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EFFECTIVENESS OF BRANDED MOBILE APPS ON BRAND LOYALTY AMONG GENERATION Y CONSUMERS

by

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Student number: 1110589

Masters Dissertation

A dissertation submitted in full fulfillment of the requirements for the degree of the Master of Commerce

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Abstract

The increasing level of consumer engagement with smartphones and tablets or ipods, and the proliferation of mobile applications in recent years have seen a rapid growth in branded apps. Marketers are creating branded mobile apps as a brand communication channel to attract new customers and potentially increase brand loyalty among current customers. Previous research has measured initial adoption or intention to adopt branded apps rather than continuance adoption. In South Africa, few studies have explored adoption of branded apps among generation Y consumers. To fill this gap, this research aims to determine the effectiveness of branded mobile apps in driving brand loyalty among generation Y consumers. To achieve this goal, the research uses Expectation Confirmation Theory (ECT) to explore the factors influencing satisfaction, continuance adoption of branded apps and brand loyalty. Using a quantitative research approach, a total of 406 valid self-administered questionnaires were collected by survey method, and structural equation modelling was employed in the data analysis. The results indicate that confirmation of expectations–functional value, social value and satisfaction significantly influence brand loyalty. When consumers confirmed expectations of branded apps, it directly led to positive perceptions of value and satisfaction. Consumer satisfaction was a significant driver of behavioural loyalty. Results also suggested that consumer confirmation of expectations and perceptions of value impacted on continuance intention indirectly through satisfaction. Perceived functional value was found to be an important direct booster of consumer's decisions and behaviour to continue using branded apps, while social value was found to be an inhibitor of continuance intention. The relationship between continuance intention and brand loyalty was insignificant. Continuance intention was simply an intermediate response following satisfaction with prior usage. This study therefore confirmed and extended the (ECT), that satisfaction with a product or service was a prerequisite for establishing continuance intention and brand loyalty among consumers.

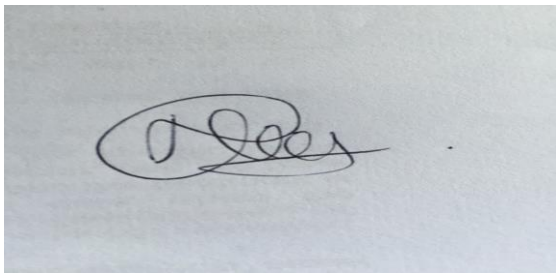
Keywords: *Branded mobile apps (branded apps), Confirmation of expectation, perceived value, satisfaction, continuance intention, brand loyalty and generation Y/millennial*

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DECLARATION

I, Nakuze Chalomba, declare that this dissertation is my own unaided work. It is submitted in fulfillment of the requirements for the degree of Master of Commerce at the University of the Witwatersrand, Johannesburg. This research has not been submitted before for any degree or examination at this or any other university.



Nakuze Chalomba

December 2016

TABLE OF CONTENTS

TABLE OF CONTENTS....iv
LIST OF TABLES....vii
LIST OF FIGURES....viii
CHAPTER 1: INTRODUCTION....1
1.1BACKGROUND....1
1.2PROBLEM STATEMENT....2
1.3 JUSTIFICATION AND RESEARCH GAP....4
1.4 PURPOSE OF THE STUDY....4
1.5 RESEARCH OBJECTIVES....5
1.5.1 Theoretical objectives....5
1.5.2 Empirical objectives....5
1.6 RESEARCH QUESTIONS AND HYPOTHESES....5
1.7 SIGNIFICANCE AND CONTRIBUTION OF THE STUDY....6
1.8 DELIMITATIONS....7
1.9 DEFINITION OF KEY CONCEPTS....9
1.10 OUTLINE OF THE STUDY....11
CHAPTER 2: LITERATURE REVIEW....13
2.1 INTRODUCTION....13
2.2 RESEARCH CONTEXT....13
2.3 EVOLUTION OF BRANDED APPS AND USAGE TRENDS....16
2.3.1 Smartphones....16
2.3.2 Mobile applications....17
2.3.3 Branded Mobile Apps....17
2.3.4 Adoption of branded apps as a marketing channel by firms....18
2.3.5 How branded mobile apps differ from traditional mobile marketing....22
2.4 BRANDED MOBILE APPS AS A MARKETING CHANNEL FOR MILLENIALS....23
2.5 FINDINGS OF PREVIOUS RELATED STUDIES....26
2.6 THEORETIC FRAMEWORK....28
2.7 EMPIRICAL REVIEW....34
2.7.1 Perceived Value....35
2.7.2 Confirmation....36
2.7.3 Satisfaction....36
2.7.4 Continuance Intention....37
2.7.5 Brand loyalty....37
CHAPTER 3: CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT....40
3.1 CONFIRMATION AND PERCEIVED VALUE....40
3.2 CONFIRMATION AND SATISFACTION....41
3.3 PERCEIVED VALUE AND SATISFACTION....42
3.4 PERCEIVED VALUE AND CONTINUANCE INTENTION....42
3.4 SATISFATION AND CONTINUANCE INTENTION....43
3.5 SATISFACTION AND BRAND LOYALTY....44
3.6 CONTINUANCE INTENTION AND BRAND LOYALTY....45
CHAPTER 4: RESEARCH APPROACH, PROCEDURE AND METHODS....46

4.1 INTRODUCTION 46
4.2 RESEARCH STRAGEGY 46
4.2.1 Research Approach 46
4.2.2 Research Philosophy 47
4.2.3 Research Design 47
4.3 SAMPLING DESIGN 48
4.3.1 Target population 48
4.3.2 Study Sites 49
4.3.3 Sampling frame 49
4.3.4 Sample Size 50
4.3.5 Sampling Method 50
4.4 DATA COLLECTION TECHNIQUES 52
4.5 ETHICAL CONSIDERATION 53
4.6 QUESTIONNAIRE DESIGN 54
4.7 DATA ANALYSIS APPROACH 54
4.7.1 Structural equation modelling 54
4.7.2 Data cleaning and coding 55
4.7.3 Descriptive statistics 55
4.8 MEASUREMENT MODEL 55
4.8.1 Reliability and Validity 55
4.8.2 Reliability measurements 56
4. 9 TESTING FOR VALIDITY 57
4.9.1 Convergent Validity 57
4.9.2 Discriminant validity 57
4.10 CONFIRMATORY FACTOR ANALYSIS 58
4.11 STRUCTURAL MODEL 60

CHAPTER 5: RESULTS 62
5.1 INTRODUCTION 62
5.2 DESCRIPTIVE RESULTS 62
5.2.1 Demographic features of sample 62
5.2.3 Engagement of Millennials with branded mobile apps 64
5.3 MEASUREMENT MODEL 72
5. 3.1 TESTING FOR VALIDITY 77
5.3.2 MODEL FIT ASSESMENT 81
5.4 STRUCTURAL MODEL 85
5.4.1 Path modelling (Structural model) 85
5.4.2 Model fit assessment for path modelling 86
5.4.3 Hypothesis testing results 87

CHAPTER 6: DISCUSSION OF FINDINGS 91
6.1 CONFIRMATION OF EXPECTATIONS AND PERCEIVED VALUE 91
6.2 CONFIRMATION OF EXPECTATIONS AND SATISFACTION 92
6.3 PERCEIVED VALUE AND SATISFACTION 92
6.4 PERCEIVED VALUE AND CONTINUANCE INTENTION 93
6.5 SATISFACTION AND CONTINUANCE INTENTION 95
6.6 SATISFACTION AND BRAND LOYALTY 96
6.7 CONTINUANCE INTENTION AND BRAND LOYALTY 97
6.8 CONCLUSIONS 98

CHAPTER 7: CONCLUSIONS, CONTRIBUTIONS, IMPLICATIONS AND FUTURE RESEARCH 99

7.1 INTRODUCTION 99
7.2 CONCLUSIONS.....99
7.3 RESEARCH CONTRIBUTION.....102
7.4 IMPLICATIONS 103
7.5 LIMITATIONS.....104
7.6 FUTURE RESEARCH 105
REFERENCES 106
Appendix 1: Questionnaire 121
Appendix 2:Cronbach's Alpha Coefficient 125
Appendix 3: Ethics Clearance Certificate.....128

LIST OF TABLES

Table 1: Key constructs and relationships in the ECT.....29
Table 2: Taxonomy of loyalty based on attitudinal and behavioural dimensions 38
Table 3: Individual satisfaction and loyalty.....39
Table 4: Distribution of gender, monthly expenditure and mobile systems by age group 62
Table 5: Gender and age distribution of respondents by level of academic pursuit 64
Table 6: Percentage summary of scale constructs results.....71
Table 7: Accurate statistics 73
Table 8: Composite reliability calculations 74
Table 9: Average extracted variance.....77
Table 10: Factor loading estimates 78
Table 11: Correlation Matrix 79
Table 12: Highest shared variance.....79
Table 13: Average Variance Extracted (AVE) and highest share variance (SV) 80
Table 14: Chi-square (CMIN/DF) index.....82
Table 15: Goodness of Fit Index (GFI).....83
Table 16: Baseline comparison Index.....83
Table 17: RMSEA.....85
Table 18: Model fit assessment for path model.....86
Table 19: Hypotheses results and path coefficients.....88
Table 20: Post adoption satisfaction and continuance intention of branded mobile apps 93
Table 21: Post-adoption satisfaction and continuance intention of branded mobile apps 94

LIST OF FIGURES

Figure 1: Example of mobile apps 2
Figure 2: Engaging with a retail branded app 20
Figure 3: Engaging with a banking branded app 21
Figure 4: Branded social apps 22
Figure 5: Expectation confirmation theory 29
Figure 6: American customer satisfaction Index 32
Figure 7: Expectation Confirmation Model (ECM) 33
Figure 8: Conceptual model developed by Hew et al. (2016) 34
Figure 9: Conceptual model 40
Figure 10: Sampling methods 51
Figure 11: Sampling method adopted for the current study 52
Figure 12: Utilisation of branded mobile apps (%) among Millennials 65
Figure 13: Distribution (%) of Search, search, download and utilisation of branded apps 66
Figure 14: Post-download usage (%) of different branded apps 68
Figure 15: Utilisation (%) of branded apps by age group 68
Figure 16: Utilisation of branded apps by gender 69
Figure 17: Utilisation (%) of branded apps by income 70
Figure 18: Confirmatory factor analysis (measurement model) 81
Figure 19: Structural Model 86

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Mobile applications are applications that run on mobile devices, smart phones, tablets and iPods (Siegler, 2008). They are available through application distribution platforms, which are typically operated by owners of the mobile operating systems, such as Apple App Store, Google Play, Windows Phone Store and BlackBerry App World (Siegler, 2008). Mobile apps can come preloaded on a mobile device or could be downloaded by users from mobile app stores or the Internet for a fee or free.

In 2015, Google's android market reported 50 billion app downloads and featured over 1 million apps available on their Play Store (eMarketer, 2015). Apple reached 75 billion app downloads and featured 1.2 million apps in the iTunes Store. By 2017, it is predicted that there will be over 268 billion downloads, with revenue reaching $77 billion. Research by eMarketer (2015) shows that the number of smartphone users worldwide will surpass two billion by the year 2016. This is an annual increase of 12.6%. Similarly, South Africa is experiencing growth in smartphone penetration and mobile app usage. Statistics from the Mobile Marketing Association South Africa (MMAS, 2015) show that 17.7 million of the 37.2 million adult population make use of mobile apps or access the Internet via their smartphones (eMarketer, 2015). Research by Hinchcliffe (2013) speculates that the profiles and competences of marketers have to adjust to new consumer behaviours in the market. In this regard, most companies have developed branded mobile applications for ‘anytime, anywhere’ engagement with customers.

Branded mobile applications (branded apps) are being developed by companies in order to build brands (Bhave, Jain & Roy, 2013). They can help to increase the profits of an existing business or assist a business to reach potential customers. Branded apps may transform the manner in which consumers communicate with brands, as such apps give consumers control when interacting with brands (Bellman, Potter, Treavan, Robinson & Varan, 2011). This control comes as a result of a customer choosing to engage with the brand by downloading the app. Customers can perform a range of tasks such as: searching, retrieving and sharing information; passing time with entertainment content; paying bills; navigating maps; making purchases, and performing basic functions such as making calls and sending or receiving text

messages (Wang, Kim & Malthouse, 2016).

Wang et al. (2016) claim that the development of mobile branded apps will continue to be an upward trend and they predict adoption will be widespread in the coming years. The reason for this trend might be that consumers respond more positively towards 'pull' marketing tools than they do towards 'push' marketing approaches because they feel more in control (Watson, McCarthy and Rowley, 2013). As 'pull' marketing tools, branded apps have considerable potential to supersede other mobile marketing tools and help digital marketers overcome consumers' negative attitudes towards "push" based mobile tools. In "push" marketing, the company decides when to communicate with the customer by sending short messages (SMS) or emails, while in 'pull' marketing it is the customer that decides when to talk to the brand – in this case, by downloading and engaging with the app.



Figure 1: Example of mobile apps

Source:http://www.flat101.es/data/4517102014/app-tiendas-online.png

1.2 PROBLEM STATEMENT

Branded apps are receiving wide attention and claim to offer unlimited opportunities for brand management. However, research within this domain is still in its infancy and has provided limited insights into repeated use of such apps. Previous research has studied a narrow category of apps such as social apps or paid-up apps (Wang et al., 2013). Given that research in South Africa is in its infancy, statistics on mobile application downloads per phone user is limited. This study intends to initially map branded app usage by category

(social networking, sports, news, travel, financial services, shopping and others) to provide a sense of market share for each category.

In addition, previous research has measured initial adoption or intention to adopt branded apps rather than continuous adoption (Wang, Liao & Yang, 2013; Peng, Chen & Wen, 2014). While initial usage behaviour has been studied, post-adoption behaviour is important for examining the effect on brand loyalty (Wang et al., 2013; Hew, Lee, Ooi & Wei, 2016). Even when initial adoption rates are high, it is possible that a significant number of consumers will not continue to use an app if it does not fit their lifestyle or meet their needs and expectations (Bhandari, Neben & Chang, 2015). Given the proliferation of branded apps, brand managers face the challenge of motivating customers to retain apps for continuous usage (Chiem et al., 2010). Rather than only measuring initial or intended use of branded apps, this study will investigate repeated use of such apps. The investigation is informed by two main theories in the field of marketing. The two theories are the Expectation Confirmation Theory (ECT) and the Theory of Consumption Values, each of which is outlined below.

Confirmation of expectations and satisfaction are important precursors of customer retention (Hsu & Lin, 2015). Earlier research examined continuous usage based on the ECT and Technology Continuance Theory (TCT) but used perceived usefulness or performance as the only cognitive predictor in the model (Bhattacherjee, 2001; Wang, Lii & Fang, 2009; Elkhani & Bakri, 2011 ; Valvi & West, 2013; Bøe, Gulbrandsen & Sørebø, 2015).

Few studies have theoretically proposed a model that draws on the literature on consumption values to formulate a new integrated model (Wang et al., 2013;Vlachos & Lin, 2014; Ström, Vendel & Bredican, 2014; Zhao & Balagué, 2015; Hsu & Lin, 2015; Hsiao, Chang & Tang, 2016). Hence, this research will propose a hybrid model that integrates different elements of value (functional & social) as cognitive predictors on continued branded app usage intention. This adaptation will improve precision of estimation and offer specific insights to the direct drivers of satisfaction and continuance intention.

In this regard, the aim of this research is to fill existing research gaps by examining factors influencing continuance intention to use mobile branded apps and the effect on brand loyalty. Furthermore, this research will use a hybrid expectations confirmation model to estimate the importance of various elements of value that directly drive satisfaction and continuance intention.

1.3 JUSTIFICATION AND RESEARCH GAP

The rapid adoption of smartphones and subsequent increase of mobile application software is changing the ways in which customers interact with brands (Kim, Wang & Malthouse, 2015). Mobile apps have generated substantial interest among marketers, primarily because of their high level of user engagement and the positive impact which branded apps have on a user's attitude toward the sponsoring brand (Bellman, Potter, Treleaven-Hassard, Robinson & Varan, 2011). Marketers assume that the high level of engagement users experience when interacting with mobile phone apps is likely to make the advertising messages conveyed by those apps highly persuasive (Bellman, Treleaven-Hassard, Robinson & Varan & Potter, 2013a). It is because of this that companies have started to use branded apps to increase brand awareness and enhance brand experience. This investigation will provide brand managers with additional insights on how to develop effective marketing strategies.

Theories of adoption, such as the Theory of Reasoned Action and the Theory of Planned Behaviour, have been used to support models such as the Technology Acceptance Model. These theories are widely used to explain or predict adoption intention and usage behaviour. Much of the research in this marketing domain shows that perceived value is an important factor in users' decisions and behavioural processes (Wang et al., 2013; Kim, Chan and Gupta, 2007). This study will seek to identify the motivation driving consumers' intentions to continue using branded apps. In doing this, the study will integrate the Theory of Consumption Values (Sheth, Newman & Gross, 1991a) into the Expectation Confirmation Model (ECM) (Oliver, 1980) to explain consumer decisions and behaviour. Following previous studies by Hsu & Lin (2015) and Hew et al. (2016), an Expectation Confirmation Model (ECM) will be developed to predict continuance intention and brand loyalty.

1.4 PURPOSE OF THE STUDY

The purpose of undertaking this research is to contribute further understanding of consumer perceptions of branded mobile apps in South Africa. Furthermore, this study seeks to examine whether confirmation of expectations, satisfaction and perceived value of branded apps leads consumers to continue using the apps, thereby retaining brand loyalty.

1.5 RESEARCH OBJECTIVES

The main objective of this study is to gain a deeper understanding of consumer perceptions and satisfaction with the usage of branded apps. The section below further describes the theoretical and empirical research objectives of this study in detail.

1.5.1 Theoretical objectives

The following theoretical objectives were developed:

- To review literature on perceived value;
- To review literature on confirmation of expectations;
- To review literature on consumer satisfaction;
- To review literature on continuance intention;
- To review literature on brand loyalty.

1.5.2 Empirical objectives

Given the purpose of the study, the following empirical objectives were developed:

- To investigate the influence of confirmation of expectations on perceived value (social and functional);
- To examine the influence of perceived value (social and functional) on satisfaction;
- To explore the influence of confirmation of expectation on satisfaction;
- To investigate the influence of perceived value (social and functional) on continuance intention;
- To examine the influence of satisfaction on continuance intention;
- To explore the influence of satisfaction on brand loyalty;
- To investigate the influence of continuance intention on brand loyalty.

1.6 RESEARCH QUESTIONS AND HYPOTHESES

Following guidance from theories and models explained below, this study seeks answers to the following questions:

- Does confirmation of expectations positively influence perceived value (social and functional)?
- Does perceived value (social and functional) positively influence satisfaction?
- Does confirmation of expectations positively influence satisfaction?
- Does perceived value (social and functional) positively influence continuance intention?
- Does satisfaction positively influence continuance intention?
- Does satisfaction positively influence brand loyalty?
- Does continuance intention positively influence brand loyalty?

The following hypotheses are developed:

H1a: Confirmation of expectations positively influences perceived social value.
H1b: Confirmation of expectations positively influences perceived functional value.
H2a: Perceived social value positively influences satisfaction.
H2b: Perceived functional value positively influences satisfaction.
H3: Confirmation of expectations positively influences satisfaction.
H4a: Perceived social value positively influences continuance intention.
H4b: Perceived functional value positively influences continuance intention.
H5: Satisfaction positively influences continuance intention.
H6: Satisfaction positively influences brand loyalty.
H7: Continuance intention positively influences brand loyalty

1.7 SIGNIFICANCE AND CONTRIBUTION OF THE STUDY

Forming a deep understanding of the outcome of consumer engagement with branded apps in terms of brand loyalty is an important issue to resolve in mobile marketing. Customer retention remains a fundamental marketing objective.

The focus of this study is to understand the relationships between value perceptions of branded apps, satisfaction, continuance intention and brand loyalty. Given that research in South Africa is in its infancy, this study will initially map branded app usage across sectors. The findings will close existing research gaps and deepen understanding on the factors that drive brand loyalty in South Africa.

The conceptual model used in this study is based on the ECT (Oliver, 1980; Liao et al., 2009). By testing the ECM, this study will confirm and extend the results of previous research work (Chong et al., 2010; Hew et al., 2015; Hsu et al., 2015). Previous studies used the Theory of Reasoned Behaviour (TRB) to explain adoption of branded apps. As highlighted above, TRB addresses intention to adopt but does not look at continued adoption of the technology. Given that the final outcome of this study is brand loyalty, measuring continued use or customer retention is important. This study is therefore grounded in the ECT.

The study follows Hsu et al. (2015) in modifying and extending the ECM by comprehensively reflecting the motivation of consumers' use of mobile apps. Instead of only focusing on utilitarian values as a measure of perceived usefulness, a broader view of value proposed in the theory of consumption value is tested in the model. By incorporating the Theory of Consumption Value into the ECM, this study will enrich the standard ECM enabling investigation of the relevance of the different value dimensions. Consumers will unequivocally confirm the value elements of branded apps that meet their needs.

1.8 DELIMITATIONS

According to the Mobile Marketing Association (2013), mobile marketing is "a set of practices that enables organisations to communicate and engage with their audiences in an interactive and relevant manner through any mobile device or network". The mobile device cannot be ignored as an important marketing channel because of its unique capabilities of "always on, always accessible" (Rob Stokes & Minds of Quirk, 2013).

The current study is in the area of mobile marketing research. Studies on mobile apps have focused on three main categories:

a) Maximising effectiveness of mobile app engagement by studying technology design, content strategies or textual analysis app features such as vividness, novelty, motivation, control, customisation, entertainment, feedback, brand identifiers (colour and typeface) and brand personality for simple, target-centered and flawless usability (Kim et al., 2013; Smartbear, 2014; Smith et al., 2015);
b) Consumer perceptions and adoption of mobile apps and their effects on subsequent brand purchase/spending behaviour (Verkasalo et al., 2010; Bellman et al., 2011;

Islam et al., 2013; Wang et al., 2013; Park et al., 2014; Peng et al., 2014; Kim et al, 2015);

c) Evaluating the relationship between consumers and brands and determinants of users' continuance or discontinuance intention to use branded mobile apps (Kim et al., 2015; Kim & Yu; 2016).

This study seeks to examine whether consumer brand loyalty is influenced by mobile apps' continuance usage and post-usage satisfaction. Customers' continuance usage of apps and satisfaction with branded apps are proven to be boosters for brand loyalty (Hew, 2016). Kim et al. (2015) found that apps that attract continuing uses are persuasive because they provide portable, convenient and interactive engagement occasions, allowing customers to talk with the brand on a routine basis. When customers interact continuously with brands, Casalo et al. (2009) discovered that such interaction indirectly establishes customer loyalty. This discovery drives the motive to study if mobile apps continuance usage influences brand loyalty among millennial customers.

These categories of mobile app research have also focused on different types of apps. While some studies have focused on general content of apps, other studies have conducted case studies on specific types of apps. Three or more categories of apps exist: functional/utilitarian; hedonic or experiential or entertainment; and social or messaging communication (Lankton et al., 2012; Lee, 2014; Hsiao, 2015; Hew et al., 2016). According to Bellman et al. (2011), apps that focus on the user are more effective than those focusing on entertainment with regard to shifting purchase intention, and therefore encouraging a personal connection between the user and the brand. Branded mobile apps may be one of the most powerful forms of advertising yet developed (Bellman et al., 2011). While there are other types of branded apps available, this study will focus on the apps that generate economic value or solve problems for consumers. The study focuses on user-centric apps.

The focus of this study is also on freely downloadable apps rather than paid-up apps. Free apps were more relevant for Millennials due to their low levels of disposable incomes. Marketers were more likely to engage Millennials through freely downloadable apps than paid-up apps. Most apps are internet-enabled, but some not. Social network apps such as WhatsApp are Internet-enabled, but consumers engage with mobile network apps such as MTN off-line. This study investigates customer engagement with both types of apps.

1.9 DEFINITION OF KEY CONCEPTS

This section provides a brief overview of each of the constructs used in this study. A more comprehensive discussion is provided in Chapter 3. The key concepts defined in this section are confirmation of expectations, satisfaction, perceived value (social and functional), continuance intention and brand loyalty. These variables form the foundation of the present study.

Confirmation of expectations

Expectations are the attributes that a consumer anticipates will be associated with a technology; in this case, branded apps. Pre-adoption expectations form the comparison against which the technology is ultimately judged (Halstead, 1999). Confirmation of expectations refers to the judgments that a person makes with respect to pre-adoption value of a technology (Hew et al., 2016). When a technology (branded app) outperforms the original expectations, confirmation is positive and increases satisfaction; when confirmation is negative, there is an increase in dissatisfaction (Spreng, MacKenzi & Olshavsky, 1996; Thong, Hong and Jan, 2006).

Satisfaction

"Satisfaction is a human feeling, a sort of overall liking of branded app usage experience" (Taylor & Strutton, 2011). Satisfaction is based on consumers' evaluation of branded apps usage experience (post-adoption) and refers to the extent to which a person is pleased with a technology after having gained direct experience with it. Edvardsson, Johnson, Gustafssan and Strandvik (2000) defined customer satisfaction as "customers' overall evaluation of the purchase and consumption experience with a product, service or provider". Unlike the traditional face-to-face assistance, branded apps support service delivery with speed and a level of detail and customisation that benefits consumer's overall satisfaction (Pantano & Viassone, 2014).

Perceived value

Perceived value is an evaluation of the desirability of a product (or service) on the basis of the perceived worthiness of the trade-off between the product's costs and benefits (Tzeng, 2011). Sheth, Newman and Gross (1991) argued that consumers' choices are a function of five values: functional value, epistemic value, conditional value, social value and emotional

value. According to Tzeng (2011), the greater the perceived value is – the higher the levels of satisfaction and loyalty, and the lower the level of resistance to the new system's implementation. For the purpose of this study, social value and functional value will be investigated.

Social value

Social value has been defined by Sheth, Newman and Gross, (1991) as "the perceived utility acquired from an alternative's association with one or more specific social groups". Social value is measured on a profile of choice imagery. The value relates to the social approval and the enhancement of self-image among other individuals (Hsiao, Chang & Tang, 2016).

Functional value

Functional value concerns the utilitarian functions and services that branded apps can offer. Sheth et al. (1991) define functional value as "the perceived utility acquired from an alternative's capacity for functional, utilitarian or physical performance".

Continuous Intention

This study uses continuance intention to describe the intermediate response from using branded apps. Continuous usage is the consumer's immediate behavioural reaction if they are satisfied with prior usage and the value of use is recognisable (Bhattacherjee, 2001). Satisfaction with apps leads customers to continue engaging with the app and even recommend it to their friends (Eid, 2011). Besides satisfaction, perceived value of mobile branded apps also drives continuance intention during the post-adoption stage (Hew et al., 2016).

Brand loyalty

Brand loyalty reflects the long-term relationship between consumers and brands (Chaudhuri & Holbrook, 2001) and is defined in this research as "the extent to which consumers will repurchase products and recommend the products or brands to their friends while following and being influenced by companies' brand promotion" (Zhang et al., 2015).

1.10 OUTLINE OF THE STUDY

An outline of the study is addressed in this section.

Chapter 1: Overview of the study

The preceding material covered the overview of the entire study, which includes the problem statement, purpose of the study, research objectives and research questions, contribution and justification of the study.

Chapter 2: Literature review

This chapter provides context on mobile phone usage trends in South Africa. A review of the importance of branded mobile apps as a marketing channel for Millennials is presented. The chapter also reviews literature to explore findings of previous research. The theories of Expectation Confirmation and Consumption Values are presented to inform the conceptual model used in the study.

Chapter 3: Conceptual Model and Hypotheses Development

This chapter presents the conceptual model the study adopts. The predictor, mediating and outcome variables are identified and discussed. The related hypotheses are formulated and presented.

Chapter 4: Research Approach, Procedure and Methods

This chapter describes the research approach followed by the study. The research strategy and sampling design are presented. The data collection techniques and analysis approach are described. Features of the Structural Equation Model including validity testing and factor analysis are described.

Chapter 5: Results

The chapter presents the results of the study. Descriptive results are presented to describe the demographic characteristics of the sample and to map utilization of branded apps. The results of the Structural Equation Model are presented showing the hypotheses that are supported or not supported.

Chapter 6: Discussion of Findings

Chapter 6 discusses the findings of the study. The discussion aligns the study results with findings from previous research. This chapter demonstrates the extent to which study findings corroborates results from past research.

Chapter 7: Conclusions and recommendations

This final chapter presents the main conclusions, highlighting the contributions of the study and the implications of the findings to marketing managers. The study limitations and suggestions for future research are discussed.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The chapter begins with the context in which this research is set, followed by the review of literature that explores the evolution of mobile branded apps and the current usage trends of these apps. This is followed by an examination of the characteristics of Generation Y consumers – both internationally and specifically in South Africa and their engagement with branded apps. Thereafter, a review of literature on findings of previous studies is carried out. The chapter concludes with a review of literature relating to two key theories in the field of marketing – the Expectation Confirmation Theory and the Theory of Consumption Values – that inform the conceptual model developed for this study.

2.2 RESEARCH CONTEXT

This research is set in the context of the importance of brand loyalty to firms. In particular, the research looks at achieving brand loyalty through the use of branded apps. This section begins by exploring the value of brand loyalty in relation to the cost of attracting versus retaining customers and thereafter examines methods for establishing and maintaining brand loyalty.

2.2.1 Importance of brand loyalty to firms

Brand loyalty has been defined by Eid (2011) as a commitment that causes same-brand purchase behaviour, disregarding the marketing efforts delivered by other brands that might lead to switching behaviour. Brand loyalty has always attracted attention because brands are the vehicles to building long-term relationships between customers and brands (Mudambi, 2002; Van Riel, de Mortanges & Streukens, 2005). According to Lee (2011), brand loyalty may help firms develop competitive advantages and retain existing customers. Several studies have shown that strong brand-customer bonds increase individuals' willingness to make repeated purchases of the same brand (Kressmann et al., 2006; Matzler, Pichler, Füller & Mooradian, 2011; Park et al., 2010; Thomson, MacInnis & Park, 2005). In addition, brands have the ability to offer individuals a physical and emotional sense of security by performing their basic functions and responding to individuals' needs (Delgado, 2004; Matzler et al., 2011).

However, the intensive competitive environment has made selling products and services, acquiring new customers and retaining existing customers challenging for firms (Hsu & Lin, 2015). Firms now need to focus on the utility and reliability of products and services in order to achieve customer satisfaction. Chu (2002) argues that achieving customer satisfaction is a primary goal for most companies because satisfaction is explicitly linked to market share and profitability of firms. A satisfied customer is part of a company's marketing strategy of reducing marketing costs. The interest in measuring customer satisfaction is driven by a firm's ability to build up customer loyalty and improve market share and profitability (Chu, 2002). According to Reichheld and Schefter (2000), firms could reduce the cost of marketing by retaining existing customers rather than acquiring new ones.

Jacobsen, Olsson and Sjövall (2014) also argue that firms want to satisfy their customers to ensure that they return for other purchases and potentially tell friends and colleagues about the advantages of the supplier. One could also argue that understanding the antecedents and consequences of customer satisfaction is important. Acquiring new customers and promoting usage of services is only the initial step; service providers also need to retain existing users and facilitate their continued purchasing. According to Bhattacherjee (2001), the eventual success of a new firm is more dependent on users' continued usage of the service rather than its initial adoption. Therefore, understanding brand loyalty is important for firms.

2.2.2 Establishing and maintaining brand loyalty

In their study, Chaudhuri and Holbrook (2001) suggested that brand loyalty consists of two different perspectives; namely, behavioural and attitudinal. Behavioural loyalty represents the repeated purchase of a brand, while attitudinal loyalty refers to the degree of character commitment that is held internally towards a brand. These two perspectives are the two-dimensional measurements of brand loyalty, considered precise in determining future behaviour of customers (Yi and La, 2004).

To attract and retain customers, companies have started using loyalty programmes and customer clubs to communicate and create added value for their customers. Reicheld and Sasser (1990) and Aaker (1991) noted that brand loyalty leads to increased profit through enhanced marketing advantages, such as reduced costs, to acquire customers and lower customer-price sensitivity. Other loyalty-related marketing advantages suggested by Dick and Basu (1994) include favourable word of mouth and greater resistance by consumers to

competitive strategies. Companies with loyal customers have an advantage over their competitors, since might be difficult for competitors to imitate their relationships. Hence, there is a pressing need for deeper exploration into the precursors of loyalty that not only operate as its sources, but also act as enhancers. Terblanche and Boshoff (2006) postulate that understanding the antecedent of loyalty is a requisite if one wants to attain the maximum benefits of loyalty.

In addition, brand managers are taking advantage of the rapidly growing popularity of social networking technologies as a new platform to retain existing customers and attract new ones (Kietzmann, Hermkens, McCarthy & Silvestre, 2011). Companies are now allocating more of their marketing spending to social media programmes in order to ‘‘listen to’’ and interact with their consumers (Kaplan & Haenlein, 2010). Customer participation in online social networks drives customer loyalty and companies that use engagement advertising boost their brand image (Casal et al., 2009; Dehghani et al., 2015). Therefore, to survive in today’s intensely competitive market, digital marketers need to engage with consumers, monitor their feedback and devise advertising strategies that are responsive. Brands that pay attention to consumer expectations and perceptions might be well positioned to profit from the interactivity with their consumers (Khalid & Wilson, 2013).

2.2.3 Mobile technology and brand loyalty

Although mobile networking technologies are transforming into the ultimate marketing and advertising platform, research in mobile marketing, specifically branded mobile apps, is still in its early stages. According to Gamboa et al. (2014), “up till now, most firms still do not see branded apps as a vehicle for achieving customer loyalty, but rather as a tool for creating brand awareness”. Managers are still debating whether branded apps are effective in stimulating brand loyalty and sales. Recent research reveals that both continuance intention to use mobile social commerce and satisfaction influence brand loyalty positively (Traphagen, 2015; Hew et al., 2016). Therefore, one could argue that consumer engagement with branded apps is expected to increase loyalty towards a brand. By exploring the relationship between branded apps interactions and consumer perceptions, this research will inform the debate – whether and how branded apps engagement is associated with customers' satisfaction. The results of this study will have important implications on how digital marketers can harness the evolving potential of the mobile platform using branded apps for optimum engagement

and brand loyalty. This study may offer useful insights that could inform research on what drives brand loyalty.

2.3 EVOLUTION OF BRANDED APPS AND USAGE TRENDS

Having looked at the context of the study in the above section, this section will review how branded apps have come about in the recent past. The evolution of branded mobile applications started with an introduction of smartphones, followed by mobile application and finally branded mobile applications.

2.3.1 Smartphones

The introduction of the iPhone in 2007 fired up the whirlwind of mobile application across the globe and drove mobile application stores up and flourishing (Siegler, 2008). In 2013, more than one billion smartphone units were shipped worldwide in a single year for the first time (Hsu & Lin, 2015). The increasing number of smartphone subscribers has driven the usage of mobile application software for mobile devices, commonly referred to as mobile ‘‘apps” (Hsu & Lin, 2015).

Smart devices are handheld devices with operating systems and mobile communication capabilities (Peng, Chen & Wen, 2014). Smartphones (for example, iPhone, Android, Black-Berry and Windows Mobile) are powerful and have more device capabilities, such as access to the Internet and Internet-enabled apps (Kim, Lin & Sung, 2013). Smartphones mimic the functionality of computers and come with standard features such as texting and e-mail (Kim, Lin & Sung, 2013). In adoption, smartphones are spearheaded by the younger generation aged 18-34 (Nielsen 2011).

The average smartphone user spends 82% of his mobile minutes using apps, with the remainder split between calling, e-mailing, and texting (Gupter, 2013). Studies have also revealed that more than 83% of smartphone users begin their day by checking their phones and using an app. This suggests that advertisers have a greater chance of capturing the on-the-go consumer’s attention by using an app.

The computing capability and portability of smartphones have paved the way for ubiquitous information and new channels of interaction. In particular, the smartphone has provided a platform for third-party applications (apps), which have greatly enhanced the functionality

and utility of these mobile devices (Holzer & Ondrus, 2011). The use of apps has increased greatly over the past few years, resulting in the creation of numerous apps to serve the various needs and interests of users (Subramanian, 2015).

2.3.2 Mobile applications

Mobile apps can be defined as end user software application programmes that are designed for mobile device operating system platforms and which extend the phone's capabilities by enabling users to perform particular tasks (Yang, 2013; Dube & Helkkula, 2015; Kim & Ah Yu, 2016). Originally, ''app'' referred to software for general productivity and information retrieval purposes, including email, calendar and contact management, and stock market quote and weather information lookup. However, a huge surge in user demand and the widespread availability of developer tools has driven a rapid expansion to include other categories of apps, including games, ebooks, utilities and social networking platforms, providing access to information on business, finance, lifestyle and entertainment (Hsu & Lin, 2015a). In general, apps are pieces of software that can be installed and run on a variety of hardware platforms, including smartphones, tablets, laptops and desktop computers (Krieger, 2013; Peng et al., 2014).

As mobile apps proliferate on various mobile platforms, both researchers and practitioners have begun paying close attention to marketing and managerial literature, particularly in the research on branding. Marketers have recognised the potential of smartphone apps as an effective marketing communication tool, since smartphones have provided an entirely new distribution method that traditional desktop computer cannot do (Bellman et al., 2011). According to Lipsam (2014), mobile users spend more than half of their digital media usage time on mobile apps, indicating the prevalence of apps in their lives. Nielsen (2014) also indicated that on average, people spend more time using mobile applications than browsing the Web.

2.3.3 Branded Mobile Apps

"Branded mobile apps are software downloadable to a mobile device that prominently displays a brand identity, often via the name of the app and the appearance of a brand logo or icon, throughout the user experience" (Bellman et al., 2011; Kim, Lin & Sung, 2013; Kim & Ah Yu, 2016). A branded app is an extension of a brand as it naturally showcases everything

from business, products and services. Apps are more of a combination of a mini-billboard, public relations, advertising and a salesman into one that your customer can access on his smartphone anywhere and anytime (Alnawas & Aburub 2016).

The increasing level of consumer engagement with mobile devices, along with the proliferation of mobile apps in recent years has seen a rapid growth in branded apps. Marketers have begun creating a brand communication channel of branded mobile apps that reaches out to their current and prospective consumers. According to Kim and Ah Yu (2016), many companies have developed branded apps to communicate or advertise in order to attract new customers and increase brand loyalty among current ones. The app market is now attracting more and more big companies with well-known brand names because branded apps are offering great opportunities in marketing and branding (Banham, 2010). Those companies develop and distribute their own apps and attach their companies' brand names to the apps (Kim, Lin & Sung, 2013). Because they are attractive tools for corporations to provide a communication route to consumers, many global brands – for example, Chanel, Mercedes Benz, Coca-Cola, Burger King, Harley- Davidson and BMW – have released branded apps (Kim & Ah Yu, 2016). Companies hope that consumers' past engagements and experiences with the brand can influence their consumption behaviours in mobile app markets (Peng, Chen & Wen, 2014). However, little research is known to support this claim.

Branded applications are developed by companies in order to build a brand (Bhave, Jain & Roy, 2013). They help to enhance the existing business or facilitate in reaching prospective consumers. A branded application provides valuable utility to the consumer and establishes emotional connections with them (Bhave, Jain & Roy, 2013). Many researchers and practitioners assume that when the company's brand name is attached to the app, the company's loyal customers would continually appreciate their relationship with the brand and therefore value and adopt the app. However, little research has focused on the actual effects of brand-consumer relationship and value of a brand on consumers' post-adoption behaviour.

2.3.4 Adoption of branded apps as a marketing channel by firms

Branded apps are generating extensive interest among marketers, predominantly because such apps engage consumers exceedingly well and this apparently creates a positive persuasive impact on the user's interest toward the brand (Bellman, 2011; Hutton & Rodnick, 2009). Corporations are being drawn to this new marketing communication technique, as this

channel encourages brand loyalty and purchase intention (Park, Lee & Lee, 2011). Wang et al. (2016) also argue that businesses globally have welcomed mobile apps as an additional media channel to increase brand awareness and enhance brand experience to attract new customers and increase brand loyalty among existing ones.

Branded apps are a better form of interactive advertising and marketing communications than the traditional media because they are free, unlike other mobile apps that are purchased (Bellman, Potter, Treleaven-Hassard, Robinson & Varan, 2011). These apps offer interactions between customers and brands. This two-way mutual relationship, coined "The Reciprocal Principle" by BCG (2014), is characterised by interactions among marketers and customers. BCG (2014) considers reciprocal or interactive marketing as a strategic priority that marketers should master because it reflects the long-term relationships between consumers and businesses (Zhang et al., 2015). In addition, Gamboa and Gonçalves (2014) argue that mobile apps allow brands to have multi-way interaction with millions of clients at the same time and at low cost; this leads to a highly efficient way of interacting with customers. Further, customers exchange opinions with others and speak with the brand (Chua & Banerjee, 2013). Businesses are using apps in brand communication, product promotion and customer relationship management (Zhang, Lu, Gupta & Zhao, 2014).

Incorporating branded applications for all kinds of purposes, such as communication, advertising content and integrated social networking, generates new potential for users and brands; users may become not only active consumers of brands, but also generators of content or value. This may provide brands an opportunity to reach and engage with customers in a direct way. Therefore, data coming from the users is often treated as a resource for developing marketing strategies (Hutton & Rodnick, 2009). These digital applications – installed and used by current smart phone users – act as links for trademarks of products or services to a phone user. Such apps allow users to access a catalogue of brand names, purchase products, or obtain added value usage of promotions or exclusive products through the branded application. The app therefore becomes a specific, unique and increasingly frequented communication channel (Olmo & Jiminez, 2014).

Some scholars argue that the traditional company-led linear investment in brand awareness and customer loyalty is an outdated framework (Zhang, Lu, Gupta & Zhao, 2014). Therefore, brands and businesses are already using mobile apps as a primary component of their user engagement strategies, and as the use of mobile devices, including wearable

devices, expands into other areas of consumer and business activities, mobile apps will become even more significant (Hutton & Rodnick, 2009). Given that apps might be used with high levels of engagement, marketers tend to promote their brands via the mobile channel and create a novel tool of brand communication (Hutton & Rodnick, 2009).

Figure 2 below shows an example of how customers can engage with a retail branded mobile app. The app allows customers to shop direct from their smartphone once they have downloaded this app and they are also able to arrange home delivery for extra convenience. Alternatively, customers can use this branded app to create their shopping list for the next trip to the grocery store, while having the ability to see current specials and family-friendly recipes.

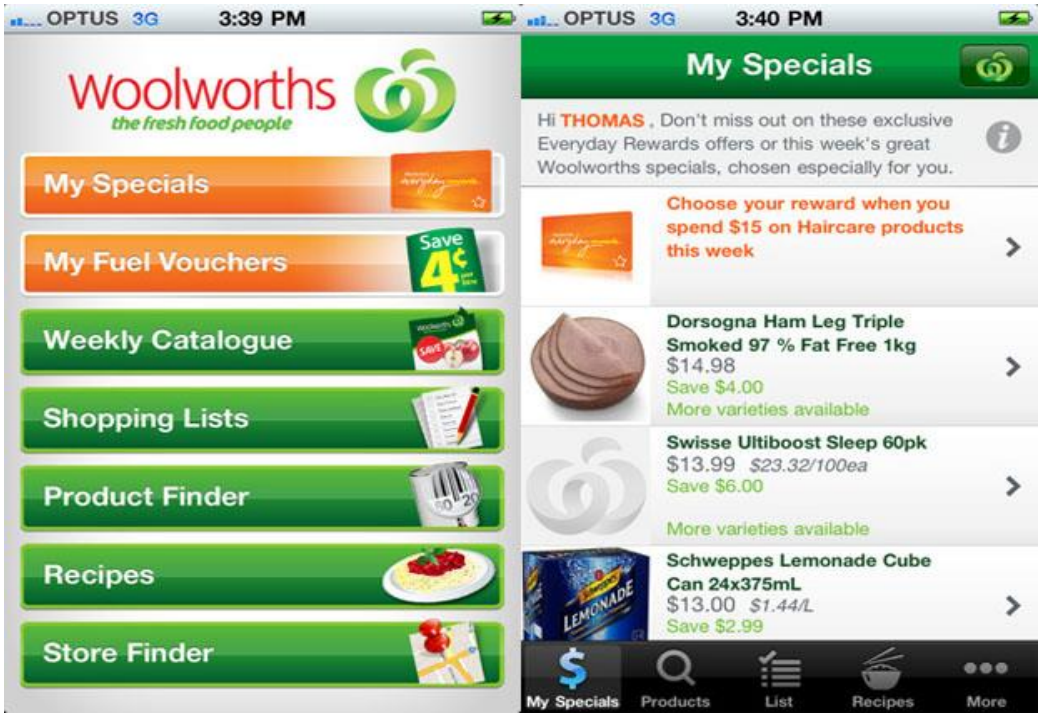


Figure 2: Engaging with a retail branded app

Source: https://www.brisbanekids.com.au/apps-new-parents/

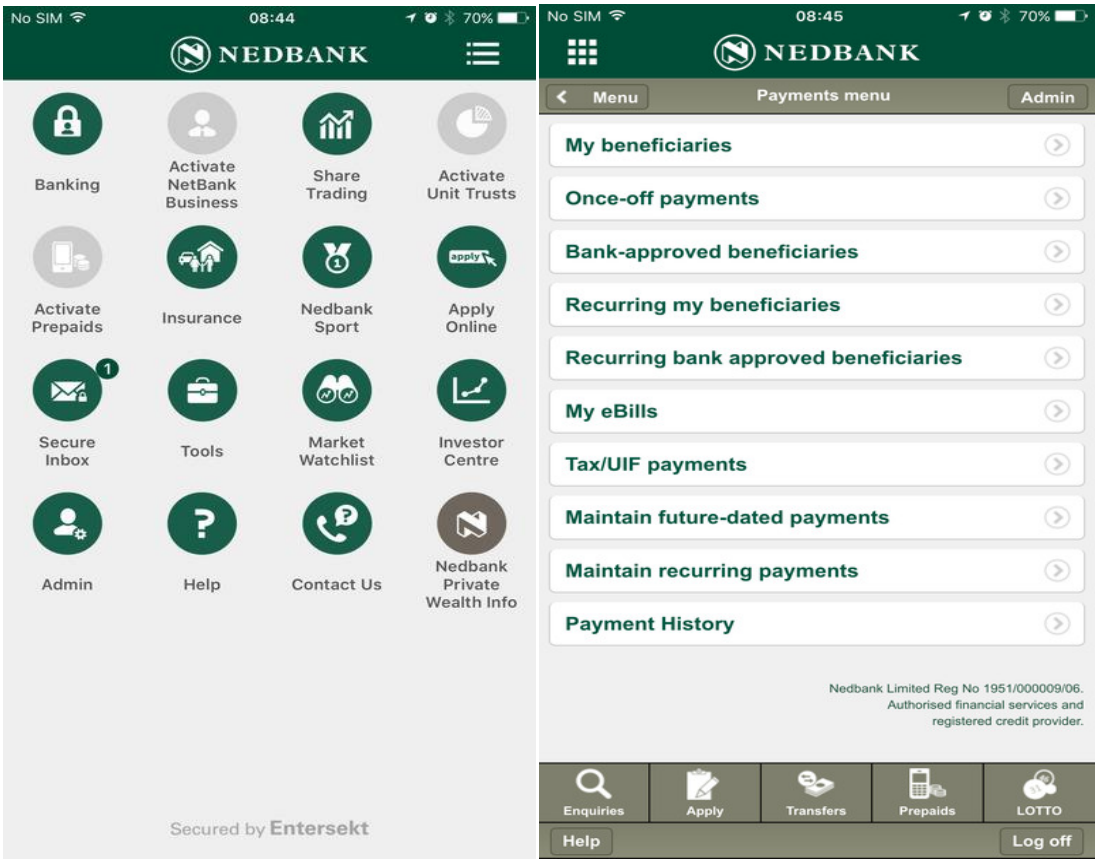


Figure 3: Engaging with a banking branded app

Source: https://itunes.apple.com/za/app/nedbank-app-suite/id529083683?mt=8

The Nedbank app (Figure 3) is displayed to show how transactions can be carried out using a banking app. The app has many options that can allow a customer to perform a wide range of tasks as required; such as paying bills, checking previous payments or adding beneficiaries to their accounts.

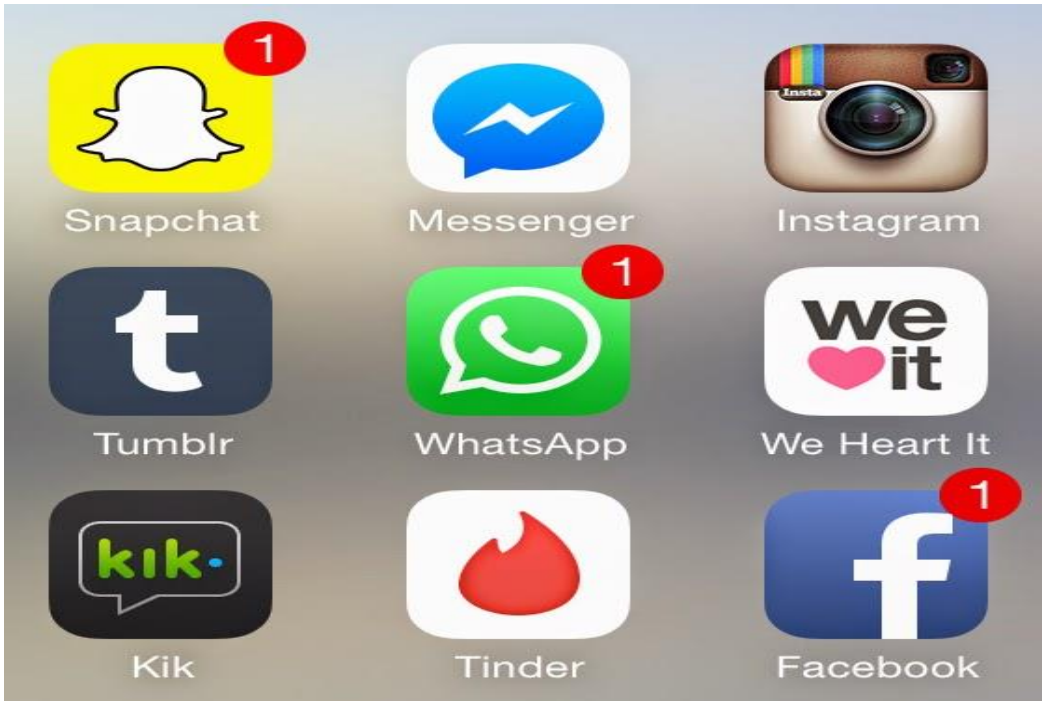


Figure 4: Branded social apps

Source: http://www.gamemarketeers.com/marketing-analysis/benefits-of-social-features-when-it-comes-to-app-discovery-and-retention/

Social networks have also come up with branded apps to allow customers to engage with brands directly instead of accessing them through the web, Figure 4. This makes it easier for customers to open apps many times during the day and interact with brands. Social platforms have become an important form of advertising as many firms now have social media accounts to communicate with and listen to their customers. In addition, customers may also interact with a brand while on the go.

2.3.5 How branded mobile apps differ from traditional mobile marketing

Branded apps differ from traditional online and mobile advertising, such as pop-up or banner ads as users not advertisers choose to continue using the apps (Kim, Lin & Sung, 2013). Smartphone apps are "pull" rather than "push" advertising because the consumers choose to download the app and talk to the brand, not the other way round. A high level of interaction with branded apps is generally perceived as enhancing the effectiveness of brand-related messages within the apps (Bellman et al., 2011). The mobile marketing channel amplifies the opinions and accelerates the impact Millennials have on other customers.

According to BCG (2014), modern marketing and brand engagement is “an ecosystem of multidirectional engagement”, rather than one pushed and led by companies. Unlike traditional online brand communities, in which consumers primarily interact with other consumers, branded mobile apps accentuate the interaction between businesses and consumers. Zhang et al. (2015) identified interactivity as a significant factor that may increase consumers’ brand loyalty. Marketers that take ‘‘aggressive” roles and actively interact with consumers instead of just ‘‘watching” them are likely to succeed in having loyal customers (Zhang et al., 2015).

As smartphone use penetrates this market segment, marketing campaigns need to focus on dialogue, customer involvement, feedback and connection. According to Kim and Yu (2016), branded apps are a more engaging form of interactive advertising and marketing communications than the traditional media, as the former encourages brand loyalty and purchase intention. Cho (2011) also suggested that branded apps allow real-time communication between businesses and either new or existing consumers anytime and anywhere. Branded apps primarily represent a complimentary service that combines the potential of mobile technology with branding. As branded apps represent pull-based services, they differ essentially from other mobile advertising units, because well-established patterns such as SMS and MMS are push-based services in nature (MMA, 2011).

The above section provided information on the evolution of branded apps; namely, the introduction of smartphones, followed by mobile apps and then mobile branded apps. The section concluded by providing reasons why branded apps are being adopted by firms and how they differ from traditional mobile marketing. The following section discusses the importance of using branded apps as a marketing channel for Millennials in South Africa.

2.4 BRANDED MOBILE APPS AS A MARKETING CHANNEL FOR MILLENIALS

This section provides information on the importance of branded mobile apps as a marketing channel for Millennials. The section starts by providing an overview of Millennials in South Africa. This is followed by the use of branded apps as a marketing channel for Millennials.

Eisner (2005) categorised generations from 1922 as Traditionalists, Baby Boomers, Generation X and Generation Y. According to Jain et al (2012), researchers define Traditionalists as persons born between 1922 and 1945. The second generation is the Baby

Boomers, who were born between 1946 and 1964. The third generation, Generation X, comprises individuals born between 1965 and 1980. Generation Y consists of persons born between 1980 and 2000, also known as Millennials, The Net Generation or Generation Next. Generation Y, or Millennials, is the target population of this study. The characteristics of Generation Y are further explained in Chapter 4 where the target population for this study is described.

Millennials comprise more than half South Africa's population of over 54 million. According to UNFPA (2013), South Africans below 35 years of age constitute about 77.6% of the total population. This segment is not only the largest in South Africa, but they are also the consumer market for the future. Establishing a connection with the Millennials is important for marketers to achieve early on before they lose them (Karin du Chenne of TNS Research Surveys). Young South African adults are heavy users of smartphones and are more likely to search, download and continue to use apps than any other group. Both personally and emotionally, this segment is most extensively engaged with branded apps for informational, social, communicative and entertainment needs (Yang, 2013). Through branded apps, Generation Y consumers are transforming the future of consumer marketing as their values become reflected in the brands they purchase. The positive or negative feedback that Millennials express influences the choices of Generation X and even Baby Boomers.

Branded apps and marketing for Millennials

Marketing campaigns use a variety of media channels, including TV, printed newspaper, point-of-sale material, digital offline and online activity and Public Relations (PR). The utilisation of branded applications (apps) among corporations has become more popular than other mobile communication marketing tools. Despite the global trends, TV still has a huge influence in the South African market. Du Chenne (2012) quotes data from Project Truth which revealed that “79% of South African youngsters believe TV to be the best source of news and information". However, traditional media is no longer as effective and cost efficient with Millennials as it once was with Baby Boomers. The catch phrase for marketers targeting Baby Boomers was “word of mouth” (du Chenne, 2014), but to target Millennials, the channel of choice is mobile technology.

Users of smartphones in South Africa are primarily the youth and this segment has become the target for mobile marketing. Understanding young consumers’ engagement with brands

through mobile app has become increasingly important, as it supports interactive marketers developing strategies to promote brands. The youth market is extensively large and marketers target the youth in order to catch them at an earlier stage of consumption in order to reduce switching costs. An early success with young consumers becomes imperative for sustainable and long-term viability of brands (Nielsen, 2014). One efficient and impactful way of reaching the youth is through mobile handsets. This raises the curiosity of marketers to understand and internalise the needs of Generation Y in order to successfully market consumer products and brands to them.

Generation Y are being targeted by marketers as they are heavy mobile app users and rely on mobile applications to obtain brand information in many aspects of their lives (Smith et al., 2015). In addition, Millennials possess increasing purchasing power and are considered the future market for the global economy. Van Den Bergh and Behrer (2013) advocate that Millennials pay themselves more attention and view friends as a more trusted source of information than commercial messages. When targeting younger customers, it may become increasingly important for companies to offer mobile branded apps in order to provide a seamless, convenient and enjoyable customer experience (Annalect, 2015). Firms now realise that customers use a variety of app features to perform diverse tasks such as searching, retrieving and sharing information, passing time with entertainment content, paying bills and navigating maps. Kim (2015) found out that businesses that use apps could increase brand awareness and enhance brand experience.

More than ever, marketers now need to communicate with Millennials clearly, wherever and whenever. "Push" communication such as unsolicited SMSs is no longer as effective with Millennials as open dialogue. Customisation, for example, enables customers to help define and own a brand. Although public relations and endorsements are still relevant, mobile media devices reach consumers and build brand awareness more cost effectively. Building an ongoing relationship with customers through online social media is critical to building brand loyalty. Once customers are convinced and identify personally and emotionally with the brand, they become advocates of the brand, referring potential customers to purchase products and do so repeatedly.

Having looked at the importance of branded apps as a marketing channel for Millennials, the section will look at the findings of previous related studies.

2.5 FINDINGS OF PREVIOUS RELATED STUDIES

Previous research has mostly focused on initial adoption or intention to adopt apps rather than continuous adoption. Most of these studies used a quantitative approach and structural equation modelling for analysis. Wang, Liao and Yang (2013) examined the determinants of behavioural intention of app users based on the theory of consumption values and explored the roles of these values in the mobile apps context. Using 282 mobile apps users, they found that consumption values significantly affect consumer behavioural intention to use mobile apps. Among them, epistemic and emotional values had stronger relationships with behavioural intention. Similarly, Peng, Cheng and Wen (2014) examined the influential factors on branded app adoption from the perspectives of brand relationship and consumption values and found that brand relationship in terms of brand attachment and brand (Bellman et al., 2013) confirmed that app interaction consistently improved brand attitude, purchase intention and involvement in the respective product category (Peng et al., 2014).

Relating to Generation Y consumers, Yang and Chris (2013) studied young American consumers' acceptance of mobile applications. Using 555 American college students, he found that the use of mobile applications is influenced by perceived usefulness, intent to use, mobile internet use, income and gender. In terms of branded apps, Ruiz-del-Olmo and Belmonte-Jiménez (2014) qualitatively analysed how young users understand, perceive and use corporate branding applications using focus groups. They found that active consumers interact with commercial content, establishing social networks with the backing of the brand culture and image as a form of group cohesion. Other uses were related to entertainment and enquiries for information. Unlike Bellman et al. (2011), Ruiz-del-Olmo and Belmonte-Jiménez (2014) found that users are still reluctant to pay for products or services through their mobile devices. This difference could be a result of different characteristics of respondents. The study aims to inform such debates using quantitative methods.

Other studies focused on intention to adopt mobile apps. Hsu and Lin (2015) studied the drivers of purchase intention for paid mobile apps using an expectation confirmation model with perceived value. From a sample of 507 respondents, the study found that confirmation was positively related to perceived value and satisfaction. Value for money, app rating and free alternatives to paid apps were found to have a direct impact on intention to purchase paid apps (Hsu & Lin, 2015). Because of these gaps in literature, this study will focus on continuous intention to utilise branded apps. The cost construct is not relevant for study

because most branded apps are available free.

Few studies investigated continuance usage of mobile apps; however, they focused on different categories of apps from the ones selected for this study. Hsiao, Chang and Tang (2016) explored the influential factors in continuance usage of mobile social apps and found that continuance usage of social apps was driven by users' satisfaction, tight connection with others and hedonic motivation to use the apps. In addition, full mediation effects of satisfaction and habit were found between perceived usefulness and intention to continue use. Kim, Wang and Malthouse, (2015) investigated whether adopters' spending levels would change after they used a brand's app. They specifically examined whether the use of the app's two main interactive features – information lookups and check-ins – influences adopters' spending levels and found that that app adoption and continued use of the branded apps increase future spending. Furthermore, they discovered that customers who adopt both features show the highest increase and customers who discontinue using the app reduce their spending level (Kim et al., 2015). Similarly, Bellman et al. (2011) studied the effect of app use on brand attitude and purchase intention and found that using popular apps increased participants' interest in the brand and product category. In 2013, Bellman et al. did another study using an experiment in the laboratory which set out to confirm that app interaction consistently improved brand attitude, purchase intention and involvement in the respective product category. They suggested that branded apps are a "pull" marketing opportunity that offers unique benefits afforded by mobile marketing communications, following consumers wherever they go while being able to update them with the latest localised information and deals.

While many authors predict huge growth potential for the mobile application market, little is known about customer retention using branded apps, specifically in the South African context. To fill this gap, the study investigates user-centric branded apps (functional/information and social apps). This study will also map different categories of branded apps by sector to establish which sectors are faring well with Generation Y consumers in South Africa. In addition, the study contributes to academic knowledge by using an integrated model drawn from the expectation confirmation theory and the theory of consumption values.

Like most authors above, the researcher will use a quantitative approach for this study using 406 respondents and will also use structural equation modelling for analysis. This is further

explained in Chapter 4. The following section will look at the theories that inform the conceptual model for this study.

2.6 THEORETIC FRAMEWORK

A number of different competing theories use different comparative standards to explain customer satisfaction. Such theories include the Expectancy-Disconfirmation Paradigm (EDP), the Value-Precept Theory, the Attribution Theory, the Equity Theory, the Comparison Level Theory, the Evaluation Congruity Theory, the Dissonance Theory and the Contrast Theory. The Dissonance Theory developed by Festinger (1957) and the Contrast Theory proposed by Sheriff and Hovland (1961) were the early ones. Oliver (1977), drawing on the Comparison Level Theory (Helson, 1964), developed the Expectancy-Disconfirmation Paradigm (EDP). The EDP has received the widest acceptance among researchers (Yuksel & Yuksel, 2016). Later, Westbrook and Reilly (1983) proposed the Value-Precept Theory, challenging EDP in that values may be better comparative standards as opposed to expectations. The Attribution Theory and the Equity Theory emerged in the past decade but have not received as much intensive attention in the marketing and consumer behaviour literature as the EDP (Yuksel & Yuksel, 2016).

Expectation Confirmation Theory

This study is based on the Expectation Confirmation Theory (ECT). In applying the ECT, the study uses the Theory of Consumption Values to enhance the ability of ECT to predict loyalty behaviour. This research applies these theories to explore consumer satisfaction and continued use of branded apps. This is important because the resulting level of satisfaction and continuance intention serve as indicators of posterior behaviour.

The most generally acknowledged conceptualisation of user satisfaction, as argued by Aigbavboa and Thwala, (2013) is the Expectancy Disconfirmation Theory. The ECT is based on the Expectancy-Disconfirmation Paradigm (EDP). This most well-known descendent of the discrepancy framework implies that consumers purchase goods and services with pre-purchase expectations about performance. The expectation level then becomes a standard against which the product is judged after use. When the outcome matches the expectation, *confirmation* occurs. Similarly *disconfirmation* occurs where there is a difference between expectations and outcomes. When product performance is better than the customer had initially expected, there is a positive disconfirmation between expectations and performance

that results in satisfaction. On the other hand, when service performance is as expected, the result is confirmation between expectations and perceptions which leads to satisfaction. In contrast, when service performance is not as good as the customer had expected a negative disconfirmation between expectations and perceptions that causes dissatisfaction exists.

Table 1: Key constructs and relationships in the ECT

Consumer Evaluation	Result	Outcome
Performance = Expectation	Confirmation	Neutral
Performance > Expectation	Positive Disconfirmation	Satisfaction
Performance < Expectation	Negative Disconfirmation	Dissatisfaction

Table 1 illustrates key constructs and relationships in ECT. ECT involves four primary constructs: expectations, perceived performance, disconfirmation of beliefs and satisfaction, Figure 5. This theory has been applied in several scientific fields, including psychology, marketing, consumer behaviour and information systems to explain post-adoption satisfaction.

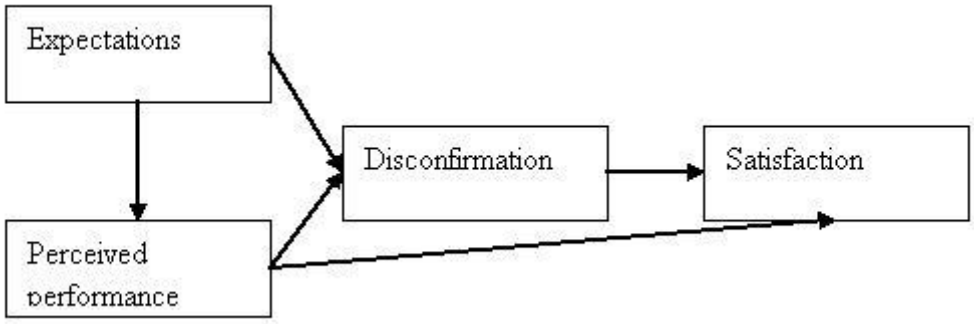


Figure 5: Expectation confirmation theory

Source: Oliver (1980)

The EDP is useful to explain not just the "satisfaction" perception, but also the close link between satisfaction over time and loyalty.

The main criticisms of the ECT focus on the use of expectations as a comparison standard (Yuksel & Yuksel, 2016). The reliability and validity of the ECT in predicting customer satisfaction is challenged when expectations become dynamic and have different meanings to respondents. The sequence of the ECT posits that every consumer has precise expectations

prior to the service experience for disconfirmation/confirmation of expectations to occur (Halstead, Hartman & Schmidt, 1994). The expectation that all the consumers have firm expectations of all attributes of branded mobile apps prior to service experience might be less meaningful in situations where customers do not know what to expect, until they experience the service. This may be important to consumers who have not used branded mobile apps, but consumers who have used apps of certain brands may have reasonable expectations of which new branded apps could perform.

In order to experience a meaningful expectation, the ECT may only be applied to the evaluation of services in which the consumer has experience (Halstead et al., 1994; McGill & Iacobucci, 1992). Customer expectations of completely unfamiliar experiences (for example, first-time download of a news app) are almost meaningless (Halstead et al., 1994) and evaluative judgments become misleading measures of dissonance. Inexperienced consumers rely on external sources of information to shape their expectations, leading to expectations that are weaker, less complete, less stable and superficial (Halstead et al., 1994; Mazursky, 1989; McGill & Iacobucci, 1992). Thus, measuring expectations using the EDP may not be valid in situations where respondents do not have well-formed expectations prior to experience with branded mobile apps.

Another challenge with ECT is that, as posited by the dissonance theory, expectations are dynamic. If pre-experience expectations and post-experience expectations are not the same, the initial expectation cannot be a meaningful standard of comparison to measure satisfaction. If learning takes place and expectations are updated or modified during the service encounter, then the use of initially measured expectations in satisfaction assessment is not logically consistent. In addition, the logical consistency of the expectancy-disconfirmation/confirmation paradigm predicts the consumer to be dissatisfied when initial expectations are not met. Yuksel and Rimmington (1998) found that customers might be reasonably satisfied even if the service performance-minus-expectation score was negative (P<E). Customers who claim that expectations are not met but report satisfaction have latitude of acceptance or zone of indifference which does not necessarily create dissatisfaction or elicit an emotional response (Anderson, 1973; Woodruff et al., 1983).

Liao et al. (2009) founded the Technology Continuance Theory (TCT) – an integration of ECT and TPB – to ensure important constructs excluded in ECT and TPB are included. The construct of attitude is missing in ECT but present in TPB. Meanwhile, the confirmation of

expectations construct is included in ECT but excluded in TPB.

According to Sheth et al. (1991), consumers' behaviour is motivated by functional values as well as other values. The Theory of Consumption Values (TCV) posits that consumer decisions are based on the summation of different value dimensions and not just quality and price (Zeithaml, 1988; Wang et al., 2013). Branded apps are not just perceived as generating awareness and linking customers with brands, but they also serve as social network platforms and entertainment (Peng, et al., 2014). Research by Sheth et al. (1991) enumerated the forms of value as functional, social, emotional, epistemic and conditional. This study will adopt the view that perceived value is multi-dimensional and measures values using a variety of constructs to investigate their influence on satisfaction and continuance intention. The value dimensions to be used in this study are functional and social values.

Model to measure consumer satisfaction and loyalty

The predictive ability of the ECT has been demonstrated over a wide range of product repurchase and service continuance contexts, automobile repurchase (Oliver, 1993), camcorder repurchase (Spreng et al., 1996), institutional repurchase of photographic products (Dabholkar et al., 2000), restaurant service (Swan and Trawick, 1981) and business professional services (Patterson et al., 1997). ECT-based models have been validated by various empirical studies. For example, Bruce (1998) examined the satisfaction rate of Australian students in searching information over the Internet and found that the effect of pre-expectation on satisfaction is direct and positive. Ladhari (2007) also found similar results. Bhattacherjee's (2001) study supported the role of satisfaction in determining continuance to use information systems. Similar findings include the work of Hong et al. (2006) on digital systems learning usage and the study of Liao et al. (2007) on e-government service. This study will apply this theory to analyse customer satisfaction and understand consumers' continued usage behaviour of mobile branded apps in South Africa. To explore the utility of ECT in predicting customer satisfaction and loyalty, this study compares alternative models.

American Customer Satisfaction Index (ACSI Model)

The American Customer Satisfaction Index (ACSI) launched by the University of Michigan's Ross School of Business in 1994 uses customer interviews as input to a multi-equation econometric model. The ACSI model is a cause-and-effect model with antecedents of

satisfaction on the left side (customer expectations, perceived quality and perceived value), satisfaction index in the centre and customer complaints and customer loyalty as outcomes of satisfaction on the right side, Figure 6.

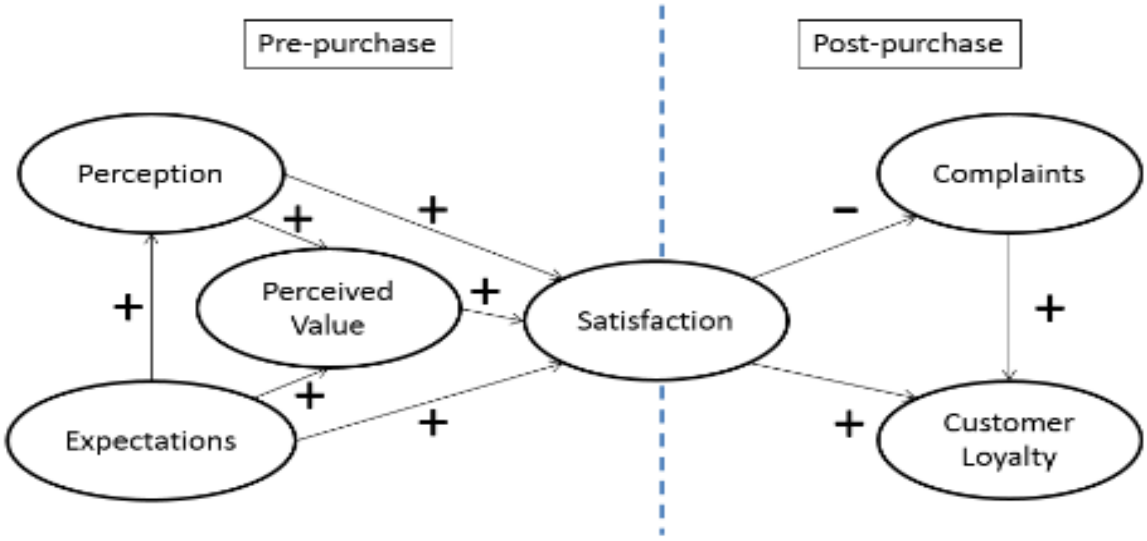


Figure 6: American customer satisfaction Index
Source: Hakim and Furuya, (2015)

The ACSI based on the Swedish Consumer Satisfaction Barometer measures the satisfaction of customers across the U.S. Economy with the goods and services they have consumed. ACSI data is used widely by researchers and market analysts. The European Customer Satisfaction Index (ECSI) represents the major customer satisfaction indices for the European countries on which the South African Satisfaction Index is based (SAS Index).

Prior to the development of Expectation Confirmation Model (ECM), researchers viewed continued use of technologies as the consequence of technology acceptance behaviour (Bhattacherjee, 2001). Continued usage of technology was being explained using some acceptance constructs from Technology Acceptance Models (TAM). As Bhattacherjee (2001) argues, this approach fails to utilise users' post-acceptance psychological motivation, which directly affects usage continuance decisions. Instead, ECM – as depicted in Figure 7 – does not have these deficiencies and continues to be employed and extended by researchers in

explaining continuance behaviour of various technologies (Kim, 2010; Chong, 2013; Zhou, 2013; Boakye, 2015; Hew et al., 2015; Hsu et al., 2015).

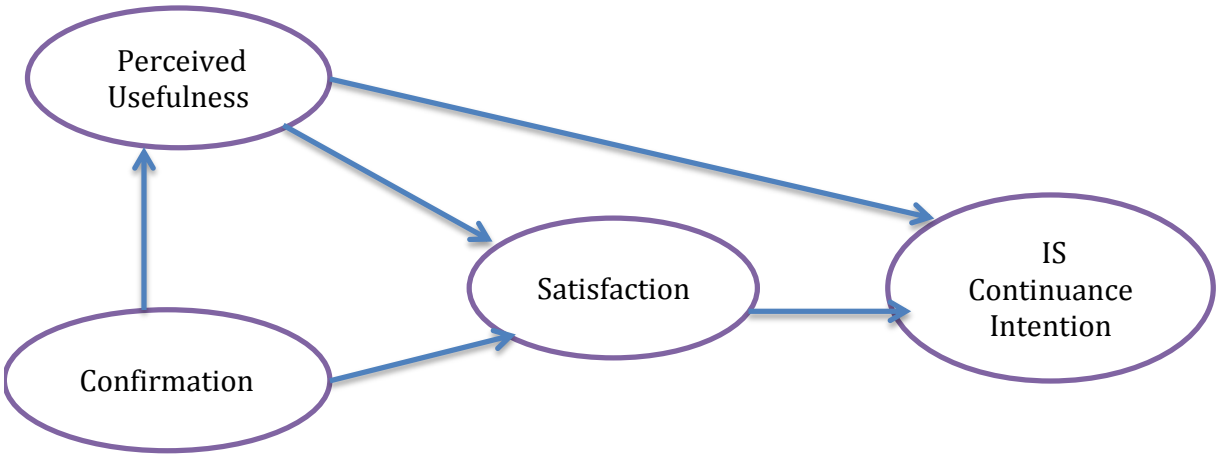


Figure 7: Expectation Confirmation Model (ECM)
Source: Bhattacherjee (2001)

Hew et al. (2016) examined the influence of mobile social commerce continuance usage on brand loyalty among customers. They assessed the inhibitor role of privacy concern in mobile social commerce usage intention. They empirically validated and proposed a model that combines Concern for Social Media Information Privacy (CFSMIP), brand loyalty and Expectation Confirmation Model in the Asian context. These authors reconfirmed all the paths in the baseline model of the Expectation Confirmation Model. Furthermore, continuance usage and satisfaction of mobile social commerce were proven to be boosters for brand loyalty. However, results showed that CFSMIP has a direct positive effect on perceived usefulness and no substantial influence on continuance intention.

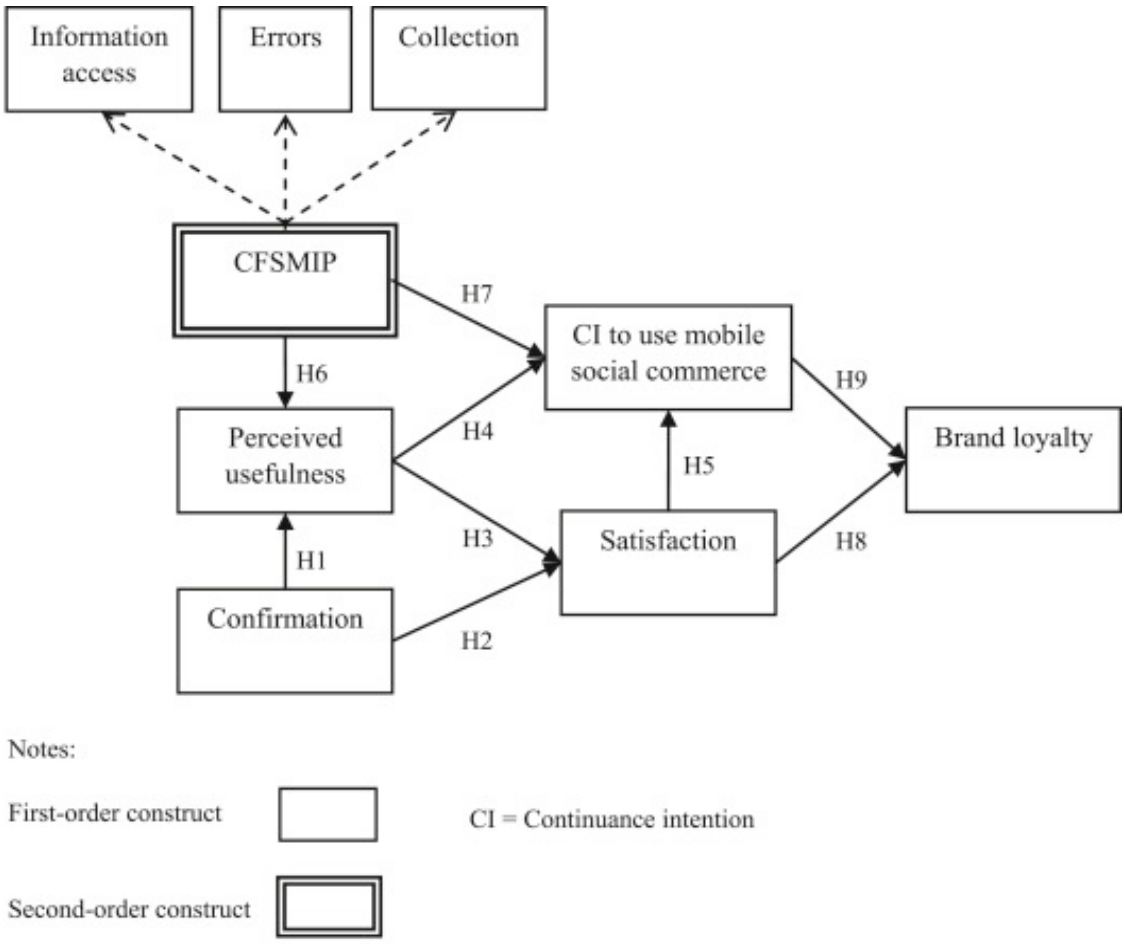


Figure 8: Conceptual model developed by Hew et al. (2016)

Source: Hew et al. (2016b)

In this study, ECM is proposed to explain the interactions between consumer perceptions of usefulness and confirmation of expectations on satisfaction with branded apps. The study proposes that branded apps positively influence brand loyalty indirectly through perception of value and confirmation of expectations and directly through satisfaction and continued usage. As explained above, this study incorporates the theory of consumption values (TCV) in the ECM as shown in Figure 8.

2.7 EMPIRICAL REVIEW

This study investigates the relationship between several behavioural constructs. The constructs that are relevant for this study include perceptions of value (functional and social), confirmation of expectations, satisfaction, continuance intention and brand loyalty.

2.7.1 Perceived Value

Perceived value is an evaluation of the desirability of a product or service on the basis of the perceived worthiness of the trade-off between the products' costs and benefits (Tzeng, 2011). Sheth (1991) argued that consumers' choices are a function of five values: functional value, epistemic value, conditional value, social value and emotional value. According to Tzeng (2011), the greater the perceived value the higher the levels of satisfaction and loyalty and the lower the level of resistance to the new system's implementation.

In the current study, perceived value refers to a consumer's perceptions of actual value of branded apps. According to the expectation confirmation theory, perceptions of performance are directly influenced by pre-adoption expectations (Oliver, 1980). The perceived value is reinforced when expectations of branded apps performance are confirmed. As discussed above, two dimensions of values will be examined in this study – actual elements of branded apps value that will be explored include functional and emotional values.

2.7.1.1 Social value

Social value has been defined by Sheth, Newman and Gross (1991) as "the perceived utility acquired from an alternative's association with one or more specific social groups". Social value is measured on a profile of choice imagery. According to Hsio et al. (2013), choices involving highly visible products (for example, clothing and jewelry) and goods or services shared with others (such as gifts and products used in entertaining) are often driven by social value. One acquires social value through association with positively or negatively stereotyped demographic, socioeconomic and cultural-ethnic groups. Hence, social value relates to social approval and the enhancement of self-image among other individuals. The motive of buying and using products depends on how consumers want to be perceived by others and/or how they want to perceive themselves (Sheth et al., 1991; Hsio et al., 2013). In the current context, using branded apps is a means by which Millennials can express self-image socially to others. Such apps could be considered to represent a modern product, because they have received wide attention in the recent years.

2.7.1.2 Functional Value

Functional value concerns the utilitarian functions and services that a product can offer. Sheth et al. (1991) define functional value as "the perceived utility acquired from an alternative's capacity for functional, utilitarian or physical performance". This value is often

manifested through a product's composite attributes, such as qualities or features that can deliver impressions of utilitarian performance (Tzeng, 2011).

Perceptions of value directly influence disconfirmation of beliefs and post-adoption satisfaction. This research investigates the effect of perceptions of value in predicting satisfaction. In addition, perceptions of value directly influence intention to continue usage of branded apps. Finally, perceptions of value indirectly influence brand loyalty through the mediatory role of both satisfaction and continuance intention.

2.7.2 Confirmation

Expectations are the attributes that a consumer anticipates will be associated with a technology. Pre-adoption expectations form the comparison anchor against which the technology is ultimately judged (Halstead, 1999). Confirmation of expectations refers to the judgments that a person makes with respect to pre-acceptance value of a technology (Hew et al., 2016). In this study, confirmation of expectations directly adjusts the post-acceptance perceived value of branded apps. These judgments are made in comparison to the person's original expectations.

Expectations also directly influence post-adoption satisfaction. When a technology outperforms the original expectations, confirmation is positive and post-adoption satisfaction increases (Spreng et al., 1996; Thong et al., 2006). When the confirmation is negative, there is an increase in dissatisfaction. When users obtain expected benefits from branded apps usage, their expectations are confirmed and this positively and directly affects their satisfaction with branded apps. It is this elegant simplicity that makes the Expectation Confirmation Theory (ECT) such a powerful explanatory tool (Jiang et al., 2009).

2.7.3 Satisfaction

According to Ölander (1977), customer satisfaction is a relative concept judged in relation to a comparison. This discrepancy concept is the basis for evaluating consumer satisfaction with products and services. The theory of satisfaction has its origins in the discrepancy concept and scholars use some standard to model satisfaction (Aigbavboa & Thwala, 2013). According to Oliver (1997), "Satisfaction is the consumer fulfillment response, a judgment that a product or service feature, or the product or service itself, provided (or is providing) a

pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment". Others, such as Chu (2002), defined customer satisfaction as "an emotional response to the use of a product or a service: and it is also a complex human process, which involves cognitive and affective process, as well as other psychological and physiological influences".

Unlike the traditional face-to-face assistance, branded apps support service delivery with speed and a level of detail and customisation which benefits consumers' overall satisfaction (Pantano & Viassone, 2015). The use of branded apps eliminates any downtime consumers would spend waiting for service assistance. ECT suggests that satisfaction is directly influenced by disconfirmation of beliefs and confirmation of expectations. The positive benefits of the branded apps usage are what stimulate the affective response of satisfaction. Having gained a positive experience with the branded apps, consumers increase their likelihood of showing positive continuance intention, which then leads to repeat the patronage behaviour (De Cannière, De Pelsmacker & Geuens, 2010). Satisfaction is viewed as the key to building and retaining a loyal base of long-term consumers.

2.7.4 Continuance Intention

The study employs continuance intention to describe the intermediate response from using branded apps. Continuous usage is consumers' immediate behavioural reaction if they are satisfied with prior usage and the value of use is recognisable. Satisfaction with apps leads customers to continue transacting with apps and even recommending them to their friends (Eid, 2011). Besides satisfaction, perceived value of mobile branded apps also drives continuance intention during the post-adoption stage (Hew et al., 2016). Confirmation of expectations indirectly influences continuance intention, but the effect is moderated either by perceptions of value or by satisfaction.

2.7.5 Brand loyalty

Brand loyalty is adopted as the final outcome in this study. Oliver (1999) defined customer loyalty as a condition of strong involvement in the repurchase or reuse of a product or brand. Prus and Brandt (1995) describe customer loyalty as being "driven by customer satisfaction, yet it also involves a commitment on the part of the customer to make a sustained investment in an ongoing relationship with a brand or company". Blomqvist et al. (2000) define

customer loyalty as "a customer which over time engages one company to satisfy entirely, or a significant part, of her needs by using the company's products or services". Rundle (2005) defined loyalty as "the state or quality of allegiance or adherence towards an object". Brand loyalty is a "deeply held commitment to re-buy or re-patronise a preferred product or service consistently in the future, which causes repetitive same-brand or same-brand set purchasing, despite any situational influences and marketing efforts that might cause switching behaviour" (Walsh et al., 2008; Eid, 2011).

The marketing literature inspired by Day (1970), Jacoby (1971), Newman and Werbel (1973) and Jacoby and Kyner (1973) suggests that customer loyalty can be defined in two distinct ways: as an attitude (mental/cognitive) and as behaviour. These two dimensional measurements of brand loyalty are considered precise in determining future behaviour of customers (Yi et al., 2003). Attitudes or feelings that favour loyalty include intention to buy again and/or to buy additional products or services from the same brand, willingness to recommend the brand to others and commitment to the brand demonstrated by a resistance to switching to a competing brand. These feelings describe a purely cognitive or mental degree of loyalty. Behaviours that reflect loyalty include repeat purchasing, purchasing more and different products of the same brand and recommending the brand to others (Yi, 1990). Repurchase behaviour alone is not a sufficient condition of brand loyalty. Customer loyalty is thus a combination of attitudes and behaviours.

Table 2: Taxonomy of loyalty based on attitudinal and behavioural dimensions

Attitude towards brand	**Positive**	Sustainable loyalty	Latent loyalty
	Negative	Spurious loyalty	Disloyalty
		High	Low
		Repurchase of brand	

Source: Dick and Basu (1994)

Dick and Basu (1994) also plotted taxonomy of loyalty based on cognitive and behavioural dimensions. The evolutionary process of loyalty by Costabile (1998) has four stages: satisfaction, trust and buying repetition, mental/cognitive loyalty and co-operative loyalty. The conceptualisation of Oliver (1999) divides customer loyalty into four sequential stages: cognitive, affective, conative and active. Repeated purchase simply demonstrates rational loyalty. A favourable attitude to a brand develops affective loyalty as a result of repeated confirmations of expectations. Over time, loyalty becomes strongly intentional, thus conative. But the most intense stage of loyalty is action loyalty where there is desire to overcome any obstacle to choose the brand to which a person is loyal. Söderlund et al. (2001) divides loyal customers into two main groups: loyal customers and strongly loyal customers. Within the loyal group there are satisfied and unsatisfied customers. The combination of unsatisfied customers and high loyalty is false loyalty. Consumers who choose particular brands because of convenience or habit can be easily tempted to defect for any reason.

Table 3: Individual satisfaction and loyalty

High loyalty	Hostages	Apostles
Low loyalty	Terrorists	Mercenaries
	Low satisfaction	**High satisfaction**

Source: Jones and Sasser (1995)

The engagement of customers with social networks helps firms to achieve customer loyalty (Casalo et al., 2009; Laroche et al., 2013). Brand loyalty in the research model is directly influenced by satisfaction and continuance intention. Customers who are satisfied with branded apps develop loyalty towards that app and this behaviour allows companies to achieve customer loyalty (Gamboa et al., 2014).

However, brand loyalty is indirectly affected by expectations and perceptions of value. The effects of expectations on brand loyalty are mediated by either satisfaction or by perceptions of value and continuance intention. Meanwhile, the effect of perceptions of value on brand loyalty is mediated by either continuance intention or by satisfaction.

CHAPTER 3: CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The research model conceptualised in this study is shown in Figure 9 below. This model is derived from the concepts discussed above. In this conceptualised research model: confirmation and perceived value are predictor variables; satisfaction and continuance intention are mediating variables; and brand loyalty is the outcome variable. The model has been formulated in order to explain the effectiveness of branded mobile apps on brand loyalty among Generation Y consumers. Seven main hypotheses and three sub-hypotheses are examined with regard to the research model.

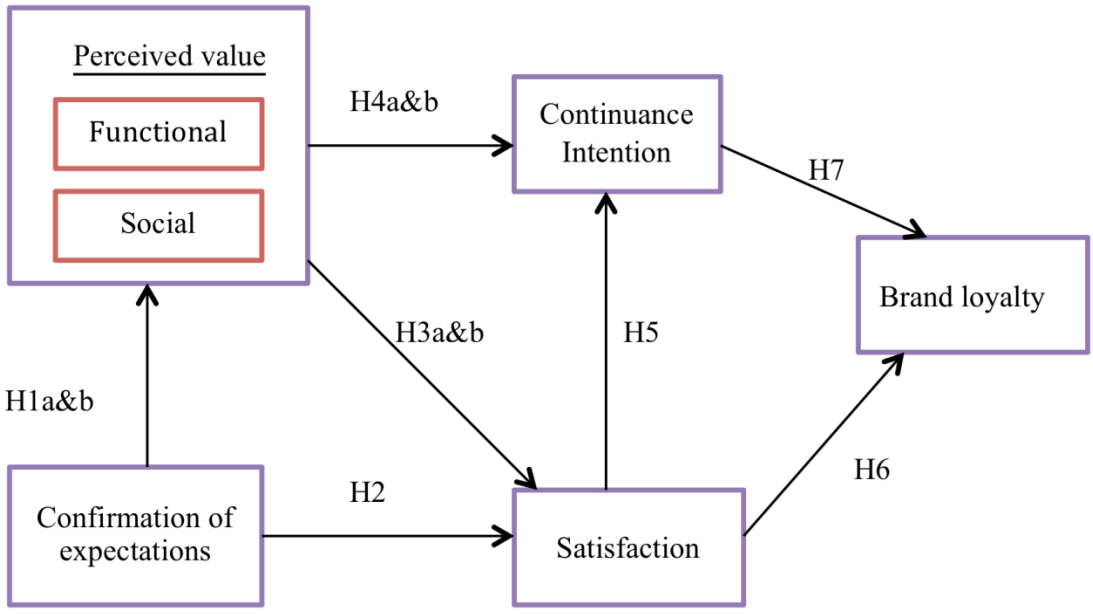


Figure 9: Conceptual model

Source: Compiled by the researcher (2016)

3.1 CONFIRMATION AND PERCEIVED VALUE

Since ECM is used as the baseline model, several authors have empirically tested the relationship between confirmation and perceived usefulness (Bhattacherjee, 2001). Perceived usefulness can be adjusted by confirmation experience, particularly when users' initial perceived usefulness is not concrete due to the uncertainty over what to expect from using the

technology (Yuan et al., 2014). However, few authors have proved that the direct relationship between confirmation and perceived value has been found to be positive. According to Hsu and Lin (2015), the consistency between actual experience and expectation will positively impact perceived value. This indicates the importance of confirmation in the context of app usage. Multi-faceted value (consisting of functional and social values) has been adopted in this study to enhance understanding of perceptions being confirmed by users. Since ECM is used as the baseline model, the following relationships are also verified in the context of branded apps. Therefore, consistency between actual experience and expectation will positively impact perceived value and satisfaction (Hsu & Lin, 2015b):

Hypothesis 1a: Confirmation positively influences social value.

Hypothesis 1b: Confirmation positively influences functional value.

3.2 CONFIRMATION AND SATISFACTION

According to the ECT by Oliver (1980), user satisfaction is determined by two constructs; post-adoption expectations regarding the Information System (IS) and differences between pre-adoption expectations and actual performance of the IS. Bhattacherjee (2001) argued that confirming expectations from initial use to actual experience is crucial in explaining satisfaction, which in turn leads to continued use intention. A number of studies have explored the relationship between confirmation and satisfaction (Yuan et al., 2014; Bøe et al., 2015; Hsu & Lin, 2015b) and the majority of findings indicated a positive relationship between these two constructs. The relationships in ECT have been supported by numerous past studies in mobile-related research areas. Yuan et al. (2014) and Hsu and Lin (2015) found confirmation to be positively related to satisfaction and that users realise the actual performance of an app through usage. Users perceive their initial expectation of apps as being confirmed during actual use. When users actually use branded apps, they update their initial expectations simultaneously. If branded apps outperform relative to their initial expectations, their post-adoption expectations are confirmed; otherwise, their post-adoption expectations are not confirmed (Yuan et al., 2014). The level of confirmation determines the level of satisfaction and in this case, if consumers experience confirmation of their expectations of mobile branded apps, satisfaction will be established. Hence:

Hypothesis 2: Confirmation positively influences satisfaction.

3.3 PERCEIVED VALUE AND SATISFACTION

Perceived value is the degree to which an app is perceived as having functional value based on perceived quality and performance expectations. Perceived value often plays an influential role in the market. While customers perceive the value of product and service, satisfaction and intention to purchase will increase (Hsu & Lin, 2015). Prior studies have verified that user satisfaction and behavioural intention are influenced by perceived value. For instance, Kuo, Wu and Deng (2009) presented and empirically evaluated a conceptual model of the relationships among service quality, perceived value, customer satisfaction and post-purchase intention in mobile value-added services. Their findings show that perceived value positively influences both customer satisfaction and post-purchase intention. Apparently, customers may develop this perception of value while they use mobile-related applications and services (Kuo, Wu & Deng, 2009). Similarly Lin and Wang (2006) found that perceived value had a significant effect on customer satisfaction and repurchase intention in mobile commerce contexts. In addition, a study by Chen (2008) used the Structural Equation Model (SEM) to investigate the relationships between service quality, perceived value, satisfaction and behavioural intentions for air passengers and found that perceived value had a significantly positive effect on satisfaction. Perceived value reveals a larger effect than overall satisfaction on behavioural intention. Furthermore, Lin et al. (2012) found that perceived value of Internet Protocol Television (IPTV) positively influences satisfaction and continuance intention toward an app. According to Tzeng (2011), the greater the perceived value is, the higher the levels of satisfaction and loyalty. Hence:

Hypothesis 3a: Perceived social value positively influences satisfaction.

Hypothesis 3b: Perceived functional value positively influences satisfaction.

3.4 PERCEIVED VALUE AND CONTINUANCE INTENTION

Other studies that found a relationship between perceived value and continuance intention include Shaikh and Karjaluoto (2016), Lin et al. (2012) and Peng at al. (2015). Shaikh and Karjaluoto (2016) developed and tested a model of continuous usage intentions toward mobile banking services on a sample of 273 Finnish m-banking users. Results confirmed the hypothesised direct relationships, perceived value and continuous usage (Shaikh & Karjaluoto, 2016). Similarly, Peng at al. (2015) examined the influential factors on branded app adoption from the perspectives of brand relationship and consumption values. A research

model was developed by integrating the research consumer-brand relationship literature and the theory of consumption and results showed that the link between perceived overall value and use intention of branded apps was significant. This study uses multidimensional perceived value of functional and social value from the theory of consumption values. Li, Li and Kambele (2012) employed a similar approach by using multidimensional value to investigate Chinese consumers' willingness to pay for luxury fashion brands related to their fashion lifestyle and perceived value. They found that perceived social/emotional value, perceived utilitarian value and perceived economic value had a significant influence on the willingness of Chinese consumers to pay for luxury fashion brands (Li, Li & Kambele, 2012). Previous research in IS and service context has demonstrated that social value will positively affect the behavioural intention to use or purchase the IS artifacts or mobile services (Chen, Shang & Lin, 2009; Yang & Jolly, 2009; Hsio et al., 2013). In addition, functional value has been empirically proven to positively affect users' behavioural intentions to use information systems (Cheng et al., 2009; Tzeng, 2011) or mobile services (Hsiu et al., 2013; Yang & Jolly, 2009). Hence, the hypotheses are:

Hypothesis 4a: Perceived social value positively influences continuance intention.

Hypothesis 4b: Perceived functional value positively influences continuance intention.

3.4 SATISFATION AND CONTINUANCE INTENTION

Customer satisfaction plays an important role in service marketing because it is a good predictor of subsequent behaviour or continuance intention (Lin et al., 2012). Marketers claim that satisfaction along with continuance usage is the key to fostering and retaining a loyal relationship with customers. Hsiao, Chang and Tang (2015) define customer satisfaction as the total consumption perception of consumers when using social apps. The Expectation Confirmation Theory (ECT) by Oliver (1980) states that satisfaction with a product or service is a prerequisite for establishing purchase intentions among consumers. The direct relationship between satisfaction and continuance intention is also at the core of the "post-acceptance model of IS continuance" proposed by Bhattacherjee (2001). Bhattacherjee (2001) empirically validated this model that focuses on post-adoption variables and argued that users with higher levels of satisfaction tend to have stronger intention to use the online channel; again in the context of an online environment.

A significant body of research in the areas of IS and marketing supports this argument by suggesting that user satisfaction is a reliable predictor of continued IS use intention (Wang et al., 2010; Bøe, Gulbrandsen & Sørebø, 2015). Lin et al. (2012) integrated value-based adoption and expectation-confirmation models, an example of internet protocol television IPTV continuance intention, and found that satisfaction had a positive impact on continuance intention. Satisfied customers tend to purchase the same service again and use it more frequently than do dissatisfied customers. Past studies of mobile services have also supported the argument that customer satisfaction is positively related to post-purchase intention (Kim et al., 2011; Yuan, Liu & Yao, 2014; Hsiao, Chang & Tang, 2015). Consistent with most past studies on IS and marketing, satisfaction is adopted to explain users' continuance intention in the current study, as it has been found to be an important predictor of continuance intention. Therefore, the hypothesis is:

Hypothesis 5: Satisfaction positively influences continuance intention.

3.5 SATISFACTION AND BRAND LOYALTY

Prior studies point out the dominant view that customer satisfaction positively influences brand loyalty (Flavián, Guinalíu & Gurrea, 2006; Veloutsou, 2015; Kao & Lin, 2016). If consumers perceive that a product has fulfilled its agreed promises, they tend to believe that this behaviour will continue in the future (Flavián et al., 2006). The impact of customer satisfaction on customer loyalty is also discussed by Yi (1990), who suggests that "customer satisfaction influences purchase intentions as well as post-purchase attitude". Studies by Ganesan (1994); Mittal, Ross and Baldasare (1998); Geyskens, Steenkamp and Kumar (1999); and Mittal and Kamakura (2001) show that customer satisfaction is antecedent to customer loyalty. This finding was consistently evident among studies conducted in the mobile services industry, as well as other contexts. Lee et al. (2015) investigated antecedents and consequences of mobile phone usability by linking simplicity and interactivity to satisfaction, trust and brand loyalty. Using SEM, they found the relationship between satisfaction and brand loyalty to be significant (Lee et al., 2015). Similarly, Hew et al. (2016) investigated the impact of mobile social commerce on brand loyalty and found that a strong relationship between satisfaction and brand loyalty exists.

In relation to branded apps, it is thus simple to make the connection that consumers need to be satisfied with a brand before they can become loyal to it. Nonetheless, it is likely that the

consumer will decide to be loyal to the brand with which he or she is most satisfied. The present study therefore proposes that brand satisfaction influences brand loyalty. In practice, this means that the more satisfied a customer is with a branded app, the more likely they will be to portray loyalty towards the brand. Therefore, it is hypothesised that:

Hypothesis 6: Satisfaction positively influences brand loyalty.

3.6 CONTINUANCE INTENTION AND BRAND LOYALTY

Research by Hudson et al. (2015) discovered that consumers who interact with their favourite brands through social media have stronger customer-brand bonds than those who do not. Consumers' intentions to continue using mobile social commerce is expected to positively influence brand loyalty (Georgescu & Popescul, 2015; Hew et al., 2016). Furthermore, Georgescu and Popescul (2015) briefly reviewed the impact of social media on business, based on the analysis of the relevant literature in the field and discovered that customers are more willing to recommend a company if that particular company has integrated social media in its communication channel.

Accordingly, companies hope that by fostering consumers to engage with their branded apps, they can make the "existing bond between the consumers and the brand stronger, or develop new bonds with consumers" (Peng et al., 2014). Companies realise that via apps they can market and advertise their various products and services and add new values to consumers (Peng et al., 2014). Hew et al. (2016) empirically tested this notion and found a positive relationship between continuance intention and brand loyalty. Furthermore, Kim, Wang and Malthouse (2015) investigated whether adopters' spending levels would change after they use a brand's app. Using the app's two main interactive features – information lookups and check-ins – they compared the spending levels of app adopters with those of non-adopters and found that app adoption and continued use of the branded app increase future spending. On the other hand, when customers discontinue using the app, their spending levels decrease (Kim et al., 2015). In light of the above evidence, this study predicts that one's continuance intention to engage with branded apps will influence brand loyalty in a positive direction.

Hypothesis 7: Continuance intention positively influences brand loyalty.

CHAPTER 4: RESEARCH APPROACH, PROCEDURE AND METHODS

4.1 INTRODUCTION

This chapter identifies and describes research approaches, procedures and methods that will be used in this study to collect, process and analyse empirical evidence used to achieve the objectives of this study. The chapter provides a discussion of the following: the research strategy; study population; sampling design and sampling methods; data collection method, data processing and analysis.

4.2 RESEARCH STRAGEGY

Research methods are what researchers propose to utilise for sampling design, questionnaire design and data collection (Cresswell, 2009a). Authors classify research strategies as qualitative, quantitative or mixed method (Bryman, 2012; Cresswell, 2013). The main differences are that: quantitative design applies measurements; qualitative design cannot quantify the intermediate or final outcomes of the study; while the mixed method is a combination of both qualitative and quantitative strategies (Bryman & Bell, 2015). The quantitative method is often applied in order to test the predictive ability of the theory and the model (Muijs, 2010; Myers, 2013). For the purposes of this study, the quantitative method has been chosen as it allows the researcher an opportunity to test the theories by examining relationships between variables (Cresswell, 2009a).

4.2.1 Research Approach

The two main research approaches are deductive and inductive. The main difference between the two approaches is that deductive is aimed at testing theory, while inductive is concerned with generating a new theory emerging from the data (Snieder & Larner, 2009). The deductive approach is mainly associated with quantitative research, while the inductive approach is associated with qualitative research. Since this research follows a quantitative method, the deductive approach will be followed; that is, moving from the general to the specific (Wilson, 2014). The deductive research approach explores a known theory or phenomenon and tests if that theory is valid in given circumstances (Snieder & Larner, 2009). As noted by Snieder and Larner (2009), “the deductive approach follows the path of logic

most closely. The reasoning starts with a theory and leads to a new hypothesis. This hypothesis is put to the test by confronting it with observations that either lead to a confirmation or a rejection of the hypothesis". The current research started with an investigation of related literature, followed by the development of a conceptual framework. Thereafter, the relevant research methods are chosen and applied to test the hypotheses between the dependent and independent variables

4.2.2 Research Philosophy

A research philosophy refers to established views, assumptions, beliefs, values and approaches within which research studies are conducted and the researchers shape the views and beliefs for the development of knowledge (Cresswell, 2009a). Research philosophy is divided into four groups; namely, positivism, post-positivism, critical theory and constructivism (Bryman, 2012). According to Cresswell (2009a), positivism and post-positivism are regarded as deductive or quantitative research methods and are conducted by means of hypotheses testing. On the other hand, critical theory and constructivist theory are referred to as inductive, qualitative research methods and are related to methods of subjectivism and interpretivism.

The current study follows a positivism research approach. The positivism paradigm is often referred to as "quantitative", deals with specific data and is often used for hypothesis testing – generalising from a sample to a population (Collis & Hussey, 2013a). This philosophy investigates the relationship between dependent and independent variables. Quantitative study was carried out for this study for the purpose of summarising and generalising the hypotheses derived from the theory. These hypotheses were tested and proved in a statistical and rational manner.

4.2.3 Research Design

Barnes, Grove and Burns (2003) define a research design as "a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings". Alternatively, Parahoo (2014) describes a research design as "a plan that describes how, when and where data are to be collected and analysed". According to Malhotra and Birks (2007), research design refers to a plan for carrying out a research project. The plan maps out procedures for gathering data that will be used to answer questions and solve problems

(Malhotra & Birks, 2007). The five generic research designs of Bryman (2012) are cross-sectional, longitudinal, case study, comparative and experimental. Primary data was collected using a cross-sectional study because of the need to study current usage of branded apps among Millennials who are using such apps via mobile devices (smartphone or tablets).

A survey was organised in order to obtain consumer opinions in a structured way. A fairly large sample of 406 individuals was used, representing the target population. Furthermore, all the constructs were measured using instruments that had been used earlier on a seven-point Likert scale. The survey instruments collected numerical data through questionnaires and the data was analysed using structural equation modelling (SEM) in AMOS and SPSS version 23.

4.3 SAMPLING DESIGN

This section discusses the sampling design for this research, beginning with the target population for the study and is followed by the sampling technique and the sample size.

4.3.1 Target population

The target population, as defined by Parahoo (2014), is "the total number of units from which data can be collected". The sampling units for this study will be actual users of branded mobile applications via smartphones or tablets. The targeted individuals are Generation Y or Millennial customers aged 18 to 34 years. Young consumers are of particular interest because they are typically early adopters of innovative technologies which eventually filter through to older age groups (Luo, 2009).

4.3.1.1 Description of respondents

Generation Y are comfortable with technology and use multiple media platforms, such as cell phones, laptops, multimedia, instant messaging and social networking for communication (Pan, Paul & Jain, 2011). According to Badh and Walia (2015), this generation integrates technology in their day-to-day activities, is the heaviest user of mobile phones and relies on digital applications to obtain most of their information, including brand information. Young consumers dedicate more and more time to new media technology (Djamasbi, Siegel & Tullis, 2010; BinDhim, Freeman & Trevena, 2014; Boonchutima et al., 2015). Generation Y like amusements and are very excited about the creative and customised communication via mobile phones (Viswanathan & Jain, 2013). These consumers believe that mobile phones can

portray their personalities; it excites them to use this media extensively as value-added services (Jain & Pant, 2012). Millennials prefer creative, personalised and engaging messages on their mobile phones and are very flexible in adopting new brands as they are adventurous and believe in immediate gratification.

In addition, Millennials possess increasing purchasing power and are considered vital to the global economy (Bergh & Behrer, 2013). This customer segment usually spends money quickly on consumer goods and personal services (Bhave, Jain, & Roy 2013). Ultimately, this consumer stratum will be the most active consumer in the near future. Therefore, brand managers see an opportunity to optimise engagement with their young consumers (Gualtieri, 2011). In South Africa, as in many other parts of the world, Generation Y consumers are using applications on communication devices in many aspects of their lives.

4.3.2 Study Sites

The study site for this research was the University of the Witwatersrand. The campus setting was chosen because the student population is representative of the target population. Students at Wits represent young technologically savvy consumers. Students were mostly preferred because they have high levels of computer skills and are often heavy users of information and communication technology. The campus is also an appropriate site, because the target population is accessible to the researcher.

Although smartphone ownership and use level among university students in South Africa may be slightly higher than the target population, the sample reflects true phenomena of young and middle-aged consumers. Hence, Wits students are an appropriate target population as they represent the digital community and future employees of South Africa.

4.3.3 Sampling frame

A sample frame refers to the list of sampling units (Yang et al., 2006). The undergraduate and postgraduate student list formed the sample frame for this study. The study was conducted between Wits undergraduate and postgraduate students who were registered for the 2016 academic year. A portion of students, which represents the whole student population, was selected.

4.3.4 Sample Size

According to Length (2001), sample size determination is crucial and challenging in planning a statistical study. Determining the optimal sample size for a study assures an adequate power to detect statistical significance (Length, 2001). A good sample size has two properties: representativeness and adequacy. Using too many participants in a study is expensive and exposes more subjects to procedure (Suresh & Chandrashekara, 2012). Similarly, if a study is underpowered, the result will be statistically inconclusive and may make the whole protocol a failure (Suresh & Chandrashekara, 2012).

In the current study, 406 respondents were surveyed. The rule of thumb for a structural model is that a ratio of seven responses per parameter is required to obtain trustworthy estimates (Bentler & Chou 1987). The effective sample size required for testing the trustworthiness of the model with 26 instruments would be 182. In addition, Klein (2005) argues that in Structural Equation Modelling, a sample size of less than 100 would be considered small, between 100 and 200 is considered medium and over 200 is considered large. Hence, this informed the decision to opt for a large sample of over 200 – in this case 406. According to Yang et al. (2006), a large sample size can help minimise sampling errors and improve generalisation of research findings.

4.3.5 Sampling Method

Two different sampling techniques exist; namely, probability and non-probability sampling methods (Bryman & Bell, 2007). Yang, Wang and Su (2006) argue that probability samples are more representative than non-probability samples. In general, random samples provide a good approximation of the population and often better assurance against sampling bias (Yang, Wang & Su, 2006). A core characteristic of non-probability sampling techniques is that samples are selected based on the subjective judgment of the researcher, rather than random selection (for example, probabilistic methods), which is the cornerstone of probability sampling techniques (Chong, 2013). Figure 10 shows the alternative sampling methods.

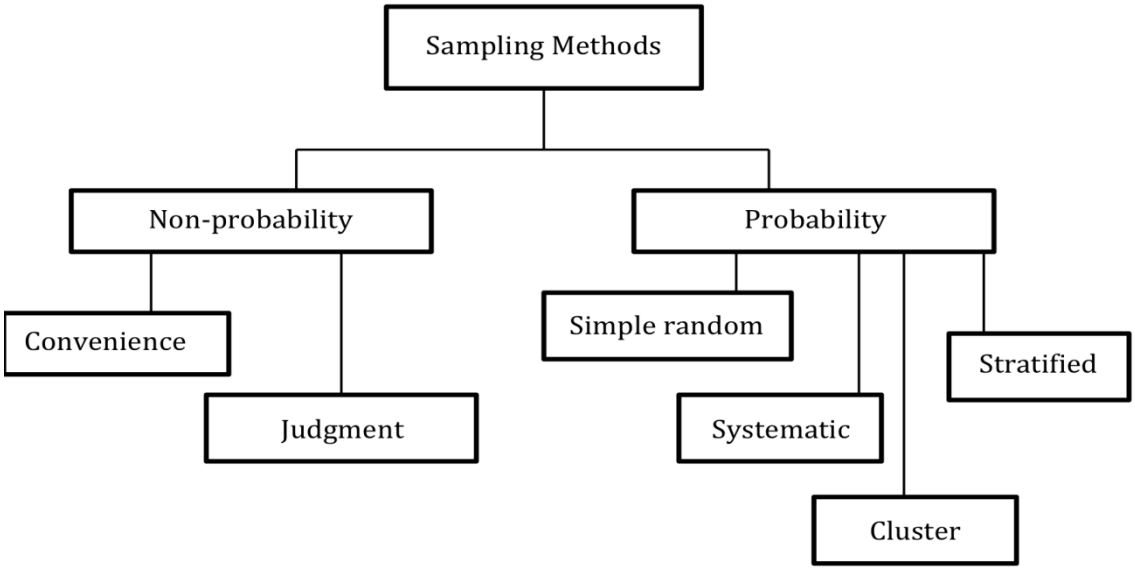


Figure 10: Sampling methods

The sampling method most appropriate for this research is cluster sampling (one-stage cluster). Cluster sampling is probability sampling in which each sampling unit is a collection or cluster of elements (Cresswell, 2013). According to Collis & Hussey (2013b), elements for survey occur in groups (clusters); therefore, a sampling unit is the cluster, not the element. Clusters of participants that represent the population are identified and included in the sample (Jackson, 2011). The cluster sampling technique is common in marketing research. This method is advantageous because it is economical and increases the level of sampling efficiency and because the sampling frame is often readily available at cluster level (Thompson, 1991). However, this method could have more sampling errors, may fail to reflect the diversity in the community and may provide redundant information.

This sampling method was preferred in this research because a list of elements of the population was not readily available. The University of Witwatersrand was divided into clusters at campus level. The researcher began by listing all the clusters in the population; namely, east and west campuses located in Braamfontein; and education campus, medical and management schools, located in Parktown. Using simple random technique, two clusters were selected for the survey. These were east and west campuses, Figure 11.

Cluster Sampling

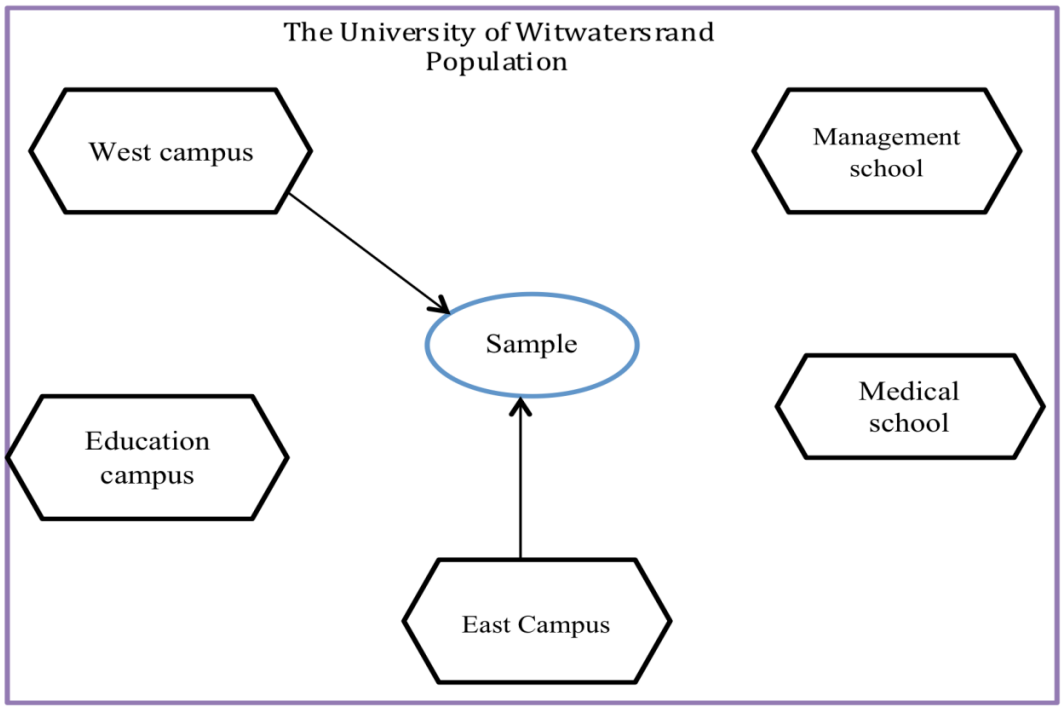


Figure 11: Sampling method adopted for the current study

After selecting the two clusters, the researcher used judgemental or purposive sampling within these clusters. The judgmental sampling method is where the researchers use judgement to select members from the population who they feel could give the desired or accurate information. The choice of subjects depends on how well they are equipped with information that will be relevant to the focus of the research (Fogelman & Comber, 2002). In other words, the selection of the sample reflects the purpose or the objective of the investigation. In this study, the researcher had to look for respondents who were actual users of branded mobile applications via mobile devices (smartphones and tablets). Potential respondents who had these mobile devices but did not use branded apps did not take part in the survey.

4.4 DATA COLLECTION TECHNIQUES

The primary data collection instrument used in the current study was a self-administered questionnaire. Once the initial questionnaire was developed, a pre-test of the data collection instrument was conducted for refinement. According to Bryman and Bell (2007), researchers

are encouraged to undertake pilot testing in order to minimise errors by respondents. Twenty students outside the sample – that is, from the education campus – participated in the pre-test using the convenience sampling method. The pilot gauged the clarity of the questions, assessed whether the instrument was capturing information as intended, and verified whether any important aspects were omitted. The questionnaire was well accepted, apart from a few minor changes in the phrasing of questions for clarity. During the pre-test, some students were busy and asked if there was an online survey which they could complete later. They were willing to provide their email addresses so that a link could be sent to them. This informed the researcher's decision to design an online instrument using SurveyMonkey for such students.

After receiving feedback from the pilot study, the questionnaire was corrected, refined and enhanced before immediately launching a full-scale self-administered survey. The researcher used both face-to-face and online methods to administer the survey instrument. The face-to-face survey was carried out using the "drop and pick method". "Drop and pick" is an effective way to collect data, especially from young literate adults (Luo, 2009; Wilson & Laskey, 2003). The researcher was able to approach students, distribute printed questionnaires, get them back immediately and was also available to explain questions whenever necessary. On the other hand, use of online surveys allowed for more visual, flexible and interactive research (Taylor, 2000). Online survey has been found to be a low response rate survey method (Terhanian, 2003). Of the 406 respondents who participated in the survey, the majority (395) completed the instrument during the face-to-face survey; very few (11) completed the online survey. Initially, 35 questionnaires were sent using the online method and only 11 responses were collected.

4.5 ETHICAL CONSIDERATION

Since the research involved human participants, the researcher obtained ethical clearance before data collection to ensure that the research is of high integrity and quality. The researcher applied for ethical clearance from an independent ethics committee. This ensured that the research complied with ethical principles of the University of the Witwatersrand. That meant that: there was no falsifying or misrepresenting of research data; respondents in the research were not forced to participate and if they decided to participate, it would be voluntarily; respondents could withdraw from the study at any stage without any penalty or

loss; no harm was done to the participants' information obtained from them was kept confidential, and that anonymity was guaranteed.

4.6 QUESTIONNAIRE DESIGN

The questionnaire was divided into seven sections, namely Sections A, B, C, D, E, F and G. The variables that appeared in Section A include demographic profiles, such as gender, age, income, type of mobile device operating system and level of academic pursuit. Section B consisted of information on the branded mobile apps usage trend. All the variables that measure the tested constructs were listed in sections C, D, E and F of the questionnaire. Following the previous literature, research items based on a seven-point Likert scale were drawn and modified to suit the topic of branded apps. All instruments ranged from ''strongly disagree" to ''strongly agree" (Appendix 1). The seven-point Likert scales for perceived value (social and functional) were adapted from Wang et al. (2013), the confirmation scale adapted from Chong (2013), the satisfaction scale adapted from Lim et al. (2006) and Hsu and Lin (2015), the continuance intention adapted from Hsu and Lin (2015), and brand loyalty adapted from Yi and Jeon (2003) and Lee (2011). In these past studies, all the instruments were found to show internal reliability, convergent and discriminant validity.

4.7 DATA ANALYSIS APPROACH

This section provides the step-by-step process conducted when analysing data for the present study.

4.7.1 Structural equation modelling

The structural equation modelling (SEM) approach was used to analyse the data for both the measurement model and structural model. SEM is a multivariate statistical analysis technique used to analyse structural relationships (Tenenhaus, 2008). This technique uses the combination of factor analysis and multiple regression analysis and was used to analyse the structural relationship between measured variables and tested hypotheses. The researcher prefers this estimation technique, because estimates of multiple and interrelated dependence can be estimated in a single analysis. In this analysis, two types of variables can be used – endogenous and exogenous variables (Iacobucci, 2010). To ensure the appropriateness of the instrument, the reliability and validity of the measurement model were tested before the structural model testing (Kim et al., 2013). AMOS, Version 23 was used to carry out

confirmatory factor analysis (CFA) and path modelling. CFA was conducted first to determine reliability and validity of the data. Thereafter, path modelling was conducted to assess model fitness and to test the hypotheses.

4.7.2 Data cleaning and coding

Before testing the hypotheses, all questionnaires were edited for completeness, clarity and consistency. The collected data was coded in Excel spreadsheet before analysis. The Excel spreadsheet was then converted to SPSS for cleaning. Finally, data was analysed using SPSS 23 and AMOS 23 statistical software.

4.7.3 Descriptive statistics

Descriptive statistics entails central tendency of data (Miah, 2016). A paper by Trochim, (2000) defined descriptive statistics as information that is used to describe the basic characteristics of the data in the study. Descriptive statistics involves simple summaries about the samples and the dimensions of the data. The descriptive statistics could take the form of graphs, charts or tables that show the basic data of the main components; for example, demographics. In the current study, descriptive statistics have explored the demographic characteristics of the research data. The total number of participants was mentioned and the distribution of gender, age, level of academic pursuit and income was investigated.

4.8 MEASUREMENT MODEL

To assess the reliability and validity of the measures, two-step SEM was applied (Hsiao et al., 2016). First, the measurement model was evaluated using confirmatory factor analysis (CFA) and, secondly, the structural model was evaluated using the path model. According to Hsu et al. (2015), the measurement model should be evaluated and "fixed" before assessing the structural model.

4.8.1 Reliability and Validity

Reliability is referred to as the degree to which the scale measurements are free from errors and yields consistent results from the study (Bajpai, 2011). The idea behind reliability is that any significant results must be more than a one-off finding and be inherently repeatable. Other researchers must be able to perform exactly the same experiment under the same

conditions and generate the same results. This will reinforce the findings and ensure that the wider scientific community will accept the results of hypotheses testing. On the other hand, validity encompasses the entire experimental concept and establishes whether the results obtained meet all the requirements of the scientific research method (Shuttleworth, 2013). Validity refers to the degree to which a set of measurement items truly reflect the concept of interest (Hair et al., 1998). There are various types of validity (Nusair et al., 2010), but the current study focuses on convergent and discriminant validity.

4.8.2 Reliability measurements

Three methods – namely Cronbach's alpha test (Cronbach α), the composite reliability test (CR) and average variance extracted (AVE) test – were used to check on the reliability of the research measures used in this research**.**

4.8.2.1 Cronbach Alpha

The Cronbach's alpha test was used in this research to evaluate the reliability of the scale measurement. To evaluate the reliability test, a Cronbach's alpha value greater than 0.60 was used as a guideline. According to Lee and Gallagher (2008), if the value of Cronbach's Alpha is smaller than 0.6, the value is poor; if in the range of 0.6 to 0.8 the value is considered acceptable, and if above 0.8 the value is considered good. The current study examined construct reliability in particular by conducting a Cronbach alpha test. Cronbach alpha is conceived to be an SPSS tool for assessing the reliability of an observed instrument intended to measure a particular construct (Bryman et al., 2003).

Internal reliability of each construct was measured using the standardised Cronbach's coefficient alpha. Higher values of Cronbach's coefficient alpha represent higher reliability of a measurement scale. A general rule is that the Cronbach Alpha should be bigger than 0.7 to be regarded as reliable (Hair et al., 2009; Venter et al., 2016).

4.8.2.2 Composite reliability

Computing the composite reliability assesses the internal consistency of the measurement model. Composite reliability (CR) measures how consistently individual items respond to other items within a scale (Hsiao et al., 2016). Fornell (1982) recommended that composite reliability of all items should exceed the benchmark of 0.60. In the recent past, other authors have recommended the benchmark to be 0.7. According to Hair et al. (2006) and Yang and

Lai (2010) a CR index greater than 0.7 is an indication of an acceptable internal consistency of the construct. CR can be calculated using the formula below.

(CR): $CR_{\eta} = (\Sigma\lambda yi)^2 / [(\Sigma\lambda yi)^2 + (\Sigma\varepsilon i)]$

Composite Reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (summation of error variances)}.

4.8.2.3 Average extracted variance

"The Average Variance Extracted (AVE) estimate reflects the overall amount of variance in the indicators accounted for by the latent construct" (Lei & Wu, 2007). According to Nusair and Hua (2010), it is ideal for the Average Variance Extracted (AVE) to be greater than 0.5. Higher values for the variance extracted estimate (greater than 0.50) reveal that the indicators well represent the latent construct (Fraering & Minor, 2006; Kim et al., 2015). The AVE for each variable can be calculated using the following:

$$V_{\eta} = \Sigma\lambda yi^2 / (\Sigma\lambda yi^2 + \Sigma\varepsilon i)$$

AVE = {(summation of the squared of factor loadings)/{(summation of the squared of factor loadings) + (summation of error variances)}

4. 9 TESTING FOR VALIDITY

Validity of the instrument was tested using the following measures: the factor loadings, a correlation matrix, the Average Value Extracted (AVE) and Shared Value (SV).

4.9.1 Convergent Validity

Convergent validity refers to the extent to which two different measures capture the same construct (Carlson & Herdman, 2012; Schwab, 2006). Convergent validity can be assessed by checking if individual item loadings for each corresponding research construct are greater than 0.5 as recommended by Anderson and Gerbing (1988) and Schwab (2006). A strong loading of the instrument on the construct – for example, >0.5 – is an indication of convergent validity (Schwab, 2006).

4.9.2 Discriminant validity

Discriminant validity is examined by observing the correlation matrix, as well as the Average Variance Extracted (AVE) and shared variance.

4.9.2.2 Correlation Matrix

The correlation matrix is used to determine the discriminant validity of the research constructs; that is, how distinct and less similar the constructs are from one another. To achieve high discriminant validity, correlations among latent constructs should be less than 1.0 (Marike, 2016; O'Rourke & Hatcher, 2013; Wang & Cheng, 2010).

4.9.2.3 Average Value Extracted (AVE) and Shared Value (SV)

According to Fornell and Larkar (1981), discriminant validity is assessed by demonstrating that the highest shared variance (SV) or squared correlation between one latent construct and the other is lower than the AVE for each variable (Nusair & Hua, 2010; Lim, Huang, Kim & Biocca, 2015).

4.10 CONFIRMATORY FACTOR ANALYSIS

Confirmatory factor analysis is an analytical tool that allows the researcher to explore hypotheses about what constructs the test in question is measuring and provides an empirical basis for clinical interpretation (Harrington, 2008). Confirmatory factor analysis involves the separation of a large number of variables into a smaller number of factors within which all variables are related to each other. The purpose of factor analysis is to investigate the underlying variance structure of a set of correlation coefficients. A confirmatory factor analysis will be performed to obtain the standard regression weights. Model fit indicators such as Chi-Square/degrees of freedom, Goodness of Fit Index (GFI), Normed Fit Index (NFI), Relative Fit Index (RFI, Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Composite Fit Index (CFI) and the Random Measure of Standard Error Approximation (RMSEA) will be used to assess the model fit.

Model fit indices

Chi-Square

"The Chi-Square value is the traditional measure for evaluating overall model fit and assesses the magnitude of discrepancy between the sample and fitted covariance matrices" (Hooper, Coughlan & Mullen, 2008). The Chi-Square test is used as a goodness of fit tests (Prinsloo, Slade & Galpin, 2012).The Chi-Square evaluates the overall fit of the model in the population (Nevitt & Hancock, 2000). This statistic assesses the magnitude of discrepancy between the sample and fitted covariance matrices. According to Hooper et al. (2008), "although there is no consensus regarding an acceptable ratio for this statistic,

recommendations range from as high as 5.0 to as low as 2.0". An Achi-Square value below three (3) is considered to be an acceptable model fit (Chinomona & Pretorius, 2011).

Goodness of fit Index (GFI)

GFI is one of the criteria for assessing model fit. "The Goodness-of-Fit statistic (GFI) was created by Jöreskog and Sorbom as an alternative to the Chi-Square test and calculates the proportion of variance that is accounted for by the estimated population covariance" (Hooper, Coughlan & Mullen, 2008). According to Tabachnick and Fidell (2007), GFI is a calculation of the variance accounted for by the estimated population covariance. GFI ranges from 0 to 1, with larger samples increasing its value and also having an upward bias to large sample size (Hooper et al., 2008). A value equal to or greater than 0.90 indicates acceptable model fit (Bollen, 1990; Hooper et al., 2008).

Comparative Fit Index (CFI)

The comparative fit index (CFI) analyses the model fit by assessing the discrepancy between the data and the hypothesised model (Hu & Bentler, 1999). The CFI is a revised version of the normed fit index (NFI) and addresses the sample size (Byrne, 2013). The advantage of CFI in SEM is that it can be used regardless of the sample size and performs well even when sample size is small (Hooper et al., 2008). A CFI value equal to or greater than 0.9 is an indication of acceptable model fit (Hu & Bentler, 1999; Hooper et al., 2008).

Incremental Fit Index (IFI)

Incremental Fit Indexes (IFI) are also known as relative or comparative fit indices by McDonald and Ho (2002) and Miles and Shevlin (2007), respectively. They form a group of indices that compare the Chi-Square value to the baseline model, rather than using the Chi-Square in its raw form (Miles & Shevlin, 2007). For these models, the null hypothesis is that all variables are uncorrelated (McDonald & Ho, 2002). Chinomona (2011) stated that the recommended IFI should be equal to or greater than 0.9 for acceptable model fit (McDonald & Ho, 2002).

Normed Fit Index (NFI)

According to Hooper et al. (2008), "This statistic assesses the hypothesised model by comparing the $\chi 2$ value of the model to the $\chi 2$ of the null model". Hu and Bentler (1999) indicated that NFI values range between 0 and 1, with Bentler and Bonnet (1980) recommending values greater than 0.90 as indicating a good fit. The disadvantage of this statistic is that it is sensitive to sample size, underestimating fit for samples less than 200

(Bentler, 1990). However, the current study will not be affected by this problem, as the sample size is 406.

The Relative Fit Index (RFI)

The relative fit Index (RFI) by Bollen (1986) represents a derivative of both NFI and CFI. The RFI value ranges from 0 to 1 with values close to 0.95 indicating superior fit (Hu & Bentler, 1999).

Tucker-Lewis Index (TLI)

The sample size problems associated with the NFI are rectified by the Tucker-Lewis Index (Kline, 2015). However, in situations where small samples are used, the value of the TLI can indicate poor fit despite other statistics pointing towards good fit (Bentler, 1990; Kline, 2005; Tabachnick & Fidell, 2007; Hooper et al., 2008). Hooper et al. (2008) recommended that the TLI value should meet or exceed 0.9 for the model to be accepted.

Root Mean Square Error of Approximation (RMSEA)

The root mean square error of approximation (RMSEA) evaluates the covariance structure models (Steiger, 1998). The RMSEA explains how well the model, with unknown but optimally chosen parameter estimates, would fit the population covariance matrix (Hooper et al., 2008). This statistic reduces problems and inconsistencies commonly found in testing models with large sample sizes (Steiger, 1998). RMSEA values range from 0 to 1, with a smaller RMSEA indicating better model fit. According to Hu and Bentler (1999), for the RMSEA to be accepted, the value should be close to 0.06. A model is considered a good fit if the RMSEA is less than 0.60 (Ki & Hon, 2007).

4.11 STRUCTURAL MODEL

Having established an adequate measurement model, the next step was to analyse the structural model for the hypothesis testing. Path modelling describes the relationships between observed or measured variables and theoretical constructs (Roche, Duffield & White, 2011) and tests the structural paths of the conceptualised research model. Once the model fit has been assessed using confirmatory factor analysis (CFA), this study will proceed to perform path modelling using the AMOS 22.0 software package. The SEM technique demonstrates and tests the theoretical underpinnings of a proposed study and the significance

of the relationships between model constructs. SEM stipulates a technique where separate relationships are allowed for each set of dependent variables and provides an estimation technique for a series of separate multi-regression equations to be estimated concurrently.

SEM further contains two mechanisms; namely, the structural model, which is the path where independent and dependent variables are being linked and the measurement model, which enables this study to use several indicators for a single independent variable. In this study, several attributes are to be identified as having an effect on loyalty. The multi-item scales for each construct can be developed. Thus, by assessing each relationship simultaneously rather than separately, all the multi-scale items are incorporated to account for measurement errors with each scale.

This chapter presented the research methodology used to collect and analyse data for the current study. The chapter provided the philosophy used in this study, the sampling design, study population, sampling methods, sample size, measurement instrument development, data collection method and, finally, methods of data analysis. The next chapter presents the data analysis and findings from the study.

CHAPTER 5: RESULTS

5.1 INTRODUCTION

This chapter provides the statistical analysis and results obtained from data collected on the effectiveness of branded mobile apps on brand loyalty among Generation Y consumers. An overview is given of the descriptive statistics, an analysis of the reliability and validity of the measurement instruments is made, an overview of the model fit is provided and, lastly, a path modelling analysis is conducted and presented.

5.2 DESCRIPTIVE RESULTS

This section provides the descriptive statics of the study.

5.2.1 Demographic features of sample

Table 4: Distribution of gender, monthly expenditure and mobile systems by age group

Factor	Category	Age Groups (years)			Total
		18-20	21-24	25-34	
	No. (%)	*198 (48.7)*	*177 (43.6)*	*31 (7.7)*	*406 (100)*
Gender	Male	35.9	48.6	54.8	42.9
	Female	64.1	51.4	45.2	57.1
	Total	*100*	*100*	*100*	*100*
Operating System	Apple iOS	22.7	15.8	41.9	21.2
	Android	65.7	63.3	54.8	63.8
	Windows	7.1	10.2	0	7.9
	Blackberry	4.5	10.7	3.3	7.1
Monthly expenditure level (Rands)	<1000	35.9	29.4	19.4	31.8
	1000-2000	24.2	29.4	12.9	25.6
	2001-3000	9.6	16.9	16.1	13.3
	3001-4000	13.6	9.6	3.2	11.1
	>4000	16.7	14.7	48.4	18.2
	Total	*100*	*100*	*100*	*100*

Source: *Compiled by researcher, 2016*

Of the total sample, 48.7% were aged 18-20 years, 43.6% were aged 21-24 years and a paltry 7.7% were aged 25-34 years. The sample consisted of Millennials totally, but was dominated by the youngest Millennials aged 18-20 years.

Table 4 shows the sample skewed more towards female (57%) than male respondents. This is a good reflection of the gender composition (54.97% female) of the university student population in 2015. The skewness towards female respondents was elaborate among the youngest age group (18-20), with 64% females. The sex distribution among the 21-24 years age group was even. The sex distribution pattern was reversed among the 25-34 years group, as males (54.8%) outnumbered females.

The distribution of usage of mobile operating systems showed android as the most popular mobile operating system (63.8%), with more users than Apple, Blackberry and Windows combined. Apple was second (21.2%), Windows third (7.9%) and Blackberry fourth (7.1%). This pattern is influenced by the availability of Android devices. When viewed across the age groups, the dominance of Android is prevalent but reduces from young to old users. Among the 25-34 years group, the split between Apple (41.9%) and Android (54.8%) is nearly even. See Table 4.

The distributions of monthly expenditure levels are also shown in Table 4. Overall, the bottom third (32%) was spending below R1 000 per month. Slightly over a quarter had levels of expenditures in the R1 001 to R2 000 range. Another quarter had expenditures between R2 001 and R4 000 per month. The top 18% of the respondents had monthly expenses above R4 000.

The youngest age category had monthly expenditures skewed towards lower levels (See Table 4). Nearly 60% of those in the 18-20 years and 21-24 years categories had expenditures below R2 000. The expenditure levels between these two sub-groups were remarkably similar. More than 50% of the older age group (25-34) had expenses above R3 000. The older age group appeared to have more disposable income than the younger age group.

Table 5: Gender and age distribution of respondents by level of academic pursuit

Categories		Level of academic pursuit				Total
Main	Sub	1st Year	2nd Year	3rdYearr	4th& Post G	
	No. (%)	*143 (35.2)*	*113 (27.8)*	*86 (21.2)*	*64 (15.8)*	*406 (100)*
Gender	Males	35.7	52.2	43.0	42.1	42.9
	Females	64.3	47.8	57.0	57.9	57.1
	Total	100	100	100	100	100
Age group	18-20	86.0	53.1	15.1	3.1	48.8
	21-24	11.9	46.9	77.9	62.5	43.6
	25-34	2.1	0	7.0	34.4	7.6
	Total	100	100	100	100	100

Source: *Compiled by researcher, 2016*

The results in Table 5 show that slightly over a third (35.2%) of the sample were first-year students. Second-year students had a share of 27.8% of the sample; third-year students about a fifth (21.2%) and the balance of 15.8% comprised fourth-year and postgraduate students. Nearly two-thirds (64.3%) of the first-year students in the sample were female, but this pattern was different for second-year students. The rest of the student sample had a distribution reflective of the general pattern.

The majority (86%) of the first-year students were between 18 and 20 years old. Very few (2.1%) first-year students were in the 25-34 years age category. The distribution of second-year students is fairly even between the two youngest age categories. Most third-year, fourth-year and postgraduate student respondents were in the 21-24 years category (See Table 5).

5.2.3 Engagement of Millennials with branded mobile apps

Figure 12 maps the manner in which South African Millennials chose to engage with different apps. In Chapter 1, this study pointed out statistics from Mobile Marketing Association of South Africa (MMASA) that showed that 17.7 of the 37.2 million adult population used mobile apps in 2015. Figure 12 shows that "usage" of mobile apps among South African Millennials was widespread (87%) for social media apps, but limited (23%)

for retail clothing apps. A respondent was considered to have used an App if they had chosen to utilise the app at least once, two weeks before the interview. The levels of engagement with retail banking, mobile network and news apps were 50%, 48% and 44%, respectively. Only a quarter of the respondents were engaged with health and fitness apps, 27% were talking to fast food and retail food apps and 32% were using travel apps. These results support findings from MMASA that companies in South Africa were engaged with customers through branded mobile apps. Customers were choosing to engage with brands through mobile apps.

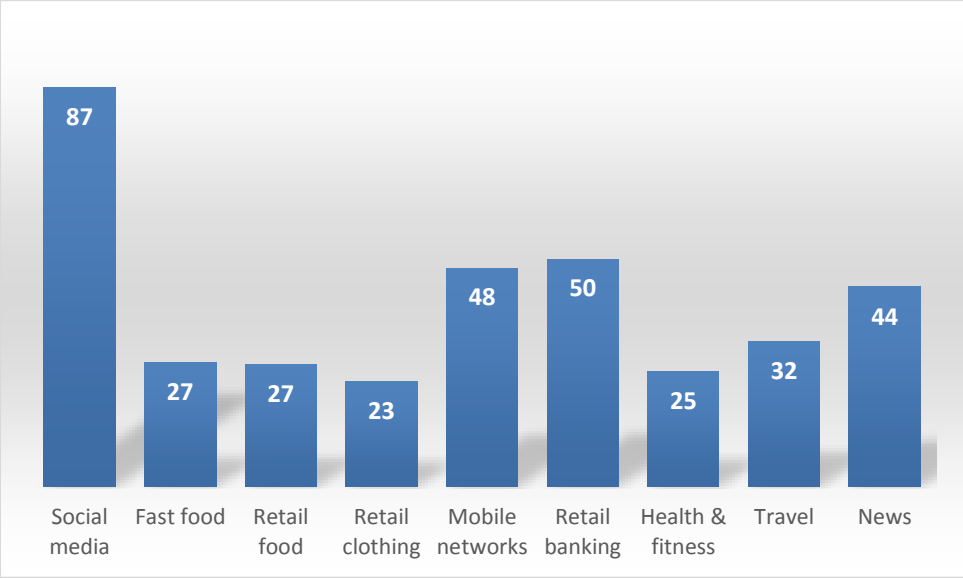


Figure 12: Utilisation of branded mobile apps (%) among Millennials

Social media apps (for example, Facebook, Instagram, Twitter, Snapchat and WhatsApp) were popular because they offered a messaging service that uses less data and costs less than mobile network operators' charges per message. As long as customers had a web connection, they communicated with their favourite brands, friends and family. Social apps such as Facebook and WhatsApp also came pre-installed on mobile handsets and iPads. Mobile network apps provided by Telkom Mobile, Vodacom, MTN, Cell C and others were popular, as consumers could quickly and easily transfer money to friends, make purchases or pay bills. This target population had low engagement with retail clothing, health and fitness, retail and fast food and travel apps, possibly because Millennials did not have enough disposable income and were using alternative means to engage with firms offering these services. For example, in retail clothing, maybe respondents preferred the physical experience of visiting shops to fit the clothes. For retail and fast food, it is possible that apps such as UberEats were

still new in the market. The ability of these apps to enable consumers to place orders and pay securely through the app and have food delivered fresh in a matter of minutes will soon flourish among young consumers.

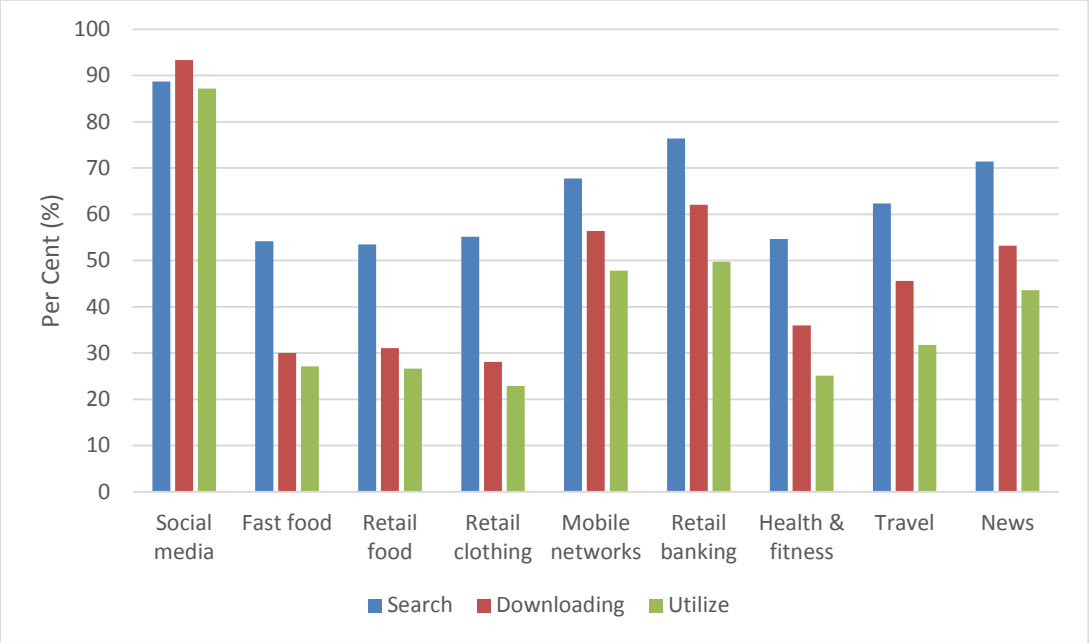


Figure 13: Distribution (%) of Search, search, download and utilisation of branded apps

Figure 13 maps the extent of searching, downloading and utilising different categories of apps. The search for branded mobile apps was above 50% across all categories of apps. This suggested that awareness of the whole range of branded mobile apps was widespread among South African Millennials. The majority of Millennials were choosing rather than being pushed to search for the type of branded apps they wanted. Given that Millennials represent 77% of South Africa's population, branded mobile apps appeared to be an important tool to connect with the majority of consumers in South Africa. Furthermore, being primary users of smartphones, Millennials were the main target for branded mobile apps. The extent of searches for apps suggested that interactive marketers were indeed reaching out to the majority of consumers to promote their brands. Because of the connection Millennials had with branded mobile apps, a brand relationship building process was underway.

Across all apps, there was a consistent declining trend in participation from searching, downloading to utilising apps. Most consumers had searched for the apps but only a fraction went on to download the same apps. This implied that consumers searched but chose to

download only what they found useful. For social apps, there were more respondents who downloaded than those who searched apps. This is possible, because some of the social apps came pre-installed on mobile handsets and iPads.

Most of the respondents who downloaded apps had used an app at least once, 14 days prior to the survey. A larger fraction of the respondents were engaged with the apps they downloaded (see Figure 13). More than 70% of the customers who had downloaded apps were engaged with all the apps. This behaviour suggested that customers were engaged post-adoption. The highest levels of post-adoption usage were with social media apps (93%), fast food apps (90%), retail food apps (86%) and mobile network apps (85%). This degree of post-adoption usage implied that respondents found apps they downloaded useful. Post-adoption usage of health and fitness and travel apps were less widespread. In terms of behavioural loyalty, customers appeared most loyal to social media and fast food branded apps. Continuous usage of apps customers downloaded suggested that the brands fitted the customers' lifestyles and/or met the needs and expectations of customers.

A reason why social apps were more popular might be that many brands are not daily drivers; they are not like Facebook, Twitter or WhatsApp that can be opened multiple times a day. Instead, they are used weekly or monthly as customers interact with the brand – such as booking a flight (John Koetsier). In addition, most brands have social media accounts that customers use to communicate with the brand. The branded apps could be utilised for conducting business transactions, such as payments. However, most communication takes place via social media. This might explain why social media engagement was above 93%.

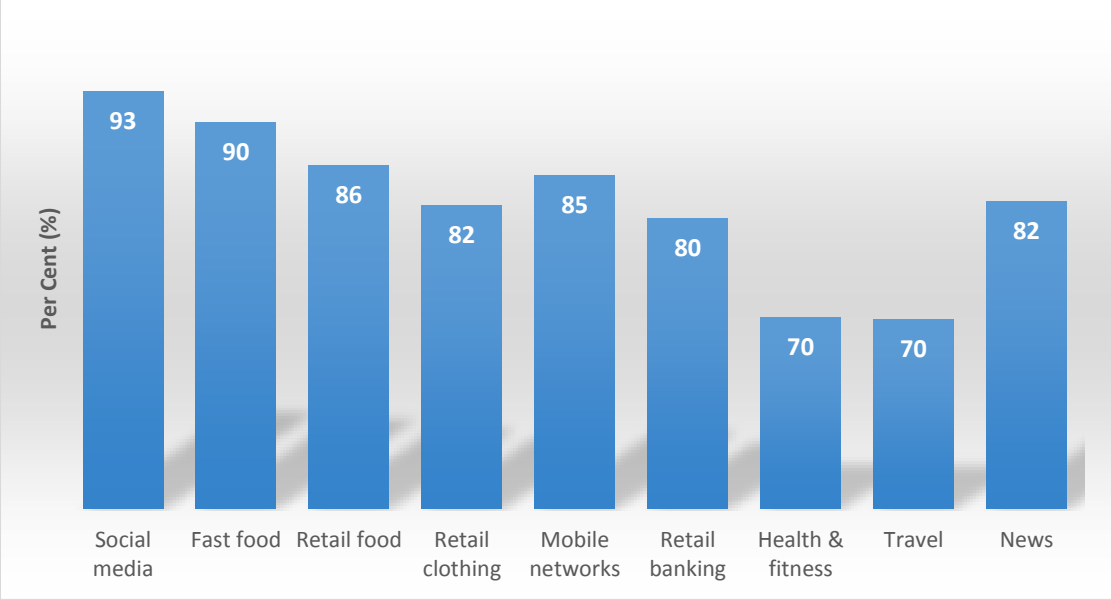


Figure 14: Post-download usage (%) of different branded apps

The results in Figure 14 also suggested that marketers and advertisers were capturing consumers effectively using mobile apps. The likelihood that marketers could use mobile apps to communicate and advertise to new customers and increase brand loyalty with existing customers was high. Because of the cost-effectiveness, "same time, any time" connection, branded mobile apps could be a persuasive platform to raise brand awareness and enhance brand experience through perpetual interactive exchange.

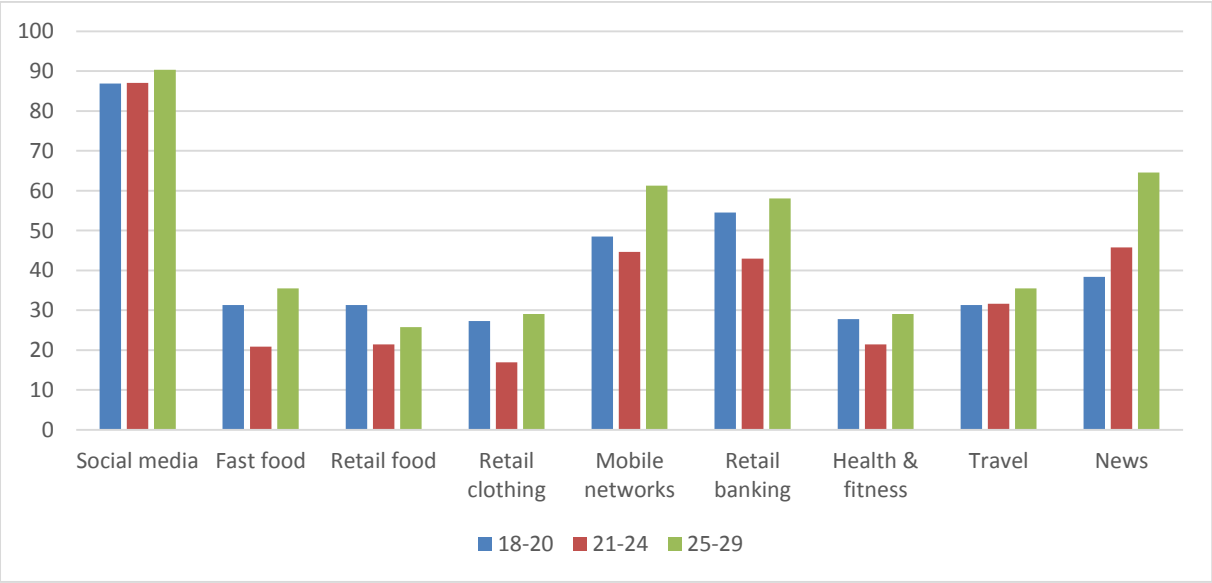


Figure 15: Utilisation (%) of branded apps by age group

Figure 15 shows utilisation of apps across different age groups. The popularity of social media apps transcended all age groups on campus. The 25-34 years age group was the most engaged group with branded apps, as they had money to spend and conducted transactions. However, this mature category had the lowest numbers in the sample. The lowest participation of all age categories was the 21-24 years age group. The 18-20 years age category appeared more excited than the 21-24 years age group. It is not clear why this is the case.

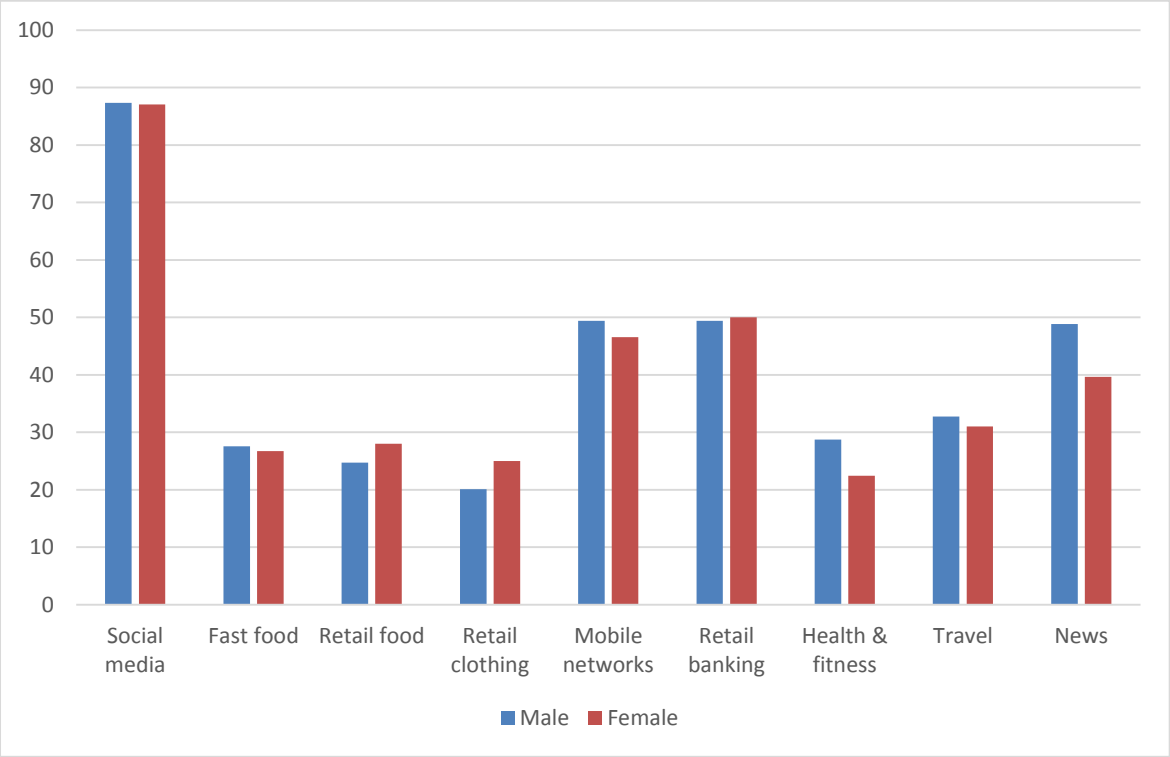


Figure 16: Utilisation of branded apps by gender

Figure 16 shows that utilisation of apps for social media, retail banking, mobile networks and fast food transcended gender. Female respondents were more active than their male counterparts when engaging with retail clothing and food apps. Male respondents were more actively engaged with health and fitness and news apps than female respondents.

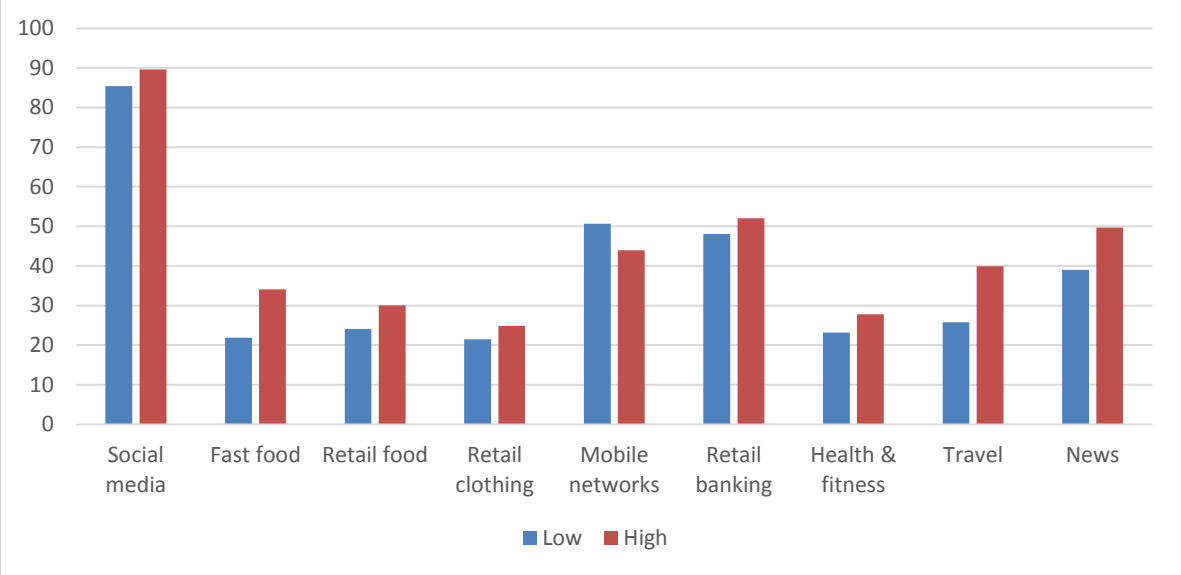


Figure 17: Utilisation (%) of branded apps by income

Figure 17 shows how respondents in two income groups engaged with apps. Two categories of income related to six categories of monthly expenditures (see questionnaire). The bottom half had monthly expenses below R2 000 and the top half had expenses above R2 000. The results show that engagement with apps was not income-neutral. With the exception of mobile network apps, respondents with higher expenditure levels were more engaged with all other branded apps than respondents with lower expenditure levels

These results suggested that within the millennial population segment, branded mobile apps transcended gender, income and age. Branded mobile apps were, therefore, robust and ubiquitous. The awareness was widespread and post-adoption use was high. Interactive marketers who wished to connect with the majority of consumers in South Africa were encouraged to do so through branded mobile apps. Use of branded mobile apps could be a forceful and highly efficient way to promote brands and manage customer relations. The future sustainability and long-term viability of South African brands could depend on the strength of their engagement with the Millennials. This could be achieved through branded mobile apps.

Table 6: Percentage summary of scale constructs results

Constructs	Instruments	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total (%)
Confirmation Expectation	CF1	3	1	4	28	20	34	11	100
	CF2	1	1	5	31	24	29	8	100
	CF3	1	2	3	22	26	35	10	100
Functional Value	FV1	1	2	7	17	20	40	13	100
	FV2	0	3	4	18	24	40	9	100
	FV3	0	1	4	17	24	43	11	100
	FV4	1	3	8	19	28	31	10	100
	FV5	2	5	12	22	27	24	7	100
Social Value	SV1	11	14	11	29	17	12	6	100
	SV2	11	15	10	26	17	15	7	100
	SV3	14	14	8	24	18	16	6	100
	SV4	16	12	6	25	20	15	6	100
Satisfaction	SA1	2	1	2	26	26	31	12	100
	SA2	2	1	3	24	27	32	12	100
	SA3	2	4	4	32	30	22	6	100
	SA4	3	4	6	34	27	21	5	100
Continuance Intention	CI1	1	1	2	13	18	41	24	100
	CI2	1	0	2	12	18	46	20	100
	CI3	1	2	1	17	26	33	20	100
	CI4	1	3	4	17	18	38	19	100
	CI5	1	4	6	24	20	28	16	100
Brand Loyalty	BL1	1	4	5	27	20	29	13	100
	BL2	1	2	4	26	25	29	12	100
	BL3	3	6	6	27	23	26	9	100
	BL4	1	3	4	22	23	34	14	100
	BL5	2	4	4	27	18	29	15	100

Table 6 shows the summary of respondents' perceptions regarding instruments used in each of the six constructs. The results show that respondents' perceptions were skewed more towards the neutral to strongly agree range for all constructs except for social value. More than a third of the respondents' perceptions disagreed with the social value instruments.

5.3 MEASUREMENT MODEL

The measurement model was tested using confirmatory factor analysis (CFA). Hsu et al. (2015) noted that the "measurement model should be evaluated and 'fixed' before assessing the structural model". Thus, at this point, the initial assessment of the measurement model was performed. A general rule to increasing reliability when it is not satisfactory is to eliminate one item or more from the scale (Bryman et al., 2003). According to Hair et al. (1992), those items with factor loadings of less than 0.5 should be removed. Therefore, after rectifying the instruments, of the 26 instruments, six (SV1, FV5, SA4, CI1, CI5 and BL1) were removed and 20 were retained. The next step was to assess the measurement scale's validity.

Reliability tests

The idea behind reliability is that any significant results must be more than a one-off finding and be inherently repeatable. Other researchers must be able to perform exactly the same experiment under the same conditions and generate the same results (Field, 2006). This will reinforce the findings and ensure that the wider scientific community will accept the hypothesis (Shuttleworth, 2013).

The Cronbach's alpha test (Cronbach α), Composite Reliability test (CR) and Average Value Extracted (AVE) test are the three approaches used to check for reliability of research measures used for this study. Reliability analysis was conducted to determine the reliability of the questionnaire's instruments used in measuring brand loyalty. Internal consistency of the instruments was measured using the Cronbach's alpha reliability coefficient. On the other hand, validity encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method (Chalomba & Gujral, 2016).

From the results in Table 7 below, it is evident that all the variables indicate acceptable levels of reliability as they are all above 0.8 (CF=0.813, FV=0.829, SV=0.880, SA=0.850, CI=0.850, BL=0.856). This means that all Cronbach's Alpha results exceeded the recommended threshold of 0.7, confirming that the measures used in this study are reliable and indicate high levels of internal consistency. Actual Cronbach alpha results are presented in Appendix 2

Table 7: Accurate statistics

Research Construct		Descriptive Statistics				Cronbach's Test		C.R. Value	AVE Value	Highest Shared Variance	Factor Loading
		Mean Value		Standard Deviation		Item-total	α value				
CF	CF1	5.06	5.059	1.318	1.237	0.657	0.813	0.820	0.730	0.342	0.772
	CF2	4.96		1.194		0.734					0.839
	CF3	5.16		1.199		0.607					0.717
FV	FV1	5.24	5.211	1.296	1.216	0.689	0.829	0.820	0.663	0.342	0.800
	FV2	5.21		1.199		0.653					0.799
	FV3	5.38		1.088		0.716					0.735
	FV4	5.02		1.281		0.579					0.574
SV	SV2	3.94	3.915	1.749	1.790	0.718	0.880	0.882	0.820	0.248	0.773
	SV3	3.90		1.810		0.785					0.864
	SV4	3.91		1.811		0.801					0.893
SA	SA1	5.11	5.008	1.266	1.245	0.707	0.850	0.873	0.854	0.630	0.834
	SA2	5.16		1.229		0.807					0.876
	SA3	4.75		1.241		0.650					0.790
CI	CI1	5.65	5.495	1.109	1.206	0.758	0.850	0.854	0.778	0.630	0.861
	CI3	5.44		1.209		0.701					0.804
	CI4	5.39		1.299		0.707					0.771
BL	BL2	5.06	5.211	1.274	1.216	0.639	0.856	0.860	0.731	0.240	0.712
	BL3	4.74		1.457		0.698					0.759
	BL4	5.20		1.292		0.775					0.872
	BL5	5.02		1.431		0.697					0.764

Source: *Compiled by researcher from survey results 2016.*

5.3.1.2 Composite Reliability (CR)

When computing the composite reliability and assessing the internal consistency of the measurement model, the Composite Reliability (CR) index test was used to evaluate the internal reliability of each. According to Hair et al. (2006) and Yang and Lai (2010), a CR index greater than 0.7 is an indication of an acceptable internal consistency of the construct and composite reliability (CR) of all items exceeded the benchmark (0.7) as they ranged from 0.820 to 0.882 (see Table 7). This therefore validates the existence of internal reliability for each of the research constructs.

Table 8: Composite reliability calculations

				Composite reliability (CR)			
					Summation of error terms		**CRη=(Σλyi)2/[(Σλyi)2+(Σεi)]**
				$(\sum\lambda Yi)^2$	έi	∑έi	CR
CF1	<---	CF	0.772	5.420	0.404	1.186	0.820
CF2	<---	CF	0.839		0.296		
CF3	<---	CF	0.717		0.486		
FV1	<---	FV	0.800	8.456	0.360	1.852	0.820
FV2	<---	FV	0.799		0.362		
FV3	<---	FV	0.735		0.460		
FV4	<---	FV	0.574		0.671		
SV2	<---	SV	0.773	6.401	0.402	0.859	0.882
SV3	<---	SV	0.864		0.254		
SV4	<---	SV	0.893		0.203		
SA1	<---	SA	0.834	6.250	0.304	0.913	0.873
SA2	<---	SA	0.876		0.233		
SA3	<---	SA	0.790		0.376		
CI1	<---	CI	0.861	5.934	0.259	1.018	0.854
CI2	<---	CI	0.804		0.354		
CI3	<---	CI	0.771		0.406		
BL2	<---	BL	0.712	9.653	0.493	1.573	0.860
BL3	<---	BL	0.759		0.424		
BL4	<---	BL	0.872		0.240		
BL5	<---	BL	0.764		0.416		

The following formula was applied when assessing the CR of each of the study's research constructs:

$$\textbf{(CR): } CR_{\eta} = (\Sigma\lambda yi)^2 / [(\Sigma\lambda yi)^2 + (\Sigma\varepsilon i)]$$

Composite Reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (summation of error variances)}.

Composite Reliability was calculated as follows:

a) Confirmation (CF)

$(\Sigma\lambda yi)^2 = (0.772+0.839+0.717)^2 = 5.420$

$\Sigma\varepsilon i = [(1-0.772^2) + (1-0.839^2) + (1-0.717^2)] = 1.186$

CR= 5.420 / (5.420 +1.186)= 0.820

b) Functional Value (FV)

$(\Sigma\lambda yi)^2 = (0.800+0.799+0.735+0.574)^2 = 8.456$

$\Sigma\varepsilon i = [(1-0.800^2) + (1-0.799^2) + (1-0.735^2)+1-0.574^2)] = 1.852$

CR= 8.456 /(8.456 +1.852)= 0.820

c) Social Value (SV)

$(\Sigma\lambda yi)^2 = (0.773+0.864+0.893)^2 = 6.401$

$\Sigma\varepsilon i = [(1-0.773^2) + (1-0.864^2) + (1-0.893^2)] = 0.859$

CR= 6.401 /(6.401 +0.859)= 0.882

d) Satisfaction (SA)

$(\Sigma\lambda yi)^2 = (0.834+0.876+0.790)^2 = 6.250$

$\Sigma\varepsilon i = [(1-0.834^2) + (1-0.876^2) + (1-0.790^2)] = 0.913$

CR= 6.250 /(6.250 +0.913)= 0.873

d) Continuance Intention (CI)

$(\Sigma\lambda yi)^2 = (0.861+0.804+0.771)^2 = 5.934$

$\Sigma\varepsilon i = [(1-0.861^2) + (1-0.804^2) + (1-0.771^2)] = 1.018$

CR= 5.934 /(5.934 +1.018)= 0.854

c) Brand Loyalty

$(\Sigma\lambda yi)^2 = (0.712+0.759+0.872+0.764)^2 = 9.653$

$\Sigma\varepsilon i = [(1-0.712^2) + (1-0.759^2) + (1-0.872^2)+1-0.764^2)] = 1.573$

CR= 9.653 /(9.653+1.573)= 0.860

5.3.1.3Average extracted variance

"The Average Variance Extracted (AVE) estimate reflects the overall amount of variance in the indicators accounted for by the latent construct" (Lei & Wu, 2007). According to Nusair and Hua (2010), it is ideal for the AVE to be greater than 0.5. Higher values for the variance-extracted estimate (greater than 0.50) reveal that the indicators represent the latent construct well (Fraering & Minor, 2006). The average variance extracted for all constructs exceeded the threshold value of 0.5. The overall amount of variance in the indicators for this study was represented well by their measurement instruments. All AVE values ranged from 0.663 to 0.854 and were thus acceptable. Results are presented in Tables 7 and 9.

Calculating Average Variance Extracted (AVE)

To calculate the AVE, the standardised factor loading values in the CFA results are used. This section presents the manual calculation of the AVE for each variable by using the following formula:

$V_\eta = \Sigma\lambda yi^2 / (\Sigma\lambda yi^2+\Sigma\varepsilon i)$

AVE = {(summation of the squared of factor loadings)/{(summation of the squared of factor loadings) + (summation of error variances)}

Using the results of the construct Confirmation (CF) to demonstrate, the calculation for AVE was conducted as follows:

Step 1: $\Sigma\lambda yi^2 = (0.772^2+0.839^2+0.717^2) = 1.814$

Step 2: $\Sigma\varepsilon i = [(1-0.772^2)+ (1-0.839^2)+ (1-0.717^2)] = 0.672$

Step 3: $V_\eta = 1.814 / (1.814+0.672) = 0.730$

The demonstrated steps above were carried out when calculating the AVE of each of the

research constructs. Altogether, the construct reliabilities and the average variance extracted estimates suggest the scales are internally consistent.

Table 9: Average extracted variance

			Estimate	λyi²	∑λyi²	ἐi	∑ἐi	∑λyi² / (∑λyi² + ∑ἐi)
CF1	<---	CF	0.772	0.814		0.228		
CF2	<---	CF	0.839	0.704	1.814	0.161	0.672	0.730
CF3	<---	CF	0.717	0.514		0.283		
FV1	<---	FV	0.800	0.640		0.200		
FV2	<---	FV	0.799	0.638	2.148	0.201	1.092	0.663
FV3	<---	FV	0.735	0.540		0.265		
FV4	<---	FV	0.574	0.329		0.426		
SV2	<---	SV	0.773	0.598		0.227		
SV3	<---	SV	0.864	0.746	2.141	0.136	0.470	0.820
SV4	<---	SV	0.893	0.797		0.107		
SA1	<---	SA	0.834	0.696		0.166		
SA2	<---	SA	0.876	0.767	2.273	0.124	0.390	0.854
SA3	<---	SA	0.900	0.810		0.100		
CI1	<---	CI	0.861	0.741		0.139		
CI2	<---	CI	0.804	0.646	1.982	0.196	0.564	0.778
CI3	<---	CI	0.771	0.594		0.229		
BL2	<---	BL	0.712	0.507		0.288		
BL3	<---	BL	0.759	0.576	2.427	0.241	0.893	0.731
BL4	<---	BL	0.872	0.760		0.128		
BL5	<---	BL	0.764	0.584		0.236		

5. 3.1 TESTING FOR VALIDITY

Validity of the instrument was tested using the following measures: the factor loadings, a correlation matrix and the Average Value Extracted (AVE) and Shared Value (SV).

Convergent Validity

Convergent validity refers to the extent to which two different measures capture the same construct (Carlson & Herdman, 2012; Schwab, 2006). Convergent validity was assessed by checking whether individual item loadings for each corresponding research construct were greater than 0.5, as recommended by Anderson and Gerbing (1988) and Schwab (2006). A strong loading of the instrument on the construct – namely, >0.5 – is an indication of convergent validity (Schwab, 2006). In this study, all the items used were loading well on their respective constructs as they had a loading of more than the recommended 0.5 – the

factor loadings ranged from 0.574 to 0.900. This indicates acceptable individual item convergent validity – more than 50% of each item's variance being shared with its respective variable. The Table below presents the results for the factor loading estimates.

Table 10: Factor loading estimates

Research Construct		Factor Loading
CF	CF1	0.772
	CF2	0.839
	CF3	0.717
FV	FV1	0.800
	FV2	0.799
	FV3	0.735
	FV4	0.574
SV	SV2	0.773
	SV3	0.864
	SV4	0.893
SA	SA1	0.834
	SA2	0.876
	SA3	0.790
CI	CI1	0.861
	CI3	0.804
	CI4	0.771
BL	BL2	0.712
	BL3	0.759
	BL4	0.872
	BL5	0.764

Discriminant Validity

5.3.1.1 Correlation Matrix

The correlation matrix is used to determine the discriminant validity of the research constructs' that is, how distinct and less similar the constructs are from one another. To achieve high discriminant validity, correlations among latent constructs should be less than 1.0 (Venter, Chinomona & Chuchu, 2016; O'Rourke & Hatcher, 2013; Wang & Cheng, 2010). Below are the results of the correlation matrix:

Table 11: Correlation Matrix

	CF	FV	SV	SA	CI	BL
CF	1					
FV	0.585	1				
SV	0.498	0.112	1			
SA	0.498	0.517	0.479	1		
CI	0.524	0.576	0.277	0.794	1	
BL	0.379	0.278	0.391	0.490	0.48	1

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

The results in Table 11 indicate that inter-correlation values for all paired latent variables were lower than 1.0; therefore positing the presence of discriminant validity. All values were less than the recommended 0.8 (Venter, Chinomona & Chuchu, 2016). The highest distinction between two constructs (shown by the lowest values, weak linear relationship) is between functional value and social value (0.112), and functional value and brand loyalty (0.278). This indicates a weak linear relationship and that constructs are very different from one another. Since all constructs are different from one another, it can therefore be concluded that all the correlations are significant.

5.3.1.2 Average Value Extracted (AVE) and Shared Value (SV)

To confirm discriminant validity, the study followed Fornell and Larcker's (1981) suggestion of assessing discriminant validity by demonstrating that the highest SV or squared correlation between one latent construct and the other is lower than the AVE for each variable (Nusair & Hua, 2010; Lim et al., 2015).

Table 12: Highest shared variance

	CF	**FV**	**SV**	**SA**	**CI**	**BL**
CF	1					
FV	0.342	1				
SV	0.248	0.013	1			
SA	0.248	0.267	0.229	1		
CI	0.275	0.332	0.077	0.630	1	
BL	0.144	0.077	0.153	0.240	0.230	1

Squared Pearson correlation coefficients for observed variables for the structural equation model are displayed in Table 22. The average variance extracted from each latent construct was lower than the square correlations between the corresponding variable and any other

variables. Thus, the current study confirmed that the constructs in the model are different from one another, indicating that all constructs carry sufficient discriminant validity.

Table 13: Average Variance Extracted (AVE) and highest share variance (SV)

Research Construct		AVE Value	Highest Shared Variance
CF	CF1	0.748	0.342
	CF2		
	CF3		
FV	FV1		
	FV2	0.663	0.342
	FV3		
	FV4		
SV	SV2		
	SV3	0.820	0.248
	SV4		
SA	SA1		
	SA2	0.854	0.630
	SA3		
CI	CI1		
	CI3	0.778	0.630
	CI4		
BL	BL2		
	BL3	0.731	0.240
	BL4		
	BL5		

Table 13 presents results of the AVE and highest SV: the AVE of CF is 0.748, which is greater than the square of the shared variance of CF and FV which is $[(0.585)^2] = 0.342$. Similarly, the AVE for FV (0.663), SV (0.820), SA (0.854), CI (0.778) and BL (0.731) are larger than their respective highest SV values. This demonstrates the presence of discriminate validity (Nusair & Hua, 2010).

In conclusion, the measurement model of this research shows satisfactory reliability and convergent validity. The next step is to conduct model fit assessment.

5.3.2 MODEL FIT ASSESMENT

Before examining hypotheses associated with the model, the goodness-of-fit between the model and the data must be determined (Byrne, 2010). AMOS offers several options for determining the fit for the model. Testing for model fit is conducted to establish whether the model fits the data correctly. To determine how well the structural equation model is represented by the data, confirmatory factor analysis (CFA) is used (Brown, 2006). Anderson and Gerbing (1988) proposed a two-step procedure for assessing model fit, consisting of CFA and hypotheses testing.

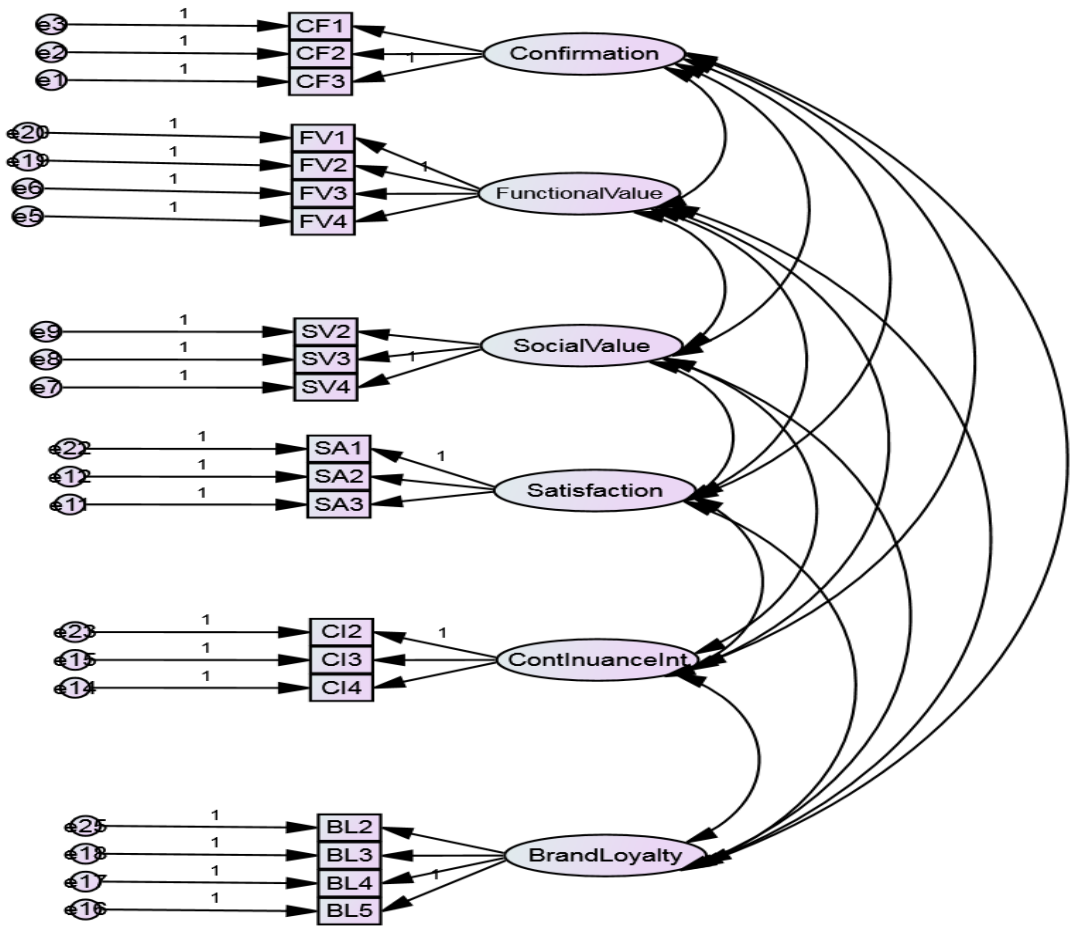


Figure 18: Confirmatory factor analysis (measurement model)

Confirmatory factor analysis (CFA) was primarily performed to examine scale accuracy (including reliability, convergent validity, and discriminant validity) of the multiple-item

construct measures using AMOS 23. Figure 18 presents the CFA model, followed by an explanation of the model fit indices.

5.5.1 Model Fit Indices

To ascertain the degree of acceptable or good model fit, a number of different indices were examined: Chi-Square (CMIN/DF), the Normed Fit Index (NFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Goodness-of-Fit Index (GFI), and the Root Mean Square Error of Approximation (RMSEA). Due to low standardised regression weights, SV1, SA4, CI1, CI2 and BL1 were removed. Thereafter, model fit was improved. Errors were also uncorrelated to further improve model fit.

5.5.1.1 Chi-Square Index

The Chi-Square goodness-of-fit statistic is used to determine the fit of the model**.**

Table 14: Chi-square (CMIN/DF) index

Model	NPAR	CMIN	DF	P	**CMIN/DF**
Default model	57	299.997	153	0	**1.961**
Saturated model	210	0	0		
Independence model	20	4619.784	190	0	24.315

A Chi-Square ratio less than five is acceptable (Marsh & Hocevar, 1985). According to Barrett (2007), a Chi-Square value below 3.0 indicates a good model fit. From the above table, the Chi-Square value is 1.961, which is within the criterion. This means there is good model fit. This value is less than the recommended threshold of less than 3.0 and therefore confirms the model fit (Chinomona & Pretorius, 2011). The overall goodness-of-fit indices provide additional support for model fit.

5.5.1.2 Baseline Comparison Index

Table 15: Goodness of Fit Index (GFI)

Model	RMR	GFI	AGFI	PGFI
Default model	**0.076**	**0.931**	**0.905**	0.678
Saturated model	**0**	**1**		
Independence model	0.61	0.293	0.218	0.265

The goodness of fit index (GFI) is a measure of the amount of variance and co-variance in a sample and adjusted goodness of fit (AGFI) adjusts for the degrees of freedom specified in the model (Byrne, 2010). From the above table, the observation is that the GFI value (0.931) is above the recommended threshold, indicating overall fit of the model.

Baseline comparisons compare the model to a baseline (Reinard, 2006). Baseline comparisons include the commonly used Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI). For a model to be considered to have a good fit, the NFI, TLI, and CFI should have values above .90, where a value of 1 indicates a perfect fit (Schumacker & Lomax, 1996; Reinard, 2006)

Table 16: Baseline comparison Index

Model	**NFI**	**RFI**	**IFI**	**TLI**	**CFI**
	Delta1	rho1	Delta2	rho2	
Default model	**0.935**	**0.919**	**0.967**	**0.959**	**0.967**
Saturated model	1		1		1
Independence model	0	0	0	0	0

Normed Fit Index (NFI)

Bentler and Bonnet (1980) recommended NFI values greater than 0.90 as indicating a good fit. The table above indicates a NFI value (0.935) that is above the recommended threshold of 0.9. This therefore implies that there is good fit.

Relative Fit Index (RFI)

The relative fit Index (RFI) by Bollen (1986) represents a derivative of both NFI and CFI. The RFI value ranges from 0 to 1 with values close to 0.95 indicating superior fit (Hu & Bentler, 1999). Literature also asserts that a RFI value that exceeds 0.9 is an indication of acceptable fit. Given that the study's RFI value is 0.919, this denotes that there is acceptable fit.

Incremental Fit Index (IFI)

It is conceived that an IFI value that meets or exceeds 0.9 signifies acceptable fit. Chinomona (2011) and McDonald & Ho, (2002) stated that the recommended IFI should be equal to or greater than 0.9 for acceptable model fit. As the study's IFI value (0.967) exceeds the recommended threshold of 0.9, this implies that there is acceptable fit.

Tucker-Lewis Index (TLI)

A Tucker-Lewis Index value that meets or exceeds 0.9 signifies acceptable fit. Hooper et al. (2008) recommended that the TLI value should meet or exceed 0.9 for the model to be accepted. The value for the current study is 0.959 and conveys that there is acceptable model fit.

Comparative Fit Index (CFI)

A CFI value equal to or greater than 0.9 is an indication of acceptable model fit (Hu & Bentler, 1999; Hooper et al., 2008). Given that the study's CFI value is 0.967, this means that there is good fit.

5.5.1.3 Root Mean Square Error of Approximation (RMSEA)

According to Hooper, Coughlan and Mullen (2008), for the RMSEA to be accepted, the value should be below 0.06.The table below presents the root mean square error approximation (RMSEA).

Table 17: RMSEA

Model	**RMSEA**	LO90	HI90	PCLOSE
Default model	**0.049**	0.041	0.057	0.592
Independence model	0.24	0.234	0.246	0

The results in the above table show that there is a good model fit, as the RMSEA value is 0.049 and is less than 0.6. This result therefore confirms that there is acceptable fit. Overall, the model fits the data well.

After examining the Chi-Square, the baseline comparison indices and the RMSEA, the fit statistics indicated that the measurement model provides a good fit to the data.

5.4 STRUCTURAL MODEL

Having established an adequate measurement model, the next step was to analyse the structural model for the hypothesis testing. Similar sets of fit indices were used to examine the structural model (see Figure 16). A comparison of all fit indices with their corresponding recommended values provided evidence of an acceptable model fit.

5.4.1 Path modelling (Structural model)

The figure below depicts the structural model. The six-factor model with 20 items was drawn using AMOS (Analysis of Moment Structure) Version 23. Just like the CFA model, the circle or oval shapes represent the latent variables, while measurement items are represented by rectangles. Adjacent to measurement items in circular shapes are measurement errors. Unidirectional arrows between latent variables are used to convey the causal relations.

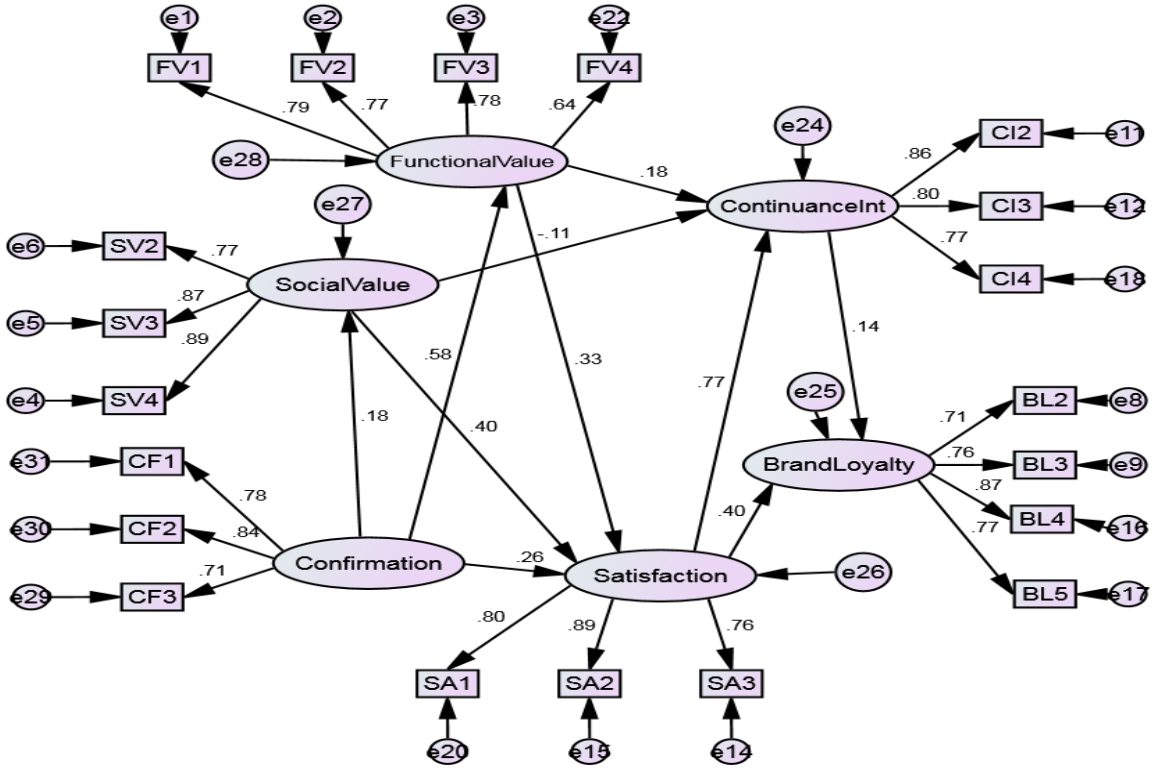


Figure 19: Structural Model

5.4.2 Model fit assessment for path modelling

Using the same data from the measurement model, a similar set of fit indices was used to examine the structural model. The table below indicates results pertaining to the assessment.

Table 18: Model fit assessment for path model

Model fit Criteria	CMIN /DF	NFI	RFI	IFI	TLI	CFI	GFI	RMSEA
Indicator value	2.321	0.920	0.905	0.953	0.943	0.952	0.915	0.057

The thresholds pertaining to the respective model fit indices expressed in CFA also apply here. The above table indicates that the Chi-Square (2.321) is meeting the threshold of <3, thus confirming that there is acceptable fit. With regard to NFI, TLI, RFI, IFI, TLI, CFI and GFI, results were 0.920, 0.905, 0.953 and 0.943, 0.952 and 0.915, respectively. These results confirm that there is good fit, as all indices are meeting the recommended threshold (≥0.9). In addition, RMSEA (0.057) validates that there is good fit, as it meets the recommended threshold (<0.06). A comparison of all fit indices with their corresponding recommended values provided evidence of an acceptable model fit. Therefore, the researcher could proceed to assess the path coefficients of the structural model.

5.4.3 Hypothesis testing results

The results in Table 19 show that nine of ten hypotheses were significant. Of the nine significant hypotheses, eight were supported. The relationship between continuance intention and brand loyalty was insignificant. Eight of the nine significant relationships were supported. The relationship between social value and continuance intention was not supported, as the direction of the relationship was found to be negative.

The strongest relationship was found to be Hypothesis 5, which tested the relationship between satisfaction and continuance intention (0.77). This result indicates that customer satisfaction has a strong positive influence on continuance intention to use branded mobile apps. A unit increase in satisfaction leads to a 0.77 increase in continuance intention. If customers have a positive satisfaction experience with a branded mobile app, they are more likely to continue using the app.

Additionally, Hypotheses 1b indicated a moderately strong relationship (0.58) between confirmation expectation and functional value.

Table 19: Hypotheses results and path coefficients

Path Coefficient	Hypothesis	Estimate	P-Value	Results
Confirmation → Social Value	H1a	0.18	0.002**	Significant and supported
Confirmation → Functional Value	H1b	0.58	***	Significant and supported
Confirmation → Satisfaction	H2	0.26	***	Significant and supported
Social Value → Satisfaction	H3a	0.40	***	Significant and supported
Functional Value → Satisfaction	H3b	0.33	***	Significant and supported
Social Value → Continuance Intention	H4a	- 0.11	0.024*	Significant but not supported
Functional Value → Continuance Intention	H4b	0.18	***	Significant and supported
Satisfaction → Continuance Intention	H5	0.77	***	Significant and supported
Satisfaction → Brand loyalty	H6	0.40	***	Significant and supported
Continuance Intention → Brand loyalty	H7	0.14	0.178	Not significant

Significance level p<0.05; **significance level <0.01; and ***significance level <0.001

Confirmation of expectations had a significant influence on functional value. If there is an increase in customer confirmation of expectations by one unit, functional value increased by 0.58 units. This means that when expectations of branded mobile apps are confirmed, the functional value is derived.

Results of Hypotheses 3a and 6 indicated that the relationship between social value and satisfaction and satisfaction and brand loyalty were fairly strong (0.40). When the social value of branded mobile apps increased by one unit, satisfaction increased by 0.4 units. In addition, if customer satisfaction increased by one unit, brand loyalty increased by 0.4 units. This means that satisfied customers are more likely to be loyal to a brand.

Hypothesis 3b showed that the relationship between functional value and satisfaction was mild (0.33). An increase in functional value by one unit was associated with an increase of

0.33 units of customer satisfaction. This means that branded mobile apps with functional value were more likely to give customers satisfaction.

The weakest relationships (-0.11 to 0.26) were confirmed by Hypotheses 1a (confirmation expectation and social value), 2 (confirmation expectation and satisfaction), 4a (social value and continuance intention) and 4b (functional value and continuance intention). A unit increase in confirmation of expectations was associated with consumers deriving an increase in social value by 0.18 units. The perceived functional value of branded mobile apps was confirmed (0.33) more than the perceived social value (0.18). Additionally, confirmation of expectations was associated with customer satisfaction with branded mobile apps. A unit increase in confirmation of expectations led to an increase of 0.26 in customer satisfaction. When expectations are confirmed, satisfaction follows.

Social value was negatively associated with continuance intention. An increase in social value of branded mobile apps was associated with a decrease in continuance intention of 0.11 units, holding all other factors constant. This is one of two hypotheses of the study that were not supported by the data.

The relationship between functional value and continuance intention was supported but weak. An increase in functional value of one unit was associated with an increase of 0.18 units of continuance intention. This means that branded social apps with functional value were more likely to be used continuously by customers. Functional value was more important in influencing continuance intention than social value.

In conclusion, the results supported eight out of ten proposed hypotheses, with satisfaction and continuance intention indicating the strongest relationship. Confirmation of expectations of branded mobile apps affected brand loyalty indirectly via customer satisfaction. Confirmation of expectations also indirectly affected continuance intention via customer satisfaction. The indirect relationship between confirmation of expectations and continuance intention was only supported through functional value rather than social value.

The perceived functional value had both a direct and indirect (through satisfaction) relationship with continuance intention. Functional value and social value were positively but indirectly related to brand loyalty via satisfaction. The relationship between continuance intention and brand loyalty was not supported. Therefore, the indirect relationship between

perceived value and brand loyalty and between satisfaction and brand loyalty through continuance intention was not supported by the study. Customer satisfaction had a direct relationship with brand loyalty. The relationship between social value and continuance intention was negative and not expected, but weak.

CHAPTER 6: DISCUSSION OF FINDINGS

This chapter presents a discussion of the research findings in light of previous literature and hypothesis development in Chapters 3 and 4, respectively. The results of each of the seven main and three sub-hypotheses are presented and discussed.

6.1 CONFIRMATION OF EXPECTATIONS AND PERCEIVED VALUE

H1a: There is a positive relationship between confirmation of expectations and social value.
H1b: There is a positive relationship between confirmation of expectations and functional value.

The findings of the present study indicated a positive relationship between confirmation of expectations and perceived value. Hypotheses 1a and 1b were therefore supported. A closer look at this relationship between the different dimensions of perceived value showed that functional value had a moderately strong relationship (0.58) with confirmation of expectations, while social value showed a weak relationship (0.18). Consumer perceptions of the functional and social value of branded mobile apps were greater than expectations and this led to positive disconfirmation. Functional and social performances of branded mobile apps were better than the customers had initially expected.

The findings from this study are consistent with previous studies. In a study conducted by Hsu & Lin (2015), the results showed that consistency between actual experience and expectation would positively impact perceived value. Overall, confirmation of expectations was positively related to the user's perceived value. Therefore, consistency between actual experience and expectation positively impacted perceived functional and social value. This potentially indicates that confirmation of expectations was an important variable in the context of branded app usage. Users realised through usage that actual performance of apps was greater than expectations. But confirmation of functional performance of apps met expectations in a stronger manner than social performance of apps.

The two different elements of value (functional and social) were different in how consumers perceived branded apps. Functional value of mobile apps met expectations more than the social value of branded apps, even though the latter was confirmed. This could suggest that

the economic usefulness (utilitarian) or the problem solving value of branded apps were more important than their entertainment value. The functional value of branded apps elicited a more favorable attitude than the emotive value apps generated. Use of perceived value as a single variable masked the intricate judgments that consumers made with respect to pre-adoption value of branded mobile apps. Consumers' post adoption evaluation of pre-adoption expectations was different for different elements of value. Pre-adoption expectations of functional value were confirmed and reinforced more than expectations of social value.

6.2 CONFIRMATION OF EXPECTATIONS AND SATISFACTION

H2: There is a positive relationship between confirmation of expectations and satisfaction.

The results showed a significant positive relationship between confirmation of expectations and satisfaction. However, the relationship was weak, as the coefficient was 0.26. This result was generally consistent with theory and numerous past studies in mobile-related research, which found a positive relationship between confirmation of expectations and satisfaction (Yuan et al., 2014; Bøe et al., 2015; Hsu & Lin, 2015b, Yuan et al., 2014; Hsu & Lin, 2015). Bhattacherjee (2001) argued that confirming expectations from initial use to actual experience was crucial in boosting satisfaction. Users perceive their initial expectation of branded apps as being confirmed during actual use. When users actually use branded apps, they update their initial expectations simultaneously. If branded apps out-perform relative to their initial expectations, their post-adoption expectations are confirmed (Yuan et al., 2014).

In summary, the level of confirmation determines the level of satisfaction. In the present study, consumers experienced positive disconfirmation of their expectations of mobile branded apps and this boosted satisfaction. The model used in this study supports the Expectation Disconfirmation Paradigm (EDP). Confirmation of expectations was an important antecedent of satisfaction.

6.3 PERCEIVED VALUE AND SATISFACTION

H3a: There is a positive relationship between social value and satisfaction.
H3b: There is a positive relationship between functional value and satisfaction.

The findings indicated that there was a significant, positive relationship between perceived value and satisfaction; both Hypotheses 3a and 3b were therefore supported**.** Looking at the two dimensions of value used in this study, results showed that the relationship between social value and satisfaction (0.40) was slightly stronger than the one between functional value and satisfaction (0.33). There was not much difference on the impact that social value and functional value had on satisfaction in relation to branded apps. Therefore, branded mobile apps with perceived value (social and functional) were more likely to give customers satisfaction.

The current study supports prior studies that verified the influence of perceived value on satisfaction. For instance, Kuo, Wu and Deng (2009) presented and empirically evaluated a conceptual model of the relationships among service quality, perceived value, customer satisfaction and post-purchase intention in mobile value-added services. Their findings showed that perceived value positively influenced customer satisfaction. Apparently, customers may develop this perception of value while they use mobile-related applications and services (Kuo, Wu & Deng, 2009). Similarly, Lin and Wang (2006) found that perceived value had a significant effect on customer satisfaction in mobile commerce contexts.

Table 20: Post adoption satisfaction and continuance intention of branded mobile apps

Consumer Evaluation	Result	Post-adoption Outcome
Functional Performance>Expectation	Positive Disconfirmation	Satisfaction
Social Performance > Expectation	Positive Disconfirmation	Satisfaction

The indirect influence of confirmation on satisfaction was also confirmed. According to Table 20, the actual experience was greater than pre-adoption expectations of both social and functional values of branded apps. This resulted in positive disconfirmation, which generated an outcome of satisfaction. The degree to which customers were pleased with branded apps added to their overall satisfaction.

6.4 PERCEIVED VALUE AND CONTINUANCE INTENTION

H4a: There is a positive relationship between social value and continuance intention.
H4b: There is a positive relationship between functional value and continuance intention.

Perceived functional value was found to be an important booster in consumers' behaviour and decisions to continue using branded apps. However, perceived social value was found to be an inhibitor of continuance intention. Even after expectations of social value were recognisable, continuance intention was inhibited.

Other studies found a relationship between perceived value and continuance intention (Shaikh & Karjaluoto, 2016; Lin et al., 2012; Peng et al., 2015; Hsu & Lin, 2015). Shaikh and Karjaluoto (2016) developed and tested a model of continuous usage intentions toward mobile banking services for a sample of 273 Finnish m-banking users. Results confirmed the hypothesised direct relationships perceived value and continuous usage (Shaikh & Karjaluoto, 2016). Similarly, Peng et al. (2015) examined the influential factors on branded app adoption from the perspectives of brand relationship and consumption values.

Li, Li and Kambele (2012) employed a similar approach by using multidimensional value to investigate Chinese consumers' willingness to pay for luxury fashion brands. They found that perceived social/emotional value, perceived utilitarian value and perceived economic value were found to have significant influence on the willingness of Chinese consumers to pay for luxury fashion brands (Li, Li & Kambele, 2012). The negative relationship between social value and continuance intention was unexpected.

Table 21: Post-adoption satisfaction and continuance intention of branded mobile apps

Consumer Evaluation	Result	Post-adoption Outcome
Functional Performance>Expectation	Positive Disconfirmation	Continuance Intention
Social Performance > Expectation	Positive Disconfirmation	Discontinuance

Table 21 shows that the indirect influence of confirmation on continuance intention was supported for functional value, but was not supported for social value. According to Table 21, the actual experience was greater than pre-adoption expectations of both social and functional values of branded apps, but the post-adoption outcome was different. The degree to which customers were pleased with the functional value of branded apps boosted continuance intention, but the confirmation of social value inhibited continuance intention. Results suggested that not all elements of perceived value impacted on continuance intention in the same manner.

Hsiao (2016) found that for social apps, continuance intention was driven by the social value as well as satisfaction. In this study, social value positively boosted continuance intention through the mediation effects of satisfaction. Mediation effects of satisfaction were also supported for functional value. This study supports the result that continuance intention was an outcome of confirmed expectations as long as satisfaction was achieved. The direct influences of perceptions of functional and social value on continuance intention were inconsistent. Satisfaction was, therefore, an important intervening variable between perceived value and continuance intention. The results removed doubt that both elements of value influenced continuance intention through the mediation effect of satisfaction.

6.5 SATISFACTION AND CONTINUANCE INTENTION

H5: There is a positive relationship between satisfaction and continuance intention.

The findings showed that satisfaction directly influenced users' continuance intention to use branded apps; therefore, Hypothesis 5 was supported. The coefficient of this relationship was also found to be the strongest (0.77). This result indicated that continued usage of branded apps was driven by users' satisfaction. Users would continue engaging with branded apps if they were satisfied with them. Consumers of branded apps were keen to continue using apps that met their needs and had a good fit with their lifestyle.

These results are consistent with results from studies of the Information Systems continuance model of Bhattacherjee, (2001) which confirmed that satisfaction was a key and the most influential factor in explaining users' continuance intention. A significant body of research in the areas of information systems and marketing supports the argument which suggests that user satisfaction was a reliable predictor of continued use intention (Wang et al., 2010; Bøe, Gulbrandsen & Sørebø, 2015). Lin et al. (2012) integrated value-based adoption and expectation–confirmation models and also found that satisfaction had a positive impact on continuance intention. Past studies of mobile services also supported this argument that customer satisfaction was positively related to post-purchase intention (Kim et al., 2011; Yuan, Liu & Yao, 2014; Hsiao, Chang & Tang, 2015).

In the marketing context, customer satisfaction played an important role, as it was a good predictor of subsequent behaviour or continuance intention (Lin et al., 2012). This study confirmed the Expectation Confirmation Theory (ECT) by Oliver (1980) which stated that satisfaction with a product or service was a prerequisite for establishing purchase intentions

among consumers. In the present study, the more satisfied customers were with a branded app, the more likely they were to continue using the app.

6.6 SATISFACTION AND BRAND LOYALTY

H6: There is a positive relationship between satisfaction and brand loyalty.

Brand satisfaction was found to have a positive relationship with brand loyalty. This indicated that the more satisfied customers were with the branded app, the more likely they would be to portray loyalty towards the brand. The relationship was mild (0.40), but it was supported. In other words, the satisfaction customers had with branded apps was likely to influence their loyalty towards the brands. Therefore, the higher the satisfaction levels with a brand, the greater the possibility that customer would portray brand loyalty.

The result was consistent with past studies, where results supported the argument that satisfaction had a direct link with brand loyalty. Users would have higher brand attachment if they were satisfied with the branded app with which they engaged. Most prior studies pointed out this dominant view that customer satisfaction positively influenced brand loyalty (Flavián, Guinalíu & Gurrea, 2006; Veloutsou, 2015; Kao & Lin, 2016). If consumers perceived that a product had fulfilled its agreed promises, they tended to believe that this behaviour would continue in the future (Flavián et al., 2006). This finding was consistently evident among studies conducted in the mobile services industry and other contexts. Lee et al. (2015) investigated antecedents and consequences of mobile phone usability by linking simplicity and interactivity to satisfaction, trust and brand loyalty. Using SEM, they found the relationship between satisfaction and brand loyalty to be significant (Lee et al., 2015). Similarly, Hew et al. (2016) investigated the impact of mobile social commerce on brand loyalty and found a strong relationship between satisfaction and brand loyalty.

Despite this significant relationship, marketers should note that brand satisfaction does not guarantee brand loyalty. Satisfaction simply increased the possibility of being loyal to a brand. According to Jones and Sasser Jr. (1995), unless customers were totally satisfied, there was always a chance that "very satisfied" to "satisfied" customers could be persuaded to switch to competitors. Satisfaction was, therefore, necessary but not a sufficient condition for brand loyalty. The link between satisfaction and loyalty is neither simple nor linear (Rossat et al., 1999). Even if the “satisfaction-repurchase-loyalty” linkage was often postulated, high

levels of satisfaction may not result in a behaviour characterised by loyalty, due to the many intervening variables of the process (Jacoby & Chestnut, 1978; Jones & Sasser Jr., 1995; Oliver, 1999).

Perceptions of value influenced brand loyalty through the mediation effects of satisfaction. Furthermore, confirmation of expectations was also found to influence brand loyalty via satisfaction. The mediation effect of satisfaction was confirmed between perceived value/confirmation expectations and brand loyalty.

In summary, brand satisfaction was antecedent to brand loyalty. Satisfied customers patronised the service and referred to the service (Jones & Sasser Jr. (1995). Satisfaction was also an important mediating variable between expectations/perceptions of value with brand loyalty. Although this relationship was supported, brand loyalty was more about emotional value and attachment security; not just satisfaction. The fit between a customer's self and a brand image drove attachment (Hoyer & Nyffenegger, 2011). Hudson (2015) pointed out that knowledge of the relationship or the fit between the customer and brand image is limited. How these relationships impact on brand loyalty is an area of further research.

6.7 CONTINUANCE INTENTION AND BRAND LOYALTY

H7: There is a positive relationship between continuance intention and brand loyalty.

Despite there being a positive relationship between continuance intention and brand loyalty, this study found that this relationship was not significant; therefore Hypothesis 7 was not supported. The existence of a correlation between continuance intention and brand loyalty did not suggest continuance intention was a driver of brand loyalty.

This finding contradicts findings of other mobile commerce-related studies. According to Georgescu and Popescul (2015) and Hew et al. (2016), consumers' intentions to continue using mobile social commerce was expected to positively influence brand loyalty. Brand loyalty was not continuance intention alone, but continuance intention coupled with a positive attitude towards the brand. Kim et al. (2015) found an indirect relationship between continuance intention and loyalty. It is possible that customers could be committed to the same brand and they could continue choosing that particular brand because of convenience or habit. Repeated purchase alone was insufficient, as customers could be tempted to defect to competitors easily. Continuance intention on its own suggested a habit or spurious or

behavioural loyalty, but not attitudinal loyalty. Continuance intention was persuasive but not directly linked with loyalty, especially when associated with a negative attitude towards the brand. Continuance intention was also found to have no mediating effects between satisfaction and perceptions of value with brand loyalty.

In summary, this study found that the relationship between continuance intention and brand loyalty was not significant. Even continuance intention coupled with increasing spending levels did not imply brand loyalty. Continuance intention was simply an intermediate response following satisfaction with prior usage. This post-adoption behaviour provided firms with repeat customers, but there was no guarantee these customers could be retained in the face of competition. A favourable attitude towards a brand could be a precursor of brand attachment. Additional research was needed to separate attitude towards a brand from repurchase behaviour.

6.8 CONCLUSIONS

This chapter provided a critical discussion on the research results stemming from the data analysis and the outcomes of the proposed hypotheses. Further, the findings were compared to previous literature. In the following and final chapter, the conclusion, contributions, implications, limitations and future research are discussed.

CHAPTER 7: CONCLUSIONS, CONTRIBUTIONS, IMPLICATIONS AND FUTURE RESEARCH

7.1 INTRODUCTION

This chapter presents an overview of the main findings of the study. Furthermore, it discusses the theoretical and practical implications of the study, the contributions and limitations and, lastly, areas recommended for future research.

7.2 CONCLUSIONS

With an increase in the penetration into the market of smart phones in recent times, the use of branded applications via mobile apps is growing rapidly. The results of this study support findings from the Mobile Marketing Association in South Africa (MMASA) that companies in South Africa are engaged with customers through branded mobile apps. Millennials – who formed more than three-quarters of South Africa's customers – were choosing to engage with brands through mobile apps.

The search for branded mobile apps was above 50% across all categories of apps. This suggested that awareness of the user centric range of branded mobile apps was widespread among South African Millennials. The majority of Millennials were choosing rather than being pushed to search for the type of branded apps they wanted. Given that Millennials represent 77% of South Africa's population, branded mobile apps appeared to be an important tool to connect with the majority of consumers in South Africa. Interactive marketers were indeed reaching out to the majority of consumers to promote their brands. Because of the connection Millennials had with branded mobile apps, a brand relationship building process was underway.

Social media apps (Facebook, Instagram, Twitter, Snapchat and WhatsApp) were the most popular because they offered messaging services that used less data and cost less than mobile network operators' charges per message. Most brands had social media accounts that customers used to communicate with the brand. This could explain why social media engagement was prominent and above 93%. Mobile network apps provided by Telkom Mobile, Vodacom, MTN, Cell C and others were also popular, as consumers could quickly and easily transfer money to friends, make purchases or pay bills. Engagement with retail

clothing, health and fitness, retail, fast food and travel apps among Millennials was low; probably because they did not have enough disposable income and were using alternative means to access these services.

Most of the respondents who downloaded apps had used the app at least once, 14 days prior to the survey. More than 70% of the customers who had downloaded apps were engaged with all these apps. This behaviour suggested that customers were engaged with apps beyond the initial adoption. The highest levels of post-adoption usage were with social media apps (93%), fast food apps (90%), retail food apps (86%) and mobile network apps (85%). This degree of post-adoption usage implied that respondents found the apps they downloaded useful. Post-adoption usage of health and fitness and travel apps were less widespread. In terms of behavioural loyalty, customers appeared most loyal to social media and fast food branded apps. Continuous usage of apps downloaded by customers suggested that the brands fitted with the customers' lifestyles and/or met the needs and expectations of customers.

These results also suggested that marketers and advertisers were capturing consumers effectively, using mobile apps. The likelihood that marketers could use mobile apps to communicate and advertise to new customers and increase brand loyalty with existing customers was high. Because of the cost-effectiveness and ubiquity (same time, any time connection), branded mobile apps were a persuasive platform that marketers were using to raise brand awareness and enhance brand experience.

Within the millennial population segment, branded mobile apps transcended gender, income and age. Therefore, branded mobile apps were robust. Interactive marketers who wished to connect with the majority of consumers in South Africa were encouraged to do so through branded mobile apps. Use of branded mobile apps could be a forceful and highly efficient way to promote brands and manage customer relations. The future sustainability and long-term viability of South African brands could depend on the strength of their engagement with Millennials. Branded mobile apps are an engagement platform that interactive markets were utilising.

Given the ubiquitous and robust nature of branded mobile apps, it was important to understand their effectiveness in building brand loyalty. Brand loyalty remains one of the fundamental objectives of marketing. Selling products or services, acquiring new customers and retaining existing customers is linked to long-term viability of firms. This requires that

customers are satisfied, tell their friends and establish a long-term attachment with the brand. Understanding the antecedents of brand loyalty is critical to every firm's success and was therefore the primary focus of this study.

The findings of this study show that confirmation of expectations, functional value, social value and satisfaction significantly influence brand loyalty. Confirmation of expectations was positively related to the user's perceived value. Therefore, consistency between actual experience and expectation positively impacted perceived functional and social value. Consumers' perceptions of the two (functional and social) elements of value were different. Functional value of mobile apps met expectations more than the social value of branded apps, even though the latter was confirmed. This could lead to the conclusion that the economic usefulness (utilitarian) or problem solving value of branded apps could be more important than their entertainment value. Furthermore, use of perceived value as a single variable masked the intricate judgments that consumers made with respect to pre-adoption value of branded mobile apps. Pre-adoption expectations of functional value were confirmed and reinforced more than expectations of social value.

In the present study, consumers experienced positive disconfirmation of their expectations of mobile branded apps and this boosted satisfaction. The model used in this study supported the Expectation Disconfirmation Paradigm (EDP) and the study concludes that confirmation of expectations was an important antecedent of satisfaction.

Branded mobile apps with perceived value (social and functional) were more likely to give customers satisfaction. The current study supports prior studies that verified the influence of perceived value on satisfaction. The indirect influence of confirmation on satisfaction was also confirmed. The actual experience was greater than pre-adoption expectations for both social and functional values. This resulted in positive disconfirmation, which generated an outcome of satisfaction.

Results suggested that not all elements of perceived value impacted on continuance intention in the same manner. Perceived functional value was found to be an important booster in consumer's decision and behaviour to continue using branded apps. However, perceived social value was found to be an inhibitor of continuance intention even after expectations of social value were recognisable. This study established that social value positively boosted continuance intention through the mediation effects of satisfaction. The study also confirmed

that the effect of functional value on continuance was mediated by satisfaction. This study concludes that continuance intention was an outcome of confirmed expectations as long as satisfaction was achieved. Satisfaction was, therefore, an important intervening variable between perceived value and continuance intention.

Customer satisfaction played an important role in predicting continuance intention. This study therefore confirmed the Expectation Confirmation Theory (ECT) that satisfaction with a product or service was a prerequisite for establishing purchase intentions among consumers. The study established that satisfaction increased the possibility of a customer being loyal to a brand. Even though satisfaction was necessary, it was not a sufficient condition for brand loyalty. High levels of satisfaction could not be characterised as loyalty due to the many intervening variables. Despite this significant relationship, the conclusion is that brand satisfaction may not always guarantee brand loyalty.

This study found that the relationship between continuance intention and brand loyalty was insignificant. Continuance intention did not imply brand loyalty, even when coupled with increasing spending levels. The conclusion is that continuance intention was simply an intermediate response following satisfaction with prior usage.

In summary, this research has shown that marketers were engaged with Generation Y consumers through the use of branded mobile apps. The interaction with branded mobile apps was associated with brand loyalty. Confirmation of expectations, perceptions of value and satisfaction were important drivers of loyalty. Branded mobile apps were a vehicle which marketers in South Africa could use to achieve brand loyalty among the largest consumer segment – the Millennials. In this era of smartphone use, use of branded mobile apps was critical. Engagement with customers was associated with building of favourable attitudes towards brands. Digital marketers could harness the potential of branded mobile apps for optimum engagement with Millennials to achieve brand loyalty.

7.3 RESEARCH CONTRIBUTION

The current study makes both theoretical and practical contributions. This study provides a theoretical understanding of the factors contributing to customer brand loyalty in relation to branded mobile apps by using the Confirmation Expectation Theory by Oliver (1980) and the Information Systems model by Bhattacherjee (2001) as a base model. This study supports the

theory above that when consumers experience positive disconfirmation of their expectations, satisfaction is boosted. Unlike Theory of Planned Behaviour, Confirmation Expectation Theory based models are able to show that satisfaction is a reliable predictor of post-adoption behavior. Therefore, ECT has the ability to explain post-adoption behavior

The study confirmed and extended the results of previous research by incorporating perceived social and functional values from the theory of consumption values in the ECM. The relationship between confirmation of expectations and different value elements was not uniform. Multiple value elements must be introduced in study models to identify which elements are confirmed and meet expectations in a strong manner. Use of perceived value as a single variable should be avoided as it masks consumer post-adoption judgments with respect to pre-adoption expectations. By enabling investigation of the relevant value dimensions, the results advance the understanding of app designers regarding the antecedents of branded app adoption. Exploring multiple value elements enriches the standard Expectation Confirmation Model.

Further, this study closes existing research gaps and deepens understanding of the factors that drive brand loyalty regarding mobile technology (branded apps) in South Africa. In spite of the rapid increase in the practical utilisation of branded apps as a new communication tool, few academic researchers have investigated this topic. Thus, this study is among the first to analyse the effects of branded apps on brand loyalty using empirical data.

Practically, this study sheds new light on branded app marketing and development. Companies that launch their branded apps need to take advantage of established brand names and continually focus on promoting their brand image. Companies can also take advantage of consumers' value perceptions toward branded apps and promote more brand name products and services via the mobile app channel. Moreover, companies may need to survey users on their unique attitudes and values of branded apps and incorporate the findings into app design. As a result, their customers would develop a stronger sense of belonging and sameness when interacting with the app and consequently develop loyalty.

7.4 IMPLICATIONS

This study provides both theoretical and practical implications for mobile branded apps in terms of building users' satisfaction levels and their intention to consider continued use after

their initial adoption. Theoretically, by incorporating items from the theory of consumption values into the ECM, the research investigates brand loyalty from the perspective of users' perceptions towards branded apps. Both antecedents – namely, confirmation and perceived value (social value and functional value) – have positive impacts on user satisfaction of branded apps. The confirmation of functional value indicates that to maintain user satisfaction and frequent use of branded apps, developers must emphasise the utilitarian feature to improve users' performance of daily tasks. Next, the confirmation of social value has proved to have an influence on satisfaction; users have a strong demand for social value when using branded apps. As previous studies have mentioned, peer pressure exerts greater influence on young people than on their older counterparts. Therefore, practitioners could implement strategies aimed at young people to develop their sense of identity, which is linked to mobile branded app use. In addition, different strategies could also be applied to different age groups, as this study only focused on Millennials.

The findings can also help smartphone and mobile apps industries to gain further understanding on the impact of branded apps on user satisfaction and brand loyalty. Satisfaction could, however, be subjective for users and non-users. Marketers should determine strategies appropriate for actual users and potential users because of the behavioural differences between these two groups and form appropriate strategies accordingly. Users intend to be loyal to a brand when they have a high level of satisfaction with the branded apps.

7.5 LIMITATIONS

When generalising the results, this study should be interpreted and accepted with caution. Firstly, it should be noted that choosing one university in Johannesburg introduced a degree of bias. Secondly, the respondents were branded app users at the University of the Witwatersrand in South Africa and it is therefore conceivable that users from other regions or countries may have different perceptions of and reactions to branded apps. The significance found for individual paths in the research model might be different in other countries.

Even within South Africa, the awareness and adoption of branded apps by Millennials may not be extrapolated to Generation X and Baby Boomers. Brand communication and advertising for older generations could still be via traditional media and word of mouth than branded apps. Among the older generation engaged with branded apps, the pattern of

engagement with retail clothing, health and fitness and travel apps could be different to what Millennials exhibit because the former tend to have more disposable incomes than younger generations.

Nevertheless, university students who are actual users of branded apps were recruited for this research to validate the theoretical framework. In addition, the current research confirmed findings of previous research studies and this can enhance confidence in the findings.

7.6 FUTURE RESEARCH

This study was focused on Generation Y consumers in Johannesburg, South Africa. Firstly, future research testing of the research model and the corresponding hypotheses in other population groups and geographical contexts may be necessary in order to improve the generalisability of the results and contribute to more precise marketing strategies. Secondly, the study was conducted using a short-term snapshot of users' behaviour, but behaviour can be dynamic; future research can adopt a longitudinal study to examine users' behaviours in different time periods and make comparisons.

Thirdly, future research should distinguish interaction of brands with customers via social media accounts versus branded apps. Most brands have social accounts and use them to engage with customers. Research could further explain when it is more appropriate to use social media accounts rather than stand-alone apps for communication and advertising.

Fourthly, the relationship between perceived value and continuance intention needs further investigation. This study found inconsistent results of a direct relationship but found the indirect relationship intermediated by satisfaction more consistent. Finally, this study found that satisfied customers were more likely to be loyal to a brand but the relationship is not that simple and direct. Satisfied customers are not necessarily loyal. Further research is needed to understand the process through which customers find a fit with a brand image. Customer attachment with a brand goes beyond simple satisfaction. Research that identifies the intervening variables between satisfaction and brand loyalty is essential.

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Appendix 1: Questionnaire

SECTION A: GENERAL INFORMATION

This section is about background information. Please indicate (X) for appropriate answer:

A1 Gender

Male		Female	

A2 Age category

18-20		21-24		25-29		30-34	

A3 Level of academic pursuit

1st		2nd		3rd		4th		Postgrad	

A4 What operating system do you use on your Smartphone or tablet?

Apple (iOS),		Android		Windows		Blackberry		Other	

A5 What is your average monthly expense in Rands? (Food, rent, transport, utilities, phone, entertainment etc.)

≤500		1001-2000		3001 – 4000		>5000	
501-1000		2001-3000		4001 -5000			

SECTION B: INFORMATION ABOUT BRANDED MOBILE APPS.

Have you searched and downloaded any of the following app categories on your mobile phone or iPad? For all apps installed (including the ones pre-installed), indicate if you have used the app in the last 14 days. Kindly Mark (X) for appropriate answer?

Category of Apps	**Searched**	**Downloaded**	**Used in last 14 days**
Sociale.gWhatsapp, Instagram, Twitter, Facebook etc.			

Fast Food e.g. Wimpy, Nandos, KFC etc.			
Retail Food e.g. Pick nPay, Woolworths etc.			
Retail Clothing e.g.Mr Price, Edgars, Legit, H&M etc.			
Mobile Network Operator e.g. MTN, Vodacom etc.			
Banking e.g. Standard Bank, FNB, Capitec Bank etc.			
Health & Fitness			
Travel e.g. Gautrain, Uber,South African Airways etc.			
News e.g. BBC, CNN, eNCA etc.			

SECTION C: CONFIRMATION

Please indicate to what extent you agree/disagree with the following statements regarding your confirmation of expectations towards mobile apps.

		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
CF1	My experience with using branded apps was better than what I expected.	1	2	3	4	5	6	7
CF2	The service level of branded app provider was better than what I expected.	1	2	3	4	5	6	7
CF3	Overall, most of my expectations from using branded apps were confirmed.	1	2	3	4	5	6	7

SECTION D: PERCEIVED VALUE

FUNCTIONAL VALUE

Please indicate to what extent you agree/disagree with the following statements regarding the functional value of branded mobile apps (branded apps)

		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
FV1	Branded apps are well made.	1	2	3	4	5	6	7
FV2	Branded apps fulfill my needs as well.	1	2	3	4	5	6	7
FV3	Branded apps have acceptable standard of quality	1	2	3	4	5	6	7
FV4	Branded apps have consistent quality	1	2	3	4	5	6	7
FV5*	Branded apps perform consistently	1	2	3	4	5	6	7

SOCIAL VALUE

Please indicate to what extent you agree/disagree with the following statements regarding the social value of mobile branded apps (branded apps)								
		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
SV1*	Using branded Apps helps me feel accepted.	1	2	3	4	5	6	7
SV2	The fact I use branded apps makes a good impression onother people.	1	2	3	4	5	6	7
SV3	Using Branded Apps brings me social approval.	1	2	3	4	5	6	7
SV4	Using branded Apps improves the way I am perceived.	1	2	3	4	5	6	7

SECTION E: SATISFACTION

Please indicate to what extent you agree/disagree with the following statements regarding your satisfaction towards mobile branded apps (branded apps)								
		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
SA1	My choice to use branded apps was a wise one.	1	2	3	4	5	6	7
SA2	I am happy that I use branded apps	1	2	3	4	5	6	7
SA3	Using branded apps makes me feel very satisfied.	1	2	3	4	5	6	7
SA4*	Using branded apps makes me feel very delighted.	1	2	3	4	5	6	7

SECTION F:CONTINUANCE INTENTION

Please indicate to what extent you agree/disagree with the following statements regarding your continuance intention to use branded mobile apps (branded apps)								
		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
CI1*	I intend to continue using branded apps rather than discontinue use.	1	2	3	4	5	6	7
CI2	If I could, I would like to continue my use of branded apps	1	2	3	4	5	6	7
CI3	I will strongly recommend others to use branded apps	1	2	3	4	5	6	7
CI4	I will keep using branded apps as regularly as I do now.	1	2	3	4	5	6	7
CI5*	I will always try to use branded apps in my daily life.	1	2	3	4	5	6	7

SECTION G: BRAND LOYALTY

Please indicate to what extent you agree/disagree with the following statements regarding your loyalty towards a brand.								
		Strongly disagree	**Disagree**	**Slightly disagree**	**Neutral**	**Slightly agree**	**Agree**	**Strongly agree**
BL1*	I like a company that provides mobile app services more than other brands.	1	2	3	4	5	6	7
BL2	I have a strong preference for a company that provides mobile app services.	1	2	3	4	5	6	7
BL3	When I have a need for a product or service, I give prior consideration to a company that has mobile app services.	1	2	3	4	5	6	7
BL4	I would recommend a company that provides mobile app services to others.	1	2	3	4	5	6	7
BL5	I will stay with the brand if a company provides mobile app services.	1	2	3	4	5	6	7

Thank you! The end

Appendix 2:Cronbach's Alpha Coefficient

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.813	0.814	3

Item Statistics			
	Mean	Std. Deviation	N
CF1	5.06	1.318	406
CF2	4.96	1.194	406
CF3	5.16	1.199	406

Item-Total Statistics						
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
CF1	10.12	4.595	0.657	0.464	0.753	
CF2	10.22	4.787	0.734	0.541	0.673	
CF3	10.02	5.266	0.607	0.386	0.799	

Scale Statistics				
Mean	Variance	Std. Deviation	N of Items	
15.18	10.047	3.170	3	

Reliability Statistics			
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
0.880	0.880	3	

Item Statistics				
	Mean	Std. Deviation	N	

SV2	3.94	1.749	406	
SV3	3.90	1.810	406	
SV4	3.91	1.811	406	

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
SV2	7.81	11.631	0.718	0.517	0.872	
SV3	7.84	10.691	0.785	0.633	0.814	
SV4	7.84	10.550	0.801	0.652	0.799	

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
11.75	23.256	4.822	3

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.850	0.851	3

Item Statistics

	Mean	Std. Deviation	N
SA1	5.11	1.266	406
SA2	5.16	1.229	406
SA3	4.75	1.241	406

Inter-Item Correlation Matrix

	SA1	SA2	SA3
SA1	1.000	0.747	0.546
SA2	0.747	1.000	0.672
SA3	0.546	0.672	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	

SA1	9.91	5.098	0.707	0.562	0.803	
SA2	9.87	4.856	0.807	0.657	0.706	
SA3	10.27	5.438	0.650	0.455	0.855	

Scale Statistics

Mean	Variance	Std. Deviation	N of Items	
15.02	10.740	3.277	3	

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.850	0.853	3

Item Statistics

	Mean	Std. Deviation	N
CI2	5.65	1.109	406
CI3	5.44	1.209	406
CI4	5.39	1.299	406

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CI2	10.83	5.076	0.758	0.575	0.760
CI3	11.04	4.887	0.701	0.503	0.806
CI4	11.09	4.513	0.707	0.509	0.807

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
16.49	10.097	3.178	3

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.856	0.858	4

Item Statistics			
	Mean	Std. Deviation	N
BL2	5.06	1.274	406
BL3	4.74	1.457	406
BL4	5.20	1.292	406
BL5	5.02	1.431	406

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
BL2	14.96	13.299	0.639	0.427	0.842
BL3	15.28	11.766	0.698	0.496	0.819
BL4	14.82	12.196	0.775	0.602	0.788
BL5	15.00	11.928	0.697	0.502	0.819

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
20.02	20.864	4.568	4

Appendix 3: Ethics Clearance Certificate

Research Office

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

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H16/05/20**
PROJECT TITLE	Effectiveness of branded mobile apps on brand loyalty among generation Y consumers
INVESTIGATOR(S)	Ms N Chalomba
SCHOOL/DEPARTMENT	Economics and Business Sciences/
DATE CONSIDERED	20 May 2016
DECISION OF THE COMMITTEE	Approved unconditionally
EXPIRY DATE	20 June 2019

DATE 21 June 2016 **CHAIRPERSON** _____
(Professor J Knight)

cc: Supervisor : Ms M Gujral

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ _____/_____/_____
Signature **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES