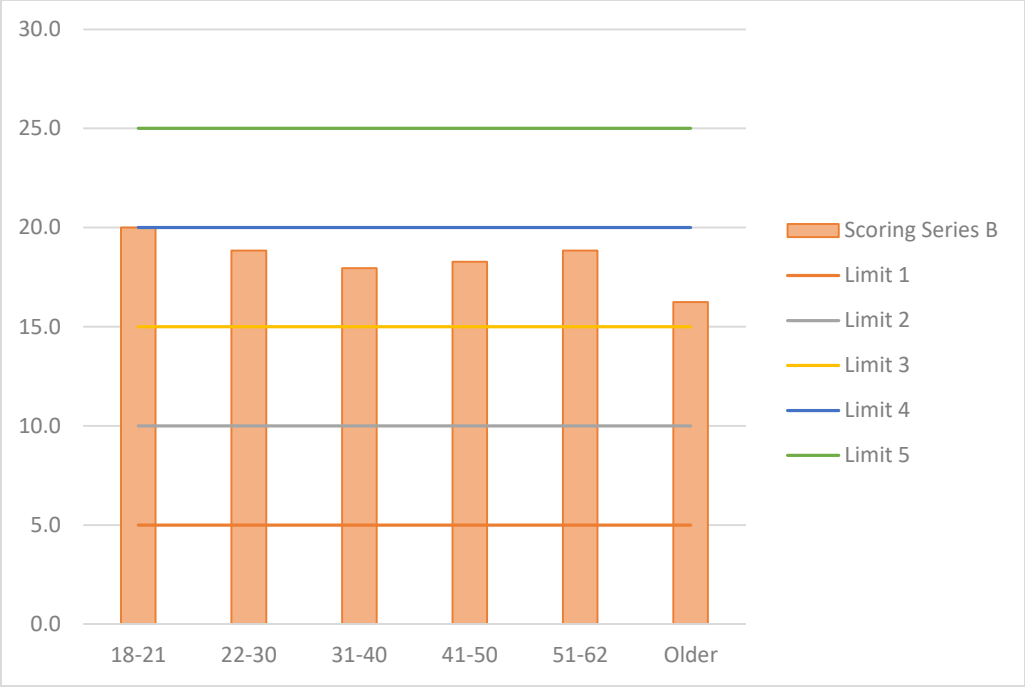

Figure 4.15: : Scoring Series B for Each Age group and placement within Scoring thresholds

Figure 4.16: Scoring Series C for Each Age group and placement within Scoring thresholds

As can be seen, age group 18-21 years exceeds the averages and is positioned closer to, or within, the strong agreement tier in comparison to the other age groups. The age groups from 22-62 years reflect similar scores and positions in the figures whilst the older age group indicated slightly lower results than the rest. Despite the differences, all age groups scored in agreement to improve speed of service, their inclination to use the latest technology and their preference to use self service systems over employee assisted transactions in fast food restaurants.

4.6.2. Scores Determined by Race Group

Results were grouped according to the race groups of participants. The following table summarizes the average scores for each scoring series for each race group.

Table 4.5: Scoring Series Results per Race Group

	a	b	c
African	38.5	17.2	24.9
Asian	41.9	19.0	26.9
Coloured	44.5	19.4	28.9
Indian	43.5	18.5	27.4
White	41.8	18.8	27.4

These results have been graphically shown in the subsequent figures to illustrate how each race group scored in comparison to each other, to the total sample averages and to determine within which threshold the scores for each group is positioned.

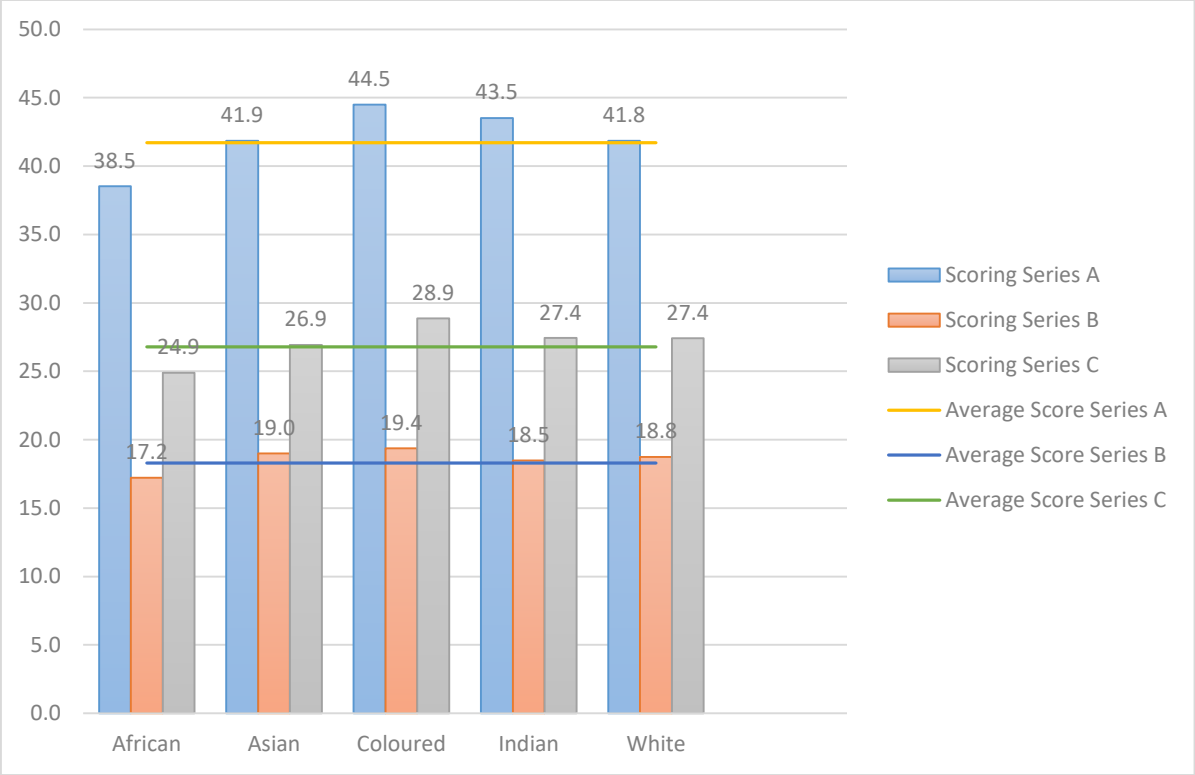

Figure 4.17: Scoring of Each Race Group and Comparison to Total Averages

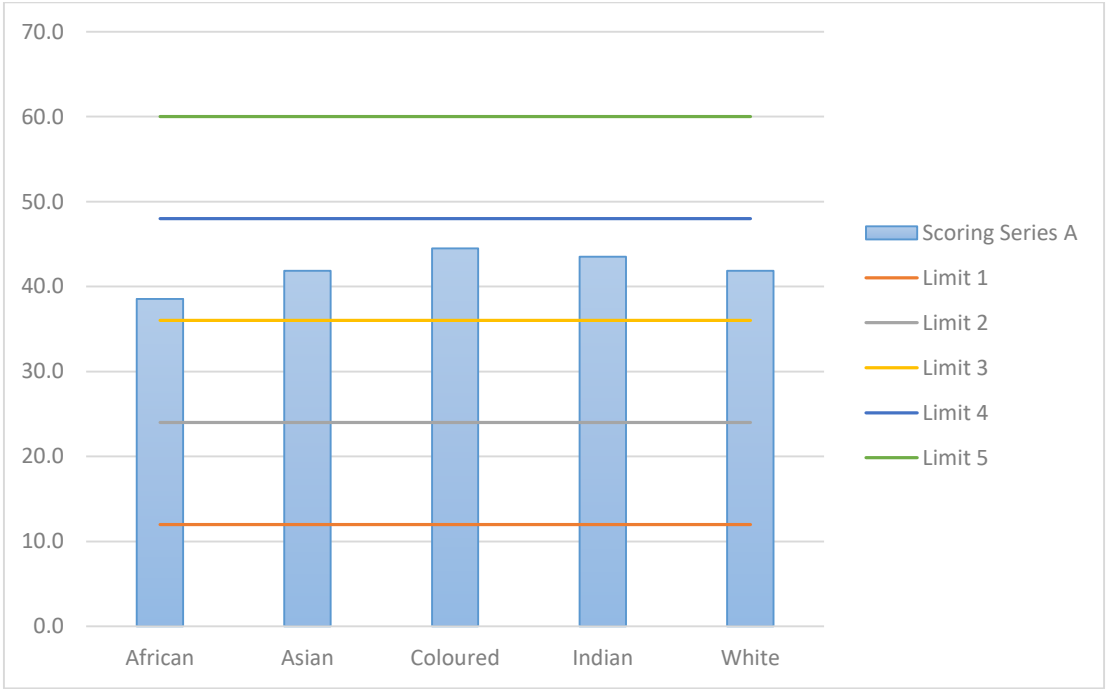

Figure 4.18: Scoring Series A for Each Race group and placement within Scoring thresholds

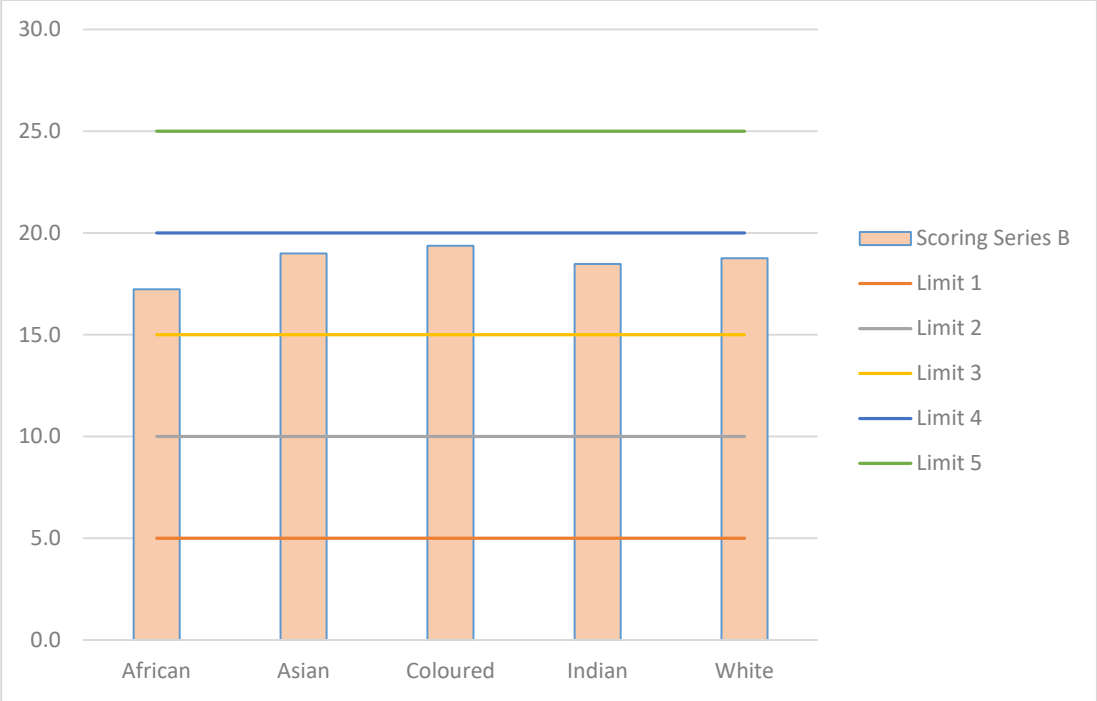

Figure 4.19: Scoring Series B for Each Race group and placement within Scoring thresholds

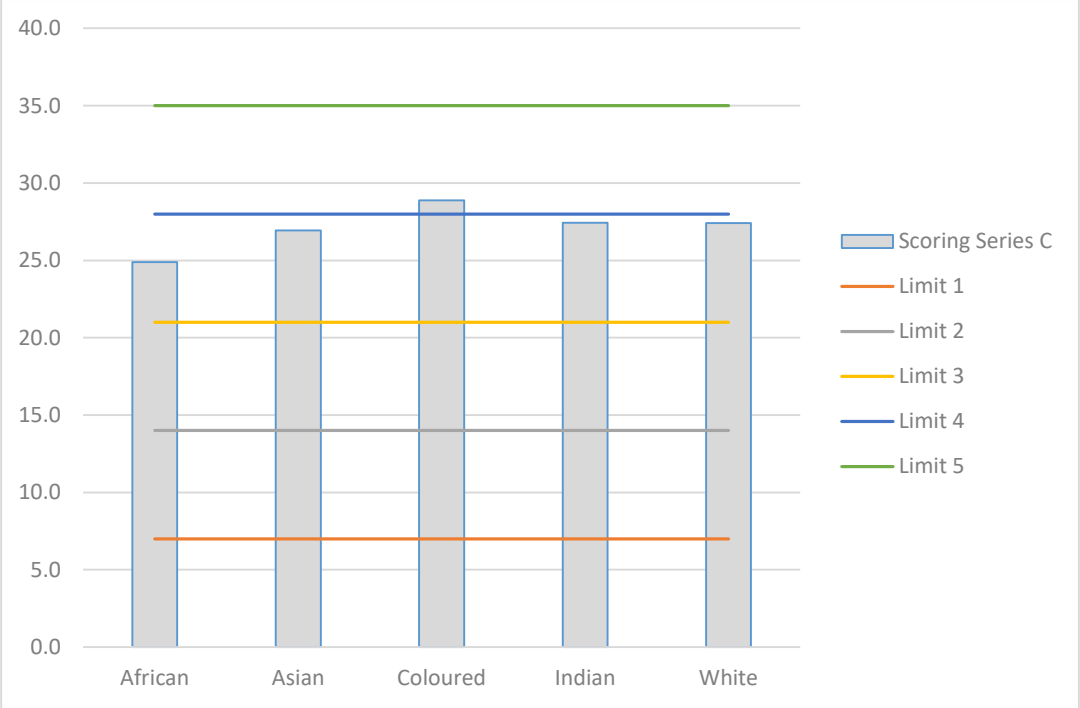

Figure 4.20: Scoring Series C for Each Race group and placement within Scoring thresholds

All race groups scored in agreement to improve speed of service, their inclination to use the latest technology and their preference to use self service systems over employee assisted transactions in fast food restaurants. Mean scores between race groups are closely positioned with the Coloured group scoring slightly stronger levels of agreement whilst the African group scoring slightly lower than the rest.

4.6.3. Scores Determined by Home Language Spoken

Results were grouped according to the home language of the participants. The following table summarizes the average scores for each scoring series for home language demographic.

Table 4.6: Scoring Series Results per Home Language Group

	a	b	c
English	42.5	18.5	27.3
Afrikaans	50.0	22.7	31.7
Zulu	38.2	17.4	24.8
Xhosa	42.4	16.2	26.0
Sotho	41.0	19.0	25.0

These results have been graphically shown in the subsequent figures to illustrate how each home language grouping scored in comparison to each other, to the total sample averages and to determine within which threshold the scores for each group is positioned.

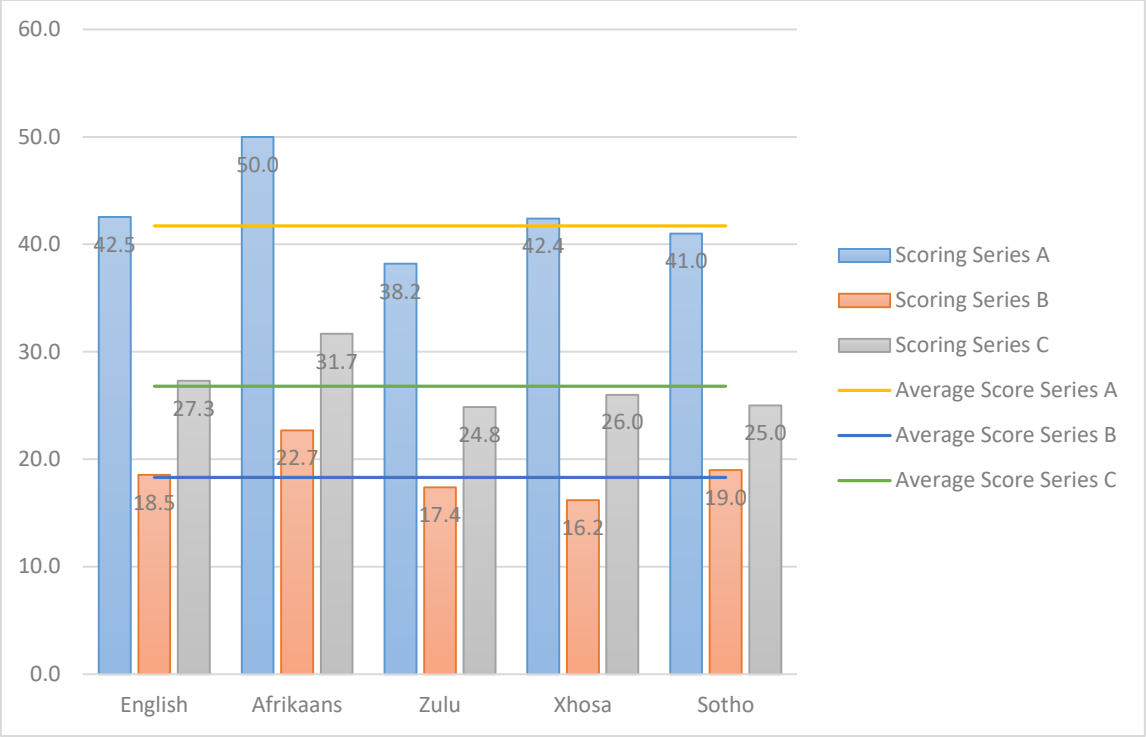

Figure 4.21: Scoring of Each Home Language Group and Comparison to Total Averages

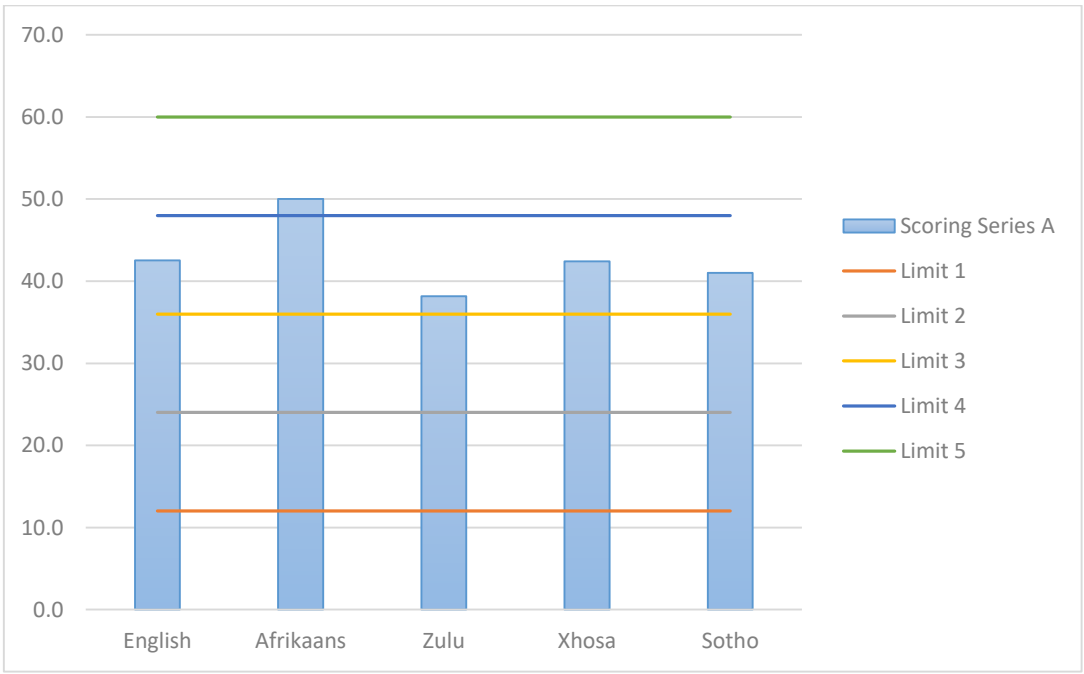

Figure 4.22: Scoring Series A for Each Home Language group and placement within Scoring thresholds

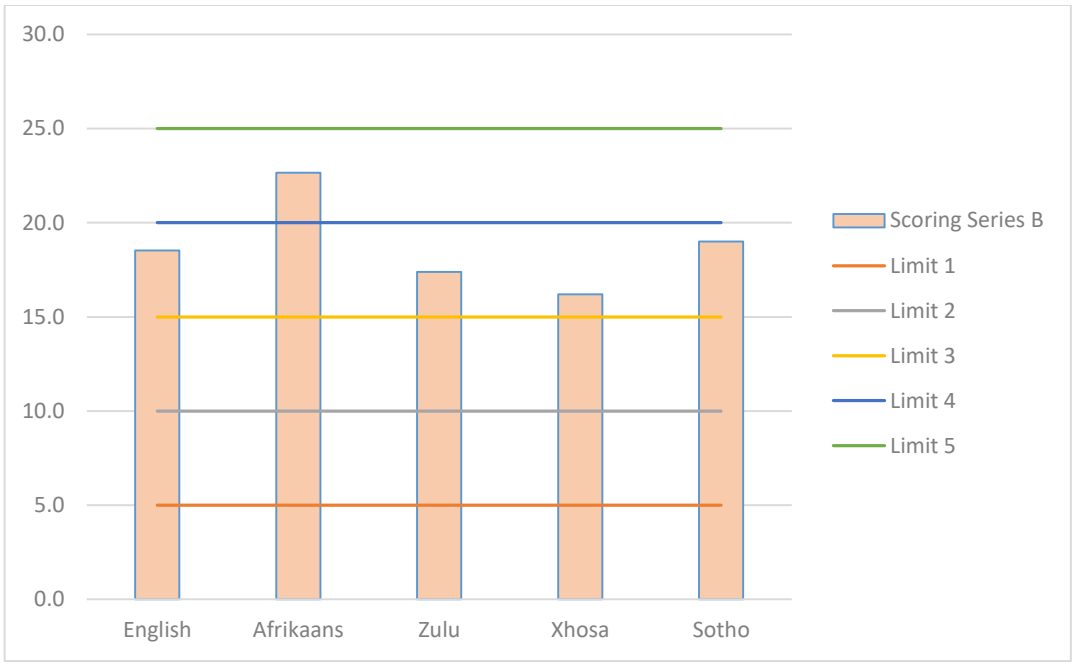

Figure 4.23: Scoring Series B for Each Home Language group and placement within Scoring thresholds

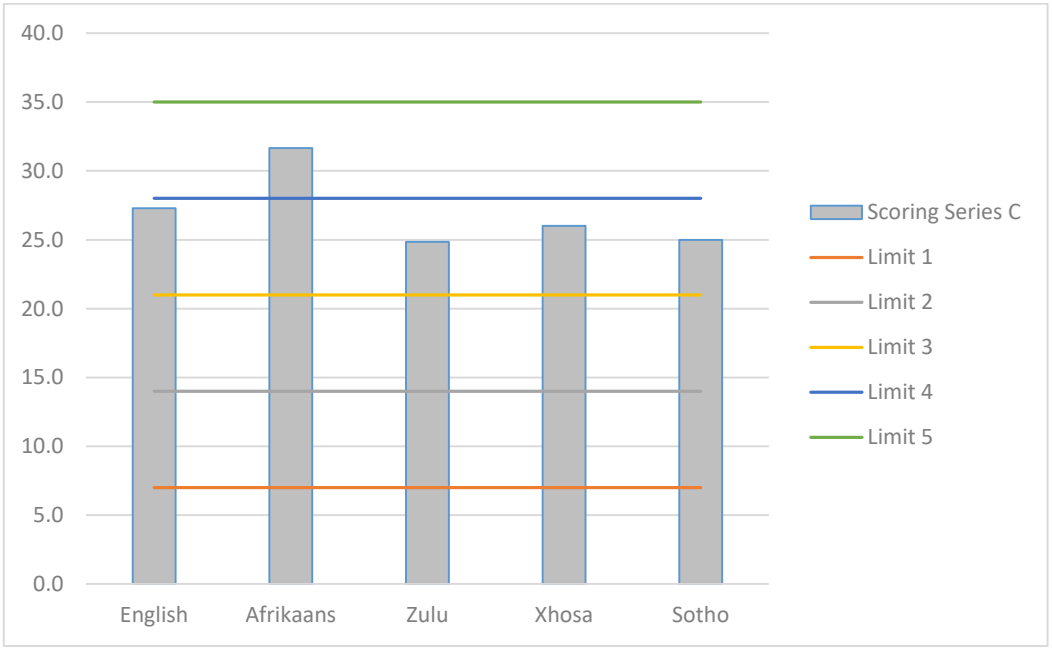

Figure 4.24: Scoring Series C for Each Home Language group and placement within Scoring thresholds

The participants who selected Afrikaans as their home language scored higher levels of agreement than the other languages. Groups that received no representation such as ‘other language’ have been removed due to no score. English, Zulu, Xhosa and Sotho scored similarly with all groups in agreement to improve speed of service, their inclination to use the latest technology and their preference to use self service systems over employee assisted transactions in fast food restaurants.

4.6.4. Scoring Determined by Level of Education

Results were grouped according to the education levels of participants. The following table summarizes the average scores for each scoring series for each education level.

Table 4.7: Scoring Series Results per Level of Education

	a	b	c
NQF-4	42.0	18.2	26.8
NQF-5	42.6	19.0	27.0
NQF-6	41.8	18.0	26.7
NQF-7	42.0	18.7	28.7
NQF-8	40.6	18.4	25.5
NQF-9	45.8	17.8	24.5
N/A	38.4	17.5	24.8

These results have been graphically shown in the subsequent figures to illustrate how each education level group scored in comparison to each other, to the total sample averages and to determine within which threshold the scores for each group is positioned.

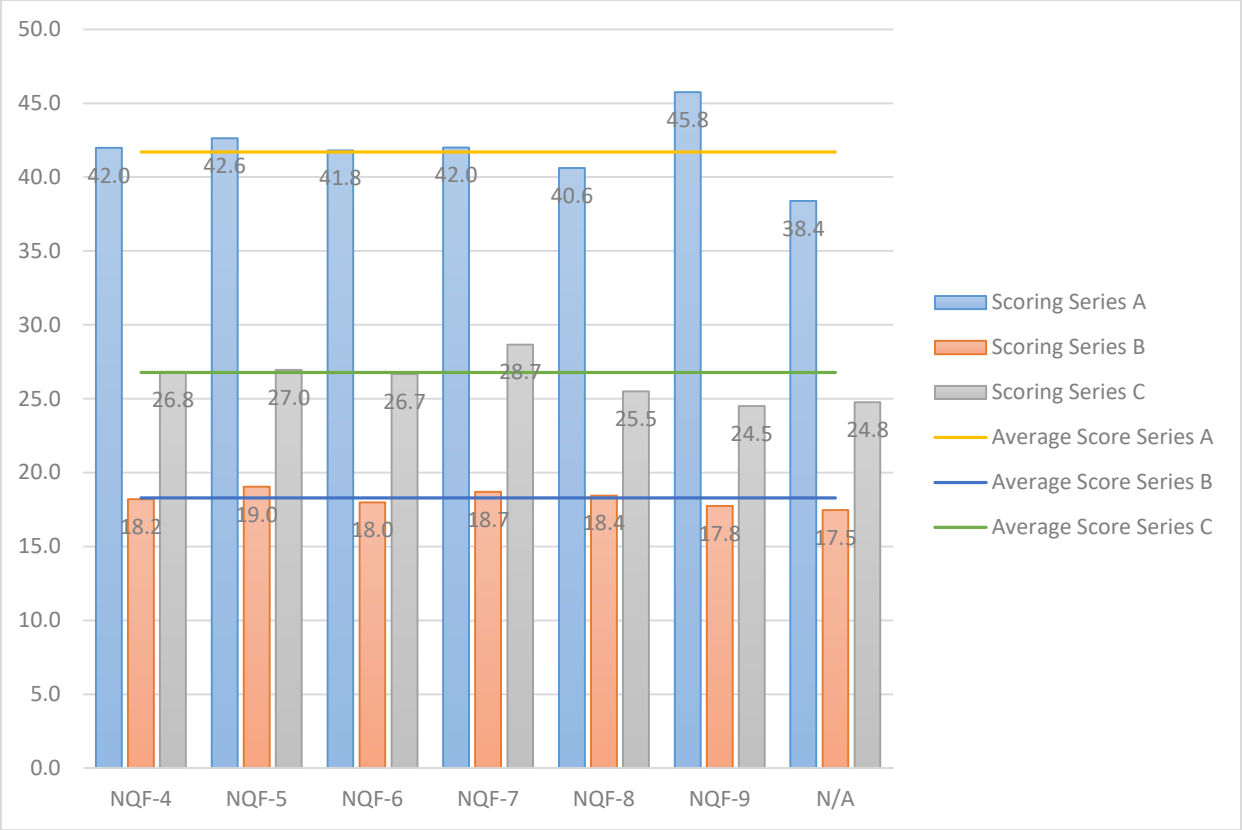

Figure 4.25: Scoring of Each Education Level Group and Comparison to Total Averages

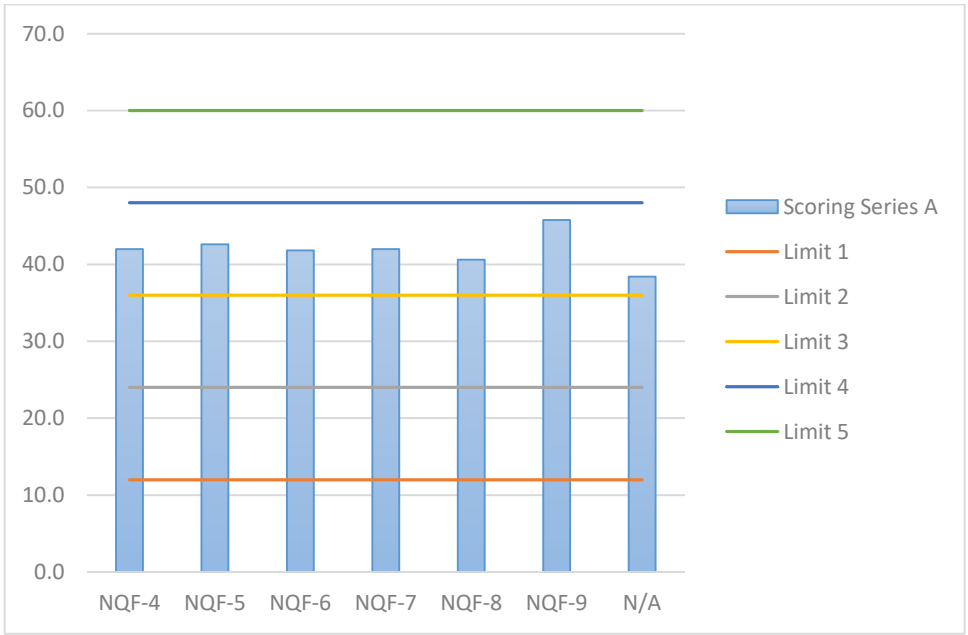

Figure 4.26: Scoring Series A for Each Education level group and placement within Scoring thresholds

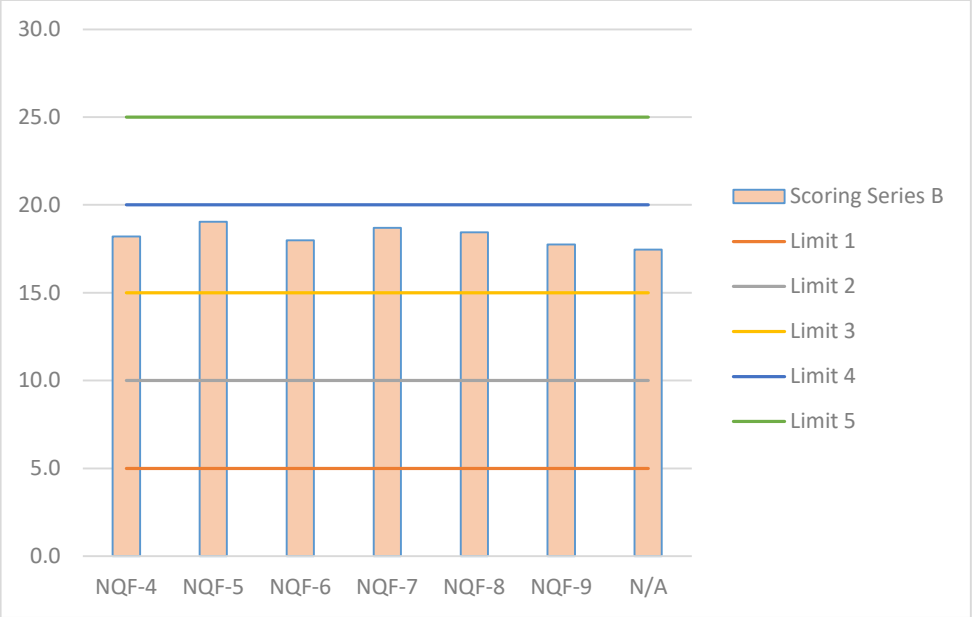

Figure 4.27: Scoring Series B for Each Education level group and placement within Scoring thresholds

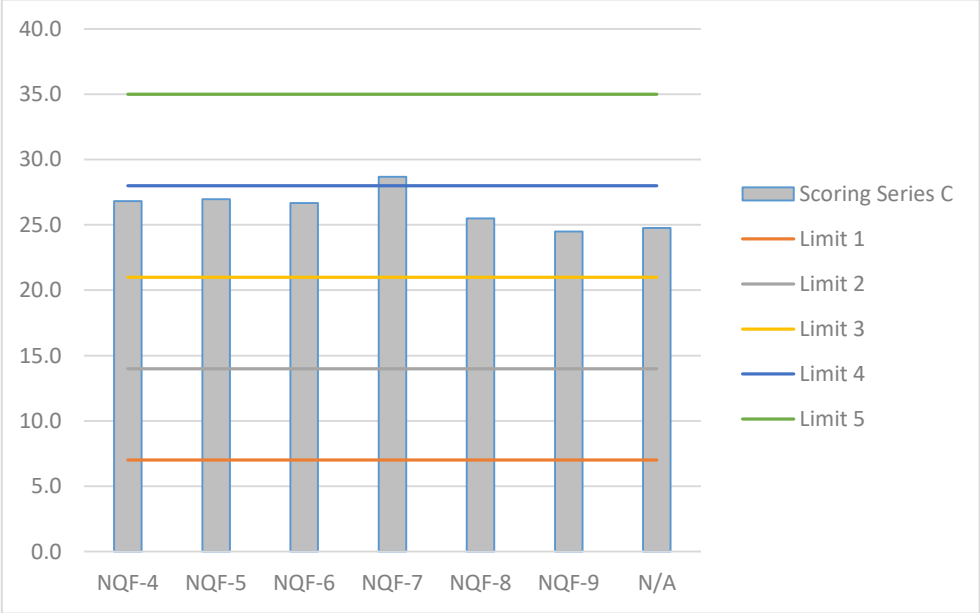

Figure 4.28: Scoring Series C for Each Education level group and placement within Scoring thresholds

From the figures it is clear that no distinguishable trend can be made regarding increasing level of education and the level of agreement. All the groups scored in agreement to

improve speed of service, their inclination to use the latest technology and their preference to use self service systems over employee assisted transactions in fast food restaurants.

4.7. Spread of Scores

In order to determine how closely the scores of each socio demographic relate to the sample average i.e. the spread, the variance and standard deviation is calculated (Lee, In & Lee, 2015). This is done for each demographic factor in the following sections and summarized in 4.7.5.

The following statistical equation has been used (Lee *et al.*, 2015):

$$\text{Variance} = E(X2) - (\mu X)^2$$

This has been modified for this study accordingly as adapted from (Lee *et al.*, 2015):

$$\underline{\text{Scoring Series Variance =}} \quad \frac{1}{(n-1)} \sum_{i,j,k=1}^{n} (X_{i,j,k} - X_{A,B,C})^2$$

Where

X_i – Group Score for Scoring Series A

X_A – Overall Average Score for Scoring Series A

X_j – Group Score for Scoring Series B

X_B – Overall Average Score for Scoring Series B

X_k – Group Score for Scoring Series C

X_C – Overall Average Score for Scoring Series C

n – Number of inputs

4.7.1 Variance and Standard Deviation to Scoring (Age Group)

Table 4.8: Calculation of Variance and Standard Deviation for Age Demographic

		x_i-x_A	$(x_i-x_A)^2$	x_j-x_B	$(x_j-x_B)^2$	x_k-x_C	$(x_k-x_C)^2$
Age	18-21	4.3	18.43	1.7	2.91	8.2	67.58
	22-30	0.3	0.10	0.6	0.31	0.6	0.31
	31-40	-0.5	0.27	-0.3	0.12	-0.1	0.01
	41-50	0.2	0.03	0.0	0.00	-0.3	0.09
	51-62	0.6	0.38	0.5	0.30	0.6	0.39
	Older	-1.5	2.12	-2.0	4.17	-5.3	27.87
Summation			21.33		7.81		96.24

Scoring Series A Variance =

$$\frac{1}{(n-1)} \sum_{i=1}^{n} (x_i-x_A)^2$$

Variance	Standard Deviation
4.27	2.07

Scoring Series B Variance =

$$\frac{1}{(n-1)} \sum_{j=1}^{n} (x_j-x_B)^2$$

Variance	Standard Deviation
1.56	1.25

Scoring Series C Variance =

$$\frac{1}{(n-1)} \sum_{k=1}^{n} (x_k-x_C)^2$$

Variance	Standard Deviation
19.25	4.39

4.7.2. Variance and Standard Deviation to Scoring (Race Group)

Table 4.9: Calculation of Variance and Standard Deviation for Race Demographic

		x_i-x_A	$(x_i-x_A)^2$	x_j-x_B	$(x_j-x_B)^2$	x_k-x_C	$(x_k-x_C)^2$
Race	African	-3.17	10.02	-1.06	1.13	-1.9	3.55
	Asian	0.15	0.02	0.71	0.50	0.1	0.02
	Coloured	2.79	7.80	1.08	1.17	2.1	4.39
	Indian	1.82	3.29	0.18	0.03	0.7	0.43
	White	0.13	0.02	0.46	0.21	0.6	0.40
Summation			21.16		3.05		8.79

Scoring Series A Variance =

$$\frac{1}{(n-1)} \sum_{i=1}^{n} (x_i-x_A)^2$$

Variance	Standard Deviation
5.29	2.30

Scoring Series B Variance =

$$\frac{1}{(n-1)} \sum_{j=1}^{n} (x_j-x_B)^2$$

Variance	Standard Deviation
0.76	0.87

Scoring Series C Variance =

$$\frac{1}{(n-1)} \sum_{k=1}^{n} (x_k-x_C)^2$$

Variance	Standard Deviation
2.20	1.48

4.7.3. Variance and Standard Deviation to Scoring (Home language)

Table 4.10: Calculation of Variance and Standard Deviation for Home Language Demographic

		x_i-x_A	$(x_i-x_A)^2$	x_j-x_B	$(x_j-x_B)^2$	x_k-x_C	$(x_k-x_C)^2$
Home Language	English	0.84	0.70	0.24	0.06	0.5	0.27
	Afrikaans	8.29	68.77	4.37	19.13	4.9	23.89
	Zulu	-3.53	12.44	-0.91	0.82	-1.9	3.74
	Xhosa	0.69	0.48	-2.09	4.38	-0.8	0.61
	Sotho	-0.71	0.50	0.71	0.50	-1.8	3.16
Summation			82.90		24.89		31.66

Scoring Series A Variance =

$$\frac{1}{(n-1)} \sum_{i=1}^{n} (x_i-x_A)^2$$

Variance	Standard Deviation
20.72	4.55

Scoring Series B Variance =

$$\frac{1}{(n-1)} \sum_{j=1}^{n} (x_j-x_B)^2$$

Variance	Standard Deviation
6.22	2.49

Scoring Series C Variance =

$$\frac{1}{(n-1)} \sum_{k=1}^{n} (x_k-x_C)^2$$

Variance	Standard Deviation
7.92	2.81

4.7.4. Variance and Standard Deviation to Scoring (Education Level)

Table 4.11: Calculation of Variance and Standard Deviation for Level of Education Demographic

		x_i-x_A	$(x_i-x_A)^2$	x_j-x_B	$(x_j-x_B)^2$	x_k-x_C	$(x_k-x_C)^2$
Education Level	NQF-4	0.27	0.07	-0.08	0.01	0.0	0.00
	NQF-5	0.91	0.83	0.75	0.57	0.2	0.03
	NQF-6	0.11	0.01	-0.32	0.10	-0.1	0.01
	NQF-7	0.29	0.09	0.41	0.17	1.9	3.56
	NQF-8	-1.10	1.20	0.15	0.02	-1.3	1.64
	NQF-9	4.04	16.34	-0.54	0.29	-2.3	5.19
	N/A	-3.32	11.04	-0.83	0.69	-2.0	4.04
Summation			29.59		1.85		14.48

Scoring Series A Variance =

$$\frac{1}{(n-1)} \sum_{i=1}^{n} (x_i-x_A)^2$$

Variance	Standard Deviation
4.93	2.22

Scoring Series B Variance =

$$\frac{1}{(n-1)} \sum_{j=1}^{n} (x_j-x_B)^2$$

Variance	Standard Deviation
0.31	0.56

Scoring Series C Variance =

$$\frac{1}{(n-1)} \sum_{k=1}^{n} (x_k-x_C)^2$$

Variance	Standard Deviation
2.41	1.55

4.7.5. Summary and Comparisons of Standard Deviations

The variances and standard deviations calculated above have been summarized and graphically represented as below.

Table 4.12: Summary of Variances and Standard Deviations

	Scoring Series A		Scoring Series B		Scoring Series C	
	Variance	Std Deviation	Variance	Std Deviation	Variance	Std Deviation
Age	4.27	2.07	1.56	1.25	19.25	4.39
Race	5.29	2.30	0.76	0.87	2.20	1.48
Education level	4.93	2.22	0.31	0.56	2.41	1.55
Home language	20.72	4.55	6.22	2.49	7.92	2.81

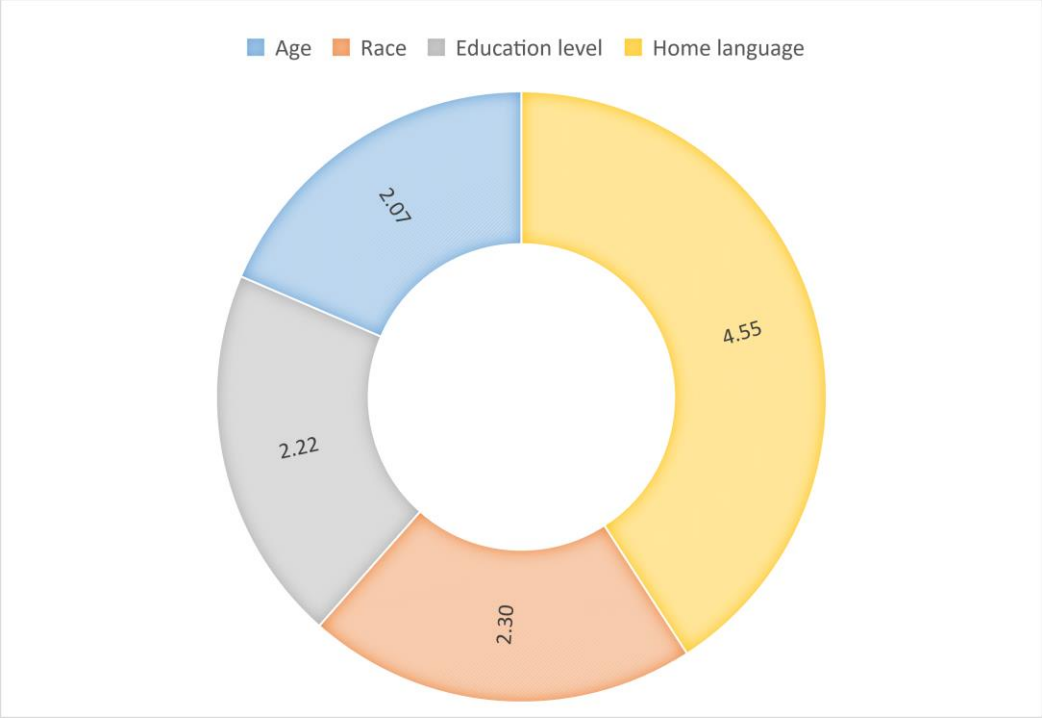

Figure 4.29: Scoring Series A standard deviations for each demographic

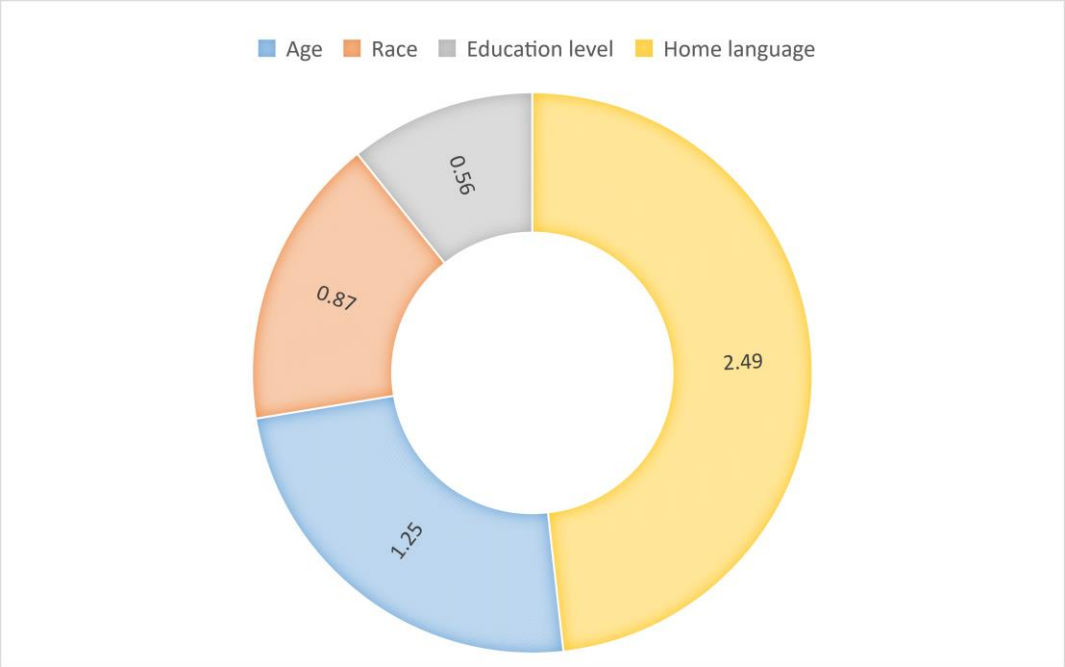

Figure 4.30: Scoring Series B standard deviations for each demographic

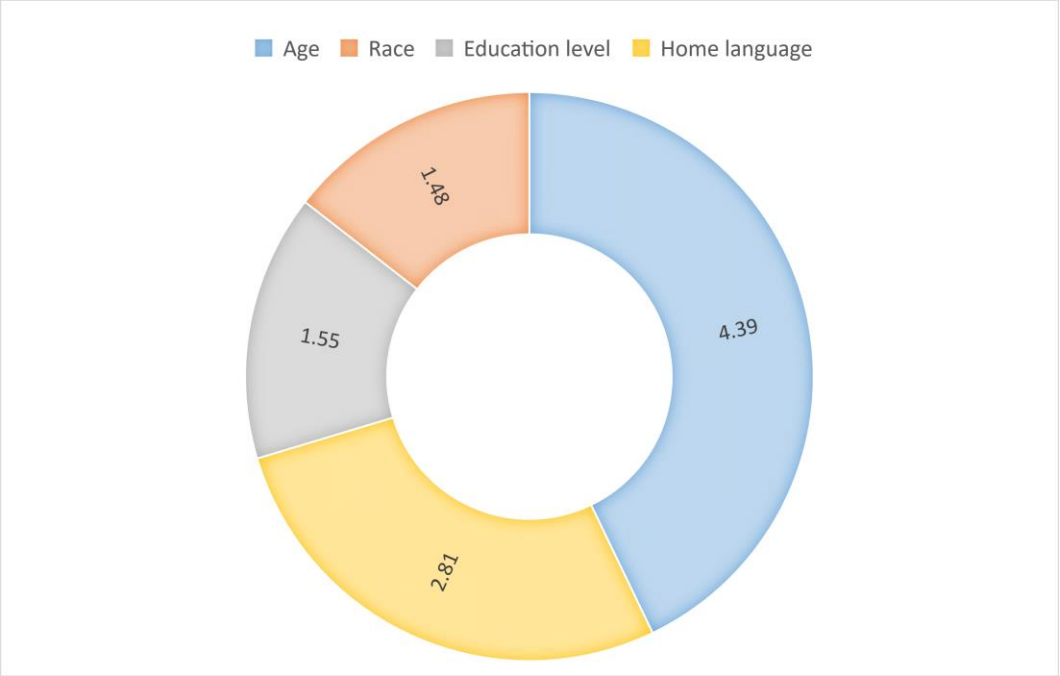

Figure 4.31: Scoring Series C standard deviations for each demographic

Figure 4.32 below highlights the likelihood that each demographic will be the most significant factor with regards to deviations from the average scores of the questionnaires. This then implies that home language spoken is the most critical social demographic in terms of alteration of the results which is followed by Age group, Race Group and Education level respectively.

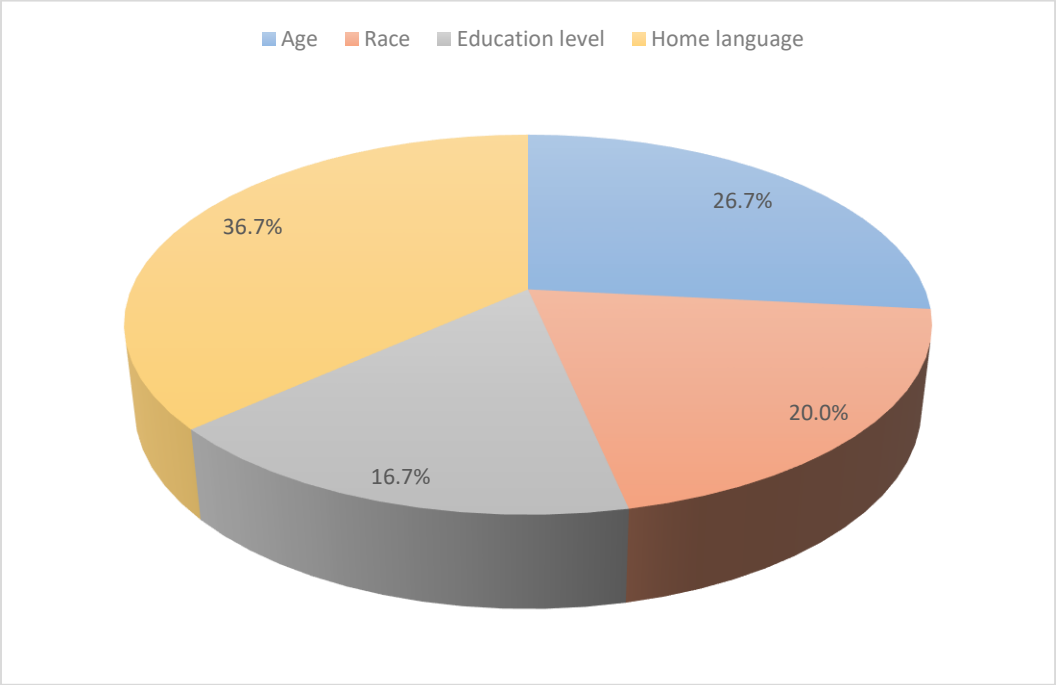

Figure 4.32: The Likelihood of each demographic to deviate from Average most significantly

4.8. Summary

The results of the research instrument have been shown in this chapter in a systematic and concise manner to create a basis upon which these results can be analyzed and discussed in order to adequately address the research objectives and draw conclusions from the findings. The discussion of these findings is shown in the ensuing chapter.

CHAPTER 5 – DISCUSSION

5.1. Introduction

An-depth discussion of the results presented in chapter 4 is undertaken in this chapter. Information gathered by the research instrument has been analyzed to critique the trends established. Concurrently, the validity of the research instrument and sample collected will further be explored to either refute or concur with the findings and trends of the study.

5.2. Validity of Sample

The sample collected from the self-completed questionnaire has been analyzed to determine the precision of the results to representing the target population. From the target population of 500, only 181 respondents were gathered in a period of 6 weeks which is 16.2% less than the required sample size. The following subheadings will be discussed to determine the validity of the sample.

5.2.1. Response rate

This investigation received a response rate of 36.2% which was lower than the anticipated 50% assumed. This lead to a realization that the calculation to determine the number of questionnaires to be given out, in order to satisfy the sample size required, was insufficient. With this, the required sample size was not met despite the investigator's attempts to issue more questionnaires. The error in this assumption can be attributed to visitors and employees of the Giba Gorge Business park not visiting the area every day and are often on tight schedules leading to the questionnaire being seen as a hindrance to their daily activities. Many of the companies use the business park for their production and fabrication hence a lot of the employees are performing functions similar to sales representatives in which they are on the road to meet clients. Visitors to the recreation areas also seemed slightly aggrieved with the disturbance to their day to fill in questionnaires.

Issuing questionnaires to be done without any incentive for completion, is not generally met positively. Some participants take questionnaires with the intention of filling them but

never do due to busy schedules and some only take the questionnaires when they are handed out in pretense as they knowingly will not complete them. It is understood in these instances, people are uncomfortable to decline involvement in person and thus choose to play along due to ease but never actually fill in the questionnaires. This was found to be the biggest problem with getting respondents for this study as many more questionnaires were handed out and issued to people than was necessary but only a third of the total handed out actually responded. There was no correlation between race groups and response rate but it can be noted that older age groups and people with higher levels of education were more likely to respond than younger or less qualified ones. Many people from all groups however chose not to respond, indicating that results may have fared differently if these non-respondents had participated. A wave analysis was done to determine the effect of this and is analyzed further on (Fowler Jr, 2013). It can also be highlighted that individuals who had done or undergone any such dissertation or thesis understood the importance of such studies and reacted very positively to participating.

The reduced response rate had caused a smaller sample size which has subsequently changed the margin of error. With a reduced sample size, it is important to note that the demographics of the sample may need to be checked for similarities and alignment with the demographics of the target population to ensure representation of these subgroups (Holbrook, Krosnick & Pfent, 2008). Holbrook et al (2008), performed a study to determine whether demographic representation diminishes with diminishing response rates and confirmed minor decreases in subgroup representation within the ranges of 5%-50% response rate. A comparison of the participants' subgroups to the population is done is *section 5.3* to establish the validity of the results in accurately representing the target population.

5.2.2. Margin of error

A sample size of 181 participants was collected which was 16.5% less than the required. Due to the lower than required sample size for the stipulated population, the margin of error had to be calculated as per figure 1 and a 5.6% margin of error was achieved. This lowered margin of error still falls within the generally acceptable range of 4% – 8%

(Barlett, Kotrlik & Higgins, 2001). The margin of error was achieved considering a confidence level of 95% highlighting that the results represent an outcome that would occur 95% of the time if conducted multiple times (Barlett *et al.*, 2001).

5.2.3. Wave analysis

The results of the weekly scores were plotted against each other week on week as shown in figures 4.10 - 4.12 to identify any distinguishable trends. A summary is shown in table 5.1 below to highlight the minimal change in scoring.

Table 5.1: Change in Results Week on Week per series

	Series A		Series B		Series C	
Week 1	40.7	-	17.7	-	25.4	-
Week 2	41.6	-2.3%	18.3	-3.4%	27.1	-7.0%
Week 3	41.9	-0.6%	18.3	0.5%	27.5	-1.4%
Week 4	42.8	-2.2%	18.8	-3.2%	26.6	3.3%
Average Change		-1.7%		-2.0%		-1.7%

The average change of the results week on week for all scoring series was negligible and the scores were positioned within the same tier of agreement for each scoring category. Thus the effect of non-respondents on the results can be nullified by this wave analysis. A further check had to be done however to determine whether the subgroups within the sample are representative of the population. This will determine if the lack of response from certain subgroups will brand the results inconclusive.

5.3. Score analysis and representation of population

The results of the research instrument are discussed and critiqued holistically in this section with further emphasis on representation. The demographics of the sample collected are compared to that of the target population for comment on the representation of the subgroups as well as highlight validity of the overall results in this regard.

5.3.1. Overall Scores for sample

The average scores for the sample are shown in figures 4.6, 4.7 and 4.8. This indicates the mean of the scores from all individuals within the sample group. The scores were calculated via the Likert scale questions with each range of possible scores linked to a dominant predisposition or tendency of the sample to the statements and/or scenarios (Darrow, 2015).

5.3.1.1. Scoring series A

This list of statements was iteratively formulated to indicate the participants overall view toward the speed of service experienced in fast food restaurants. It served to address the first two research objectives in which the overall level of satisfaction, with regards to speed of service, experienced by customers is determined whilst answers to the individual statements were used to identify which factors the customers viewed as affecting speed of service.

The average score, as shown in figure 4.6, of 41.7 fell between the range thresholds of 36 (that of neutral position) and 48 (that of overall agreement). This position indicates that the sample group tended towards agreement that the speed of service experienced could be improved, albeit at a lesser degree to what was assumed from the literature review. It was hypothesized that views more strongly linked to unacceptable speed of service would be received with a greater sense of aggrieved service and more need of improvement. This is not the case however as most individuals did not convincingly score against the speed of service currently experienced but did show an overwhelming stance that improvement can be made. The incorrect hypothesis regarding the strength of agreement towards unsatisfactory speed of service can be attributed to the many platforms setup online to house customer complaints and complements (Van Noort & Willemsen, 2012). It has been studied that customers are more likely to complain when receiving bad service than to compliment good service (Kraft & Martin, 2001). The number of complaints then overshadow the compliments and this creates a false sense of substandard speed of service experienced by the majority of customers within the fast-food industry. Further it must be noted, that many complaints of poor services rendered can be attributed to

employee attitude and quality of food whilst speed of service plays a lessor role (Laeequddin & Sardana, 2010).

It is highlighted that the objectives were to determine whether customer's within Giba Gorge viewed the speed of service experienced in fast food restaurants as acceptable or requiring improvement and which factors affected speed of service according to customers. The results of this scoring series has illustrated that there is an inclination towards partially substandard speed of service with space for improvement. From the individual statements it is evident that the key factors affecting speed of service in fast food restaurants is - errors in orders having to be redone which prolongs order times, increased ordering times through communication breakdowns and resulting order errors, standardized meals ordered to relieve errors and slowed service, insufficient number of employees assisting with taking orders and insufficient number of employees making the meals. Importantly, roughly equal percentages of participants felt both that there was not enough time to make decisions at the ordering counter and contrastingly that there was. This statement indicates that it is dependent on the individual and the pressures or significance they feel in terms of making others wait. The same outcome is established with the views on the employees' adequacy to accurately assist customers with meal variations, in that equal percentages of participants answered in agreement and disagreement with this statement highlighting again that it is subjective to the participants' experiences and comfort.

5.3.1.2. Scoring series B and C

Scoring series B was setup to determine the inclination of customers to using new technology by listing statements that require the participants to answer in reflection of their use of current new technology systems in the retail sector. The research topic involves the introduction of new technology within fast-food restaurants and thus it is important that the investigation included the third objective to decipher the tendency of customers to use current technological systems in the retail sector. Participants have answered the statements of scoring series C, which is used to address the fourth objective, according to opinion and hypothetical reflection as this series is designed to

illustrate customers' preferences to using self service technology such as kiosks over traditional employee systems. These results can lead to increased participant bias as respondents distort their answers to reflect what they perceive to be sociably desirable or in alignment with what the investigation is trying to prove (Rosse, Stecher, Miller & Levin, 1998). Thus to remove and/or identify if participant bias is affecting the results for scoring series C, scoring series B has been included as an objective. This is to highlight, upon reflection, whether customers are using current new technology systems and this can assist in critiquing the reliability of scoring series C results.

A score of 18.3, as shown in figure 4.7, was found for scoring series B and this falls within the thresholds of 15 (neutral position) and 20 (agreement position) and thus indicates that the majority of the customers have used or are using currently available new technology systems for their retail experience. This also illustrates that the customers are more inclined to accept or adopt new technology systems. This concurs with the research identified in the literature review as South Africans' propensity to technology has placed the country within the top ranking nations in the world for digital readiness (Hardy, 2014).

A score of 26.8, as shown in figure 4.8, was realized for scoring series C which fell between the thresholds of 21 (that of a neutral position) and 28 (that of overall agreement). This score addressed the research objective in determining whether customers would prefer to use self service technologies such as a kiosk, over employee assisted transactions in fast food restaurants. The results concur that the participants viewed self service kiosks as an option to improve the speed of service and would be inclined to use these self service technologies over traditional mechanisms if given the opportunity.

5.3.2. Race group score analysis

All race groups scored in the same tier for scoring series A and B and is linked closely to the overall sample averages. Scoring series C found that the Asian, Indian and White race groups scores positioned closely to the lower threshold of the upper tier with the Coloured race group entering into the upper tier indicating stronger level of agreement to

use self service technology over traditional means. The African Black race group scored lower than all the other race groups in each category even though the results still indicated a positive outlook to use technology whilst the Coloured race group in comparison scored higher than the other race groups on all three scoring categories. Both findings are significant outcomes. In a study done, it was stated that technological expansion often does not favour economic inequality as technology is frequently based on skill level (Goldin & Katz, 2009). Lower skilled or lower educated groups generally score worse in the adoption of technology due to lack of understanding. Jackson, Zhao, Kolenic III, Fitzgerald, Harold & Von Eye (2008) concluded in his study that African Americans scored lowest in integrated technology which further stresses Goldin & Katz (2009) point as African Americans are an American minority group that were previously disadvantaged with some forms of educational inequality stemming from past infractions. In South Africa, the Black and Coloured racial groups are the epitome of inequality as both groups have approximately 30-40% unemployment and a majority of their employed members occupying low-skilled and low educated positions with lower LSM lifesty (StatsSA, 2016). Unlike the African Americans, the Black racial group in South Africa are the majority but have undergone longer lasting inequality due to Apartheid. With this, the results contradict those of previous studies in that the previously disadvantaged groups such as Blacks, Coloured and Indians have scored similarly to the White racial group which is known to be more educated, skilled and occupying higher levels of management than the other race groups.

The standard deviation from the average due to race group scores was insignificant at between 0 - 2.3 percentage points and race group was calculated to be 3rd out of 4 (as shown in figure 4.32) as most likely factor to significantly alter the results highlighting further its insignificance to the overall results.

In determining whether each race group was efficiently represented in the sample, a comparison of the percentages according to race for the sample was compared to that of the target population. There are no surveys for the percentages of visitors attributed to race entering into the Giba gorge business park and hence assumptions have been made

that the study area demographics was in line with the KZN province statistics. The participants were all employed and fell within the range of LSM group 4 to LSM group 10 which is assumed by the statutory wages adopted by the corporation types within Giba gorge business park (SAARF, 2012). 4.42% of the sample was answered by Coloureds, which can be considered representative of the 1.2% population within the KZN province (StatsSA, 2016). The White and Indian race groups accounted for 24.31% and 37.02% of the sample respectively which is representative of the inclination of these minority groups to hold majority of the high skilled positions as reflected in the statistics of employment for South Africa (StatsSA, 2016). This is further aligned with the greater number of high-skilled and high level of management, visitors/ employees, that enter Giba Gorge Business park on a daily basis. The Black race group represented 26.52% of the sample. This does not identify with 87% of the total populace of KZN being attributed to this race group (StatsSA, 2016). In consideration of the LSM range of 4-10 for the target population of Giba Gorge however, it is realized that 40% unemployment with a further 30-43% of low-skilled employment within this race group has lessened its representation within the target population for fast-food intake. The Asian group accounted for 7.73% of the sample and is an overrepresentation which is considered a possible error made by Indian participants as can be identified by names.

It is highlighted in the literature review, that Whites and Indians display a much greater propensity to purchasing fast-food than the other race groups and hence this supplements and confirms that all the race subgroups of the target population are effectively represented in the sample (Steyn *et al.*, 2011).

5.3.3. Home language spoken score analysis

The Afrikaans speaking participants scored higher than the other languages and was positioned in the upper tier for all three scoring categories whilst the other languages were situated more closely to the averages. Afrikaans accounted for 1.7% of the sample which is in line with the 1% of the populace of KZN (StatsSA, 2016). Xhosa and Sotho accounted for 2.8% and 1.1% respectively which is also representative of the 3.1% and 0.5% of the populace of KZN (StatsSA, 2016). The scores of these three languages, while

mirroring the KZN statistics, can be considered subjective however as it is a small percentage from a small sample and can lead to the results being based on individual scores and cannot represent and entire group.

English and Zulu speaking participants were apportioned in the sample at 72.9% and 21.5%. English is the main European language in KZN and is known world-wide as the language of the corporate environment (Nunan, 2003). This subgroup is then considered representative of the target population percentage of English speaking fast food customers within Giba Gorge business park as visitors are corporately inclined and are majority White or Indian (as discussed above) whose home language is English. The Zulu apportionment of the sample, linked to the percentage of the Black race group discussed above, also represents their subgroup of the target population. Both English and Zulu speaking customers of the target population is considered effectively represented in the sample. The lack of respondents indicating 'Other' as their home language highlights further that the Asian race group is vastly over represented by error.

The scores between the languages spoken have created a greater degree of deviation to the average and this social construct is the leading factor to most likely alter the results as seen in figure 4.32. The misrepresentation of certain languages such as Afrikaans, Sotho and Xhosa have added increased error due to insufficient subgroup sampling and hence the standard deviation cannot be considered a true reflection of the target population.

Common sense dictates that home language may be more significant as most technology is presented in English and customers not well versed in this language may prefer not to use such self service kiosks. The research instrument however has incorrectly assumed that there are options for each language and participants have answered accordingly.

5.3.4. Level of education score analysis

The target population for fast food customers denotes mid to high level LSM groups which are generally linked to secondary education and higher. Secondary education accounts for 28.7% of the sample whilst tertiary education from NQF 5 to NQF 10 account for

64.1%. Only 7.2% of the sample is apportioned to lower than secondary education participants. The sample is thus representative of the target population and there are significant participants in each NQF level to provide an effective subgroup representative score.

Technological change was considered bias in favouring skilled and educated workers in previous years with the wage differential between education and skill levels exponentially increasing due to technological advancements that could only be accessed or understood by higher skilled members (De Ferranti, 2003). Linking this concept to the research instrument of this study, education levels and technology adoption are hypothesized to proportionately move together with higher educated participants showing higher results for technology acceptance or adoption. This however does not correspond with the findings of this investigation as the spread of the scores across the education levels does not create any discernable trends. All education levels scored results similar to those of the averages with negligible deviations. Level of education, as can be seen in figure 4.32, is listed as the least likely factor to significantly alter the results.

The results across all education levels indicate that participants view the speed of service experienced as flawed with opportunities to make improvements through the introduction of self service technologies.

5.3.5. Age group analysis

The scores for the middle employed age groups 22-50years have fared similarly to each other with no noticeable trends or differences. These age groups account for the biggest percentages of the sample (82.3%) which is representative of the working class age group of the target population within the LSM range 4-10 as the South African Advertising Research Foundation records lower LSM groups to be characterized by age groups of 15-24years and 50+ years (SAARF, 2012). The age group 18-21 displayed higher scores but cannot be considered representative as this result was borne from only one participant within this age group. Unemployment within this age group is rife and thus this age group was correctly assumed to not participate significantly in the target population (StatsSA,

2017). The extreme result of this participant does however align with the ideology that younger participants are more inclined to adopting technology and removing direct human interaction (Morris & Venkatesh, 2000).

The age groups from 51-62 years and older provided some points of investigation. The older group, which denotes participants older than 62 years, scored lower results than the other groups. Such a finding was hypothesized, as available literature clarifies that age plays a significant role in adopting technology and older generations are more reluctant to accept technology due to behavioral skills and subjectivity (Morris & Venkatesh, 2000). The scores for this older age group however was not substantially less than the others and the scores still fell within the same ranges as the averages. The age group of 51-62 years surprisingly created scores that were stronger in agreement to the scoring categories than the middle age groups. Neugarten (1974), states that there has been a change in the categorization of the old age group as the age group of 55-75 years are well educated, skilled and are maintaining their health better than previous generations which has led to a phenomenon called ‘ageism’. Ageism explains that older generations are becoming increasingly younger and marketable in terms of employability and technologically savviness (Neugarten, 1974).

The age groups have been represented effectively in the sample in relation to the target population of fast food customers within the Giba Gorge Business Park.

5.4. Summary

The first four research objectives have been addressed in this chapter with the analysis of the results to determine validity, representation and trends. The overall standpoints of the participants indicate that speed of service is substandard and in need of improvement whilst self service technology such as kiosks are agreed to be an acceptable mechanism to increase speed of service to an acceptable level. The following chapter will conclude the findings from the discussions, address the flaws found in the study with recommendations, and will serve to answer the final objective which is to propose improvements for speed of service within local fast food restaurants.

CHAPTER 6 – CONCLUSION AND RECOMMENDATIONS

6.1. Introduction

In this chapter, the findings of the study are concluded to address the research objectives and research problem. Proposals and recommendations for future studies is explored in light of the limitations experienced in conducting the study, in attempts to answer the research problem effectively. How the study contributes and impacts real world application as well as existing knowledge base is also explained.

6.2. Concluding the Aim and Objectives

‘The aim of the study was to establish whether patrons and employees of the Giba Gorge Business Park view self service technologies, such as kiosks, as an acceptable mechanism to enhance the speed of service currently experienced at local fast food restaurants as well as correlate their preferences to using self service systems over traditional employee assisted transactions.’

The research aim was broken into core research areas to be investigated and these areas of investigation were designed and apportioned by the research objectives. Hence upon answering the research objectives, the findings of each can be used to holistically answer the aim of the study. The findings of the research objectives are thus discussed below and the aim of the study concluded in the chapter summary.

6.2.1. Objectives

The research objectives were listed in Chapter 1 to guide the study in a manner that ensured investigation into each objective would adequately address the research problem. The objectives is concluded sequentially:

6.2.1.1. Objective 1

‘To establish whether patrons and employees of the Giba Gorge Business Park, KZN view the speed of service encountered at local fast food restaurants as acceptable.’

In addressing this research objective, scoring series A for the research instrument was designed to effectively and unambiguously gather the views from a representative sample of the target population of fast food customers within the Giba Gorge Business Park in KZN. The sample was found to be representative of the typical overall target population with some minority subgroups considered to have increased participant bias due to small sample numbers. The findings, and analysis with available research, has determined that the target population regarded the speed of service experienced in fast food restaurants as moderately substandard and not optimal. It is noted that the findings highlighted that customers agreed improvements could be made to the speed of service however this may not indicate that customers felt aggrieved by the service experienced but merely understood that the service could be enhanced.

6.2.1.2. Objective 2

‘To establish which factors affect the speed of service experienced in fast food restaurants according to patrons and employees that frequent the Giba Gorge Business Park.’

The research instrument allowed the participants to score the typical factors that affect speed of service (as determined by available literature) to determine which factors the target population identified as most influential in affecting the speed of service experienced locally. The significant factors were found to be:

- Frequent meal errors cause backlog in the production of meals and lead to customers experiencing longer meal delivery times.
- Overwhelming result indicated that communication breakdown at the ordering till led to meal errors and prolonged ordering times as well as slowed food delivery for all.
- Customers felt that they had to order standardize meals rather than customizable ones to remove ordering error and assist in preventing slowed service.

- Participants indicated there was insufficient employees at the till points to facilitate the ordering process quicker.
- Participants highlighted that there were also too few employees making the meals which led to slower delivery times.

The factors, importantly, can all be resolved with the inclusion of self service kiosks as established in the available literature. The follow on objectives were designed to understand if customers would adopt self service kiosks as a solution to improve the speed of service.

6.2.1.3. Objective 3

'To establish local consumers' inclination to use and adopt new technology within the retail sector'.

This objective served to confirm whether customers are currently using new technology systems in the retail sector in order to concur with literature regarding South Africans tendency towards technology. Additionally, in order to accurately examine whether the hypothetical results of objective 4 are not stained by participant bias and thus not true for real world application, the results of objective 3 can be used to identify customers' current attitude towards technology and hence support or refute the results of objective 4. The findings of objective 3 are linked to the scoring series B of the research instrument. It was found and confirmed, from these results, that the target population is using new systems of technology currently available in the retail sector and are inclined to use such technology if offered.

6.2.1.4. Objective 4

'To gather information regarding local customers' preferences to ordering in store through restaurant employees or via the use of self service kiosks'.

Scoring series C of the research instrument was designed to address this research objective. It was found that the target population, with complete agreement through all

demographic subgroups, viewed self service kiosks positively as a mechanism to enhance speed of service, and preference would be given to place orders using these self service technologies rather than use traditional employee based systems. The findings of objective 3 correlate with these results and hence it is reinforced that the target population will use and prefer to use such technology systems in lieu of employee assisted transactions.

6.2.1.5. Objective 5

'To provide recommendations to improve the speed of service experienced in fast food restaurants within KZN based on the views correlated from patrons and employees of the Giba Gorge Business Park, KZN'.

From the study findings, it is evident that local fast food outlets will benefit greatly by including and investing in self service kiosks to facilitate their ordering mechanisms. These technologies will directly improve the ordering times and will increase the number of orders being processed. Indirectly, the machines will lead to increased orders with the same amount of staff producing more meals at greater outputs. All these factors increase speed of service by simply removing human interaction at the ordering process and thus limiting human error and removing the need to drastically alter production lines and supply chain systems to achieve the same output albeit, at assumedly, a costlier means.

6.2. Implications of the research

The research adds to the limited body of knowledge with regards to the local consumer and in store technological advancement. Giba Gorge Business Park was an ideal sample area due to its diversity of members that are aligned with the characteristics of the typical population of fast food customers. The target population in this sample area can thus be assumed to be aligned with the larger population of fast food customers in South Africa in which further studies can be based.

The roll out of self service kiosks in fast food outlets are currently being done internationally and are being met with positive advancements and advantages over the

more traditional competitors. The implementation of self service kiosks locally is inevitable with plans for McDonalds South Africa to begin installation of the machines in early 2018 (McDonalds, 2014). The study served to understand whether local customers would be ready to receive and adopt such technology, and hence is also significant for real world application. The results and findings indicate that local customers are primed and overwhelmingly inclined to adopt such technology. This study then appeals to the fast food industry of South Africa as an introduction to the feasibility of such machines and assists franchise owners with an update on consumers' preferences towards technology which is considered to be a game changer in securing market share and profitability (Walker & Mullins, 2011).

The study further provides interesting findings into the relationships between customers, fast food and technology. This creates a further standpoint upon which researchers investigating topics of similar association can progress and address the gaps in their literature reviews accordingly.

6.3. Limitations of the study

In conducting this study, it became apparent that no thorough empirical studies had been done internationally and feasibility reports were not freely available. There was little correlation between technology, customers and the fast food industry in current research available. Further to this, the impending implementation of SSK's in South Africa created a need for an adjusted research instrument and target audience to ensure discretion. It was assumed that participants involved had provided honest responses and have not been influenced by any other external means other than their own preferences and past experience.

The limitations experienced in conducting the research are as follows:

- There were very limited studies done with regards to the implementation of in store technology systems and customers locally and hence the literature review relied on studies from sales, education, country statistics, supply chain and technology facets within business to provide the background of the study. Perusal of many

internet articles had to be done to provide insight into implementation of this new age technology as very few peer reviewed journals have been done.

- The response rate for the self-completed questionnaire was poorer than assumed and hence the sample collected did not achieve the 5% margin of error. An acceptable margin was attained, 5.6%, but a larger sample would have been more ideal.
- Due to the small sample required, certain minority subgroups, while reflecting similar percentages to that of the population, are subject to the opinions of very few individuals and hence scoring may not be accurately representative of these subgroups.
- A convenient non probability style of sampling was adopted which can increase the error experienced. To perform probability sampling techniques would have proven to be a rigorous and difficult task within the Giba Gorge Business Park in which there are no employee or visitor surveys and statistics available upon which probability sampling could have been designed.
- The research instrument was done over 6 weeks and yet fell short of the required sample size. A longer period could have yielded bigger samples and increased validity in the results.
- Some important errors were identified with the research instrument during the analysis which could have altered the results slightly. Such errors include labelling African as the demographic race group and not Black. African may suggest all South Africans. It was noted further by names, that participants of the Indian race group had classified themselves as Asian in error.
- Another assumption made in the questionnaire is that the kiosk systems would display any and all of the participants' languages and not only English. If this is not true, the results may change to suit non-English speaking customers.
- The living standards measures (LSM's) have not been updated since 2012 and the groupings used for the target population are based on these timeworn ratings.

6.4. Recommendations for future studies

- It is noted that studies have shown females to be more inclined to adopt and accept technology than males (Venkatesh, Morris, Davis & Davis, 2003). The gender subgroups were not explored in this study and future studies involving self service kiosks and technologies in South Africa would benefit from this inclusion.
- A study based on the views of the employees of fast food retailers with regards to self service kiosks implementation will provide a secondary stance upon which feasibility and acceptance studies can be done to support this study.
- Longitudinal studies to distinguish time valued trends of technology adoption by customers can also provide insight into consumers ever changing behavior in the retail industry.
- Feasibility studies must be done to accurately assess the return on investment for self service kiosks implementation in South Africa. Whilst this study illustrates the views of customers with regards to speed of service and their acceptance of self service technology implementation, employers should conduct further financial and operational studies, to complement this research, and quantify the returns and corresponding payback periods before adopting such strategies.

6.5. Summary

Despite some underrepresentation of minority subgroups in KZN such as Xhosa, Sotho and Afrikaans speaking members, the overall target population is represented with negligible deviation from the averages by most demographics and hence the results and findings of this study have significantly addressed the research problem. In summary and in addressing the research aim, the findings have clarified that the fast food customers from Giba Gorge Business Park view self service technology, such as kiosks, as an accepted tool to improve the speed of service experienced within fast food restaurants locally and are inclined to adopt and use such mechanisms rather than interface with employees. The findings concur that customers from the target population view the speed of service experienced within fast food restaurants as substandard and room for improvement exists. Whilst many respondents agreed that an immediate solution to curb slower in store delivery of meals would be to employ more people, it is understood that

human error is a major driver in the slower delivery times. Thus the cost of more employees would not be offset by the slight decrease in meal delivery times and employee productivity would worsen. Self service kiosks however have been tested to increase productivity and orders whilst removing human error. The study was set out to determine if fast food customers in South Africa are willing and equipped to change to in-store automation for this very reason. This has been verified by the findings as the target population views the kiosks as a welcomed solution to their retail experience.

CHAPTER 7 - REFERENCES

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APPENDIX A – RESEARCH INSTRUMENT

APPENDIX B – GATEKEEPERS LETTER

APPENDIX C – LETTER OF INFORMED CONSENT

APPENDIX D – ETHICAL CLEARANCE

APPENDIX E – TURNITIN REPORT