THE PERCEPTIONS OF THE ALGORITHMIC CONSUMER ON ONLINE PURCHASING

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DECLARATION

We, Layla Campher and Stefan Hanekom, hereby declare that:

- The content of this treatise entitled “The perception of the algorithmic consumers on online purchasing ” is our own work;
- All sources used or quoted, have been acknowledged and documented by means of references; and
- This treatise has not been submitted previously for a degree at any other tertiary institution.

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ABSTRACT

The development of the internet has transformed how businesses and consumers interact with each other. The internet has given rise to a lower-cost channel where they can purchase, exchange information and communicate internationally. Online purchasing has become increasingly popular amongst younger adults between the ages of 18 to 25 years as well as older age groups as these individuals are more exposed to technological advancements.

The aim of this study was to understand the variables that influence the perceptions of the algorithmic consumer on online purchasing. A mixed method research methodology was followed. The sample for this study comprised of 20 adults that are active Facebook users that has previously purchased products online, residing in the Nelson Mandela Bay and surrounding areas. The results indicated no significant difference between the gender, age, occupation, and language groupings of the study against the overall mean of the variables relating to online purchasing. The coding process for the selected independent and dependent variables were presented and discussed. It was established that Irritation, Privacy, Interactivity, Experience and Peer influence was the most negatively perceived variables when it comes to the interviewee's attitudes toward Facebook advertising.

Furthermore, the results indicated no significant difference between the gender, age, occupation, and language groupings of the study against the overall mean of the variables. This indicates very little difference between the groupings with regard to the variables used to determine the attitude of consumers towards Facebook advertising. Additionally, a qualitative analysis was done by analysing the specific outliers and the influence on interviewees responses, namely; Artificial intelligence and the Facebook privacy scandal. Finally, it is recommended that online marketers understand the importance of social media marketing and mobile marketing, as it had a very wide reach. In addition, to use algorithms to make the online shopping experience as easy and user-friendly as possible. It is essential that online marketers have many strategies in place to safeguard their customers' personal information as many people have privacy concerns. Online marketers should find the right combination of user-friendliness, the use algorithms, and guaranteed privacy, for a definite increase in web traffic and sales.

ABSTRACT

Online purchasing offers consumers the opportunity to compare product characteristics and prices, thus making it one of the most flexible methods of purchasing. However, online purchasing can be overwhelming as the internet offers a vast amount of information. Information on the internet can be managed by using methods and technologies that optimise and personalise searches. This is done by using recommendation systems, known as algorithms, that are finely developed systems. Not enough research has been done when it comes to more personalized and user-generated content-based social media. This study focusses on that.

Primary data was collected using a convenient sampling method and a semi structured interview. Data were analysed using content analysis and eleven categories were identified namely experience, recall, attitude towards advertising, entertainment, informativeness, irritated, credibility, interactivity, peer influence, privacy concerns and algorithms. The responses from the interviewees, were converted to a five-point Likert-type scale where 1 indicated a very positive response and five a very negative response.

Following this coding process, the data was captured onto Microsoft Excel. The data was analysed using the Statistica programme. The results indicated that 50% of the interviewees were female while 50% were male. With regards to the age, the majority of the interviewees were older than 26 years. The majority of the interviewees were working (70%), while the remaining interviewees were not employed (30%). With regards to home-language, most of the interviewees were Afrikaans-speaking. The English-speaking accounted for the remining (30%) of the interviewees.

The results further showed that the majority of interviewees shared the same opinion with regards to Irritation. It obtained a mean of (3,75) and a standard deviation of 1,02. This implies that interviewees are mostly irritated by advertisements and have a negative experience when they engage in online purchases. Both Experience and Peer Influence, scored the lowest means (2,05). It is clear from the results that most of the people who took part in this study has a positive experience when they do purchase online. In addition, they perceived the opinions of their peers positively regarding online purchasing sites when they do purchase online.

The Interviewee's perception toward advertising (3,10), Entertainment (3,05) and Credibility (3,0) are negative. Furthermore, the majority of the standard deviations were relatively low, varying from 1,22 to 1,70, indicating that there were low response variances.

This research showed that Facebook users generally do not mind the advertisements they are exposed to. Additionally, the research also indicated that majority of the Facebook users feel irritated by the high number of advertisements they get exposed to daily. Furthermore, the researched showed that Facebook users do not like advertisement that require interaction from their side.

This research indicated that the interviewees were aware that they are exposed to advertisements that are personalised and individualised specifically for them. The majority of participants were aware that advertisements of products and services that they have previously searched on Google and Facebook pages that they have "liked "appear in their Homepage regularly.

This research suggested that the interviewees that participated in the research felt that the advertisements were invading their privacy. The Facebook users felt that trustworthiness is a crucial part of purchasing goods online. The research also indicated that users do not trust Facebook regarding Facebook's ability to protect their privacy. Additionally, the research showed that the users are more likely to trust advertisements if they were recommended by friends.

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CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION AND BACKGROUND

The predicted amount that consumers will spend online around the world in the year 2021 is estimated as 4.8 trillion dollars (Statista, 2019a). According to the website, Internet World Stats (2018), in 2017, there were approximately four billion internet users worldwide. Global sales passed $1 trillion in 2017 and increased to nearly $1.5 trillion in 2018 (Martínez-López, Esteban-Millat, Argila & Rejón-Guardia, 2015). The continuous increase in sales indicates that retail e-commerce has vast international market potential (Dang & Pham, 2018).

When looking at how ecommerce has evolved, the third revolution has played a major role. The third industrial revolution was the start of the digital age, which included the internet and information technology. It is the start of the fourth industrial revolution, centred around high technology. This is referred to as the “Internet of Things”, where modern technology enables humans to communicate with each other. The interaction with devices and IT programs creates a continuous integration between the physical and digital worlds. Companies are thus endeavouring to offer purchasers a highly personalized experience with the use of artificial intelligence. The artificial intelligence can utilize advanced algorithms which can assist websites to create personalized recommendations for individual buyers (Borhauer, 2018).

The growth of online purchasing has allowed customers to purchase anything at any time. Online purchasing offers consumers the opportunity to compare product characteristics and prices, thus making it one of the most flexible methods of purchasing. However, online purchasing can be overwhelming as the internet offers a vast amount of information. Information on the internet can be managed by using methods and technologies that optimise and personalise searches. This is done by using recommendation systems, known as algorithms, that are finely developed systems (Lepkowska-White, 2013).

Therefore, customer purchasing intentions can be affected, in such way that it leads to an increase in purchasing, through the vast amounts of targeted information that the buyers are exposed to during online purchasing and social media activities (Tankovic & Benazic, 2018).

Consequently, consumers are increasingly searching for information about products online (Meehan, Lunney, Curran, McCaughey & McCaughey, 2016) and make buying decisions based on online recommendations (Cezar & Ögüt, 2016). As soon as information becomes of value it can be localized, organized and filtered for information to be useful to the online consumer. E-commerce recommendation systems play an important part in online activities. The growing number of consumers who value recommendations from e-commerce has an impact on how business is conducted. Traditional businesses have little choice but to incorporate recommendation system into their online stores (Ochi. Rao, Takayama & Nass, 2010). The speed of online communication and the many information sources which the internet provides, make advertising on traditional platforms less relevant. Therefore, social media is being used by businesses to stay competitive in a fast-developing market.

Social media is a fast-developing platform. Consequently, it is important to assess the behaviour of social media users and to continue research into social media strategies and their impact on online purchasing (Keegan & Rowley, 2017). At the end of 2018, Facebook had 2.32 billion monthly active users (Statista, 2019b). Reportedly, 52 per cent of Facebook users engage with this platform daily (Facebook Statistics, 2016). On social media sites such as Facebook, there are recommendation systems in place to personalise online advertisements, making them specific to each online consumer (Pu, Chen & Hu, 2011; Liu, Chen & Chiu, 2013). Recommendation systems ensures that online businesses are given an opportunity to improve the added value they offer to their customers and to create a profitable environment for interactions (Bodapati, 2008; Zhang, Agarwal & Lucas, 2011).

A study by Hadija, Barnes & Hair in 2012 using the Zaltman Metaphor Elicitation Technique, investigated the reason why people ignore social networking advertising. The study found that most social media users generally do not notice advertising on social media and never click on advertisements. Almost 80% of the respondents in the study have never purchased a product through social media advertising. It was found that advertisements in Facebook are not personalized to their interests. The study was limited to 20 college students in the USA and did not use personalized user-generated advertisements. Thus, not enough research has been done when it comes to more personalized and user-generated content-based social media (Hadija, Barnes & Hair, 2012).

For this reason, the focus of this study will be on the perceptions of consumers, specifically Facebook users' advertisements based on algorithms that produce personalised content.

1.2 PROBLEM STATEMENT

Even though online purchasing offers a variety of choices for consumers, there is still a sense of unease related to the vast amount of information that customers are exposed to. These concerns are attributed to various risk factors associated with online purchasing such as, the concern that the quality of products cannot be physically evaluated prior to purchasing; the risks involved in sharing personal information, including banking information, on an online platform; and the exposure to a huge amount of unnecessary information. Recommendation systems have been developed to address the problem related to the information-overload experienced by consumers online (Guan, Zhao, Zeng & Shang 2013), but with that comes a violation of privacy which is still the main concern for most consumers (Dang & Pham, 2018).

Algorithms streamlining information specific to individual consumers are being applied on social media sites due to the fact that traditional media advertisement platforms used by businesses has seen a shift to social media (Lee & Hong, 2016). Social media is an important marketing tool in the modern age and offers companies a competitive advantage in the online market (Duffett, 2015). The social media site, Facebook, is one of the fastest-growing and cost-effective marketing platforms (Statista, 2019b).

Therefore, it is important to assess the buying behaviour of social media users specifically related to personalised algorithms determining the advertisements that they are exposed to (Keegan & Rowley, 2017). An important factor to consider when dealing with social media sites, is that the consumer might be unaware of the advertisements as they are focussing on their social media content. This study aims to add to the knowledge base concerning how consumers view these personalised advertisements on their social media platforms.

The problem is that there is not enough research that has been done when it comes to more personalised, user-generated content-based social media algorithmic advertisements (Hadija, Barnes & Hair, 2012). Given the lack of information in an African context, the problem statement of this study is therefore, to research the lack of information concerning the perceptions that consumers in South Africa have towards algorithmic advertisements on social media platforms, specifically Facebook.

1.3 RESEARCH OBJECTIVES

This section will focus on the primary and secondary objectives, as well as the methodological objectives and research questions.

1.3.1 Primary objective

The primary objective of this study is to investigate the perceptions of the algorithmic consumer on online purchasing.

1.3.2 Secondary objectives

In order to address the primary objective of this study, the following secondary objectives have been formulated:

SO $_1$: To investigate why consumers are actively purchasing online;
SO $_2$: To investigate the meaning of an algorithmic consumer;
SO $_3$: To explore consumers perceptions regarding pop up advertisements on Facebook;
SO $_4$: To establish how online consumers perceive advertisements on Facebook;
SO $_5$: To investigate how online consumers perceive algorithms.

1.3.3 Methodological objectives

In order to achieve the above-mentioned primary and secondary objectives, the following methodological objectives (MO) have been identified:

• MO_1: To undertake a theoretical investigation into the nature and importance of the algorithmic consumer in the online marketplace;
• MO_2: To determine the appropriate research methodology to address the identified research problem of and research objectives;
• MO_3: To develop an appropriate quantitative measuring instrument that will be used to empirically test the influence of the independent variables on the dependent variables;
• MO_4: To source primary data from a pre-determined sample of active Facebook users that are aware/exposed to pop-up advertisements, and to statistically analyse the data, as well as test the proposed hypotheses; and
• MO_5: To report findings and make appropriate recommendations based on the findings of this research, which could assist markets to better understand how online consumers perceive advertisements on social media, specifically Facebook as well as the effectiveness of these pop-up advertisements.

1.3.4 Research questions

The research questions for this study is as follows:

- How do Facebook users feel towards advertisements on Facebook?
- Do Facebook users perceive the algorithmic advertisements relevant to their ` interests?
- Do Facebook users find algorithmic advertisements as trustworthy information towards online purchasing?

1.4 SCOPE AND DEMARCATION OF THE STUDY

As discussed in the introduction, Facebook has a huge number of users and has become a key method of advertising for businesses. Facebook advertising is an excellent and cheap method of advertising and has a very broad reach. This being said, it seems as if traditional Facebook advertising of just having a Facebook page to provide information is trailing in today's fast changing technological environment. In this day and age of fast paced living, do not have to time to read and extensively search for information. This created a gap in the market for specialized and intuitive algorithms to assist internet buyers. Thus, algorithms were adapted to provide advertisements that are more personalized to users and take the interest and lifestyle of the users into account.

Algorithmic advertisement personalizes advertisements to specific users and create more user-generated, relevant advertisements. These advertisements include recommended items to purchase online from specific websites. This method has spread to social media, especially Facebook. As Facebook is such a common and well supported social media site, this study will focus only on Facebook users in the Nelson Mandela bay area, Port Elizabeth, South Africa.

The empirical research will be limited to the Nelson Mandela bay area due to the ease of access of this sample. In addition, the study will only focus on active Facebook users between the age of 18 and 60, because they will most likely have the financial resources to purchase online. The demographic information pertaining to participants will be limited to home language, gender, age, and occupation.

The study will focus on how Facebook users perceive these algorithms and if they are relevant enough to the users to help in their decision-making process when buying online. The role of the advertisements is to influence the buying behaviour of online purchasers and therefore relevance per user is key contributing factor when business advertise online. For this study, the main focus area will be aimed and limited to Facebook user that have purchased products online. This will limit the scope of the study in that some Facebook users may not have purchased products online. The study will also exclude individuals who might have purchased items online or does not have and use Facebook.

1.5 CONTRIBUTION OF THE STUDY

Since preceding research has mostly focused on how consumers perceive social media and how effective social media marketing is, there is little information available on how consumers, specifically algorithmic consumers, perceive purchasing goods or services online. It is necessary to conduct this research to better grasp how consumers operate online and to explore the perceptions of purchasing actions online.

The findings of this study would be beneficial to marketers who want to increase online sales as well as to better understand and successfully differentiate and personalise advertisements on Facebook to better target their audience. It would provide some pointers as to whether consumers in developing economies act similar to those in developed economies.

1.6 DEFINITION OF KEY CONCEPTS

As the study focusing on the perceptions of online consumers towards algorithms, clear definitions of related terms are presented below.

1.6.1 Recommendation systems

Recommendation systems are tools that help the consumer to take decisions. It is designed to proactively suggest product offers that are individually tailored to suite each consumer (Chen & Chen, 2005).

1.6.2 Online purchasing

Innovation and rapid advancement in technology has allowed for new markets to exist where products and services are available to consumers via the internet. The internet allows for businesses to expand, to create brand awareness and can be seen an important marketing tool (Dong, Dong, Chang, Fan &Fan, 2017).

1.6.3 Online purchasing intention

According to Meskaran, Ismail & Shanmugam (2013), online purchasing intentions can be described as the customers' readiness to purchase via the internet. Online purchase intentions are the intent of online customers to purchase items via the internet (Close & Kukar- Kinney, 2010). Customer purchase intention can be

influenced by information overload during online purchasing (Soto-Acosta, Molina-Castillo, Lopez-Nicolas & Colomo-Palacios, 2014).

1.6.4 Perceived risk

Perceived risk is said to be the expectation of losses. According to Kamalul Ariffin, Mohan & Goh (2018), consumers will be faced with various risks when intending to purchase products and services online. These perceived risks have a drastic impact on the success of online retailing. Some of these risks are related to security and uncertainty of safety.

1.6.5 Algorithmic consumer

For the purpose of this study, an algorithmic consumer can be defined as a person that uses Facebook and is exposed to algorithmic advertisements.

1.6.6 Social media

Social media can defined as “a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content” (Kaplan & Haenlein, 2010). According to Thurairaj, Hoon, Roy & Fong (2015), social media is a worldwide platform for people to share feelings, thoughts, and news by making use of posts.

1.6.7 Facebook advertising

Facebook advertising can be defined as advertisements on Facebook that are based on user information (Musonera & Weber, 2018).

1.7 STRUCTURE OF THE STUDY

The structure of the research is as follows:

Chapter one will provide an introduction and background into algorithmic consumers. Reference will be made to the problem statement, the primary and secondary objectives. The methodological objectives and research questions will be stated. This will be followed by a brief literature review. In chapter one the research design, scope and demarcation and the contribution of the study to the field of will be discussed. Chapter one will be concluded with a section that will provide definitions of key concepts and the structure of the study.

Chapter two will be comprise of a literature review to aid the understanding of the algorithmic consumer, perceptions and online purchasing. Key concepts that will be discussed include perceptions, social media advertising, online purchasing and algorithms in recommender systems. This section will provide definitions as well as the importance of these key concepts.

Chapter three will focus focusses on the research design and methodology the study. This section will provide a reason for the selected research design. More reference will be made to the sample participants and the primary data collection method. In addition, the measuring instrument that will be used and the data analysis process will be discussed in detail.

Chapter four will present the empirical results of the study. This section interpretations of the interviews will be provided and indications of the developing themes that were identified during the data analysis process.

Chapter five will conclude the study by providing a brief overview of the previous chapters and will provide a summary of the main findings. Based on the findings of the literature review and the empirical investigation, conclusions will be drawn. The contributions and limitations of the study will be explained and recommendations for future research will be proposed.

1.8 STUDY TIME FRAME

The table below will indicate the activities needed to be completed for this study and by the date they need to be completed by.

Table 1.1 Study Time Frame

Order	Activity	Due Date
1	Research proposal (Chapter One)	8 April 2019
2	Literature review (Chapter Two)	6 May 2019
3	Research design (Chapter Three)	27 May 2019
4	Data collection	21 July 2019
5	Empirical review (Chapter Four)	21 August 2019
6	Results (Chapter Five)	27 September 2019
7	Submission	28 October 2019

Source: Researchers' own construction

CHAPTER TWO
LITERATURE REVIEW OF ALGORITHMIC CONSUMERS AND ONLINE PURCHASING

2.1 INTRODUCTION

The primary objective of this study is to investigate the perceptions of algorithmic consumers on online purchasing. Therefore, this chapter provides a theoretical overview of perceptions such as perceived risk, trust, security, perceived ease of use, usefulness as well as convenience. The concept of online purchasing will also be outlined.

This chapter will start by discussing the various aspects of online purchasing such as defining what online purchasing is, providing a brief background on the history of the internet, touching on advantages that online purchasing offers as well as online purchasing intentions. Social media advertising is the next section to follow after online purchasing. In this section a definition of social media advertising is provided alongside an overview as well as discussing the role thereof in marketing and promotion. Since this study is focussing on Facebook, an overview will be given of history, a brief overview as well as a detailed discussion of how Facebook is utilised in advertising.

The purpose of algorithms used in recommendation systems is discussed alongside what benefits algorithms provide for marketers as well as consumers. Finally, the use of algorithms will be explained as well as linking algorithms with Facebook and Facebook advertising.

2.2 ONLINE PURCHASING

The section to follow provides a discussion of how online purchasing has gained popularity over the past decade and what online purchasing entails. A definition of online purchasing, the growth and history of online purchasing, advantages that online purchasing offers as well as online purchasing intentions will be discussed.

2.2.1 Defining online purchasing

Online purchasing is a modern-day channel to buy products or services via the internet (Li & Huang, 2009). Niranjanamurthy, Kavyashree, Jagannath & Chahare (2013) states that online purchasing is a form of e-commerce and gives individuals or businesses the opportunity to buy goods and services via the Internet. There are alternative terms that are used to refer to purchasing goods or services online such as e-purchasing, online purchasing, web-store, but for the purpose of this study the term online purchasing will be used.

According to Huseynov & Yildirim (2016:452), online purchasing is activities that include probing for product information, actually buying products or services, as well as acting as a communication method between with retailers and consumers. Online purchasing can also be defining as the process of trading and buying products or services with the use of the Internet (Kumar, 2017).

For the purpose of this study, online purchasing will refer to the process of selling and buying of products and services via the Internet.

2.2.2 The history and growth of online purchasing

Online purchasing first started in 1979 when Michael Aldrich from the United Kingdom connected a television set to a transaction processing computer with a telephone line and it could be used to make online purchases, train reservations and to access the telephone book (Deepali, 2013). Online trading started in the 1990s with the development of the Internet, together with innovative companies that responded to the opportunities that the Internet could offer (Doherty & Chadwick, 2010).

As the development and innovation of technology has advanced, the internet has created a market space where internet technology is used to connect consumers and businesses all over the world (Pappas, Pateli, Giannakos & Chrissikopoulos, 2014). The Internet does not only connect consumers globally, but way business is conducted. The constant improvement and innovation of technology, such as the increased use of smartphones, allows conventional business to adapt to lifestyle and

market changes, offering consumers an easy way to purchase items online (Turban King, Lee, Liang & Turban, 2015).

In the 21st century online purchasing has increased due to internet technology. According to the 2015 Global Retail E-Commerce Index, online purchasing total worldwide sales increased to approximately $1,506 billion by the year 2018 (Global Retail E-Commerce Index, 2015). These estimations indicate that there is an increase in online purchasing. This places a burden on business to create an online opportunity of purchasers to buy their product in order to stay relevant and profitable. On the other hand, it creates an opportunity for all business, including small and start-up business, to gain entry into the market.

2.2.3 Advantages of online purchasing

The internet has allowed for consumers around the world to communicate, thus reducing barriers between consumers as well as increasing the trend of online purchasing (Shaikh & Karjaluoto, 2015; Smith, Deitz, Royne, Hansen, Grünhagen & Witte, 2013). Purchasing goods and services online can offer customers and businesses many advantages opposed to a traditional store. According to Levy and Weitz (2016) online purchasing can offer a wide selection of products and services, more information about products as well as offering personalised product or services. Online purchasing allows for greater customisation and value-added services for customers (Niranjanamurthy *et al*., 2013).

Personalisation and customisation of product offerings can be done via the internet as there is information available about consumers such as previous buying behaviour and preferences. The abovementioned is done by constructing targeted messages to specific consumers by adding the individuals name, interest and past online purchases (Dan, 2014).

Furthermore, online purchasing offers convenience for consumers, as online purchasing can occur anywhere, is time saving from both the business and consumers perspective and offers lower transaction and operational costs (Forsythe, Liu, Shannon & Gardner, 2006). The internet has allowed consumers to purchase products

and services at any time of the day or night. Niranjanamurthy *et al*. (2013) stated that online businesses can extend operating hours to 24 hours a day as the internet allows for access to the business website for online purchasing to occur. Social media advertising platforms, such as Facebook, give online consumers the opportunity to view comments and reviews of certain product offerings posted by fellow consumers.

The ability to review and write comments on a business website can increase the perception of transparency and trust of the online retailer (Khan, 2016). Perceptions such as transparency and trust will build a positive image and contribute the adoption of online purchasing.

2.2.4 Online purchasing intentions

Online purchase intentions can be defined as a customers' readiness to purchase products or services via the internet (Meskaran *et al*, 2013). According to Close & Kukar-Kinney (2010), online purchase intentions are the intentions of online consumers to purchase items through the internet or with the use of computer-generated buying carts. Online purchasing intentions is an important factor when analysing online purchasing as researchers regularly use it to predict the customers present and future buying patterns. Online purchasing behaviour will have various influences on the online business performance. Measures such as strong privacy and security on websites leads to an increase online purchasing intention of consumers (Kamalul Ariffin *et al*, 2018).

According to Almousa (2011), time risks as well as performance risks greatly influenced online purchasing intentions as it was founded that privacy risks and security risks will negatively affect online purchasing intentions. Thus, online purchasing intentions will be negatively or positively influenced by any risks perceived by the online consumer (Meskaran *et al*.,2013; Zhang, Tan, Xu & Tan, 2012). Therefore, when risks are present, it is in the interest of the business that offer online products or services to ensure that all the possible, perceived risks by the online consumer, are mediated in such a manner that the customer does not perceive it as risks any more.

2.3 OVERVIEW OF ONLINE PURCHASING PERCEPTIONS

The Internet allows businesses to provide a range of products and services to online consumers (Heinemann & Schwarzl, 2010). Considering how fast online purchasing is growing globally, the following subsection will discuss what factors influence the increase thereof. The section to follow, will provide a discussion of perceived factors that influence online purchasing. The perceptions of risk, trustworthiness, security, ease of use usefulness as well as convenience will be discussed.

2.3.1 Perceived risk in online purchasing perceptions

According to Schierz, Schilke & Wirtz (2010), perceived risk is when an individual has an expectation of losses. Risk is defined by Gefen, Rao, V & Tractinsky, (2002), as the "*attributes of the decisions that reflects the variance in feasible results and includes all the negative consequences of a purchase for a consumer that cannot be anticipated*". The risk perceived by consumers plays an important role in the buying behaviour of consumers, which makes the perception of risk a valued aspect towards explaining online behaviour and consumer purchase decision making (Mayer, David & Schoorman, 1995).

Consumers' perceived risk when they intend to purchase products or services on the internet (Kamalul Ariffin *et al*., 2018). Additionally, when comparing the online market and the physical market, there is more risk and less trust in the online market. This is attributed to the lack of tangible indications about the quality of the product or service and having no face-to-face interaction with sales personnel (Hawes & Lumpkin, 1986). According to Ozturk, Bilgihan, Nusair & Okumus (2016), online purchasing is made possible through a computer-generated marketspace and presents several convenient advantages of time and place.

However, consumers are not in the know to crucial aspects influencing the purchasing process, which is present in brick-and-mortar purchasing actions and may present risks for consumers (Liaw & Le, 2017). Perceived risk is a vital determinant in initial online purchasing and is more evident in online purchasing than in traditional purchasing (Chiu, Wang, Fang & Huang, 2014).

Perceived risk is complex as it involves elements of financial risk, product quality risk and privacy risks. All the above-mentioned risks are strong predictors of consumer online purchasing adoption stated by Dai, Forsythe & Kwon (2014), and will lead to the increase of online purchasing behaviour. Additional risks that consumers can be exposed to might be missing product information, consumer expectations that are not met, as well as divulging personal information when filling in payment fields that can lead to security risks (Liaw & Le, 2017).

As soon as consumers experience these additional risks, it can lead to feelings of unease and a lower level of trust that, in turn, can lead to high levels of perceived risk when engaging in online purchasing. Furthermore, it can be presumed that when consumers have high levels of perceived risk, that the adoption of online purchasing can significantly be affected in a negative way for the online shops. Therefore, perceived risk will influence the number of individuals purchasing online.

Additionally, Mortimer, Hasan, Andrews & Martin (2016), states that customers frequently compare levels of trust of an online seller against that of the perceived risk felt. Therefore, the less trust a consumer has in an online seller, the higher the levels of perceived risk is felt by the consumer. This will have a negative influence on the adoption and use of online purchasing by consumers. Perceived levels of risk can be lessened by a consumer's prior use of the Internet and online experience that will positively influence an individual's perception (Dai *et al*., 2014). Decreased levels of perceived risks will therefore lead to more consumers participating in online purchasing.

2.3.2 Trust in online purchasing perceptions

The perception of trust is seen as an important factor to online purchasing (Kim, 2012; Gregg & Walczak, 2010). Trust can be defined as the act of depending on and believing in another person, party or organisation (McKnight & Chervany, 2001). Consumers trust of a retailer is seen as crucial to online purchasing (Kim, 2012). According to Akroush & Al-Debei (2015), the perception of trustworthiness, in the context of online purchasing, is the expectation that an online retailer will deliver what is promised to the consumer.

Trustworthiness is a vital determinant that effects the purchase intentions of consumers and a lack of trust can lead to undesirable behavioural intentions. From the consumers perspective, not being able to physically see, touch or taste the products and services offered by an online retailer will contribute to a lack of trust (Lin & Kim, 2016).

In addition, a lack of trust could result in low levels of customer satisfaction and negative attitudes toward online purchasing (Kim & Peterson, 2017). It can therefore be deduced that trust can have an influence on the perceptions of consumers regarding online purchasing. According to McKnight & Chervany (2001), individuals who are more prone to purchase items online will perceive higher levels of trust compared to those customers who do not actively participate in online purchasing as they lack trust and experience a feeling of uncertainty and risk.

2.3.3 Security in online purchasing perceptions

The perception of security is defined by Soltanpanah, Shafe'ei & Mirani (2012) as "the potential loss due to online fraud or hacking, which exposes the security of an internet transaction or online user". By providing security on a website disclosure is an effective method for online businesses that help establish profitable relationships with online consumers. In terms of consumer perceptions, online consumers are more likely cooperate with information requests if the websites provide a statement regarding the method of data collection as well as the purpose of collection. Therefore, security policies promote customer satisfaction (Wu, Lee, Fu & Wang, 2014).

Consequently, if an online retailer doesn't implement a security mechanism on buying websites it can negatively influence a consumers' purchase intention (Karnik, 2014). In terms on online purchasing, the disclosure of personal information is perceived as a risk for consumers. The perception of security is thus associated with the sharing of personal and financial information such as bank accounts, credit card numbers and personal pin numbers (Azizi & Javidani, 2010). Therefore, for an increase in online purchasing, online marketers should offer guarantee and warranty for the purchased products to the consumers to reduce the financial risk (Kamalul Ariffin *et al.,* 2018). This should lead to consumers developing feelings of trust toward online retailers, therefore increasing online purchasing.

2.3.4 Perceived ease of use in online purchasing perceptions

Perceived ease of use is the degree to which an individual believes that use of a certain technological system would decrease effort levels (Rauniar, Rawski, Yang & Johnson, 2014). Perceived ease of use is defined by Li & Huang (2009) as the perceptions of individuals who use technology i.e., the Internet regarding the difficulty or straightforward navigation of the website.

According to Ozturk *et al*. (2016), the perception of the ease of use is linked to a customer's views of the effort that is needed to effectively use the internet and therefore also a vital factor in the adoption of technology and online purchasing behaviour. Websites of online retailers that are user-friendly and utilised with little effort by consumers will influence the adoption of online purchasing (Bilgihan, Kandampully & Zhang, 2015). High levels of perceived ease of use will therefore influence the online buying behaviour of consumers.

2.3.5 Usefulness in online purchasing perceptions

Perceived usefulness involves the belief that the use of technology can improve performance and improve ease of use (Davis, Bagozzi & Warshaw, 1989). Perceived usefulness can also be defined as the degree to which individuals that use the internet can improve job performance (Rauniar *et al*., 2014). Perceived usefulness can indicate the extent to which online consumers believe using a particular website will improve purchasing productivity (Wu, Chen, & Chiu, 2016). Thus, if online purchasers perceive a website as useful, they will be more inclined to make use of it.

2.3.6 Convenience in online purchasing perceptions

Consumers can acquire products or service easily through online purchasing instead of going to traditional retail stores. Therefore, online purchasing requires a lot less effort than normal, physical purchasing (Nazir, Tayyab, Sajid, Rashid & Javed, 2012). According to Thananuraksakul (2018), it is evident that convenience is one of the foremost incentives that attract consumers to online purchasing, as it offers a time-saving benefit.

By analysing convenience, in terms of online purchasing, there are two main elements that has a strong appeal to consumers. The above-mentioned elements are namely transactional convenience and operational convenience. These elements are evident when looking at the benefits that online purchasing offers such as being able to pay with a credit card online as well as purchasing from anywhere the consumer wishes (Ozturk *et al*., 2016).

According to Lin & Lu (2015), the perception of convenience in terms of online purchasing, it can have positive influences on consumers that participate in online purchasing. Consequently, it can be deduced that convenience is a significant factor that influences the perception of online purchasing. Therefore, perceived convenience of online purchasing will influence the number of consumers using the internet.

Table 2.1 provides a summary of the online purchasing perceptions

Table 2.1 An overview of online purchasing perceptions

Aspect in online purchasing perceptions	**Description**
1) Perceived Risk	Decreased levels of perceived risks will therefore lead to more consumers participating in online purchasing.
2) Trust	Individuals who are more prone to purchase items online will perceive higher levels of trust compared to those customers who do not actively participate in online purchasing
3) Security	Increases in online purchasing, online marketers should offer guarantee and warranty for the purchased products to the consumers to reduce the financial risk

Aspect in online purchasing perceptions	Description
4) Perceived ease of use	High levels of perceived ease of use will therefore influence the online buying behaviour of consumers.
5) Usefulness	If online customers perceive a website as useful, they will be more inclined to make use of it.
6) Convenience	Perceived convenience of online purchasing will influence the number of consumers using the internet.

Source: Researchers own compilation

2.4 SOCIAL MEDIA ADVERTISING

This section will provide a definition of social media and provide an overview of social media advertising. It will also address Facebook and finally Facebook advertising.

2.4.1 Definition of social media

Social media can defined as “a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content” (Kaplan & Haenlein, 2010). According to Thurairaj, Hoon, Roy & Fong (2015), social media is a worldwide platform for people to share feelings, thoughts, and news by making use of posts.

Manning (2014) defines social media as media platforms that involves user interactive participation. Taking all these definition into consideration, social media can be defined as an online platform, where users can interact with each other, share information and post (photos or videos) user-generated content. Social media platforms include amongst others, Facebook, Instagram, Twitter, Snapchat and YouTube. For the purpose of this study, the primary focus will be on Facebook only.

2.4.2 The role of social media in marketing

Social media is used to create connections between the business and their customers. It can create a platform for people who do not know about the business or their products to view what they have to offer. Social media can create the feeling that the business is more “real”, because they can follow the business and see the newest products. Social media can also be used to create an affiliation between similar businesses in the same industry. Customers search for connection and social media can provide this for customers and businesses. Social media can create relationships between customers and businesses (Sajid, 2016; Neti, 2011).

2.4.3 Social media advertising

Social media advertising is one part of marketing and advertising promotion (Sajid, 2016).

(a) Social media marketing

Social Media Marketing (SMM) has led to an increase in company exposure and boosted productivity across many industries. Social media marketing can be seen as one of the key drivers for success. Social media marketing is also a critical platform for businesses to interact with customers. It can also be used to communicate and interact with partners and the other stakeholders (Podobnik, 2013; Chui, Manyika, Bughin, Dobbs, Roxburgh, Sarazzin, Sands, & Westergren, 2012; Wasserman, 2012). Online marketers identified the opportunity to customize advertisements on social media sites, in order to draw the attention of customers. Because of this reason, businesses have incorporated social media as a marketing tool in their marketing strategies (Waters, Canfield, Foster & Hardy, 2011 IN Tran, 2017; Podobnik, 2013).

Social media marketing created a marketing opportunity and promotion opportunity that goes beyond the normal middleman and directly connects business with consumers (Sajid, 2016). Social media provides two advantages for businesses. These are that the cost is decreased by the simultaneous decrease in staff working hours and an increased probability of creating more revenue (Sajid, 2016; Neti, 2011).

Social media marketing can help businesses in the following ways. It can reduce the overall expenses of marketing and create increased sales. Social media marketing can increase the traffic and generate more exposure for the business.
Social media marketing can also create an increase in search engine rankings. Lastly, social media marketing can not only help build relationships between customers, but also between businesses (Sajid, 2016; Neti, 2011).

(b) Social media promotion

To inform consumers of the business products, is seen as a key objective of promotion. It is necessary for business to provide consumers information about the businesses for instance, about who and what they are. Therefore, social media promotion is a key and natural part of any businesses' promotion (Sajid, 2016).

The use of social media as a marketing platform for promotion can be justified by the following four aspects:

- It can create more transparency for the business.
- The reach is far greater when using social media.
- The web page traffic is boosted.
- Lastly, is creates a brand type of feel for customers.

According to Sajid (2016), a business should incorporate a strategy for social media, regardless of the size of the business. The strategy should include the 3 C's. The business should have:

- Companywide involvement techniques that
- Ensures Conversations with customers, and
- Causes customer commitment across social systems"

2.5 FACEBOOK AS AN ONLINE PLATFORM

Facebook is an online social networking service. The mission of Facebook is, "*to give people the power to build a community and to bring the world closer together*", (Facebook business, 2019).

2.5.1 The history of Facebook

Since the start of Facebook in 2004, it has grown to the biggest social networking site in the world (Musonera & Weber, 2018). Facebook had one million users within less than a year of its existence. In September 2006, Facebook expanded their registration, so anyone can join and by December 2006, Facebook had grown to 12 million users. In October 2007, Facebook launched their mobile app.

Facebook changed a lot over the years and introduced many new concepts. Facebook added features like games, news feed, and the "Like" button (Facebook Newsroom, 2019; Musonera & Weber 2018). By November 2011, Facebook had 845 million users (Facebook Newsroom, 2019; Podobnik, 2013). Facebook also bought Instagram in April 2012 and by 2015 Facebook had one billion daily users (Facebook Newsroom, 2019). In 2018, Facebook was involved in a big scandal.

The Cambridge Analytica scandal as it was called, happened "*when investigative journalists revealed the company had been harvesting personal data from 87 million Facebook profiles for political campaigning purposes*". Facebook decide to share the information of Facebook users with developers of applications and other companies. The privacy scandal caused a decrease of 100 billion dollars in Facebook's share price value within a week, but the company is trying to win back the user's trust. (Forbes, 2019).

2.5.2 Overview of Facebook

Facebook is a platform that enables the users to consume content. This can be done through the News feed. Facebook also allows user to chat with other people using Facebook Messenger. Facebook allows users to create personal or business profiles. These profiles can be used to share photos or videos and can be used to join several groups (Facebook business, 2019). The headquarters of Facebook is Menlo Park, California. As of the end of March 2019, Facebook had approximately 37 700 employees working full-time. Facebook also had 1.56 billion users that were active daily and 2.38 billion users that used Facebook monthly (Facebook Newsroom, 2019).

2.5.3 Facebook advertising

Facebook started to allow advertisement to create a revenue stream for their shareholders. It is an easy way to collect revenue due to the magnitude of Facebook users. Businesses can pay Facebook in order to receive space and time on their site. This increases the awareness and popularity of the advertisements, allowing an easier reach to their target markets. Because of the continuous flow of advertisements, Facebook has remained profitable.

Advertisements on Facebook allowed marketers with an opportunity to modify advertisement based on user information. The advertisements can be based on likes and dislikes of users. These advertisements appear to the users and are based on users interests and wants. In order for Facebook to provide users with relevant advertisements, Facebook collects information about users that can include what the users Googled and which websites the users frequently use and visit (Musonera & Weber, 2018). If the user buys the product from the advertisements, businesses will keep paying for Facebook advertisements.

Through Facebook's mobile app, more revenue can be collected from mobile marketing (Musonera & Weber, 2018). Facebook uses recommendation systems in order to personalise online advertisements, making them specific to each online consumer (Liu, Chen & Chiu, 2013; Pu, Chen & Hu, 2011).

More information will be provided about algorithms and recommender systems in the next section.

2.6. THE PURPOSE OF ALGORITHMS USED IN RECOMMENDATION SYSTEMS

This section will provide definitions for algorithms and recommender systems. It will also state the benefits of recommender systems and how they are used. Finally, it will be explained how recommender systems and Facebook can be utilized together.

2.6.1 Definition of an algorithm

Algorithms help consumers in the decision-making process in online purchasing. At the very basic level, algorithms offer consumers information relevant to their choices (Elkin-Koren & Gal, 2017). Hurst & Hurrell (2018) describe algorithms as, "*very useful methods for calculation when numbers are too large to mentally calculate quickly or accurately*."

According Saurwein, Just & Latzer (2015) algorithms are a present and crucial part of the 21st century. Given the information overload, algorithms prevent people from being overwhelmed by all the information. Algorithms select specific information for each user and then automatically assigning a certain aspect of relevance to an item.

Algorithms are used in an increase number of applications on the internet. The algorithms typically work behind the scenes and can influence a broad range of activities. These algorithms can influence what news is selected to present through online search engines. The algorithm can also influence the type of videos and music a person consumes through recommender systems. Algorithms can also influence the display of certain products and services in online shops and the order of status messages displayed on social media (Saurwein *et al*., 2015).

2.6.2 Definition of recommender systems

Recommendation Systems, based on algorithms, are computer software that is embedded into the internet, specifically advertisements that track the preferences of online users, predict what the consumers want and make recommendations on purchasing decisions (Elkin-Koren & Gal, 2017). Smith & Linden (2017), describe recommender systems as computers discreetly and secretly helping people help other people.

2.6.3 The benefits of algorithms recommender systems

Recommendation systems (algorithms) are considered to be helpful when online users have little knowledge on the products or services being offered on the internet (Ying, Feinberg & Wedel, 2006). Therefore, the use of algorithms that produce recommendations can enhance online businesses to target individuals by analysing their wishes and preferences shown to specific products (Liu *et al*., 2013; Pu et al., 2011).

By targeting individual customers, the online seller improves the perceived value offered to online customers that will hopefully lead to increases of product sales, as well as boosting customer loyalty (Zhang, Agarwal & Lucas, 2011). This type of technology has been implemented by successful online sellers such as Amazon. Amazon will suggest products and services to their customers that are based on the past purchases of these customers, as well as other online consumers that have a similar product interest (Wu & Gereffi, 2018).

Consequently, recommendation systems can have cost benefits for business. Recommendation systems can decrease informational costs and transaction costs that the business incurs by eliminating labour intensive practices. Informational costs and transaction costs can by decreased by determining parameters that targets specific customers online by using certain tools. One of these tools is to offer a variety of decision parameters for the customer to choose from. For example, a Facebook advertisement gives the customer five products to choose one from (Elkin-Koren & Gal, 2017).

Individual decision parameters for each consumer can be used as another tool. These parameters are based on previous online buying behaviour, level of online activity as well as preferences shown by the customer to certain products or services. Furthermore, operating costs can be decreased by achieving economies of scale, which is done by one advertisement reaching many consumers that have similar preferences (Elkin-Koren & Gal, 2017:14).

2.6.4 The algorithms and recommender systems

Amazon.com has been the main leader for recommendation systems online. The recommender system of Amazon.com picks a small number of products that might be of interest of the user from a hundreds of million-item catalogue. The algorithms are just based on discoveries made by other people. In simple terms, “the algorithm does all the work”. In 1998, Amazon.com had launched their recommendation system called item-based collaborative filtering. Since then it was adopted by other sites like YouTube and Netflix (Smith & Linden, 2017).

“*The algorithm’s success has been from its simplicity, scalability, and often surprising and useful recommendations, as well as desirable properties such as updating immediately based on new information about a customer and being able to explain why it recommended something in a way that’s easily understandable*” (Smith & Linden, 2017).

Furthermore, the recommendation systems’ biggest advantage over the user-based collaborative filtering is that most of the computation is done offline. The recommendations produced by this computation is of high quality and can be very useful. If the algorithm is given enough data, it can still compete with newer created algorithms (Smith & Linden, 2017). It is clear that Amazon.com set the benchmark for online sites to use algorithms and recommender systems.

There are two different types of recommendation systems, namely collaborative filtering and attribute-based content filtering. The ways in which the two types differ are based on the effort level executed by the online consumer. Depending on the level of activity, the type of recommendation will be generated (Pedeliento, Andreini, Bergamaschi & Klobas, 2017).

The first type of recommendation system is collaborative filtering. This system will recommend products or services without any effort from the online consumer and uses opinions of other related consumers to make suggestions for related businesses (Good, Schafer, Konstan, Borchers, Sarwar, Herlocker & Riedl, 1999).

The second type, namely the Attribute-based recommendation system, requires of the consumer to actively participate online and the information gathered about the customer will be matched to data about products or services that will in turn provide referrals to match the consumer's expressed preferences (Ying *et al*., 2006).

Since the launch of Amazon.com algorithm, the original algorithm has been scattered over the majority of the online platform. The algorithm has been adjusted to find videos for people to watch or even suggest news that people are more or likely to read. The original algorithm has been tested by newer techniques of algorithms and has been adapted to produce more related content (Smith & Linden, 2017).

2.6.5 Recommender systems and Facebook

The majority of online shops utilize recommender systems. A large number of these systems experience the negative effects of the new client with no exchange history that is accessible to the new purchaser. A method to overcome this issue is by using external data. This data can be collected from social networking sites. One of these sites is Facebook and this method seems like a sure manner address the problem at hand (Heimbach, Gottschlich & Hinz, 2015).

With this emergence of external data of users and social purchasing sites, new opportunities are open for these sites. It can provide new users with a promising chance of targeted product recommendations that are generated using this external data (Heimbach *et al*., 2015). Additionally, Heimbach *et al*. (2015) defines social online purchasing sites as, "*online shops which integrate external online social networking sites like Facebook or offer their own features allowing users to build profiles, maintain their social relations, post their purchases on their walls or let friends evaluate their purchases*".

A study done by Heimbach *et al*. (2015), indicates that many online retailers may not have access to the transaction history of users but can exploit Facebook user data to create meaningful products recommendations. The study (Heimbach *et al*., 2015) found that the Facebook profile of users can be a key factor in product recommendations. The results further showed that external data from social networks can be applied as a starting point for the design of recommender systems.

2.7 THEORETICAL FRAMEWORK

For the purpose of examining the factors that would influence the consumers' attitude towards Facebook advertising in the tourism sector, Abu-Ghosh, Al-Dmour, Alalwan & Al-Dmour (2018) did a study on Jordanian consumers. Abu-Ghosh *et al*. (2018), designed a conceptual framework based on previous research to aid them in identifying the factors that influence attitudes of consumers. The researchers conducted a quantitative study that including 380 Jordanian students to complete the study.

The results that were found implied that there are seven main factors that have a direct influence in the consumer's attitude towards Facebook advertising. The study recommended that companies should take note of these factors when designing advertisements. These factors include: (i) informativeness; (ii) credibility; (iii) irritation; (iv) interactivity; (v) entertainment; (vi) privacy; and (vii) peer influence. Figure 2.1 depicts the conceptual framework based on the various factors influencing Facebook advertising and show its relationships with the consumers' attitude towards Facebook advertising.

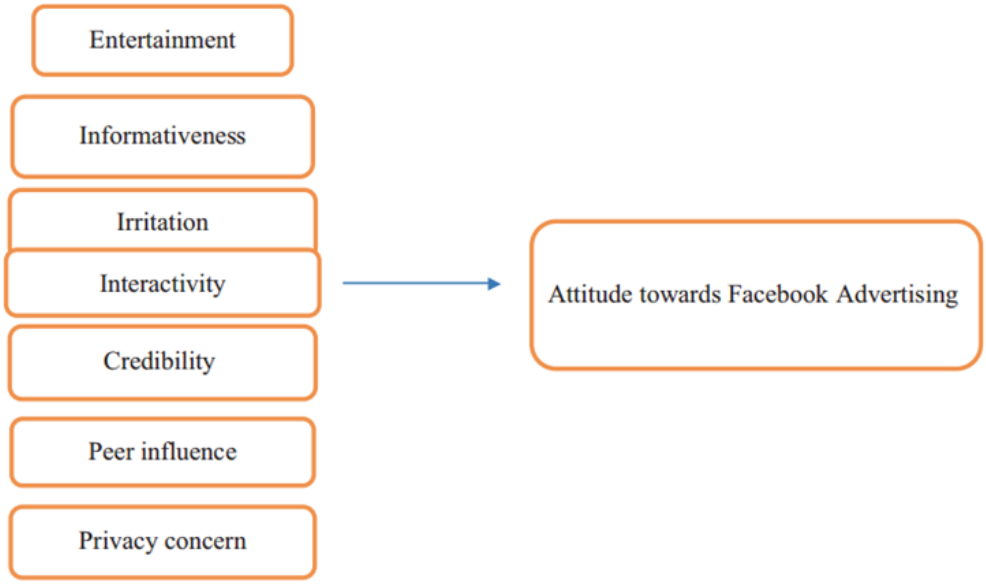


FIGURE 2.1 Conceptual framework

Source: Adapted from Abu-Ghosh *et al*. (2018)

Figure 2.1 depicts the conceptual framework for this study and its components are discussed in the following paragraphs.

2.7.1 Entertainment

The study (Abu-Ghosh *et al*., 2018) found that entertainment is the factor that influences the attitude of consumers towards Facebook advertising the most. Facebook consumers thus place a high value on the entertainment of the advertisement. If the consumer finds an advertisement entertaining, it will draw his/her attention and he/she will continue to watch the advertisement. The consumer thus learns more about the product that is offered, and this will give the business a greater opportunity to sell their wares (Abu-Ghosh *et al*., 2018).

2.7.2 Informativeness

The study (Abu-Ghosh *et al*., 2018) found that informativeness was the factor with the second highest influence on the attitudes of consumers towards Facebook advertising. The research found a positive correlation between informativeness and the attitudes of consumers towards Facebook advertising. This implies that informativeness is an important factor in influencing the attitudes of consumers. The conclusion can be made that advertisements on Facebook should provide enough information about the products to the consumer in order to positively influence their attitudes towards the advertisement (Abu-Ghosh *et al*., 2018).

The less questions and uncertainty consumers have after they have perused and advertisement, the bigger the chance that they will consider the purchasing of the advertised item.

2.7.3 Irritation

Irritation was the only factor that had a negative correlation towards the attitudes of consumers with regards to Facebook advertising. This mean that the irritation factor of the advertisement does have a negative impact on the attitude of the Facebook consumers and will negatively influence online purchasing. Therefore, it is an important factor to consider when designing advertisements. Companies should be wary towards this factor as it can have negative effects on the consumers attitudes towards Facebook advertising (Abu-Ghosh *et al*., 2018). In terms of Facebook advertising, it can be said that irritation can have a direct impact on the success of a Facebook advertisement

2.7.4 Interactivity, credibility, peer influence and privacy

The study by Abu-Gosh *et al.* (2018) found that the factors namely informativeness; (ii) credibility; (iii) irritation; (iv) interactivity; (v) entertainment; (vi) privacy; and (vii) peer influence will have a positive relationship on consumer attitudes towards Facebook advertising. Therefore, companies should consider these factors when designing advertisements for Facebook to ensure that the advisements have positive effects on the attitudes of consumers.

The study on perceptions of the algorithmic consumer on online purchasing will make use of the theoretical framework of the study of Abu-Gosh *et al.* (2018). This study will be done in an African context, especially in South Africa as a developing country. A qualitative study will be conducted to use this adapted framework to better understand the perceptions of consumers towards algorithmic advertisements.

2.8 SUMMARY

This chapter started by providing an overview on perceptions and follow by the history and development of online purchasing. The chapter then focused on social media advertising and the opportunity it provides for businesses as a marketing platform. It was then followed by a section on algorithms and recommender systems. The last section provided the theoretical framework that the interview questions will be based on. It was found that the main influence factors of perceptions are trust, risk, security, convenience, and usefulness. All these factors are important in determining the overall perceptions of a person. With the rise of the in-e-commerce sales over the past few years, the online purchasing platform is a lucrative business opportunity for online shops. Online purchasing has demolished the barriers between customers and offer many advantages, like personalization and customization, for businesses. Another advantage is that customers can buy products at any time of the day.

Consequently, it was established that social media does play an important role in marketing. Social media marketing when used efficiently, can provide businesses with many advantages. Social media marketing is cheap and has a large reach. Subsequently, Facebook has identified this opportunity and allowed business to create a business page and even pay for advertisements on their site. It was discovered that

Facebook uses algorithms in their advertisements. The chapter further explains what algorithms are and how they are used in recommender systems. An algorithm uses the information and history of the user to recommend products of interest to the user. It was also found that many online shops allow users to sign in with their Facebook accounts to access the user's personal data and see the users likes and dislikes.

In the last section, an overview of the theoretical framework, that has been done by previous researchers, is given. The framework suggests that informativeness, credibility, irritation, interactivity, entertainment, peer influence, and privacy influence the attitude of consumers towards Facebook advertising. This framework will be adopted to suit this study.

The next chapter will provide an overview of the study's research design. Chapter three will include sections on research methodology, data collection, and data analysis.

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

Chapter two discussed online purchasing and the factors that influence the perceptions of the consumers. Chapter two also discussed social media advertising, the role social media plays in marketing and specifically, Facebook advertising. The chapter also gave information about algorithms and how Facebook uses algorithms in their advertising efforts. The last section in chapter two discussed the theoretical framework adopted in the study.

In this chapter, more detail will be provided on the research design and methodology. Chapter three will start with an overview of the research methodology, which will include the research paradigm used. The next section in chapter three will discuss the research design in terms of the approach used in this study. The section of the research design will also discuss the data collection methods of both primary and secondary data. The primary data collection will focus on the population of the study, the sample frame of the study, and the sample used in the study. The next section will discuss the sampling technique used in this study as well as the measuring instrument and the design of the measuring instrument. Furthermore, the data analysis will be discussed and lastly a summary will be provided.

3.2 RESEARCH METHODOLOGY

According to Wilson (2014), research methodology “is the approach and strategy to conduct research”. Heppner, Wampold & Kivlighan Jr (2008) defines qualitative methodology as focusing on context to help understand a phenomenon. In contrast, quantitative methodology focuses on the relationship between variables from a large number of samples (Heppner *et al*. 2008). Struwig & Stead (2013), state that an exploratory study occurs when research is done on a subject when little is known about a problem and a small sample is used. This will ensure that a vast amount of information can be obtained and used for the research.

For the purpose of this study, a mixed method research methodology will be used. An inductive approach will be followed to ensure that the data collected is meaningful, given the exploratory nature of the research.

A research paradigm consists of concepts of scientific practice that is equally accepted and can include theories, research methods, and models. A research paradigm directs the researchers on the types of questions and research directions they should follow (Struwig & Stead, 2013). In addition, Neuman (2011) stated a research paradigm provides a framework for research and theory. It provides models of quality research and answer-seeking methods. A paradigm also includes the key issues and the basic assumptions.

According to Richie, Lewis, Nicholls & Ormston (2013), there are two type of research paradigms. The one is a positivism paradigm with which is usually associated with quantitative methodology. The other being the interpretivism paradigm, which is usually associated with qualitative methodology. An interpretivism paradigm focuses on the importance of understanding and interpreting people's perspectives in the social world (Richie *et al*. 2013; Heppner *et al.* 2008). For the purpose of this study, an interpretivism research paradigm will be applied in order to gain exploratory insight of the participants' perspectives.

The method may be qualitative or quantitative in nature, or the method can be a combination of the two. Quantitative research is mainly used to test a hypothesis between the variables of the study and requires a large sample whereas quantitative research uses numerical data. Qualitative research places emphasis on understanding and describing of what is being studied (Struwig & Stead, 2013; Heppner *et al*. 2008). Qualitative data is collected in the form of words, sounds and images. Tashakkori & Creswell (2007:4) define mixed methods as "research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study." For the purpose of this study, a mix method research technique will be used.
In the following section the advantages and disadvantages of the mixed method research technique will be discussed.

3.2.1 Advantage of the mixed method approach

According to Webb, Campbell, Schwartz & Sechrest (1966), mixed research methods were suggested to improve the validity of the research study as and to acquire a more completed, less bias view of the results found than what is possible with a qualitative or quantitative methodological approach.

The mixed method approach has been considered beneficial in identifying research questions, researchers understanding the subject matter, as well as a way to confirm the interviewees' understanding of the concepts and measures in a similar manner. Additionally, this approach also leads to participant enrichment, instrument fidelity and treatment integrity (Ihantola, & Kihn, 2011).

3.2.2 Disadvantage of the mixed method approach

The mixed method approach can propose difficulties for researchers in terms of the methodology result. According to Blaikie (1991), the mixed method research approach can lead to some challenges, namely; 1) ontological assumptions and 2) epistemological assumptions, that can appose challenges combining the findings of the qualitative and quantitative of the research.

3.3 RESEARCH DESIGN

According to Wilson (2014), the research design is essential in order to increase the chances of reaching the research objectives. The research design is an in-depth framework that acts as a guide throughout the research process. The research design in this study will be conducted to address the lack of information available on the perceptions of the algorithmic consumer on online purchasing, especially in the African context. In order to reach the objectives of this study, the research will be divided into two categories, namely, data collection and data analysis. The data collection will be divided into two subsections namely, secondary and primary data collection. The data analysis section will discuss the method used for data analysis.

3.3.1 Data collection

According to Struwig & Stead (2013), there are two types of data that can be collected to aid in a study. The first being primary data and the second being secondary data. In order to explain and provide definitions of these two data collection methods even more the section will be divided into a secondary data collection section and a primary data collection section.

3.3.1.1 Secondary data collection

The secondary research of this study will include a literature review which will be done through the collection of secondary data. Secondary data is data from sources that is already available that can help assist with the current research project (Struwig & Stead, 2013). The secondary data collected will be used to create an in-depth literature review that will provide information on online purchasing and what this entails. The nature of algorithms, how it works, and how it applies to online purchasing will also be discussed. Social media will be examined and the reasons for social media advertising will be explained. A comprehensive study of Facebook advertising and algorithms will be conducted in order to achieve the primary objective of this study.

Secondary data can be collected from libraries, such as the Nelson Mandela University, and through its online databases, which provides access to International and National databases, like Sage, Emerald, Sae Publications and EBSCOhost. Secondary data can also be obtained from the internet, using academic sites such as Google Scholar, and delete websites of government departments, institutions, and associations based on theories or models on topics of interest (Struwig & Stead, 2013).

3.3.1.2 Primary data collection

The primary data needed for this study will be collected from the chosen sample. Cooper & Schindler (2014:96) define primary data as raw data without interpretation and can include interviews, memos or letters. Primary data can be seen as the most authoritative data because the information has not yet been interpreted. The chosen sample will be given the same open-ended interviews questions. In order to collect the primary data. The data will be recorded and analysed to help with the research process.

The primary research of this study will include of five subsections. The first three sections will discuss the population, sample frame and sample. The fourth sections will provide information on sampling techniques and the research technique used for this study. The last section will discuss the research instrument and the type of instrument used for data collection.

(a) Population

A key step in die research process is selecting a population for the research project. This will be followed by the selection of a sample from the chosen population (Cooper & Schindler, 2014). Cooper & Schindler (2014) defines population as “people, events, or records that contain the desired information and can answer the measurement questions, while (Struwig & Stead (2013) argues that a population is “all possible respondents in a research project”. For the purpose of this study, the population will be all Facebook users in the Nelson Mandela Bay area who have also purchased online products.

(b) Sample frame

According to Fragniere & Javanmardi (2011:10), a sample frame as an all-inclusive list of the sampling elements within the population, from which the sample is drawn. The sampling frame establishes whether a list of the population’s elements is present or not. Therefore, the sample frame is an all-inclusive list of all the respondents within in the population.

A sample frame is a list of elements from which a sample can be drawn (Quinlan, Barbin, Carr, Griffin & Zikmund, 2015:399). Additionally, the authors mention that the sample frame is also known as the working population for the reason that the elements will eventually provide units involved in the analysis. As a sample frame does not exist (no list available of people of Nelson Mandela Bay area that use Facebook and do online purchasing), in this study the sample will be selected by means of a criterion related sampling process.

(c) Sample

A sample is a carefully selected portion that will represent the population (Cooper & Schindler, 2014; Struwig & Stead 2013). The authors Struwig & Stead (2013) further mention that it is almost impossible to select the entire population for the research and therefore, it is necessary to select a sample.

(d) Sampling techniques

The process of sampling can be said to be the process that draws assumptions from measurements of a portion from population (Zikmund, Babin, Carr & Griffin, 2013:384). The authors Struwig & Stead (2013) also stated that there are two main techniques used for sampling, namely probability sampling and non-probability sampling. In probability sampling techniques, there is a known non-zero probability of every person in the population being selected (Cooper & Schindler, 2014; Struwig & Stead 2013).

In non-probability sampling there is unknown probability in selecting the sample, because the sampling relies on the researcher's judgement (Struwig & Stead 2013). These authors also state that, non-probability sampling techniques can include convenience, judgement, quota or snowball sampling methods. On the other hand, probability sampling techniques may include random, stratified random, cluster, systematic and multi-stage area sampling methods. This study is qualitative in nature and, because of the richness of data, only a small sample is needed (Struwig & Stead, 2013:127). The sample will be comprised of 20 selected Facebook users who have purchased online in the Nelson Mandela Bay area. A purposeful sample will thus be drawn.

For the purpose of this study a qualitative study approach will be used for data collection and therefore qualitative sampling methods will be applied. Purposeful sampling techniques are used when a qualitative study is being done to ensure that the data being collected is suitable, correctly identified and selected (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood, 2015:534). Table 3.1 provides a summary of the sampling techniques.

Table 3.1 Types of sampling techniques

Sampling technique	Description
Homogeneity sampling	This sampling technique is used when participants for focus groups are chosen. The group required is described in depth to simplify the analysis.
Snowball sampling	This sampling technique is used when sampling individuals who have characteristics that are alike and by asking for referrals to similar individuals from the participants.
Criterion sampling	This sampling technique makes use of a predetermined criteria to review and studies of interest.
Stratified purposeful sampling	This sampling technique is used to acquire the characteristics of specific subsections of interest.
Random purposeful sampling	This sampling technique is used when the likely purposeful sample is too big to handle the random purposeful sampling, the purposeful sampling technique is used to increase the credibility of the results.
Theory-based sampling	This sampling technique is a theoretical construct that intends to explore the concepts and the wide-ranging conditions.
Typical case sampling	This sampling technique is used when a researcher has to describe the background to those unfamiliar with it without setting a generalized experience of the participants.
Convenience sampling	This sampling technique is used when the researcher collects the information that is readily available. This technique is normally used but is however, not strategic or purposeful.

Source: Researchers' own construction

For the purpose of this study, a non-probability sampling technique will be used with a predetermined criterion for selecting possible interviewees, namely that the sample

must consist of people who are actively on Facebook and has purchased a product online. As indicated in Table 3.1 criterion sampling is used in this study.

(e) Research instrument

According to Struwig & Stead (2013:266), a measuring instrument is used to elicit answers from the participants. These measures can include interviews, observations, focus group interviews, and unobtrusive measures (Struwig & Stead, 2013:102; Heppner *et al*. 2008:). These measures are used to collect primary data (Cooper & Schindler, 2014:85). There are three types of interviews, namely, unstructured, structured and semi-structured interviews (Wilson, 2014:161).

A semi-structured interview is a combination of the two interview types, as mentioned above. The semi-structured interview has basic questions set out beforehand and provides greater flexibility to the interviewer. It provides an opportunity for the interviewer to draw questions from the interviewee that are based on his/her responses for the researcher to elaborate and expand on certain points of the study (Wilson, 2014:162-163).

Each interview method provides an opportunity to record the interview, if it is allowed by the interviewee. The recorded interviews make the data analysis much easier for the researcher and provides the researcher with verbatim answers (Wilson, 2014:163). For the purpose of this study, a semi-structured interview will be utilized. The interview will contain questions the participant must answer. Each participant will receive the same questions but can be asked other related questions based on their response. The questions will be asked verbally, and the interviews will be recorded if allowed. The recorded interviews are primarily used to help the researcher with their notes. The notes will then be analysed by the researchers. The next section will provide more info on the data analysis.

As discussed in chapter two, there has been a study done by Abu-Ghosh *et al*. (2018) that discussed factors that influences consumers' attitudes towards Facebook advertising. These factors include: (i) informativeness; (ii) credibility; (iii) irritation; (iv) interactivity; (v) entertainment; (vi) privacy; and (vii) peer influence. Based on the factors that were mentioned in the study by Abu-Ghosh *et al*. (2018), the interviews were constructed for this study. The study by Abu-Ghosh *et al*. (2018) was quantitative in nature, but as this study will focus on the African context this study will be qualitative in nature and the factors will be used as a basis to develop the interview schedule.
The biggest problem with developing the questions to be used in this study, was not to lead the interviewee with the question.

The main purpose for basing the interview schedule on the study by Abu-Ghosh *et al*. (2018) was to determine the interviewees' views. towards advertising. Thereafter the interviewee's views will be investigated once the interviewee learns that the advertisements were created using an algorithm. When the information is collected, consumers views concerning Facebook advertisements can be investigated.
A copy of the interview schedule is attached as Annexure A.

3.3.2 Data analysis

Once the primary data has been collected in a study, this data will be analysed by using appropriate methods. According Marshall & Rossman (2016), data analysis brings meaning to raw data and that there is are a seven-phase method for data analysis.

The first phase is the collection and organizing of the data. The second phase is an in-depth study of the data, while the third phase is creating themes and categories. In phase four the data needs will be coded and in phase five interpretations are formed. In the sixth phase a search is launched for alternative findings of the data. The last and seventh phase comprises of the grouping and interpretation of data. For the purpose of this study, the primary data collected will be analysed using the content analysis approach.

After the content analysis, the responses from the interviewees, was converted to be used in a Likert scale. A very positive response was converted into a one (1) and a positive response was converted into a two (2). Responses from interviewees that could not be identified as positive or negative response were given a value of three (3). Thereafter, the negative responses were allocated a four (4) and the very negative responses were given a five (5).

Afterwards, the data will be captured in Excel. Using the statistical programme, Statistica, descriptive statistics as well as frequency statistics will be calculated that will be used in Chapter four. Moreover, there will be t-tests conducted to investigate the difference between the descriptive statistics and demographics of the interviewees. Lastly, the responses from the interviewees that could not be converted into a Likert scale, will be explained and commented on.

3.4 ENSURING RESEARCH RIGOUR

According to Struwig & Stead (2013), there are many ways for researchers to determine rigour in a study. Trustworthiness can play a big role in ensuring research rigour in the study. Stuwig & Stead (2013) acknowledges that are many ways to ensure trustworthiness in a study that include, safeguard, triangulation, referential adequacy and an audit trail. For the purpose of this study an audit trail will be adopted to ensure trustworthiness in the study.

According to Struwig & Stead (2013), the purpose of an audit trail is if an independent researcher studies at the information obtained, they will conclude the same outcome. Therefore, detailed documentation is needed. Hence, in this study, the researchers will keep a copy of all documents analysed and by doing so keep an audit trial.

Table 3.2 provides a summary of the coding process used in this study.

Table 3.2 Coding key

	Key words/ Themes				
Variable	**1**	**2**	**3**	**4**	**5**
Experience	Yes, Fast, easy, quick	Convenient, good	Neutral, nothing special	check for other prices, don't buy	No, don't trust, scam
Recall	Yes, quick recall with example	Recall with no example	Do not know	Have not noticed, no recall	No, no recall, irritated
Overall attitude	Positive, like it	Good, no problem	Don't know how I feel, neutral	Don't like it, don't care for it	Hate it, always skip ads
Entertainment	Anything funny or that catches my attention	Something that interests me	I don't know	Skip through ad	nothing
Informativeness	Yes, a lot	Yes, the price	Can't really say	No, not sure if I can trust, don't say anything	No, always skip ads, don't even look
Irritation	Doesn't bother me at all, like it	I see it and just skip	I don't feel anything, use to it	Sometimes makes me irritated	Irritated always skip
Credibility	Yes, always trust	Most of them yes	Do not know	Never sure it's a scam	No, don't believe anything

	Key words/ Themes				
Variable	**1**	**2**	**3**	**4**	**5**
Interactivity	Yes, a lot, fun	Yes, but not always,	Yes and no, depends on mood	No not really, just want to see what the ad offers,	No, waste of time, always skip
Peer Influence	Yes, trust friend, definitely, credible source	Yes, but only if I am interested in the product	Wouldn't be able to say	No, people only do it to win something	No, only trust me, no peer pressure
Privacy	No, secured, unethical	No, don't think they do	Can't say, don't know	Yes, might leak to marketers	Yes, easy to hack, violation privacy
Algorithms	Like it, no problem	Don't mind, give things interested in	Neutral, doesn't bother me	Don't like it, uncomfortable	Privacy invaded

Source: Researchers' own construction

Besides ensuring research rigour, this study adhered to the ethical procedures required by the Nelson Mandela University. See Annexure C for a copy of the completed ethical form.

3.5 SUMMARY

In this chapter, the research methodology was explained. For the purpose of this study, an interpretivism research paradigm was adopted in conjunction with a qualitative research approach. The research design that was used in this study was elaborated on. Followed by the qualitative research approach, the methods of data collection were mention. The section highlighted that there are two main data collection methods, namely primary and secondary data collection methods. The secondary data collection will be done through various literature sources.

The primary data collection will be completed after the secondary data collection is completed. The research design will clarify and describe the population, sample frame and the sample for the primary data collection. The section also discussed the different sampling techniques that can be used. For this study, convenient sampling was chosen. The next section focused on the instrument that was used to collect the primary data. It was established that, albeit the many instruments that can be used to collect primary data, the interview method was perceived as the most suitable technique for this study and thus selected.

The last section in this chapter discussed the data analysis of the study. Different data analysis methods were investigated. The chosen data analysis method was the content analysis method. This will be used to interpret the results. Chapter four will outline the results of the primary data collected for the study of the perceptions of online purchasing.

CHAPTER FOUR
EMPIRICAL FINDINGS

4.1 INTRODUCTION

In chapter three an overview of the research design and methodology adopted in this study were discussed. The research approach, sampling methods, data collection methods, population as well as the data analysis were provided. In addition, techniques used to test the validity and reliability of the measuring instrument were discussed.

This chapter will discuss the data analysis, empirical findings and interpretations of the results obtained from 20 interviewees. The interviewees were divided into two age groups namely, 18 to 26 years and 26 years and older. They all reside in Nelson Mandela Bay and surrounding geographical areas. The presentation of the demographic profile of the interviewees will be discussed further in this chapter.

The quantitative and qualitative data analysis findings will be presented in tables and the figures, interpretations and discussions thereof will ensue. Chapter Four will give effect to the primary objective of this study, which was the investigation of the perceptions of the algorithmic consumers on online purchasing. This chapter will conclude in the summary section by highlighting the results of the descriptive statistics where the mean scores, standard deviations and frequencies are presented.

4.2 CONTENT ANALYSIS AND CODING PROCESS

The data collected for this study was in qualitative format. In-depth interviews were conducted using an interview schedule (see Annexure A for a copy of the interview schedule) The researchers conducted a content analysis of the answers collected from the in-depth interviews of 20 participants. During the content analysis the following process was used:

- The content of the transcripts of the interviews was printed and studied. Different colours were used to indicate the whether the response was negative, indifferent of positive.

- The list of categories included in the interview schedule was then considered to see if some of the categories may be linked in some way. A final list of categories was established when no new categories have emerged, and all the items of relevant and interesting information have been accommodated in the existing categories.
- A final check of all text was done to ensure that the information that was not highlighted at all (because it did not appear relevant at the time), is checked once again for relevance.
- The finalised categories were then be given to another researcher to see if this researcher identifies the same categories and agrees with the list produced.

Eleven categories were identified namely:

- Experience
- Recall
- Attitude toward advertising
- Entertainment
- Informativeness
- Irritated
- Credibility
- Interactivity
- Peer influence
- Privacy concern
- Algorithms

Thereafter, the researchers used the colour coded responses to convert the identified categories (qualitative data) into quantitative data.

The responses from the interviewees, was converted to be used in a Likert scale. A very positive response was converted into a one (1) and a positive response was converted into a two (2). Responses from interviewees that could not be identified as positive or negative response were given a value of three (3). Thereafter, the negative

responses were allocated a four (4) and the very negative responses were given a five (5). These categories are the variables that influence the participants perceptions of online purchasing.

Following this coding process, the data was inputted on Microsoft Excel. The data was analysed with the programme, Statistica. The next section will provide the results of the analysis of the quantitative data.

4.3 DEMOGRAPHICS PROFILE OF INTERVIEWEES

Table 4.1 provides a summary of the collected data from 20 interviewees whom participated in the interviews.

Table 4.1 Demographic profile of interviewees (N = 20)

Gender	**Frequency**	**Percentage**
Male	10	50%
Female	10	50%
TOTAL	20	100%
Age	**Frequency**	**Percentage**
18 - 25	9	45%
26+	11	55%
TOTAL	20	100%

Language	**Frequency**	**Percentage**
English	6	30%
Afrikaans	14	70%
TOTAL	20	100%
Occupation	**Frequency**	**Percentage**
Working	14	70%
Not working	6	30%
TOTAL	20	100%

As can be seen in Table 4.1, there was an equal amount of male and female interviewees, namely 50%. The majority of the individuals that participated in the interviews were above the age of 26 years of age (55%), whereas the remaining interviewees were between the ages of 18 and 25 years old (45%).

In this study, the majority of interviewees were Native Afrikaans speakers (70%), while the rest were Native English speakers (30%) of the interviewees. Of the 20 interviewees that participated in the interviews, the vast majority were working (70%) with the not working (30%) interviewees less represented.

4.4 QUANTITATIVE DATA ANALYSIS

The results of the descriptive statistics relating to the variables influencing the perceptions of the interviewee's online purchasing are summarised in Table 4.2. The mean scores and standard deviation for all 20 interviewees are reported.

Table 4.2 Descriptive statistics of the variables influencing the perceptions of online purchasing

Variable	Mean	Standard Deviation
Experience	2,05	1,61
Recall	2,85	1,35
Attitude towards advertising	3,10	1.37
Entertainment	3,05	1,23
Informativeness	2,45	1,23
Irritation	3,75	1,02
Credibility	3,00	1,26
Interactivity	3,85	1,70
Peer Influence	2,05	1,67
Privacy	3,70	1,63
Algorithms	3,10	1,48

Table 4.2 presents the summary of results in respect to what the 20 interviewees regarded as important variables which influence their online purchasing experience. As is evident in Table 4.2, the interviewees perceived Interactivity in a negative manner. It had the highest mean of (3.85) with regard to the online algorithmic experience.

The results showed that the majority of interviewees shared the same opinion with regards to Irritation. It obtained a mean of (3,75) and a standard deviation of 1,02. This implies that interviewees are mostly irritated by advertisements and have a negative experience when they engage in online purchases. Both Experience and Peer Influence, scored the lowest means of all the dependent variables, with the means of (2,05). It is clear from the results that most of the people who took part in this study has a positive experience when they do purchase online. In addition, they perceived the opinions of their peers positively regarding online purchasing sites when they do purchase online.

The Interviewee's perception toward advertising (3,10), Entertainment (3,05) and Credibility (3,0) are negative. All of the above-mentioned scores are closest to the median. The dependent variable, Attitude towards advertising, returned a mean score of (3,10).

Furthermore, the majority of the standard deviations were relatively low, varying from 1,22 to 1,70, indicating that there were low response variances.

Figure 4.1 shows the mean values of males and females regarding their perceptions of online purchasing variables. (See Annexure D for the results on which this figure was based)

FIGURE 4.1 The difference between the variables means of males and females

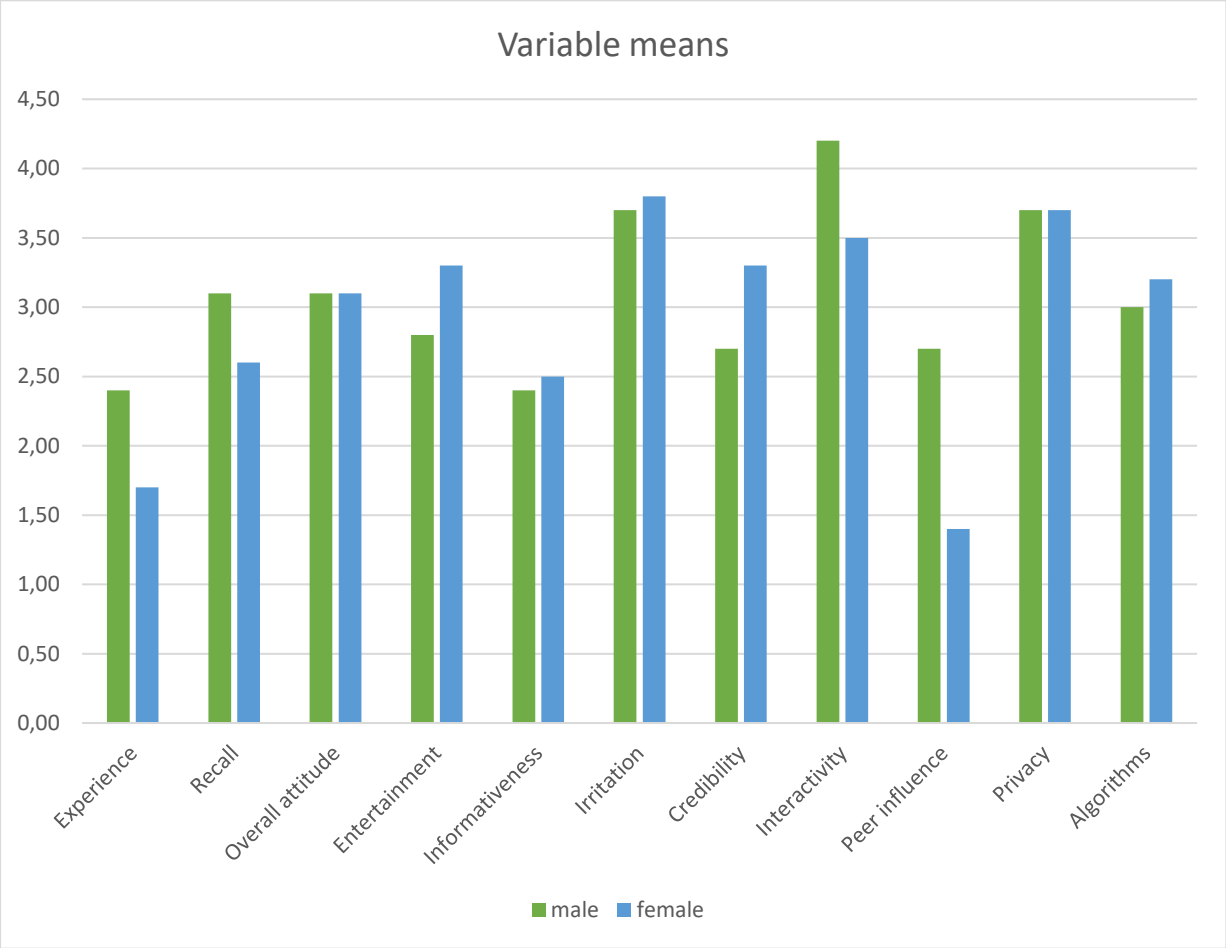


Figure 4.1 shows the difference between males and female for all the variables. It is clear from the chart above that there is a slight difference between the answers of male and female interviewees that participated in the study. There were only two variables that had similar means, namely attitude towards Facebook advertising and privacy.

The Privacy variable obtained a mean of 3.7, which shows that the male and female interviewees have a negative perception of reaction towards the ability of Facebook to protect user data. It is thus clear that the male and female interviewees both have serious concerns when it comes to Facebook and their user's privacy. The attitude towards Facebook advertising received a mean of (3.10), from both male and female interviewees, showing a neutral feeling towards Facebook advertising.

Furthermore, the male and female interviewees had similar experiences and responses with regards to the all variables. Thus, all the variables fell into the same

category, expect for Experience, Interactivity and Peer Influence. With regards to the Experience variable, the male interviewees had an average of 2.40 which shows a more neutral experience concerning purchasing online.

The female interviewees showed an average of 1.70. This demonstrates that the female interviewees had a more positive experience with their online purchasing. It is clearly demonstrated by the chart that the males are not interested in advertisements that require interactivity from their side. This statement is supported by the male responses with an average of 4.2, which indicates that the male interviewees had negative response towards interactivity. On the contrary, the female interviewees only reached a mean of (3.5), which demonstrates that the they have a neutral feeling towards this variable.

The variable, Peer Influence, gives an indication if the interviewees will buy products online that were recommended by friends. The results of the study show that female interviewees will be more inclined to buy a product that was recommended by friends, if they were interested in such a product, than males. Females obtained a mean or (1.40) for this variable, while males obtained (2.4), which is indicative of neutrality to this variable. Figure 4.2 shows the mean values of the participants' age groups regarding their perceptions of online purchasing variables. (See Annexure D for the results on which this figure was based)

FIGURE 4.2 Difference between the two age groups

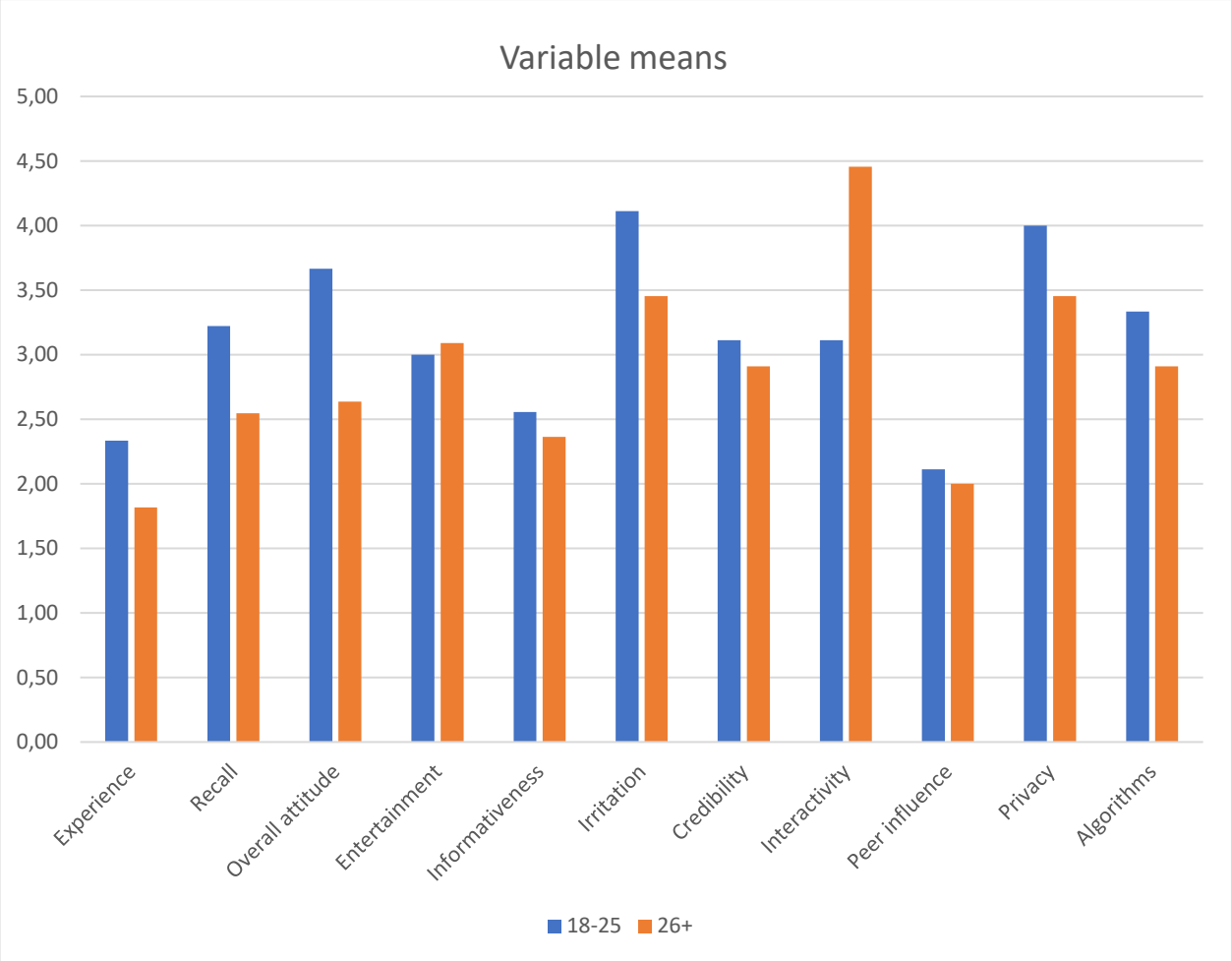


Figure 4.2 shows the difference between the 18-25 and 26+ age groups of the interviewees concerning the variables measured in this study. It is interesting to note that there is not one variable that both age groups received similar results on. This shows that there is a small variation between the two age groups

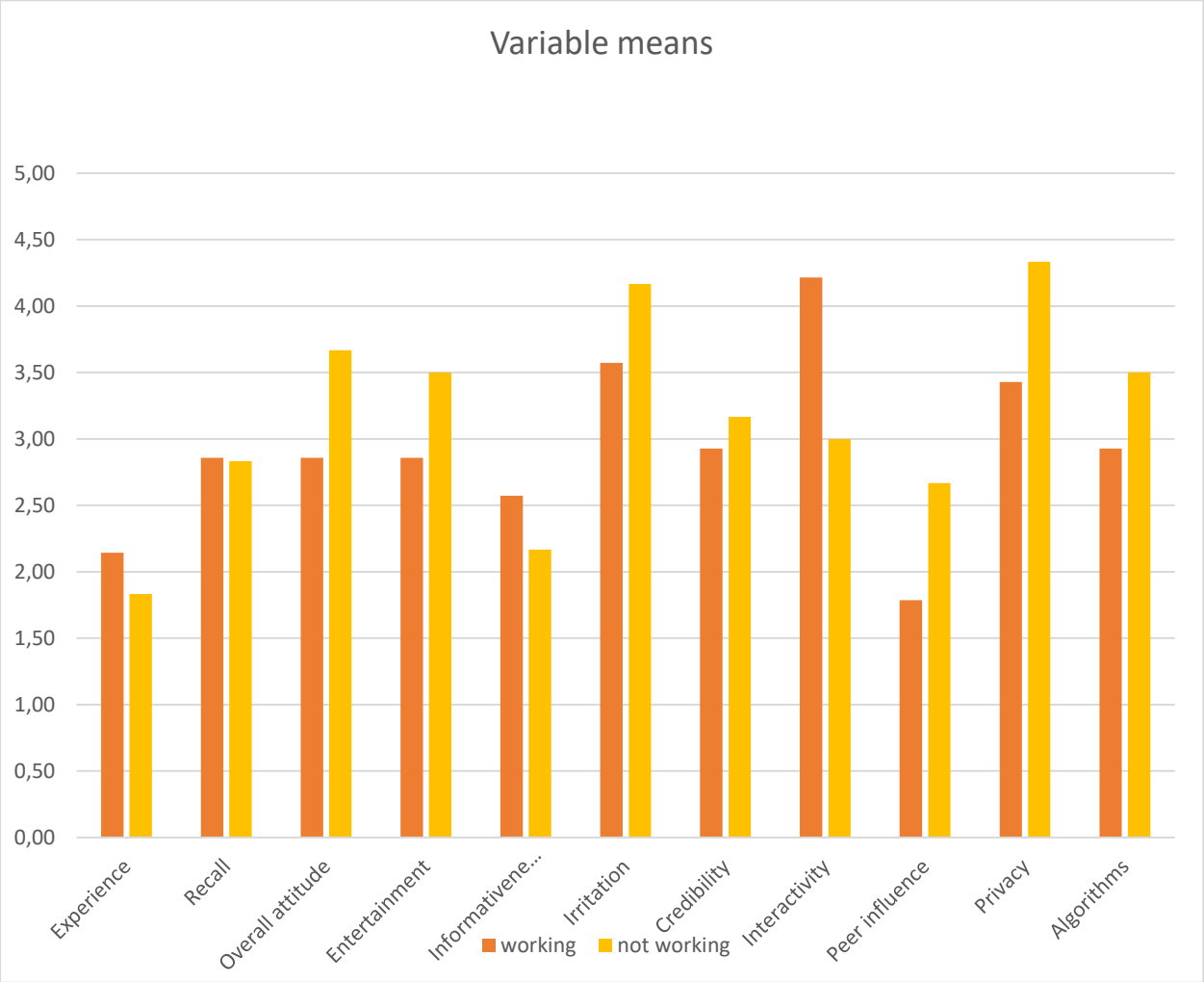
Both age groups had similar responses and agreed on most variables, but there were a few variables that had larger differences in their means. The first variable that had a large difference between the mean of the two age groups, is Experience. The 26+ age group had mostly positive experiences with purchasing online (mean of 1.82), while the 18-25 age group, with a mean of 2.33, had more neutral experiences with regards to their online purchasing.

Furthermore, the age group 18-25, with a mean of 3.67, has a negative feeling about their overall attitude towards Facebook advertising. The age group 26+, with a mean of 2.64, had a more neutral feeling towards their overall attitude about Facebook advertising. This indicates that the younger generation dislikes advertising on Facebook more than their older counterparts.

The Irritation variable also shows a difference between the means of the two age groups. The age group of 18-25 had a mean of 4.11, while the age group of 26+ had a mean of 3.45. This implies that the age group of 18-25 is more irritated when they come across advertising on Facebook, while the 26+ had a more neutral feeling when the advertisements pop up on Facebook. The results also showed that the age group 26+ had no intention to participate in advertisement that required interaction from their side (mean of 4.45), while the age group 18-25 with an average of 3.11, did not mind interacting with advertisements and had a neutral feeling towards it.

The last variable that had a difference in mean scores, is the Privacy Concern variable. The results showed that the age group of 18-25 had an average of 4.00, while the age group 26+ had an average of 3.45. This indicates that the age group of 18-25 have strong privacy concerns with regards to Facebook leaking personal information, while the age group 26+ had a neutral feeling, i.e. they do not agree or disagree with Facebook leaking personal information. Figure 4.3 shows the mean values of working and not working participants regarding their perceptions of online purchasing variables. (See Annexure D for the results on which this figure was based).

FIGURE 4.3 The difference between working and not working interviewees



The chart 4.3 shows the difference between the interviewees who works and those who do not work regarding the variables used in this study. The result indicates that both groups mostly agree on the variables. With regard to the overall attitude towards Facebook advertising, the group that does not work showed that they have a negative overall attitude towards Facebook advertising (mean of 3.67), while the working group, with an average of 2.68, had a neutral feeling towards Facebook advertising. This indicates that the interviewees who does not work has a negative attitude towards Facebook advertising.

Furthermore, the results showed that the interviewees who does not work are of the opinion, with a mean of 2.17, that the advertising on Facebook gave them information about the products that were advertised on Facebook. The interviewees that work, with a mean of 2.57, did not agree nor disagree with the statement that Facebook advertising provides information of the products in the advertisements. It was also found that the not working group (mean of 4.17) became much more irritated with advertisements on Facebook than the working group (mean of 3.57). This partly shows why the not working group had a negative attitude towards Facebook advertising.

The overall results how that the interviewees who does not work are more negative towards advertisements that they encounter on Facebook. This could be indicative of the fact that individuals who does not work have no or less money to spend on, mostly, unnecessary and luxury items that will be encountered on Facebook advertising as their working counterparts.

Another variable that showed a difference between the average of the non-working and working groups, is Interactivity. The not-working group had an average of 3.00, which indicates that they are very neutral with regards to being interactive with advertisements. The working group had an average of 4.21, which shows that they have no intention to interact with advertisements. Additionally, Peer Influence was also a variable that was not agreed upon by both the Non-working and Working groups. With a mean of 1.79, the group of interviewees who work specified that they would buy products that were recommended by friends, whereas the not working group, with a mean of 2.67, were indecisive whether they would buy products that were recommended by friends.

The last variable that had a difference in the mean scores, is Privacy. The results revealed that the non-working group (mean of 4.33) had serious concerns with regard to their privacy on Facebook and feels that Facebook leaks personal information about them. The working group (mean of 3.43) had a neutral feeling concerning the security of their private and personal information on Facebook. Figure 4.4 shows the mean values of participants of various language groups regarding their perceptions of online purchasing variables. (See Annexure D for the results on which this figure was based).

FIGURE 4.4 Difference between the two language groups

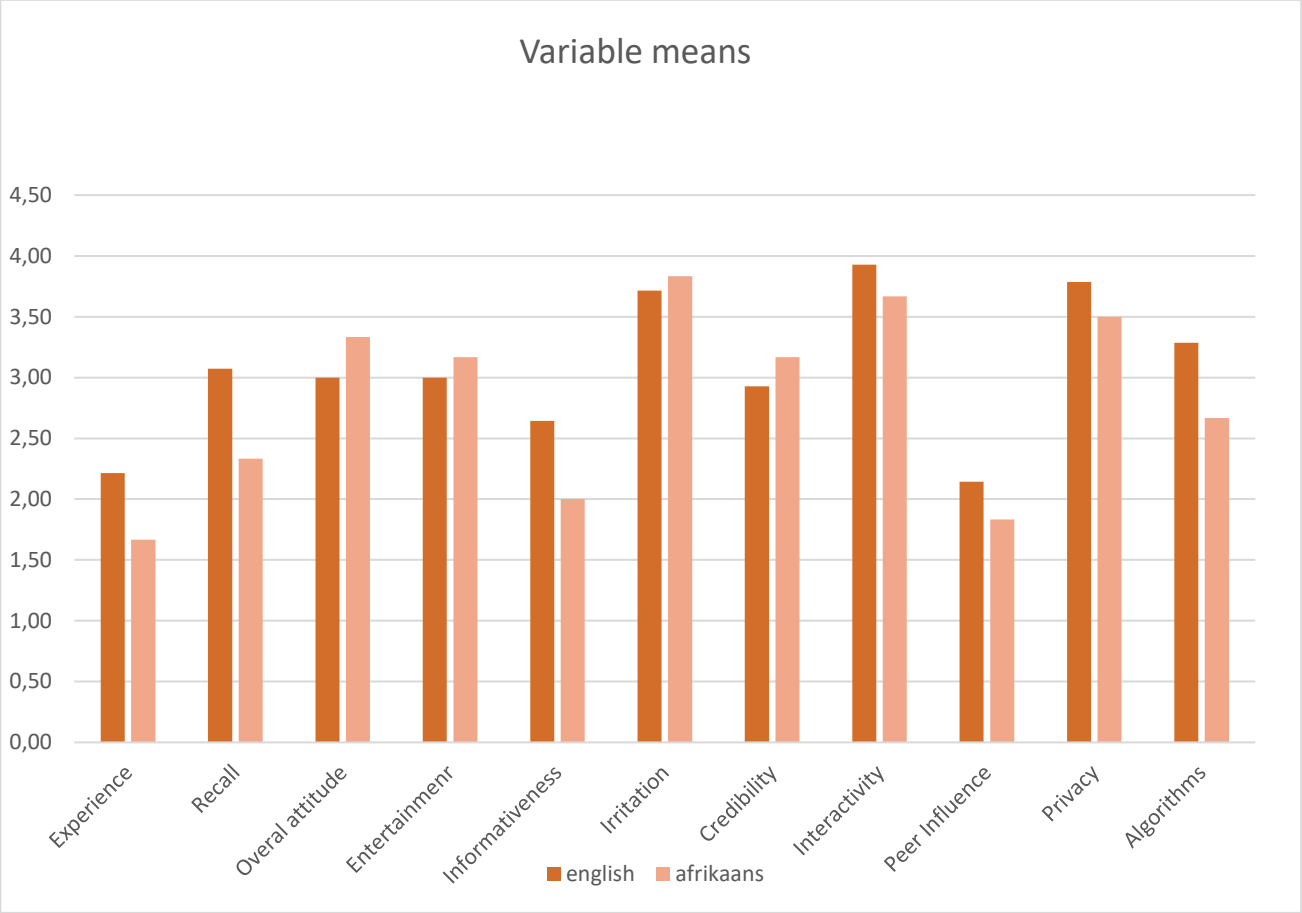


Figure 4.4 displays the difference between the English and Afrikaans speaking interviewees' perceptions of online purchasing variables. The results indicated that there were no statistically significant differences between the two-language groups. The results of these two groups indicated that there are not large differences between participants of different home languages and the variables in this study.
With regards to home language, there were only two variables with large differences in mean values.

These two variables are Informativeness and Privacy. Afrikaans speaking interviewees, with a mean of (2.00), indicated that they are of the opinion that advertisements on Facebook actually provide information about the products that they advertise. The English-speaking interviewees only had a mean of (2.64), which shows that they cannot decide whether the advertisements on Facebook truly give information about the products they advertise.

Focusing on the Privacy variable, the Afrikaans speaking interviewees had a mean of (3.50), while the mean of English-speaking interviewees was (3.79). This indicates that the latter group had more concern regarding Facebook and the preparedness of Facebook to leak private information. It is interesting to note that the Privacy variable had a similar mean for both males and females, but with all the other groupings (e.g. age difference and home language) there were differences between the means for this variable. Figure 4.5 shows the mean values of males and females regarding their perceptions of online purchasing variables in relation to the overall mean value.

FIGURE 4.5 Difference between the average and the male and female groupings

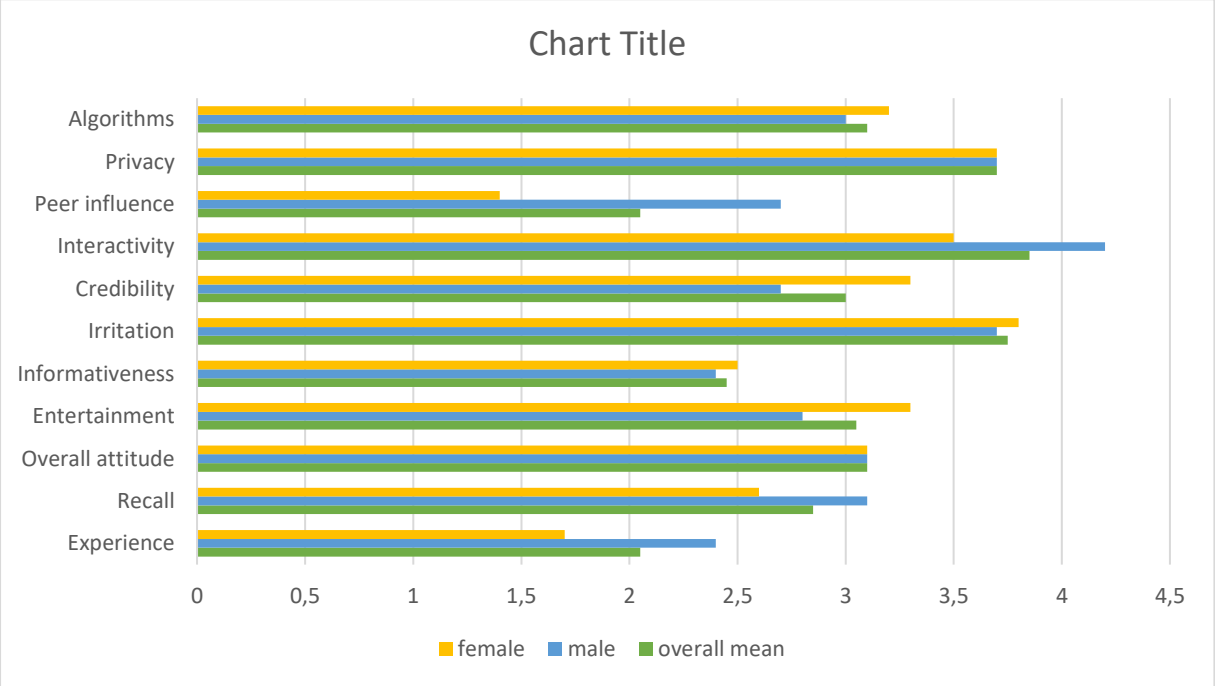


Figure 4.5 displays that there are little differences between the overall average of the results and that of the male and female groupings. It was found that most variables selected in this study to determine the attitude of consumers towards algorithmic advertisements, had little differences between male and female interviewees. In addition, two of the selected variables had exactly the same mean, showing that gender has similar perceptions of these two variables (Privacy and Attitude towards Facebook advertising).

There were only three variable that showed a difference between the gender grouping and the overall mean. These variables are Experience, Interactivity, and Peer Influence. The female interviewees had more positive experiences with online purchasing than their male counterparts. The average of the male interviewees is still low enough to give the overall mean a score of 2.05, which indicate positive experiences with regard to online purchasing.

Moreover, the results indicated that males do not like advertisements that require interactivity from there side, while the females do not appear to have a problem with it. The mean of the female interviewees was deleted high enough to push the overall average into the negative section (3.85 mean). Lastly, the female interviewees showed that they are most likely to purchase a product due to peer pressure, while their male counterparts did not feel the pressure as much as the female interviewees.

4.5 QUALITATIVE ANALYSIS

In the following section various outliers will be presented that was evident from the content-analysis. Additionally, the comments made by the interviewees during the conducting of the interviews that could not form part of the quantitative analysis, will be discussed.

4.5.1 Artificial intelligence (AI)

According to Hare & Andrews (2017), Artificial intelligence (AI) can be defined as “systems that change behaviours without being explicitly programmed based on data collected, usage analysis and other observations”. When the researchers were conducting the interviews, the issue of artificial intelligence was made apparent as some interviewees felt that the technology in their smartphones are listening to them. According to two interviewees the technology in various technological devices such as smartphones have Artificial intelligence applications.

The interviewees noted that Facebook was advertising products and services that they did not previously search for on Google or any other form of search engine. Furthermore, the interviewees felt that it was unethical for companies to use Artificial

intelligence (AI) without the permission of the individuals with smartphones even if it is for marketing purposes.

4.5.2 Facebook privacy scandal

When conducting the interviews, the issue of the Facebook privacy scandal had a major influence on Privacy variable. Some interviewees felt that their personal information was not kept safe by Facebook. A total of 13 interviewees scored Privacy between 4 and 5 on the Likert scale, therefore having a negative response.

In 2018, there was an estimate that more than 50 million active Facebook user's data was leaked from Facebook to two newspapers - the New York Times and London's Observer. The Facebook privacy scandal was brought up in additional comments by some interviewees and this had a negative influence on the Privacy variable.

4.6 SUMMARY

This chapter presents the results obtained from the empirical research. The data analysed was obtained from 20 open-ended interviews. The demographic profile of the interviewees was presented by means of descriptive statistics. The results indicated that 50% of the interviewees were female while 50% were male. With regards to the age, the majority of the interviewees were older than 26 years. The majority of the interviewees were working (70%), while the remaining interviewees were not employed (30%). With regards to home-language, most of the interviewees were Afrikaans-speaking. The English-speaking accounted for the remining (30%) of the interviewees.

Additionally, the coding process for the selected independent and dependent variables were presented and discussed. It was established that Irritation, Privacy, Interactivity, Experience and Peer influence was the most negatively perceived variables when it comes to the interviewee's attitudes toward Facebook advertising.

Furthermore, the results indicated no significant difference between the gender, age, occupation, and language groupings of the study against the overall mean of the variables. This indicates very little difference between the groupings with regard to the

variables used to determine the attitude of consumers towards Facebook advertising. Finally, a qualitative analysis was done by analysing the specific outliers and the influence on interviewees responses, namely; Artificial intelligence and the Facebook privacy scandal.

In the final chapter, recommendations, summaries and conclusions will be made based on the results of the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The main objective of the study was to investigate the perceptions of the algorithmic consumer of online purchasing amongst different age groups within Nelson Mandela Bay and surrounding areas. In this chapter an overview of all chapters within this study will be provided. Conclusions and recommendations will be provided, and additional contributions and limitations of the study will be discussed. Lastly, future research options to which the study could be extended, are provided and concluding comments will be presented.

5.2 OVERVIEW OF CHAPTERS

Chapter One served as an orientation to and provided an introduction to the study. The problem statement, the research objectives and methodological research objectives were presented and discussed. The clarification of essential key concepts to the study, as well and a brief literature overview, were provided. Additionally, reference was made to research methodology adopted in the study.

Chapter Two focused on social media and online purchasing addressing issues such as the development and growth of e-commerce and online purchasing. The definition of algorithms, social media advertising and online purchasing were provided. The advantages and disadvantages of online purchasing were presented. The factors influencing the perceptions of online purchasing were identified and discussed. The aim of this chapter was to instil an understanding regarding the importance of social media advertising and online purchasing and to identify the factors that could possibly influence the perception of the algorithmic consumer on online purchasing.

Chapter Three reviewed the research methodology that was followed in this particular study. The chapter formed an outline for the empirical part of the study. All the necessary steps were followed in the research process as well as discussed and reasons were given regarding selection of the chosen methods. The research method that was selected for this study was the mixed method approach.

Chapter Four reported on the empirical results of the study. This section provided interpretations of the interviews as well as indications of the developing themes that were identified during the data analysis process. The results indicated that only five variables had a significant impact on the attitude towards advertising on Facebook and showed little variance between the various groupings used in the chapter.

The following section will provide the research objectives of the study.

5.3 RESEARCH OBJECTIVES

Primary and secondary objectives as well as research questions are outlined in this section.

5.3.1 Primary objectives

The primary objective of this study is to investigate the perceptions of the algorithmic consumer on online purchasing.

5.3.2 Secondary objectives

In order to achieve the primary objective of this study, the following secondary research objectives were formulated:

- To investigate why consumers are actively purchasing online;
- To investigate the meaning of an algorithmic consumer;
- To explore consumer perceptions regarding pop up advertisements are on Facebook;
- To establish how online consumers, perceive advertisements on Facebook;
- To investigate how online consumers, react when exposed to algorithms.

The following section will provide an overview of the research design used for the study.

5.4 RESEARCH DESIGN

According to Wilson (2014), research design is essential in order to increase the chances of reaching the research objectives. The research design is an in-depth framework that acts as a guide throughout the research process. The research design in this study will be conducted to discuss the lack of information available on the perceptions of the algorithmic consumer on online purchasing, especially in the African context.

In order to reach the objectives of this study, the research will be divided into two main categories, namely, data collection and data analysis. The data collection will be divided into two subsections namely, secondary and primary data collection. The data analysis section will discuss the method used for data analysis.

For the purpose of this study, a mixed method study approach will be used and therefore qualitative sampling methods will be applied. Purposeful sampling techniques are used when a qualitative study is being done to ensure that the data being collected is suitable, correctly identified and selected (Duan & Hoagwood, 2015:534). To analyse the data quantitative methods will be employed. Thus, this study used a mixed method research approach.

5.5 HOW OBJECTIVES OF THE STUDY WERE ACHIEVED

A summary of the methodological objectives of the study are presented in Table 5.1 alongside a brief explanation of how the objectives were reached.

Table 5.1 How the methodological objectives of the study were achieved

Objectives of the study	How the objective was achieved
To undertake a theoretical investigation into the nature and importance of the algorithmic consumer in the online marketplace.	The objectives were met through the literature review that was presented in Chapter Two. The chapter highlighted the factors that influence attitude towards advertising.

Objectives of the study	How the objective was achieved
To determine the appropriate research methodology to address the identified research problem of and research objective.	The objective was achieved in Chapter Three. It was stated that a mixed-methods approach was the best suited for this study.
To develop an appropriate quantitative measuring instrument that will be used to empirically test the influence of the independent variables on the dependent variables.	This objective was also achieved in Chapter Three. The interview used in this study can be found in Annexure A. Chapter Three also discussed how the interview was transformed into a Likert Scale, in order for the data to be statically tested.
To source primary data from a pre-determined sample of active Facebook users that are aware/exposed to pop-up advertisements, and to statistically analyse the data, as well as test the proposed hypotheses.	The data collected for this study was presented in Chapter Four. It was found that experience, peer influence, interactivity, irritation, and privacy had a significant impact on attitude towards advertising.
To report findings and make appropriate recommendations based on the findings of this research, which could assist markets to better understand how online consumers perceive advertisements on social media, specifically Facebook as well as the effectiveness of these pop-up advertisement.	The objective was reached in Chapter Five, by providing recommendations on future research regarding the study, taking into consideration the literature and empirical results.

A summary of the secondary objectives, as well as how they were achieved is presented in Table 5.2

Table 5.2 How the secondary objectives of the study were achieved

Objectives of the study	How the objective was achieved
To investigate why consumers are actively purchasing online.	The objective was achieved through an in-depth literature review in Chapter Two
To investigate the meaning of an algorithmic consumer.	The literature review in Chapter two was aimed to reach this objective
To explore consumer perceptions regarding pop up advertisements are on Facebook.	The objective was achieved by the interviews completed by the respondents and was discussed in Chapter Three and Four
To establish how online consumers, perceive advertisements on Facebook.	The interviews conducted by the researchers, was aimed to achieve this objective. The results were presented in Chapter Four.
To investigate how online consumers, react when exposed to algorithms.	The objective was achieved by the interviews completed by the respondents and was discussed in Chapter Three and Four

The following section will provide the conclusions and recommendations for the study.

5.6 HOW THE RESEARCH QUESTIONS WERE ANSWERED IN THE STUDY

To show how the research questions were answered in this study, the following paragraphs provide an outline of it.

5.6.1 Answering research question 1

Research question 1 read:

How do Facebook users feel towards advertisements on Facebook?

This research showed that Facebook users generally do not mind the advertisements they are exposed to. Additionally, the research also indicated that majority of the Facebook users feel irritated by the high number of advertisements they get exposed

to daily. Furthermore, the researched showed that Facebook users do not like advertisement that require interaction from their side.

5.6.2 Answering research question 2

Research question 2 states:

Do Facebook users perceive the algorithmic advertisements relevant to their interests?

This research indicated that the interviewees were aware that they are exposed to advertisements that are personalised and individualised specifically for them. The majority Facebook were aware that advertisements of products and services that they have previously searched on Google, Facebook pages that they have "liked "appear in their Homepage regularly.

5.6.3 Answering research question 3

Research question 3 read:

Do Facebook users find algorithmic advertisements as trustworthy information towards online purchasing?

This research suggested that the interviewees that participated in the research felt that the advertisements were invading their privacy. The Facebook users felt that trustworthiness is a crucial part of purchasing goods online. The research also indicated that users do not trust Facebook regarding Facebook's ability to protect their privacy. Additionally, the research showed that the users are more likely to trust advertisements if they were recommended by friends

5.7 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations will be based on the main literature and empirical research findings. The findings of the demographical profile of interviewees, the variables that influence online purchasing perceptions will be discussed, thereafter recommendations will be provided.

5.7.1 Conclusions and recommendations of the demographic data

The interviews that were conducted investigated the demographic information of the interviewees. There was an equal amount of male and female interviewees, namely 50%. The majority of the individuals that participated in the interviews were above the age of 26 years of age (55%), whereas the remaining interviewees were between the ages of 18 and 25 years old (45%).

Furthermore, of the 20 interviewees that had participated in the interviews, the majority were Native Afrikaans speakers (70%), while the rest were Native English speakers (30%). Additionally, of the 20 interviewees that participated in the interviews, the vast majority were Working (70%) while participants in the Not working category were less represented (30%).

Based on the above findings it is therefore recommended that:

- A more inclusive sample of all racial groups in Africa, specifically South-Africa, should be included in future interviews to have a more racially inclusive sample of the population.
- A future study into this topic should include an equal representation of language groups in South Africa and not be skewed towards one language.

In the next section, the conclusions and recommendations of the significant relationships will be indicated.

5.7.2 Conclusions and recommendations of statistically significant relationships

After the content analysis that was conducted in the study, data was transformed into a 5-point Likert type scale and then statistically analyzed. In particular differences in the perceptions from different groups of respondents were investigated.

(a) Differences between males and females

Differences were found between males and females for only a few of the variables. In particular both males and females have concerns regarding Facebook's ability to protect their privacy. The results also indicated that females had more positive experiences with online purchasing against their male counterparts.

Furthermore, the results showcased that both male and females had high irritation levels when coming across advertising on Facebook. Moreover, the results showed that females where more likely to be influenced by peer pressure.

(b) Differences between respondents of various age groups

The results displayed that the younger group (18-25) had privacy concerns regarding Facebooks ability to protect their privacy, while the older group (26+) had a neutral feeling towards privacy on Facebook. The results also indicated that both age groups are more than likely to be influenced by peer pressure to buy products on Facebook advertising. It was found that the 18-25 age group had a more negative attitude towards Facebook advertising.

(c) Differences between working and not working respondents

The only variable that the groups could agree on was the experience variable. Both working and not working groups had more positive experience regarding their online purchasing. The not working group, corresponding with the younger age group, had a more negative attitude towards advertising. The same can be said about the privacy concern between the two groups. The results, as it should, showed the working group is more likely to be influenced by peer influence to buy products on Facebook.

(d) Differences between different language groups

The results suggested that the English and Afrikaans groups had the same high level of irritation when coming across advertisements on Facebook. Similarly, both language group did not like advertisements that require interaction from their side. On the other hand, both groups are more than likely to be influenced by peer pressure, and the results indicated that both language groups had positive experiences with regards to online purchasing.

It is therefore, recommended that:

- Online marketers must make the online purchasing experience as easy and effortless as possible. When consumers perceive that online purchasing is challenging, it is more likely for them to stop purchasing online and return to traditional purchasing methods. Therefore, it is recommended that online marketers to ensure a user-friendly online purchasing experience to increase the overall attitude towards advertising.
- Online marketers must understand the importance of mobile or digital purchasing activities via smartphones. The younger consumers between the ages of 18-25 years have been found to use their smartphones for social media purposes. The younger consumers could be prompted to switch from browsing social media and make a purchase with the use of algorithms. It was shown from this study, as made evident by the interviewees, that social media platforms, like Facebook, should have links to official websites of marketers so that consumers can make purchases through Facebook and therefore increase the attitude towards advertising.
- Online marketers should safeguard their customers personal information. Online businesses must have software in place which will be able to detect criminal or fraudulent activities. Businesses can send an email or SMS to the customers through their mobile device whenever personal information is entered to confirm that it is the consumer.

  After the online business has received the confirmation from the consumer, the transaction can continue. This can lead to an increase in attitude toward advertising as the customer will feel much more secure when making a transaction.

In the following section the contribution of the study will be discussed.

5.8 CONTRIBUTION OF THE STUDY

The research that was done, focused mainly on variables that influence online purchasing and social media advertising. This research is important because it focused on a specific segment of online purchasing, namely algorithmic consumers, and the variables that influence the perceptions of these consumers. This research has made several contributions which includes the following:

- This study was structured on the existing frame of knowledge by identifying specific variables that influence online consumers in the African, specifically, South African, context;
- This study identified specific variables that are important to the perceptions of online purchasing namely, experience, recall attitude towards advertising, entertainment, informativeness, irritation, credibility, interactivity, peer influence, privacy and lastly algorithms;
- This study has made available a measuring instrument, an open-ended interview, suitable for determining the variables influencing online consumers towards the perceptions of the use of algorithms in Nelson Mandela Bay and surrounding areas. With some contextual adjustments, the aforementioned research instrument can be used to determine the most important variables that influence the perceptions of algorithmic consumers in other geographic areas within South Africa;
- Online businesses operating within Africa, specifically South Arica, are provided with useful information to better understand how to advertise to their consumers. This information includes recommendations for African online marketers to appeal to algorithmic consumers online purchasers by means of their marketing message and reinforce online security for their websites to protect their consumers personal information.

In the following section the researchers reflect on lessons learnt whilst conducting the research.

5.9 SELF-REFLECTION

This study has allowed for a more profound perspective into the variables that influence online consumers towards the online purchasing which can form the foundation for future studies. For the researchers, on a personal level, this study has resulted in acquiring greater insights and knowledge on social media marketing or and advertising broadly, funnelled through to the perceptions of the algorithmic consumer on online purchasing.

The most important experience for the researchers was overcoming the challenging task of improving their skills and knowledge in several different research areas, specifically reviewing literature and executing a mixed method research approach pertaining to this study efficiently. It is also worth mentioning that the researchers expanded their ease and expertise regarding conducting interviews, as they had to motivate interviewees through interpersonal skills to not only take part in the study, but also answer questions reflectively and honestly.

Lastly, this research has improved both researchers writing, researching and analytical proficiency which in turn will help the researchers in both their future academic and professional career.

In the following section the limitations of the study will be discussed.

5.10 LIMITATIONS OF THE RESEARCH

In this study, all the objectives as outlined in Chapter One were met. However, the present study is not without limitations and these are as follows:

- Limited research on online purchasing within the African, specifically South African context exists. This proved to be a limitation as there were limited sources of information to draw from;
- The sample size of the study was a limitation as only 20 respondents residing in Nelson Mandela Bay and surrounding areas were selected;

In the following section future recommendations for studies will be made.

5.11 RECOMMENDATIONS FOR FUTURE RESEARCH

Despite the limitations previously discussed, this study has added to the empirical body of online purchasing research and has provided understanding into which variables influence the perceptions of the algorithmic consumer within the African, specifically South-African context. The limitations identified above have created opportunities for further investigation into the perceptions of the algorithmic consumer on online purchasing and are identified as follows:

- It may be advised that future researchers make use of a bigger sample size, as well as to include interviewees from other parts of South Africa. This will allow for the collection of a wider, more comprehensive set of data;
- It may be advisable for future researchers to explore additional variables that could be relevant to the perceptions of consumers that make use of online purchasing in the possibility of determining more meaningful relationships;
- It may be recommended that a less unequal distribution in terms of different racial groups, age and language needs to be purposefully included in the samples of future research in order to draw a more accurate interpretation that represents the algorithmic consumers of South Africa.

Although this research on the use of more personalized and user-generated content-based social media for online purchases are exploratory in nature, it does indicate some important pointers for the future.

LIST OF SOURCES

Abu-Ghosh, D. H., Al-Dmour, H., Alalwan, A. A. & Al-Dmour, R. H. (2018). Factors affecting Jordanian consumers' attitudes towards Facebook advertising: case study of tourism. Springer.

Akroush, M.N. & Al-Debei, M.M. (2015). An integrated model of factors affecting consumer attitudes towards online shopping, *Business Process Management Journal*, 21 (6):1353-1356.

Almousa, M. (2011). Perceived risk in apparel online shopping: a multi-dimensional perspective. *Canada Social Science*, 7(2):23-21.

Azizi, S. & Javidani, M. (2010). Measuring e-shopping intention: an Iranian perspective. *African Journal of Business Management*, 4(13):2668.

Bilgihan, A., Kandampully, J. & Zhang, T. (2015). Motivations for customer engagement in online co-innovation communities (OCCs): A conceptual framework. *Journal of Hospitality and Tourism Technology*, 6(3):106-115.

Blaikie, N.W.H. (1991). A critique of the use of triangulation in social research. *Quality & Quantity,*25:15-20.

Bodapati, A.V. (2008). Recommendation systems with purchase data. *Journal of Marketing Research*, 45(1): 77-93.

Borhauer, S. (2018). The role of e-commerce in the Fourth Industrial Revolution, DigitalCommerce360, [Online]Available:https://www.digitalcommerce360.com/2018/01/11/role-e-commerce-fourth-industrial-revolution/ [Accessed 12 March 2019].

Cezar, A. & Ögüt, H. (2016). Analysing conversion rates in online hotel booking: the role of customer reviews, recommendations and rank order in search listings. *International Journal of Contemporary Hospitality Management*, 28(2):286-304.

Chen, H. & Chen, A. (2005). A music recommendation system based on music and user grouping. *Journal of Intelligent Information Systems*, 24:113-132.

Chiu, C.M., Wang, E.T., Fang, Y.H. & Huang, H.Y. (2014). Understanding customers' repeat purchase intentions in B2C e-commerce: the roles of utilitarian value, hedonic value and perceived risk. *Information Systems Journal*, 241:1-30.

Chui, M., Manyika, J., Bughin, J., Dobbs, R., Roxburgh, C., Sarazzin, H., Sands, G. & Westergren, M. (2012). *The social economy: Unlocking the value and productivity through social technologies*. USA: McKinsey Global Institute Report.

Close, A.G. & Kukar-Kinney, M. (2010). Beyond buying: motivations behind consumers' online shopping cart use. *Journal of Business Research*, 63(9):986-992.

Cooper, D. R. & Schindler, P. S. (2014). *Business research methods*. 12th edition. New York: McGraw-Hill.

Dai, B., Forsythe, S. & Kwon, W.S. (2014). The Impact of Online Shopping Experience on Risk Perceptions and Online Purchase Intentions: Does Product Category Matter? *Journal of Electronic Commerce Research*, 15(1):13-24.

Dan, C. (2014). Electronic commerce: State-of-the-art. *America Journal of Intelligent Systems*, 4(4):135-141.

Dang, V. T. & Pham, T. L. (2018). An empirical investigation of consumer perceptions of online shopping in an emerging economy: Adoption theory perspective. *Asia Pacific Journal of Marketing and Logistics*, 30(4):952–971.

Davis, F., Bagozzi, R. & Warshaw, P. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8):982-1003.

Deepali, S. (2013). Study on growth of online shopping in India. *International Journal of Computer Science and Mobile Computing*, 2(6):65-68.

Doherty, N.F. & Chadwick, F.C. (2010). Internet retailing the past, the present and the future. *Journal of Retail & Distribution Management*, 38(11):943-946.

Dong, X., Dong, X., Chang, Y., Chang, Y., Fan, X. & Fan, X. (2017). Effects of the characteristics of online multimedia synergy on consumers' message acceptance and message response. *Online Information Review*, 41(5): 710-727.

Duffett, R. G. (2015). Facebook advertising's influence on intention-to-purchase" and purchase amongst Millennials. *Internet Research*, 25 (4):498-526.

Elkin-Koren, N. & Gal, M. (2017). Algorithmic Consumers. *Harvard Journal of Law & Technology*, 30:310-312.

Facebook business. (2019). Facebook description of methodology. [Online]. Available: https://www.facebook.com/business/help/785455638255832 [Accessed 29 April 2019].

Facebook Newsroom. (2019). Company info. [Online]. Available: https://newsroom.fb.com/company-info/ [Accessed 29 April 2019].

Facebook Statistics (2016). The top 20 valuable Facebook statistics – updated July 2016.

Forbes. (2019). Facebook Privacy Update: Mark Zuckerberg's Response to Cambridge Analytica Scandal One Year On. [Online]. Available: https://www.forbes.com/sites/daveywinder/2019/03/17/facebook-privacy-update-mark-zuckerbergs-response-to-cambridge-analytica-scandal-one-year-on/#7ecf171e2198 [Accessed 29 April 2019].

Forsythe, S., Liu, C., Shannon, D. & Gardner, L.C. (2006). Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of Interactive Marketing*, 20(2):55-60.

Fragniere, E. & Javanmardi, N. (2011). Sampling and hypothesis testing: Business research methods. [Online]. Available: www.campus.hesge.ch/fragmieree/doc/Research%20Method/session5-6_2011.pdf. [Accessed on: 15 August 2019].

Gefen, D., Rao, V.S. & Tractinsky, N. (2002). The conceptualization of trust, risk and their relationship in electronic commerce. The need for clarifications IN Conference proceedings of the 36th Hawaii International Conference on System Sciences (HICSS' 03), Big Island: 92-201.

Global Retail E-Commerce Index (2015). available at: www.atkearney.com/documents/10192/5691153/ Global+Retail+E-Commerce+Keeps+On+Clicking.pdf/abe38776-2669-47ba-9387-5d1653e40409 [Accessed 14 April 2019].

Good, N., Schafer, J.B., Konstan, J.A., Borchers, A., Sarwar, B., Herlocker, J. & Riedl, J. (1999). Combining collaborative filtering with personal agents for better recommendations. *Procedia Computer Science*, 55:843-851.

Gregg, D.G. & Walczak, S. (2010). The relationship between website quality, trust and price premiums at online auctions. *Electronic Commerce Research*, 10(1):1-5.

Guan, Y. Zhao, A. Zeng, D. & Shang, M. (2013). Preference of online users and personalized recommendations. *Physica A: statistical Mechanics and its Applications,* A (392): 3417.

Hadija, Z. Barnes, S.B. & Hair, N. (2012). Why we ignore social networking advertising. *Qualitative Market Research: An International Journal*, 15 (1):19-32.

Hare, J. & Andrews, W. (2017). Survey Analysis: Enterprises Dipping Toes into AI but Are Hindered by Skills Gap: Gartner Group.

Hawes, J.M. & Lumpkin, J.R. (1986). Perceived risk and the selection of a retail patronage mode. *Journal of Academy of Marketing Science*,14:37-42.

Heimbach, I., Gottschlich, J. & Hinz, O. (2015). The value of user' s Facebook profile data for product recommendation generation. *Electron Markets*, 25:125–138.

Heinemann, G. & Schwarzl, C. (2010). *New Online Retailing: Innovation and Transformation.* Wiesbaden Germany: Gabler.

Heppner, P.P., Wampold, B.E. & Kivlighan Jr, D. M. (2008). *Research design in counselling. 3rd edition*. United States: Thompson.

Hurst, C. & Hurrell, D. (2018). Algorithms are useful: understanding them is even better. *Australian Primary Mathematics Classroom*, 23(3):17-21.

Huseynov, F. & Yildrim, S. (2016). Internet users' attitude towards business to consumer online shopping. *Information Development*, 32(3):452-465.

Ihantola, E. & Kihn, L. (2011). Threats to validity and reliability in mixed methods accounting research. *Qualitative Research in Accounting & Management*, 8(1):39-40.

Internet World Stats. (2018). Internet usage in Asia. [Online]. Available: www.internetworldstats.com/stats3. [accessed 1 April 2018].

Kamalul Ariffin, S., Mohan, T. & Goh, Y. N. (2018). Influence of consumers' perceived risk on consumers' online purchase intention. *Journal of Research in Interactive Marketing*, 12(3):309–327.

Kaplan, A. & Haenlein, M. (2010). Users of the world unite! the challenges and opportunities of social media. *Business Horizon*, 53:59-68.

Karnik, S. (2014). A study of dimensions of consumer's perceived risk and their influences on consumers buying behaviour. *Altius Shodh Journal of Management and Commerce*, 1(2):162-169.

Keegan, B. J. & Rowley, J. (2017). Evaluation and decision making in social media marketing. *Management Decision*, 55 (1):15-31.

Khan, G.A. (2016). Electronic commerce: A study on benefits and challenges in an emerging economy. *Global Journal of Management and Business Research*, 16(1):19-22.

Kim, J.B. (2012). An empirical study on consumer first purchase intention in online shopping: integrating initial trust and TAM. *Electronic Commerce Research*, 12:125-150.

Kim, Y. & Peterson, R.A. (2017). A Meta-analysis of online trust relationships in e commerce. *Journal of Interactive Marketing*, 38:44-54.

Kumar, V.V. (2017). A study on consumer perception towards online shopping. *Journal of Business and Management*, 19(8):32-55.

Lee, J. & Hong, I.B. (2016). Predicting positive user responses to social media advertising: the roles of emotional appeal, informativeness, and creativity. *International Journal of Information Management*, 36(3):360-373.

Lepkowska-White, E. (2013). Are they listening? Designing online recommendations for today's consumers. *Journal of Research in Interactive Marketing*, 7(3):182–200.

Levy, M. & Weitz, B.A. (2016). *Retailing Management*. 9th ed. CA: McGraw-Hill, Irwin.

Li, Y. H. & Huang, J. W. (2009). Applying Theory of Perceived Risk and Technology Acceptance Model in the Online Shopping Channel. *International Journal of Economics and Management Engineering*, 3(5):505–511.

Liaw, S. & Le, T. M. (2017). Under interruptive effects of rarity and mental accounting, whether the online purchase intention can still be enhanced even with higher search costs and perceived risk. *International Journal of Business and Management*, 2(8):160-174.

Lin, C.A. & Kim, T. (2016). Predicting user response to sponsored advertising on social media via the technology acceptance model. *Journal of Computers in Human Behavior*, 64:710-718.

Lin, K.Y. & Lu, H.P. (2015). Predicting mobile social network acceptance based on mobile value and social influence. *Internet Research*, 25(1):107-130.

Liu, D. R., Chen, W. H. & Chiu, P. H. (2013). Recommending quality book reviews from heterogeneous websites, *Internet Research*, 23(1):27-46.

Manning, J. (2014). Definition and classes of social media. *Encyclopaedia of social media and politics*. Thousand Oaks. CA: Sage.

Marshall, C. & Rossman, G. B. (2016). *Designing qualitative research*. 6th edition. Los Angeles, CA: Sage.

Martínez-López, F. J., Esteban-Millat, I., Argila, A. & Regon-Guardia, F. (2015). Consumers' psychological outcomes linked to the use of an online store's recommendation system. *Internet Research*, 25(4):562–588.

Mayer, R.C., Davis, H.C. & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20:30-34.

McKnight, D.H. & Chervany, N.L. (2001). Trust and distrust definitions: one bite at a time IN Falcone, R., Singh, M. and Tan, Y.H. (Eds). *Trust in Cyber-Societies: Integrating the Human and Artificial Perspectives*. Springer, Berlin:27-54.

Meehan, K., Lunney, T., Curran, K., McCaughey, A. & McCaughey, A. (2016). Aggregating social media data with temporal and environmental context for recommendation in a mobile tour guide *system. Journal of Hospitality and Tourism Technology*, 7(3):281-299.

Meskaran, F., Ismail, Z. & Shanmugam, B. (2013). Online purchase intention: effects of trust and security perception. *Australian Journal of Basic and Applied Sciences*, 7(6):307-315.

Mortimer, G., Hasan, S., Andrews, L. & Martin, J. (2016). Online grocery shopping: the impact of shopping frequency on perceived risk. *International Review of Retail, Distribution and Consumer Research*, 26(2):202-223.

Musonera, E. & Weber, J. M. (2018). Analysis of Marketing Strategies in the Social Media: Facebook Case Analysis. *Journal of Marketing Development and Competitiveness*, 12(1):10-28.

Nazir, S., Tayyab, A., Sajid, A. & Javed, I. (2012). How online shopping is affecting consumers buying behavior in Pakistan. *International Journal of Computer Science Issues (IJCSI)*, 9(3):486-495.

Neti, S. (2011). Social media and its role in marketing. International *Journal of Enterprise Computing and Business Systems,* 1(2):1-15.

Neuman, W. L. (2011). *Social research methods: Qualitative and quantitative approaches*. 7th ed. Boston, MA: Allyn & Bacon.

Niranjanamurthy, M., Kavyashree, N., Jagannath, S. & Chahare, D.R. (2013). Analysis of e-commerce and m-commerce: advantages, limitations and security issues. *International Journal of Advanced Research in Computer and Communication Engineering*, 2(6):2360-2370.

Ochi, P., Rao, S., Takayama, L. & Nass, C. (2010). Predictors of user perceptions of web recommender systems: how the basis for generating experience and search product recommendations affect user responses. *International Journal of Human-Computer Studies*, 68(8):472-482.

Ozturk, A. B., Bilgihan, A., Nusair, K. & Okumus, F. (2016). What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use, and perceived convenience. *International Journal of Information Management*, 1-10.

Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health*., 42: 533-544.

Pappas, I.O., Pateli, A.G., Giannakos, M.N. & Chrissikopoulos, V. (2014). Moderating effects of online shopping experience on customer satisfaction and repurchase intentions. *International Journal of Retail & Distribution Management*, 42(3):187-204.

Pedeliento, G., Andreini, D., Bergamaschi, M. & Klobas, J. E. (2017). Trust, information asymmetry and professional service online referral agents. *Journal of Service Theory and Practice*, 27(6):1081–1085.

Podobnik, V. (2013). An Analysis of Facebook Social Media Marketing Key Performance Indicators: The Case of Premier League Brands IN Conference proceedings of the 12th International Conference on Telecommunications (IEEE), Zagreb, Croatia.131-138.

Pu, P., Chen, L. & Hu, R. (2011). A user-centric evaluation framework for recommender systems. Communication of the 5th ACM conference on Recommender Systems RecSys. Chicago. IL.57-164.

Quinlan, C. Babin, B. Carr, J. Griffin, M. & Zikmund, W. (2015). *Business research methods*. Hampshire: Cengage.

Rauniar, R., Rawski, G., Yang, J. & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management*, 27(1):6-30.

Richie, J., Lewis, J., Nicholls, C. M. & Ormston, R. (2013). Qualitative research practice: a guide for social science students and researchers. London UK: *Sage*.

Sajid, S. I. (2016). Social media and its role in marketing. *Business and Economics Journal*, 7(1):1-5.

Saurwein, F., Just, N. & Latzer, M. (2015). Governance of algorithms: options and limitations. 17(6):35-49.

Schierz, P.G., Schilke, O. & Wirtz, B.W. (2010). Understanding consumer acceptance of mobile payment services: an empirical analysis. *Electronic Commerce Research and Applications*, 9(3):209-216.

Shaikh, A.A. & Karjaluoto, H. (2015). Making the most of information technology and systems usage: a literature review, framework and future research agenda. *Computers in Human Behavior*, 49(8):541-566.

Smith, B. & Linden, G. (2017). Two decades of recommender systems at amazon. Com. *IEEE Internet Computing*, 21(3):12–18.

Smith, R., Deitz, G., Royne, M.B., Hansen, J.D., Grünhagen, M. & Witte, C. (2013). Cross-cultural examination of online shopping behavior: a comparison of Norway, Germany, and the United States. *Journal of Business Research*, 66(3):328-335.

Soltanpanah, H., Shafe'ei, R. & Mirani, V. (2012). A review of the literature of perceived risk and identifying its various facets in e-commerce by customers: focusing on developing countries. *African Journal of Business Management*, 6(8):2888-2890.

Soto-Acosta, P., Jose Molina-Castillo, F., Lopez-Nicolas, C. & Colomo-Palacios, R. (2014). The effect of information overload and disorganisation on intention to purchase online: The role of perceived risk and internet experience. *Online Information Review*, 38(4):543-545.

Statista. (2019a). Global retail e-commerce sales (2014-2021) [Online]. Available: https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/ [Accessed 3 February 2019].

Statista. (2019b). Number of monthly active Facebook users worldwide as of 4th quarter 2018 [Online]. Available: https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/ [Accessed 12 March 2019].

Struwig, F. W. & Stead, G. B. (2013). *Research: Planning, Designing and Reporting*. 2nd ed. Cape Town: Pearson.

Tankovic, A. C. & Benazic, D. (2018). The perception of e-servicescape and its influence on perceived e-shopping value and customer loyalty. *Online Information Review*, 42(7):1124–1145.

Tashakkori, A. & Creswell, J. W. (2007). The new era in mixed methods. *Journal of Mixed Methods Research*, 1(3):1-7.

Thananuraksakul, S. (2018). Factors influencing online shopping behaviour intention: A study of Thai consumers. *AU Journal of Management*, 4(2):41-46.

Thurairaj, S., Hoon, E. P., Roy, S. S. & Fong, P. K. (2015). Reflections of students' language usage in social networking sites: making or marring academic English. *The Electronic Journal of e-Learning*, 13(4):302-316.

Turban, E., King, D., Lee, J. K., Liang, T. P. & Turban, D. C. (2015). *Electronic Commerce: A Managerial and Social Networks Perspective*. Springer.

Wasserman, T. (2012). Only 49% of Marketers Have Integrated Social into Brand Building. [Online]. Available: from http://mashable.com/2012/05/07/49-percent-marketers-social-brandbuilding [Accessed 2 May 2019].

Waters, Canfield, Foster & Hardy IN Tran, T. P. (2017). Personalized ads on Facebook: An effective marketing tool for online marketers. *Journal of Retailing and Consumer Services*, 39:230-242.

Webb, E.J., Campbell, D.T., Schwartz, R.D.& Sechrest, I. (1966). *Unobtrusive Measures: Non-reactive Research in the Social Sciences*, Rand McNally, Chicago, IL.

Wilson, J. (2014). Essentials of Business Research: *A Guide to Doing Your Research Project*. 2nd edition. London UK: Sage.

Wu, L., Chen, K.W. & Chiu, M.L. (2016). Defining key drivers of online impulse purchasing: a perspective of both impulse shoppers and system users. *International Journal of Information Management*, 36(3):285.

Wu, W. Y., Lee, C. L., Fu, C. S. & Wang, H.-C. (2014). How can online store layout design and atmosphere influence consumer shopping intention on a website? *International Journal of Retail & Distribution Management*, 42(1):24.

Wu, X., Gereffi, G. (2018). Amazon and Alibaba: Internet Governance, Business Models, and Internationalization Strategies, *International Business in the Information and Digital Age (Progress in International Business Research)*, 13:355–356.

Ying, Y., Feinberg, F. & Wedel, M. (2006). Leveraging missing ratings to improve online recommendation systems. *Journal of Marketing Research*, 43(3):355-365.

Zhang, L., Tan, W., Xu, Y. & Tan, G. (2012). Dimensions of consumers' perceived risk and their influences on online consumers' purchasing behaviour. *Communications in Information Science and Management Engineering*, 2(7):8-14.

Zhang, T., Agarwal, R. & Lucas, H.C. Jr (2011). The value of IT-enabled retailer learning: personalized product recommendations and customer store loyalty. *MIS Quarterly-Management Information Systems*, 35(4):859-881.

Zikmund, G.W., Babin, B.J, Carr, J.C., & Griffin, M. (2013). *Business Research Methods*. 9th edition. Canada: Cengage Learning.

ANNEXURE A

INTERVIEW SCHEDULE

Perceptions of the algorithmic consumer on online purchasing

Interview Schedule

Basic information that will be provided to the interviewee

- Everything you tell me will be treated as confidential. However, should you mention something that leads me to believe that you and/or someone else is at risk of serious physical and/or emotional harm, I will have to pass this information on to my supervisor.

- Are you willing to take part in the interview today? You are free to withdraw from the interview at any point if you wish to do so.

- The objective of this research is to explore consumers perceptions regarding online purchasing via advertisements

- The interview should take around 20 minutes.

- Just to help me with my notes, would you be comfortable if I record our conversation?

- Do you have any questions before we start?

Questions that will be asked during the semi-structured interview:

Biographic information checkbox that will include gender, age, and home language.

1. Have you purchased anything online from an advertisement on Facebook /social media?

- If yes, explain your experience
- If no, why not

2, While using Facebook have you noticed that advertisements are included in your feed and can you recall any such advertisement?

3. Describe your overall attitude towards Facebook advertising? (attitude towards advertising)

4. Once you have noticed an advertisement what will make you watch the rest of the video? (entertainment)

5. Do you feel that the advertisements are telling you something about the products? (informativeness)

-if not, what can they add to make it more informative?

6. How do you feel when you browse Facebook and come across and advertisement? - if yes, what irritates you and why?

7. Do you believe that you can trust the advertisements on Facebook?? (Credibility)

-if not, why not?

8. Do you like advertisements that require interaction from your side? (Interactivity)

-If yes, what type of interaction?

9. Would you also purchase a product from an advertisement if you saw that one of your friends did and recommended it on Facebook/ Shared the ad? (Peer Influence)

-if yes, why?

-if no, why?

10. Do you feel by clicking on the ad and purchasing the product through Facebook it is likely to leak personal information about yourself? (Privacy concerns)

-if yes, why?

11. Do you know the advertisements were produced using an algorithm?

-How you feel about it?

ANNEXURE B

STATISTICAL RESULTS

Variable	Descriptive Statistics (stats)							
	Valid N	Mean	Median	Mode	Frequency of Mode	Minimum	Maximum	Std.Dev.
Exp	20	2,050000	1,000000	1,000000	13	1,000000	5,000000	1,605091
Recall	20	2,850000	4,000000	4,000000	11	1,000000	4,000000	1,348488
AH Adv	20	3,100000	3,000000	4,000000	6	1,000000	5,000000	1,372665
Enter	20	3,050000	3,000000	3,000000	6	1,000000	5,000000	1,234376
Info	20	2,450000	2,000000	2,000000	7	1,000000	5,000000	1,234376
Irate	20	3,750000	4,000000	Multiple	7	1,000000	5,000000	1,019546
Cred	20	3,000000	3,000000	2,000000	6	1,000000	5,000000	1,256562
InterA	20	3,850000	5,000000	5,000000	13	1,000000	5,000000	1,725200
Peer	20	2,050000	1,000000	1,000000	13	1,000000	5,000000	1,669384
Privacy	20	3,700000	4,500000	5,000000	10	1,000000	5,000000	1,625455
Algo	20	3,100000	3,500000	4,000000	6	1,000000	5,000000	1,483240

From	To	Frequency table: Exp (stats)			
		Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	14	14	70,00000	70,0000
2,33	<=x<3,66	1	15	5,00000	75,0000
3,66	<=x<4,99	2	17	10,00000	85,0000
4,99	<=x<6,32	3	20	15,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Recall (stats)			
		Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	9	9	45,00000	45,0000
2,33	<=x<3,66	0	9	0,00000	45,0000
3,66	<=x<4,99	11	20	55,00000	100,0000
4,99	<=x<6,32	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: AH Adv (stats)			
		Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	6	6	30,00000	30,0000
2,33	<=x<3,66	5	11	25,00000	55,0000
3,66	<=x<4,99	6	17	30,00000	85,0000
4,99	<=x<6,32	3	20	15,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Enter (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	7	7	35,00000	35,0000
2,33	<=x<3,66	6	13	30,00000	65,0000
3,66	<=x<4,99	4	17	20,00000	85,0000
4,99	<=x<6,32	3	20	15,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Info (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	12	12	60,00000	60,0000
2,33	<=x<3,66	3	15	15,00000	75,0000
3,66	<=x<4,99	4	19	20,00000	95,0000
4,99	<=x<6,32	1	20	5,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Irate (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	1	1	5,00000	5,0000
2,33	<=x<3,66	7	8	35,00000	40,0000
3,66	<=x<4,99	7	15	35,00000	75,0000
4,99	<=x<6,32	5	20	25,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Cred (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	8	8	40,00000	40,0000
2,33	<=x<3,66	5	13	25,00000	65,0000
3,66	<=x<4,99	4	17	20,00000	85,0000
4,99	<=x<6,32	3	20	15,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: InterA (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	6	6	30,00000	30,0000
2,33	<=x<3,66	0	6	0,00000	30,0000
3,66	<=x<4,99	1	7	5,00000	35,0000
4,99	<=x<6,32	13	20	65,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Peer (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	15	15	75,00000	75,0000
2,33	<=x<3,66	0	15	0,00000	75,0000
3,66	<=x<4,99	1	16	5,00000	80,0000
4,99	<=x<6,32	4	20	20,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Privacy (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	5	5	25,00000	25,0000
2,33	<=x<3,66	2	7	10,00000	35,0000
3,66	<=x<4,99	3	10	15,00000	50,0000
4,99	<=x<6,32	10	20	50,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

From	To	Frequency table: Algo (stats) Count	Cumulative Count	Percent	Cumulative Percent
1	<=x<2,33	8	8	40,00000	40,0000
2,33	<=x<3,66	2	10	10,00000	50,0000
3,66	<=x<4,99	6	16	30,00000	80,0000
4,99	<=x<6,32	4	20	20,00000	100,0000
6,32	<=x<7,65	0	20	0,00000	100,0000
Missing		0	20	0,00000	100,0000

Variable	T-tests; Grouping: Gender (stats) Group 1: 1 Group 2: 2 Mean 1	Mean 2	t-value	df	p	Valid N 1	Valid N 2	Std.Dev. 1	Std.Dev. 2	F-ratio Variances	p Variances
Exp	2,400000	1,700000	0,97385	18	0,343037	10	10	1,712698	1,494434	1,313433	0,691228
Recall	3,100000	2,600000	0,82199	18	0,421835	10	10	1,197219	1,505545	1,581395	0,505502
AH Adv	3,100000	3,100000	0,00000	18	1,000000	10	10	1,100505	1,663330	2,284404	0,234342
Enter	2,800000	3,300000	-0,90126	18	0,379350	10	10	1,316561	1,159502	1,289256	0,711236
Info	2,400000	2,500000	-0,17647	18	0,861895	10	10	1,349897	1,178511	1,312000	0,692397
Irate	3,700000	3,800000	-0,21374	18	0,833151	10	10	1,251666	0,788811	2,517857	0,185152
Cred	2,700000	3,300000	-1,07188	18	0,297934	10	10	1,337494	1,159502	1,330579	0,677393
InterA	4,200000	3,500000	0,90286	18	0,378524	10	10	1,686548	1,779513	1,113281	0,875615
Peer	2,700000	1,400000	1,84878	18	0,080985	10	10	1,828782	1,264911	2,090278	0,287225
Privacy	3,700000	3,700000	0,00000	18	1,000000	10	10	1,702939	1,636392	1,082988	0,907414
Algo	3,000000	3,200000	-0,29417	18	0,771990	10	10	1,414214	1,619328	1,311111	0,693124

T-tests; Grouping: Age (stats)
Group 1: 1
Group 2: 2

Variable	Mean 1	Mean 2	t-value	df	p	Valid N 1	Valid N 2	Std.Dev. 1	Std.Dev. 2	F-ratio Variances	p Variances
Exp	2,333333	1,818182	0,70454	18	0,490114	9	11	1,802776	1,470930	1,502101	0,536917
Recall	3,222222	2,545455	1,12433	18	0,275645	9	11	1,201850	1,439697	1,434965	0,621580
AH Adv	3,666667	2,636364	1,75967	18	0,095449	9	11	0,866025	1,566699	3,272727	0,106126
Enter	3,000000	3,090909	-0,15960	18	0,874975	9	11	0,707107	1,578261	4,981818	0,032222
Info	2,555556	2,363636	0,33776	18	0,739453	9	11	1,130388	1,361817	1,451383	0,610220
Irate	4,111111	3,454545	1,47659	18	0,157066	9	11	0,781736	1,128152	2,082645	0,310689
Cred	3,111111	2,909091	0,34933	18	0,730892	9	11	1,269296	1,300350	1,049530	0,964252
InterA	3,111111	4,454545	-1,83771	18	0,082669	9	11	2,027588	1,213560	2,791495	0,131005
Peer	2,111111	2,000000	0,14422	18	0,886932	9	11	1,691482	1,732051	1,048544	0,965337
Privacy	4,000000	3,454545	0,73758	18	0,470274	9	11	1,732051	1,572491	1,213235	0,759448
Algo	3,333333	2,909091	0,62610	18	0,539109	9	11	1,118034	1,758098	2,472727	0,212535

T-tests; Grouping: Occpution (stats)
Group 1: 1
Group 2: 2

Variable	Mean 1	Mean 2	t-value	df	p	Valid N 1	Valid N 2	Std.Dev. 1	Std.Dev. 2	F-ratio Variances	p Variances
Exp	2,142857	1,833333	0,38625	18	0,703838	14	6	1,657484	1,602082	1,070358	1,000000
Recall	2,857143	2,833333	0,03522	18	0,972291	14	6	1,406422	1,329160	1,119635	0,972807
AH Adv	2,857143	3,666667	-1,22439	18	0,236588	14	6	1,460092	1,032796	1,998626	0,458325
Enter	2,857143	3,500000	-1,07146	18	0,298118	14	6	1,292412	1,048809	1,518482	0,678114
Info	2,571429	2,166667	0,66200	18	0,516356	14	6	1,283881	1,169045	1,206111	0,897462
Irate	3,571429	4,166667	-1,21110	18	0,241520	14	6	1,089410	0,752773	2,094376	0,426269
Cred	2,928571	3,166667	-0,37947	18	0,708776	14	6	1,071612	1,722401	2,583413	0,156029
InterA	4,214286	3,000000	1,48782	18	0,154107	14	6	1,423893	2,190890	2,367480	0,195638
Peer	1,785714	2,666667	-1,08662	18	0,291544	14	6	1,577660	1,861899	1,392789	0,579808
Privacy	3,428571	4,333333	-1,15040	18	0,265033	14	6	1,603567	1,632993	1,037037	0,873279
Algo	2,928571	3,500000	-0,78141	18	0,444719	14	6	1,542440	1,378405	1,252169	0,860148

ANNEXURE C

ETHICAL APPLICATION

NELSON MANDELA
UNIVERSITY

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

ETHICS CLEARANCE FOR TREATISES / DISSERTATIONS / THESES

Instructions:

- Should be completed by study leader and student
- Must be signed off by student, study leader and HoD
- ***Please note that by following this Proforma ethics route, the study will NOT be allocated an ethics clearance number***

FACULTY: Business and Economic Sciences_____

SCHOOL / DEPARTMENT: Department of Business Management_____

I, (surname and initials of study leader) Professor Miemie Struwig

the study leader for Campher, L. 216335310 & Hanekom, S. 216079004_

a candidate for the degree of: BCom Honours in Business Management

with a treatise entitled (full title of treatise):

Perceptions of the algorithmic Consumer on online purchasing_____

_____

considered the following ethics criteria *(please tick the appropriate block)*:

		YES	NO
1.	Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?		X
2.	Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?		X
2.1	Are subjects/participants/respondents of your study:		X
2.1.1	Children under the age of 18?		X
2.1.2	NMMU staff?		X
2.1.3	NMMU students?		X
2.1.4	The elderly/persons over the age of 60?		X
2.1.5	A sample from an institution (e.g. hospital/school)?		X
2.1.6	Handicapped (e.g. mentally or physically)?		X

		YES	NO
3.	Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)		X
3.1	Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?		X
4.	Will the participant's privacy, anonymity or confidentiality be compromised?		X
4.1	Are you administering a questionnaire/survey that:		X
4.1.1	Collects sensitive/identifiable data from participants?		X
4.1.2	Does not guarantee the anonymity of the participant?		X
4.1.3	Does not guarantee the confidentiality of the participant and the data?		X
4.1.4	Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?		X
4.1.5	Will create doubt whether sample control measures are in place?		X
4.1.5	Will be distributed electronically via email (and requesting an email response)? Note: • If your questionnaire **DOES NOT** request respondents' identification, is distributed electronically and you request respondents to return it *manually* (print out and deliver/mail); **AND** respondent anonymity can be guaranteed, your answer will be NO. • If your questionnaire **DOES NOT** request respondents' identification, is *distributed via an email link and works through a web response system (e.g. the university survey system)*; ***AND*** respondent anonymity can be guaranteed, your answer will be NO.		X
5.	Do you wish to publish an article from this study and submit to an accredited Journal?		X

and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.

Study leader (s) — DATE: 23/4/19

HEAD OF DEPARTMENT — DATE: 23/04/2019

STUDENT — DATE: 18/04/2019

STUDENT — DATE: 18/04/2019

ANNEXURE D

CODING SCHEDULE

Gender grouping

Variable	overall mean	male	female
Experience	2,05	2,40	1,70
Recall	2,85	3,10	2,60
Overall attitude	3,1	3,10	3,10
Entertainment	3,05	2,80	3,30
Informativeness	2,45	2,40	2,50
Irritation	3,75	3,70	3,80
Credibility	3	2,70	3,30
Interactivity	3,85	4,20	3,50
Peer influence	2,05	2,70	1,40
Privacy	3,7	3,70	3,70
Algorithms	3,1	3,00	3,20

KEY	
green	postive
yellow	neutral
red	negative

Age grouping

Variable	overall mean	18-25	26+
Experience	2,05	2,33	1,82
Recall	2,85	3,22	2,55
Overall attitude	3,1	3,67	2,64
Entertainment	3,05	3,00	3,09
Informativeness	2,45	2,56	2,36
Irritation	3,75	4,11	3,45
Credibility	3	3,11	2,91
Interactivity	3,85	3,11	4,45
Peer influence	2,05	2,11	2,00
Privacy	3,7	4,00	3,45
Algorithms	3,1	3,33	2,91

KEY	
green	postive
yellow	neutral
red	negative

Occupation grouping

Variable	overall mean	working	not working
Experience	2,05	2,14	1,83
Recall	2,85	2,86	2,83
Overall attitude	3,1	2,86	3,67
Entertainment	3,05	2,86	3,50
Informativeness	2,45	2,57	2,17
Irritation	3,75	3,57	4,17
Credibility	3	2,93	3,17
Interactivity	3,85	4,21	3,00
Peer influence	2,05	1,79	2,67
Privacy	3,7	3,43	4,33
Algorithms	3,1	2,93	3,50

KEY	
green	postive
yellow	neutral
red	negative

Language grouping

Variable	overall mean	english	afrikaans
Experience	2,05	2,21	1,67
Recall	2,85	3,07	2,33
Overall attitude	3,1	3,00	3,33
Entertainment	3,05	3,00	3,17
Informativeness	2,45	2,64	2,00
Irritation	3,75	3,71	3,83
Credibility	3	2,93	3,17
Interactivity	3,85	3,93	3,67
Peer influence	2,05	2,14	1,83
Privacy	3,7	3,79	3,50
Algorithms	3,1	3,29	2,67

KEY	
green	postive
yellow	neutral
red	negative

ANNEXURE E

TURNITIN RESULTS

Campher & Hanekom

ORIGINALITY REPORT

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

PRIMARY SOURCES

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