

# Use of mobile apps when purchasing apparel: A young male adult perspective

**Authors:**

Miguel Correia<sup>1</sup>   
Nicole Cunningham<sup>1</sup>   
Mornay Roberts-Lombard<sup>1</sup> 

**Affiliations:**

<sup>1</sup>Department of Marketing Management, College of Business and Economics, University of Johannesburg, Johannesburg, South Africa

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**Corresponding author:**

Nicole Cunningham,  
ncunningham@uj.ac.za

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**Background:** Given the increased usage of mobile apps among males when purchasing apparel, it is imperative that retailers develop mobile apps that align with the target market's needs.

**Objectives:** This article aims to determine the mobile app intention and usage among young male adult consumers when purchasing apparel.

**Method:** A positivistic, descriptive research design was followed, and data were collected from 310 young male adults. Structural equation modelling and moderation analysis were used to test the hypotheses.

**Results:** The study found that the behavioural intention of young adult males using mobile apps to purchase apparel is influenced by the perceived usefulness and attitude towards the app, while the attitude towards the app is influenced by perceived usefulness and ease of use. Perceived usefulness was also influenced by innovativeness and perceived ease of use, while ease of use is influenced by collectivism and innovativeness.

**Conclusion:** The study highlights the significance of perceived ease of use, perceived usefulness and innovativeness as stimuli of young male adult consumers' behavioural intentions towards using mobile apps when purchasing apparel online. It also informs apparel retailers of the role of collectiveness towards the perceived ease of use of mobile apps when purchasing apparel online.

**Contribution:** This study provides empirical evidence of the interrelationships between perceived usefulness, perceived ease of use, attitude and its influence on behavioural intention when purchasing menswear apparel via mobile apps. It validates that collectivism leads to lower perceived ease of use, indicating that a greater emphasis should be placed on elevating the perceived ease of use among consumers with collective behaviour.

**Keywords:** TAM; TPB; perceived usefulness; perceived ease of use; subjective norms; attitude; innovativeness; collectivism; behavioural intention; actual use.

## Introduction

As the use of m-commerce in retailing has increased in popularity, more consumers have become accustomed to using mobile apps as their primary shopping platform (Madan & Yadav 2018:139). This has presented a unique opportunity to the developers of these mobile apps because of the number of consumers using them. Globally, more consumers have access to mobile apps than ever before on account of the increased access of smartphones (Natarajan, Balasubramanian & Kasilingam 2017:17). This growth in access has led to retailers continuously needing to develop and refine mobile apps (Hur, Lee & Choo 2017:353) to service the technologically savvy young consumer group using them (Mehra, Rajput & Paul 2022).

Menswear apparel has increased globally since 2016, with the category expected to grow by 3.53% in sales from 2022 to 2026 (Statista 2022). This expected growth can be attributed to young male adults who are increasing their level of fashion consciousness (Grand View Research 2019) and utilising convenient shopping channels, such as mobile apps, to make their purchases (Mordor Intelligence 2021). This is because of young consumers being exposed to the Internet all their lives, thus enhancing their level of comfort and reliance on mobile apps. In addition, young male adults are more likely to purchase products and services online compared to females, with males showing greater tendencies to use apps (Linnhoff & Smith 2017:604). Males are engaging more in shopping activities, particularly apparel shopping (Kim, Kim & Lennon 2011:29), and paying more attention to how they look, which encourages them to be more involved in their purchases and make the

purchases themselves through mobile apps. The attractive size of the young consumer market has increased investment into mobile apps and made the industry highly competitive (Euromonitor 2017; Ecommerce 2022). Therefore, it is imperative for retailers to understand what drives the intention to use and the actual use of mobile apps to ensure that their apps are the preferred apps for their customers.

To determine whether consumers would use an app, factors driving consumers' behavioural intentions must first be identified (Chua et al. 2018:124). This is evident in the study of Madan and Yadav (2018:153), which identified behavioural intention as a significant predictor of actual use in utilising mobile apps. Furthermore, motivational influences driving intention specify the disposition of an individual to make the effort to participate in the behaviour (Chua et al. 2018:124). Males are more likely than females to be influenced by their social groups (Li, Choi & Forrest 2022), which suggests that men are more collectivistic when purchasing clothing as they want to conform to their social groups' expectations and identities. The power of social influence is strong within a collectivist culture (Lee, Chung & Jung 2015:484). This suggests that understanding the role that the collective plays could impact the intention and use of mobile apps (Lu 2014:143), as mobile app users in a collectivist culture are influenced more by friends when searching for or buying apparel items and when using mobile apps to share fashion-related information, brands and products (Moon & Domina 2015:11). In addition, innovativeness is an antecedent and determining factor of a user's intention to continue usage of mobile apps (Lu 2014:143). This is because mobile app use for shopping is considered an innovative approach to shopping among males. Consequently, the level of innovativeness that individuals have in accepting new innovations and concepts directly impacts their decision to utilise mobile apps (Madan & Yadav 2018:157).

Considering the above, it becomes evident that a comprehensive model that assesses the factors influencing the adoption and use of mobile shopping apps and how the cultural environment may influence such use is necessary, as it will inform researchers and practitioners concerning consumer mobile app behaviour. Moreover, the varying levels of development among countries present another influence over the variables that can lead to the facilitation or the hindrance to adopting and using new technologies. However, very few studies have investigated consumer usage behaviour among young male adults. As the future outlook of the retailing industry includes a focus on young male adults, retailers' success is dependent on the young consumers' purchasing power and unmatched technical abilities (Ladhari, Gonthier & Lajante 2019:113). This makes it important to research and understand the factors that may influence the behavioural intention and actual use of mobile apps when purchasing apparel among young male adults.

This study makes numerous contributions. Firstly, it explores mobile app intention and usage by combining three relevant

theories: the social exchange theory (SET), the technology acceptance model (TAM) and the theory of planned behaviour (TPB). The study explores an adapted version of a combination of the TAM and the TPB in an emergent market context. Furthermore, the study enhances the theoretical grounding of the argument by including the SET in support of the theoretical argument provided through a combined TAM and TPB validation. Secondly, the study includes collectivism as an important variable to consider when exploring intention to use and actual use of applications in an emergent market environment. It is established that collectivism has a significant and negative influence on perceived ease of use, which indicates that the larger the level of collectivism in an emerging African market, such as South Africa, the more challenging individuals find it to use apparel mobile apps. Thirdly, in an emergent African market context, collectivism does not seem to play a significant role in young male adults' intentions to use and actual use of mobile applications to purchase male apparel online. This is an important finding reflecting on the country-specific nature of collectivism in terms of its influence on mobile application usage. Fourthly, the study includes the concept of innovativeness as an external variable impacting perceived usefulness and perceived ease of use towards a mobile app. In terms of the practical contributions made, the study provides comprehensive insight to retailers in emerging markets on the technological and consumer-related behavioural outcomes that are aligned to the use of apparel mobile apps in an emergent market m-commerce context. As a result, retailers are orientated towards a more in-depth knowledge of the key factors that bring forth a young male adult consumer's decision to utilise an apparel mobile app for browsing and/or purchasing items in an emergent market context.

An overview of the literature that grounds the key constructs in the study is provided next. Furthermore, the theoretical grounding supports the proposed hypotheses developed for the study. This is followed by the methodology discussion, the results of the study, a discussion of the key findings, and the study's recommendation and areas for further research.

## Theoretical framework

The study is guided by three theories in terms of the proposed relationships: the SET, the TAM and the TPB. The SET can serve as a basis to explain relational exchanges in societies (Munzel & Kunz 2014:51), and was developed with the purpose of studying and comprehending human behaviour via the process of resource exchange (Yan et al. 2016:644). Based on a two-way exchange, SET outlines that individuals work together to accomplish goals that are not accomplishable on their own, with both parties benefitting from the result of the exchange (St. John et al. 2016:214; Razak et al. 2016:550). The importance of this is evident when considering how people have exposed themselves to an increasing number of digital and social platforms in order to participate in the basic functions of being a consumer – such as searching for information, buying and consuming products, and communicating their experiences to others after the purchase (Stephen 2016:17). The above

consumer functions are all present in an m-commerce (including mobile apps) setting, where the benefits of use include communication capabilities, the transactions of goods and services, and the transfer of information (Barry & Jan 2018:158). The SET requires an individual to have the propensity to share, which refers to their preferences in attitude and subjective norms in a sharing situation (in this case, a mobile app's offer to consumers). This leads the SET to maximise benefits while simultaneously reducing the costs incurred in the exchange with others (Cyr & Choo 2010:826). By the same token, if either party does not see a benefit or reward, they would not engage in the exchange again (Homans 1958:599). In the case of this study, this exchange would be through mobile shopping apps that allow users to join in 'shopping' transactions through their smartphones (Kim et al. 2017:58).

The TAM was developed by Davis (1986) and was used as a foundation for developing the conceptual model in this study. Created to posit behaviour in the adoption of computer technology, the TAM is an adaption of the 1975 theory of reasoned action (TRA) of Fishbein and Ajzen (Davis 1989:380). The TAM has gained recognition for its adeptness in accurately forecasting and predicting an individual's inclination towards embracing various technologies. It stands as the most widely embraced framework for elucidating a user's choice to adopt and utilise information technology (Smith et al. 2013:328). The TAM consists of external variables which impact perceived usefulness and perceived ease of use, which ultimately impact attitude, behavioural intention and actual use (Davis 1986). The external variables included in the TAM allowed for the customisation of the TAM within specific contexts, given that there are various external variables in different contexts that can impact the perceived usefulness or the perceived ease of use of a certain technology (Abdullah & Ward 2016:240). Thus, these external variables act as antecedents towards perceived usefulness and perceived ease of use, and play a crucial role in understanding how individuals adopt technologies (Olushola & Abiola 2017:72). Perceived usefulness refers to an individual's perception of how the technology will assist in increasing performance or efficiency (Faqih & Jaradat 2015:47). Within a mobile app context, this refers to how individuals believe that using the app would improve their shopping tasks (Sohn 2017:24). Whereas perceived ease of use refers to the effort an individual would need to expend on using the technology. Using technology should be regarded as 'easy', and generally, the easier the technology is perceived to use, the more positive the attitude towards using the technology (Eyuboglu & Sevim 2017:333). The TAM and the TPB both include attitude, intention and actual behaviour (use), and their similarity is founded in the fact that as with TAM, the TPB is an extension of the TRA (Ajzen 1985:36).

Within the TAM and the TPB, attitude is considered a key construct influencing intention. This is because of attitude referring to an individual's favourable or unfavourable evaluation based on their beliefs, thoughts and evaluation of the object (Maio et al. 2018:47). An individual's intention

refers to their willingness to perform a certain behaviour, and understanding an individual's willingness is fundamental to understanding the factors influencing their behaviour (David & Rundle-Thiele 2018:184). An individual's intention is the strongest predictor of understanding actual behaviour because the more likely an individual intends to do something, the more likely they actually will (Chopdar et al. 2018:120). The TAM focuses specifically on the adoption of technology whereas the TPB also focuses on intrinsic aspects such as the influence that a social group (through subjective norms) and an individual's perception of control (through perceived behavioural control) plays in impacting an individual's intention towards a certain behaviour (Olushola & Abiola 2017:78). Given the inclusion of these intrinsic aspects, the TPB is considered one of the most reliable models for predicting intention and behaviour (Han 2015:167). Subjective norms incorporate the social stimulus in predicting behaviour. Individuals are often faced with the expectation that they will conform to their social group's behaviours or conform to peer pressure, which in turn impacts their intention to perform a certain behaviour (Hegner, Fenko & Teravest 2017:28). Therefore, if an individual observes their friends and family engaging in certain behaviour (e.g. using a mobile app), they may also intend to engage in that behaviour in order to obtain acceptance. Lastly, the TPB includes the perceived behavioural control construct which relates to the perceived ease or difficulty related to performing a certain behaviour (Paul, Modi & Patel 2016:125). The perceived behavioural control construct (positioned in TPB) and the perceived ease-of-use construct (positioned in TAM) both describe factors of control relating to a particular behaviour (Dinev & Hu 2007:389). Thus, the inclusion of both constructs in the same study has been found to be unnecessary given the high levels of correlation between the two constructs (Khosrow-Pour 2009:187; Moksness & Olsen 2017:1154). Furthermore, given the focus of the study within a technological field (e.g. mobile apps), the perceived ease-of-use construct from TAM was retained.

Combining the two models, TAM and TPB, in order to examine technology adoption and usage has increased, thanks to the complementary and descriptive influence of the models when combined (i.e. Aboelmaged & Gebba 2013:37; Lu, Zhou & Wang 2009:29). Based on the above, integrating the TAM and TPB was deemed appropriate to understanding the intention and actual use of mobile apps to purchase apparel.

## Conceptual framework

### Impact of perceived usefulness on attitude and behavioural intention

Perceived usefulness refers to an individual's perception that utilising the new technology results in increasing or improving their performance (Davis 1989:320). Perceived usefulness has been found to have a significant positive influence on the intention to use mobile apps, as the adoption of mobile apps by potential consumers only occurs if these consumers found them useful and convenient to use

(Faqih & Jaradat 2015:46–47). This is the case with young male adults who tend to focus on utilitarian value like app usefulness because they are familiar with the usefulness that mobile apps provide (Hur et al. 2017:360). Hence, when individuals perceive that a technology has a favourable influence on their peers and is closely aligned with their objectives, they are more likely to increase their usage and eventually make a purchase of that technology (Eastman et al. 2014:465). As a result, the following hypotheses are proposed:

**H1:** Perceived usefulness has a significant and positive impact on the behavioural intentions of young male adults when using mobile apps to purchase menswear apparel.

**H2:** Perceived usefulness has a significant and positive impact on young male adults' attitudes towards their behavioural intentions to use mobile apps when purchasing menswear apparel.

### Impact of perceived ease of use on perceived usefulness and attitude

Perceived ease of use influences attitude and behaviour through self-efficacy and instrumentality (Davis, Bagozzi & Warshaw 1989:987). That is, the easier the system is to use, the greater users' sense of efficacy will be about their capacity to use the system, resulting in a higher degree of control and effectiveness felt by users. Past research has indicated that perceived usefulness is a function of perceived ease of use (Davis et al. 1989:987; Li 2013:99). This suggests that if a mobile app is perceived as useful, it will encourage the individual to perceive an element of ease of use and ultimately impact their attitude positively (Ghazali et al. 2018:1077). Therefore, perceived ease of use is perceived as impacting users' attitudes towards using a technological system. As young male adults are self-assured in their ability to use mobile apps (Leon 2018:1853), they are enticed by innovative and efficient apps that simplify their lives. This is in line with the sentiments of young male adults who automatically assume that technology will make their lives easier (Leon 2018:1853). For this reason, the following hypotheses are proposed:

**H3:** Perceived ease of use has a significant and positive impact on young male adults' perceived usefulness towards their behavioural intentions to use mobile apps when purchasing menswear apparel.

**H4:** Perceived ease of use has a significant and positive impact on young male adults' attitudes towards their behavioural intentions to use mobile apps when purchasing menswear apparel.

### Impact of subjective norms on behavioural intention

Young adult males consistently seek peer approval using social media platforms (Hall, Towers & Shaw 2017:513). Using these platforms can often lead to influencing an individual's choice in the products they purchase (e.g. apparel), and in a study by Kim, Yoon and Han (2016:664), it was established that the reviews of a mobile app positively impact other individual's intention to use the app. The researchers also likened this accumulation of user reviews to subjective norms

because of their influence on mobile app usage. Evidence of this is found among young adults, where the input of others impacts behaviour (Bolton et al. 2013:245–246). Hence, the following hypothesis is proposed:

**H5:** Subjective norms have a significant and positive impact on the behavioural intentions of young male adults' use of mobile apps to purchase menswear apparel.

### Impact of attitude on behavioural intention

Attitude is widely acknowledged as a significant indicator of intention to use. This stems from the fact that attitude is shaped by pertinent experiences, emotions and reflections arising from a particular process (Yang et al. 2017:462). Within the context of mobile apps, attitudes are shaped by factors such as emotions, ethical considerations, usage frequency, cost and the app's physical attributes. This shows that the direct and positive influence of attitude on the intention to use mobile apps indicates an individual's favourable or unfavourable feelings towards the behaviour, while allowing it to develop over time (Muñoz-Leiva, Climent-Climent. & Liébana-Cabanillas 2017:33). Young male adults have a more positive perception of how technology is affecting their lives than any other age group, as they have been exposed to technology all their lives and see the benefits (Mehra et al. 2022). This leads to young male adults being more likely to purchase products and services online, with a greater propensity to utilise mobile apps (Linnhoff & Smith 2017:604). Subsequently, the following hypothesis is proposed:

**H6:** Attitude has a significant and positive impact on the behavioural intentions of young male adults to use mobile apps to purchase menswear apparel.

### Impact of innovativeness on behavioural intention, perceived ease of use and perceived usefulness

Natarajan et al. (2017:19) identified innovativeness as an important construct in a technological setting. As innovativeness is a personality characteristic (Sun & Chi 2018:788), it provides the grounds for an individual's willingness to use new technologies, such as mobile apps (Lu 2014:149). Thus, the level of innovativeness that individuals have in accepting new innovations and concepts directly impacts their decision to use a mobile app (Madan & Yadav 2018:157). As an antecedent of behavioural intention, innovativeness also influences individuals' intentions via the TAM, specifically perceived usefulness and perceived ease of use (Lu 2014:143). The influence of innovativeness over perceived ease of use is stronger in individuals who exhibit an interest in experimenting with new technologies and in those who are not hesitant to try new technologies. This indicates that consumers who have high technological innovativeness find innovative apps easy to use, because as innovativeness increases, so does users' perceived ease of use (Hur et al. 2017:358). Concerning perceived usefulness, individuals who are early adopters of technology are typically more innovative and therefore more receptive towards risk and uncertainty, if they perceive the platform to

be useful to them. This is because consumers who are innovative tend to recognise the usefulness of apparel mobile apps better than those who are less innovative (Sun & Chi 2018:791). Young male adults tend to have high technology innovativeness (Hur et al. 2017:356; Purani et al. 2019:221) and therefore perceive high levels of usefulness, particularly within the apparel industry (Hur et al. 2017:356). For these reasons, the following hypotheses are proposed:

**H7:** Innovativeness has a significant and positive impact on young male adults' behavioural intentions to use mobile apps to purchase menswear apparel.

**H8:** Innovativeness has a significant and positive impact on young male adults' perceived ease of use in their behavioural intentions to use mobile apps to purchase menswear apparel.

**H9:** Innovativeness has a significant and positive impact on young male adults' perceived usefulness in their behavioural intentions to use mobile apps to purchase menswear apparel.

### Impact of behavioural intention on actual use

Research into understanding the impact of intention towards actual use has been confirmed to understand shoppers' buying behaviour better (Han, Hsu & Sheu 2010:326). This is because of intentions providing an understanding towards key motivators to behaviour, ultimately resulting in behaviour. Researchers like Groß (2015:221) have found that understanding the aspects that lead to favourable intention within a technological context, often leads to the use of the technology. Thus, in order to understand whether individuals would use the mobile app, their behavioural intentions should be identified as this will result in the motivational factors that produce the intention (Chua et al. 2018:124). Young male adults are comfortable using mobile apps for various tasks, which signals that, as they age, their mobile app usage will also continue to grow. This indicates that if users have positive intentions in favour of a mobile app, they would ultimately make use of it (Thusi & Maduku 2020:8). Therefore, the following hypothesis is proposed:

**H10:** Behavioural intention has a significant and positive impact on young male adults' actual use of mobile apps to purchase menswear apparel.

### Impact of collectivism on perceived usefulness and perceived ease of use

Collectivism, as defined by Sun, Lee and Law (2019:91), pertains to individuals who are inherently 'we-conscious', deriving their identity from the social system to which they belong. Given that young adult males exhibit natural collectivist tendencies, they tend to forge stronger social bonds with people, products and brands to which they share a connection, fostering a sense of emotional loyalty that transcends mere transactions (Hernandez-Ortega et al. 2017:334).

In a collectivist culture, a technology perceived as user-friendly is likely to find greater acceptance. Such technology can alleviate uncertainty and reduce the potential for undesirable outcomes associated with complex features

(Lin 2014:371). This, in turn, bolsters individuals' confidence in their ability to anticipate the benefits of using the technology (Lin 2014:371). Notably, perceived usefulness plays a pivotal role in elucidating one's inclination to embrace mobile technologies. Conversely, the indirect influence of perceived ease of use (mediated through perceived usefulness) suggests that all else being equal, the simpler a technology is to use, the more useful it becomes, especially in a collectivist society. Consequently, individuals who perceive mobile commerce as both useful and easy to use are more likely to adopt it (Noh et al. 2013:250, 256). Thus, the following hypotheses are proposed:

**H11:** Collectivism has a significant and positive impact on young male adults' perceived usefulness in their behavioural intentions to use mobile apps to purchase menswear apparel.

**H12:** Collectivism has a significant and positive impact on young male adults' perceived ease of use in their behavioural intentions to use mobile apps to purchase menswear apparel.

### The moderating role of collectivism in the relationship between subjective norms and behavioural intention

Collectivists' focus on their social circles shows that they are greatly concerned with the interpersonal relationships in their groups (Lin 2014:377). The moderating effect of collectivism over the relationship between subjective norms and behavioural intention has been found to have a positive influence (Sarstedt & Karjaluoto 2017:98). This is because culture plays an important part in individuals' perceptions of the benefits and uses of technology. This results in collectivists being incentivised to use technology as they are able to seamlessly maintain their relationships (Lin 2014:377). This can be seen in social media, as it influences young male adults' purchasing behaviour, consumer identity and value formation, interaction with brands and companies, brand loyalty and service expectations (Bolton et al. 2013:245–246). Evidently, young male adults tend to seek peer approval through social media platforms to complement the traditional forms of communication (Hall et al. 2017:513). For this reason, the following hypothesis is proposed:

**H13:** Collectivism has a significant and positive moderating effect on the relationship between subjective norms and behavioural intentions of young male adults when using mobile apps to purchase menswear apparel.

The proposed conceptual model of the study is presented in Figure 1.

## Methodology

The study was positivistic in nature and used a descriptive quantitative research approach. The study flows from the Master's degree dissertation of Miguel Correia, published at the University of Johannesburg under the title 'Generation Y behavioural intention when purchasing male apparel: The influence of mobile application usage'. The co-authors on the study were the supervisors on the project. The data were collected between January and March 2020, and the sample

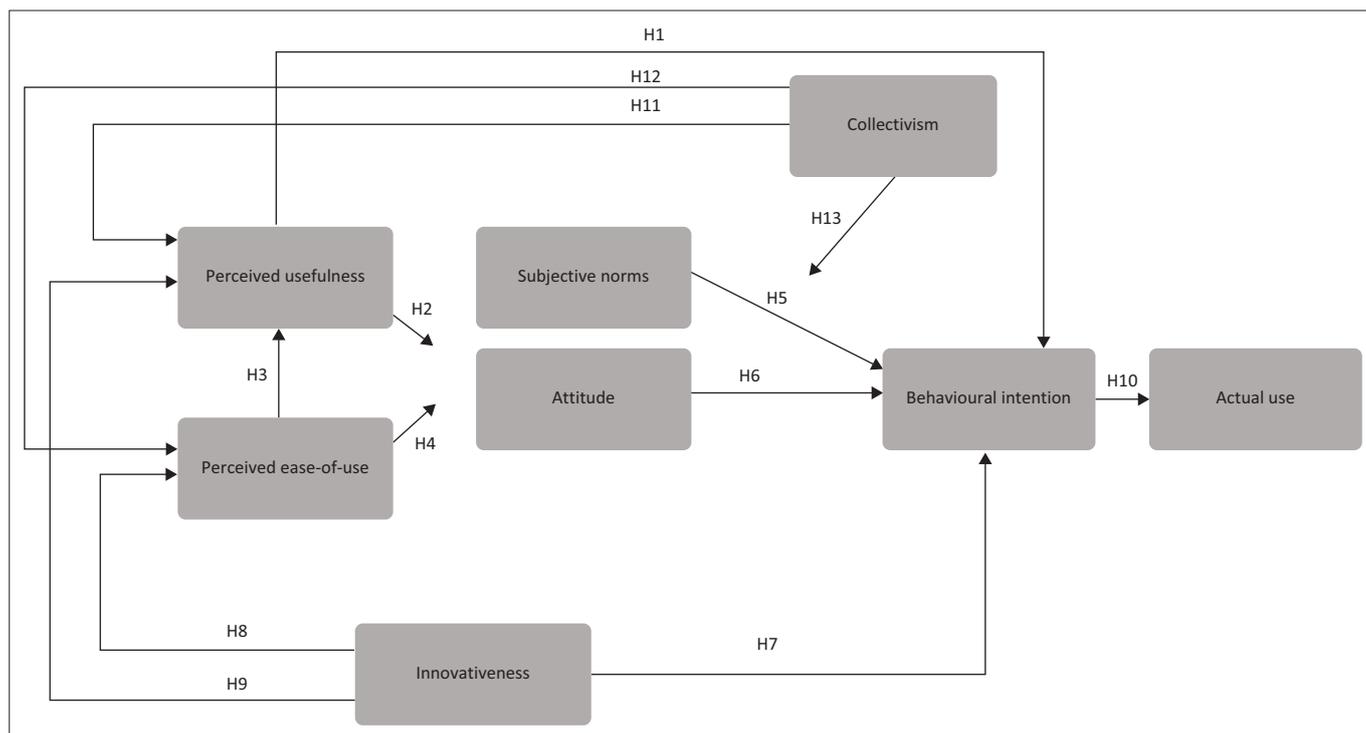


FIGURE 1: Conceptual model.

elements included young South African male adults aged 18–39 years who had used a mobile shopping app to purchase menswear apparel in the previous 12 months. South Africa was deemed an appropriate context for the study, given the rapid rise in the usage of mobile apps, particularly among young consumers (Ecommerce 2022). Non-probability sampling through quota and convenience sampling was used to collect the data. Screening questions and quotas ensured that the sample adhered to the specified requirements to partake in the study. As a result, respondents were selected based on race quotas to adhere to the demographic profiling of the South African population, where respondents were selected conveniently within each racial grouping (Businesstech 2022). Fieldworkers were deployed across South Africa's Gauteng province to collect data through self-administered questionnaires. Respondents were required to complete the self-administered paper-based questionnaires in person and return the completed questionnaires to the fieldworkers. Data were collected over a 3-month period (January to March 2020), and 310 usable questionnaires were collected for data analysis. The study attempted to address endogeneity through the use of the following approaches: firstly, by ensuring that the dependent variable (namely behavioural intention in the case of this study) is a response to consumer attitude and subjective norms and not a predictor of both; secondly, the selected precursors to the outcome variable are founded on theoretical grounding, and its relevance contextualised by theoretical validation; thirdly, respondents completed self-administered questionnaires and provided them to fieldworkers. Given that responses did not come directly through to the researcher after completion, response bias could be more successfully managed. This was

due to respondents feeling more comfortable to answer questions honestly and anonymity could be maintained as no ID or personal information was required. Fourthly, the items used in the study were phrased in a manner that satisfied the research objectives of the study and were based on previously tested research, limiting the biased nature of the application of clear and unbiased questions to retrieve as much information from the respondents as possible. Finally, the study also applied the use of the root mean square error of approximation (RMSEA) to address any calculative shortfalls that could have been secured through the use of the chi-square ( $X^2$ ), which could infer the possibility of data calculation bias.

The questionnaire started with a preamble and seven screening questions to guarantee the potential respondents' formed part of the study's selected population. The questionnaire included sections relating to respondents' demographic profile and apparel mobile app behavioural intention and usage habits. The items used to measure the study's constructs were measured using an adapted seven-point Likert scale, ranging from 1 ('strongly disagree') to 7 ('strongly agree'). The previously validated scale for perceived usefulness and perceived ease of use was adapted from McLean, Al-Nabhani and Wilson (2018); subjective norms was adapted from Hew et al. (2015); attitude was adapted from Cheung and To (2017); innovativeness was adapted from Alalwan et al. (2018); collectivism was adapted from Faqih and Jaradat (2015); and behavioural intention and actual use were adapted from Groß (2015). The different items and sources used in the study are reflected in Table 1.

**TABLE 1:** Constructs and sources.

Key construct	Item count	Source
Perceived usefulness	6	McLean et al. (2018)
Perceived ease of use	6	McLean et al. (2018)
Subjective norms	4	Hew et al. (2015)
Attitude	5	Cheung and To (2017)
Innovativeness	6	Alalwan et al. (2018)
Collectivism	5	Faqih and Jaradat (2015)
Behavioural intention	5	Groß (2015)
Actual use	4	Groß (2015)

The data for the eight constructs measuring 42 items were analysed using SmartPLS (PLS-SEM) where direct influences were measured (H1–H12) and a moderation regression analysis was undertaken (H13), whereby the R-square values before and after moderation were analysed to determine whether the moderation was prevalent or not in the results. In this study, the researchers determined the moderating influence of collectivism on the subjective norms and behavioural intention relationship (H13). The data analysis commenced with a test of the multivariate normality of the data obtained from the items measuring the constructs, using Mardia's coefficient method. Mardia's coefficient was utilised to determine the cases with high Mahalanobis distance to reduce the kurtosis of the dataset, as it was not multivariate normal. As the data were not multivariate normal, the recommendation is to use robust fit statistics. Thereafter, the reliability and validity of the data were analysed using Cronbach's alpha values, composite reliability values, convergent validity and discriminant validity. Once the data were deemed reliable and valid, goodness-of-fit tests were conducted for the measurement model, with the structural model then being assessed.

## Ethical considerations

Ethical clearance to conduct this study was obtained from the School of Consumer Intelligence and Information Systems Ethical Clearance Committee. This committee falls under the College of Business and Economics (No. 2019SCiiS37).

## Data analysis

### Profile of respondents

The average age range of the respondents from the study was 25–29 years, where the quota comprised entirely of young male adults. Most individuals resided in Johannesburg (41.6%), with the majority identifying as black Africans (80.9%). Nearly half of the respondents were employed full-time by an organisation (46.3%), followed by those who were self-employed (15%) and full-time students (13.7%). Over the past 6 months, the respondents made use of their mobile shopping apps to purchase menswear apparel 1–2 times (41.9%), followed by 3–4 times (26.1%) and 5–6 times (20.1%). The average spend per transaction was R700–R999 ( $\pm$ €41–€59) (31.4%), and the average number of items per transaction was 2–3 (37%). The average amount of time spent by the respondents browsing for items was 15–29 min (28.4%), closely followed by 30–59 min (27.7%).

## Assessment of normality

In the study, Mardia's coefficient was utilised to assess the multivariate normality of items. This coefficient does not measure multivariate normality, but rather kurtosis, with largely skewed items, resulting in the data not being multivariate normal. Mardia's coefficients for the study's model were significantly higher than the recommended threshold of 3 (Bentler 2006:129). The model produced a Mardia's coefficient of 53.783, indicating a high level of kurtosis and an associated lack of multivariate normality.

## Assessment of the measurement model

Cronbach's alpha and composite reliability values were assessed to determine reliability. Both were assessed as being reliable if the values were 0.70 and above (Hair et al. 2019:760, 775). As per Table 2, all constructs scored above the recommended 0.70 mark, while keeping below the 0.95 cap, which indicated good reliability for the measurement model (Hair et al. 2019:760, 775). Convergent validity was measured by examining whether the average variance extracted (AVE) was greater than 0.5 for each construct (Hair et al. 2019:663; Sarstedt, Ringle and Hair 2017:17). Discriminant validity was determined by ensuring that the AVE exceeded the shared variance with all other constructs (maximum shared squared variance [MSV]) as well as the squared correlation estimates (ASV) (Hair et al. 2019:677, 776). As shown in Table 2, the AVE values for each construct were above 0.50, confirming the validity. Discriminant validity was confirmed through the AVE being higher than the MSV (Hair et al. 2019:776) and the square root of the AVE (SQRT) being larger than the inter-construct correlations in the model. As can be seen in Table 2, this was achieved.

Once reliability and validity were assessed, the goodness-of-fit tests used in the confirmatory factor analysis (CFA) stage were the chi-square ( $X^2$ ), requiring a value of  $X^2 < 3.0$ ; RMSEA, with a value of  $\leq 0.05$  indicating good fit; normed fit index (NFI), requiring a value of  $> 0.80$  or  $\geq 0.90$  indicating good fit (Hair et al. 2019:640); non-normed fit index (NNFI) (Tucker-Lewis index [TLI]), requiring a value of  $\geq 0.90$  indicating acceptable fit; and comparative fit index (CFI), requiring a value of  $\geq 0.90$  to indicate good fit (Hair et al. 2019:640). All aforementioned parameters were met –  $X^2 = 1294.545$ ; RMSEA = 0.048; NFI = 0.868; NNFI (TLI) = 0.934; and CFI = 0.940 – indicating that the structural model could be assessed.

## Assessment of the structural model

Prior to the final hypotheses testing, the structural model was put through a goodness-of-fit test. The goodness-of-fit test produced the following outcomes:  $X^2 = 1.869$ , which is beneath the 3 threshold; RMSEA = 0.053, which is considered acceptable, as it is below 0.06; CFI = 0.926, representing good fit being above 0.9 (Hair et al. 2019:640); NFI = 0.854, representing acceptable fit; and NNFI (TLI) = 0.921,

TABLE 2: Measurement model results.

Construct	Scale items	R <sup>2</sup> values	AVEs	MSV	ASV	SQRT	Cronbach's alpha	CR
Perceived usefulness	PU1	0.645	0.679	0.516	0.226	0.824	0.925	0.927
	PU2	0.715	-	-	-	-	-	-
	PU3	0.729	-	-	-	-	-	-
	PU4	0.738	-	-	-	-	-	-
	PU5	0.685	-	-	-	-	-	-
	PU6	0.562	-	-	-	-	-	-
Perceived ease of use	PEOU1	0.770	0.697	0.518	0.227	0.835	0.930	0.932
	PEOU2	0.783	-	-	-	-	-	-
	PEOU3	0.742	-	-	-	-	-	-
	PEOU4	0.557	-	-	-	-	-	-
	PEOU5	0.638	-	-	-	-	-	-
	PEOU6	0.688	-	-	-	-	-	-
Subjective norms	SN1	0.848	0.811	0.219	0.083	0.901	0.944	0.945
	SN2	0.841	-	-	-	-	-	-
	SN3	0.884	-	-	-	-	-	-
	SN4	0.671	-	-	-	-	-	-
Attitude	A1	0.560	0.559	0.518	0.257	0.748	0.858	0.863
	A2	0.463	-	-	-	-	-	-
	A3	0.587	-	-	-	-	-	-
	A4	0.682	-	-	-	-	-	-
	A5	0.506	-	-	-	-	-	-
Innovativeness	I1	0.680	0.724	0.219	0.132	0.851	0.939	0.940
	I2	0.708	-	-	-	-	-	-
	I3	0.791	-	-	-	-	-	-
	I4	0.690	-	-	-	-	-	-
	I5	0.759	-	-	-	-	-	-
	I6	0.718	-	-	-	-	-	-
Collectivism	C1	0.773	0.789	0.080	0.030	0.888	0.949	0.949
	C2	0.798	-	-	-	-	-	-
	C3	0.843	-	-	-	-	-	-
	C4	0.751	-	-	-	-	-	-
	C5	0.781	-	-	-	-	-	-
Behavioural intention	BI1	0.816	0.763	0.491	0.236	0.873	0.941	0.942
	BI2	0.793	-	-	-	-	-	-
	BI3	0.764	-	-	-	-	-	-
	BI4	0.753	-	-	-	-	-	-
	BI5	0.690	-	-	-	-	-	-
Actual use	AU1	0.520	0.581	0.080	0.023	0.762	0.846	0.846
	AU2	0.710	-	-	-	-	-	-
	AU3	0.468	-	-	-	-	-	-
	AU4	0.626	-	-	-	-	-	-

AVE, average variance extracted; MSV, maximum shared squared variance; ASV, average shared variance; SQRT, square root; CR, composite reliability.

representing acceptable fit. The structural model is presented in Figure 2 and the structural model estimates are presented in Table 3.

Table 3 shows that the following relationships were significant and positive as hypothesised: perceived usefulness and behavioural intention (H1:  $\beta = 0.107$ ,  $p = 0.000$ ); perceived usefulness and attitude (H2:  $\beta = 0.048$ ,  $p = 0.000$ ); perceived ease of use and perceived usefulness (H3:  $\beta = 0.083$ ,  $p = 0.000$ ); perceived ease of use and attitude (H4:  $\beta = 0.055$ ,  $p = 0.000$ ); attitude and behavioural intention (H6:  $\beta = 0.130$ ,  $p = 0.000$ ); innovativeness and perceived ease of use (H8:  $\beta = 0.051$ ,  $p = 0.000$ ); innovativeness and perceived usefulness (H9:  $\beta = 0.055$ ,  $p = 0.001$ ); and collectivism and perceived ease of use (H12:  $\beta = 0.032$ ,  $p = 0.000$ ). This indicates that H1–H4, H6, H8, H9 and H12 were all significant in the study. The findings of the study

revealed that the following relationships were insignificant: subjective norms and behavioural intention (H5:  $\beta = 0.034$ ,  $p = 0.147$ ); innovativeness and behavioural intention (H7:  $\beta = 0.048$ ,  $p = 0.825$ ); behavioural intention and actual use (H10:  $\beta = 0.031$ ,  $p = 0.598$ ); and collectivism and perceived usefulness (H11:  $\beta = 0.038$ ,  $p = 0.301$ ). This resulted in H5, H7, H10 and H11 being rejected.

### Assessment of indirect effects

The TAM postulates that perceived ease of use indirectly affects behavioural intention through its influence on perceived usefulness (Sanakulov & Karjaluoto 2017:99). This study confirmed the indirect influence of perceived ease of use on behavioural intention through its positive and significant relationship with perceived usefulness (H3:  $\beta = 0.083$ ,  $p = 0.000$ ). Consequently, H3 was accepted.

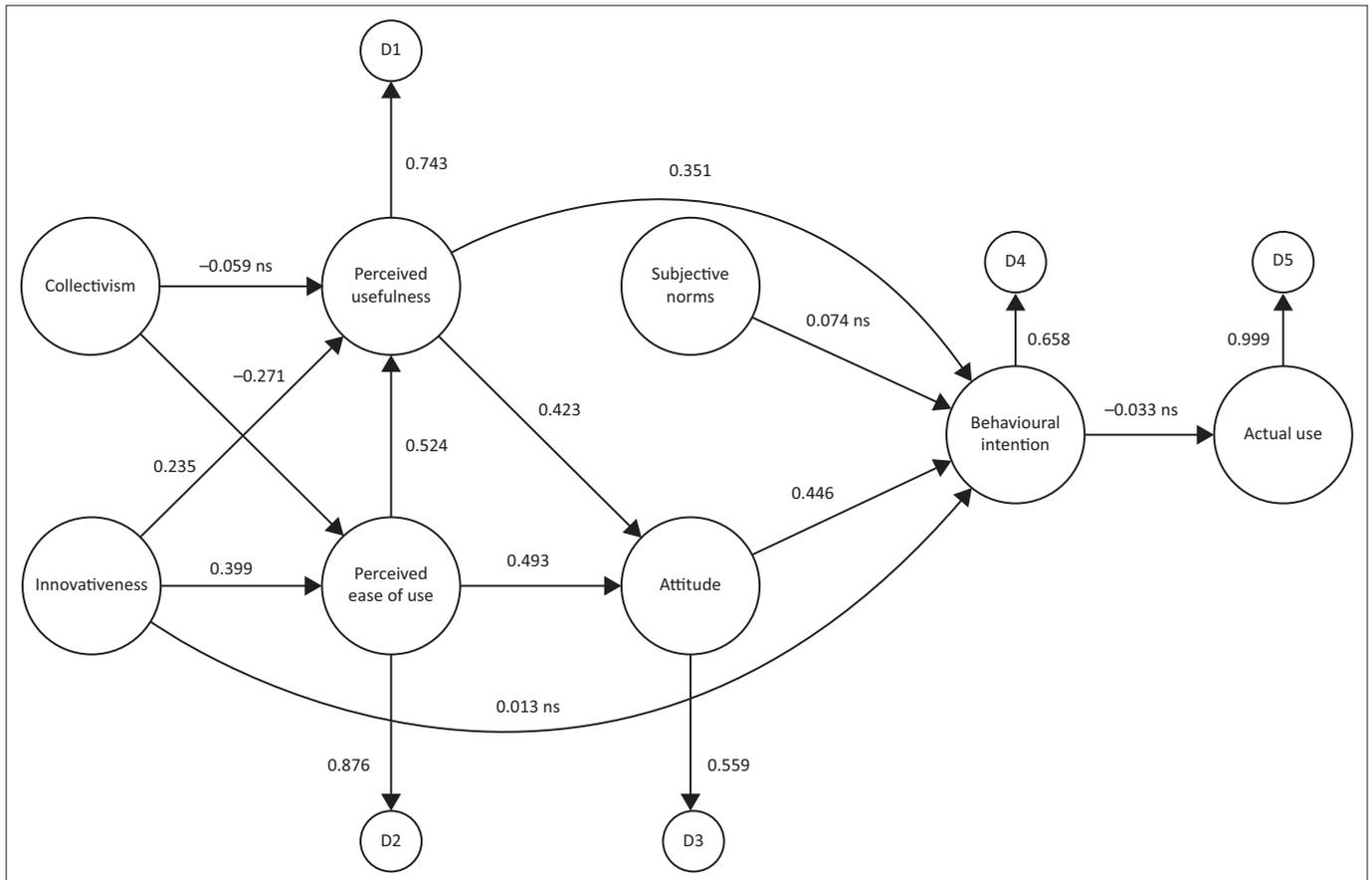


FIGURE 2: The structural model.

TABLE 3: The structural model path estimates.

Structural paths	Research model		
	Parameter estimate ( $\beta$ )	T-statistic ( <i>t</i> )	P
Perceived usefulness → behavioural intention	0.107	3.370	< 0.05
Perceived usefulness → attitude	0.048	7.179	< 0.05
Perceived ease of use → perceived usefulness	0.083	6.432	< 0.05
Perceived ease of use → attitude	0.055	7.322	< 0.05
Subjective norms → behavioural intention	0.034	1.455	> 0.05
Attitude → behavioural intention	0.130	4.382	< 0.05
Innovativeness → behavioural intention	0.048	0.222	> 0.05
Innovativeness → perceived ease of use	0.051	6.234	< 0.05
Innovativeness → perceived usefulness	0.055	3.440	< 0.05
Behavioural intention → actual use	0.031	-0.528	> 0.05
Collectivism → perceived usefulness	0.038	-1.036	> 0.05
Collectivism → perceived ease of use	0.032	-5.555	< 0.05

### Moderation analysis

Within the study, collectivism was defined as a moderator between subjective norms and behavioural intention. The section that follows expounds upon the findings of this relationship and its ultimate outcome. Table 4 presents the regression analysis for the moderation.

With reference to Table 4, model 1 posited the relationship between subjective norms and behavioural intention, while analysis in model 2 introduced collectivism as a moderator in the relationship between subjective norms and behavioural

intention. Models 1 and 2 indicated statistical significance in their relationships with behavioural intention ( $p < 0.05$ ). Models 1 and 2 indicated an R-square value of 0.121, showing both models explained 12.1% of the variance. With the moderation included, the variance explained 11.5% and 11.2% of the variance for model 1 and model 2, respectively. These findings indicated no significant shift in the ability to explain variance in the model with the inclusion of the moderation of collectivism in the subjective norms and behavioural intention relationship. Based on the discussion presented earlier, H13 was rejected.

## Discussion and implications

The mobile app is consolidating its place as a retail channel that offers easy information access and payment through user-friendly interfaces. Mobile shopping apps are making the shopping process more convenient and simpler (Natarajan et al. 2017:17), making mobile apps imperative for retailers to adopt and fine-tune to their target audience.

Overall, the study has shown that there is a significant relationship between perceived usefulness and behavioural intention (H1), which is consistent with the findings reported by Faqih and Jaradat (2015:48) and Groß (2015:228), and is understandable given the context of the study. A mobile shopping app that provides a simpler operating system and only requires a limited amount of time, energy and resources in the process of learning about them and

**TABLE 4:** Regression analysis summary of the moderation of collectivism in the relationship between subjective norms and behavioural intention.

Model	Dependent variable	Independent variables	P	Beta value	R-square value	Adjusted R-square value
1	Behavioural intention	Collectivism Subjective norms	0.000 -	-0.095 0.222	0.121 -	0.115 -
2	Behavioural intention	Moderation between collectivism and subjective norms	0.000	0.001	0.121	0.112

using them (Kim & Baek 2018:151) leads to a higher level of perceived usefulness, which will increase the likelihood of behavioural intention. Moreover, the study reveals positive and significant relationships between perceived usefulness and attitude (H2), perceived ease of use and perceived usefulness (H3), perceived ease of use and attitude (H4), attitude and behavioural intention (H6), and innovativeness and perceived ease of use (H8). These findings are consistent with those of Chi (2018), Ghazali et al. (2018), Kim et al. (2016), Kim and Shin (2015), McLean et al. (2018) and Moon and Domina (2015). Perceived ease of use, perceived usefulness, attitude, behavioural intention and innovativeness are constructs commonly used to understand the acceptance of different technologies.

The study also reports significant and positive relationships between perceived usefulness and innovativeness (H9), and collectivism and perceived ease of use (H12). These results are consistent with the findings of Hur et al. (2017) and Sun and Chi (2018). This suggests that mobile app developers need to keep consumers in mind when developing their apps – for example, how innovative they are and how likely they are to comply with their social groups' expectations (Hur et al. 2017). Innovative individuals tend to exhibit a greater propensity to experiment with and show less hesitation in their use of new technology (mobile apps) (Lu 2014:149). This indicates that when individuals exhibit innovative behaviour, they are more likely to have a greater perceived usefulness and perceived ease of use of mobile shopping apps, but exhibit less behavioural intention to utilise it (Hur et al. 2017:356). Thus, retailers should understand that young male adults differ to other consumer groups, because they have increased buying power, are tech-savvy, have different expectations of companies, interact with companies differently and have a low tolerance for slow response times while being open to new forms of communication (SMESouthAfrica 2016).

Surprisingly, the results show no support for the relationship between subjective norms and behavioural intention (H5). This finding is consistent with research by Hew et al. (2015:1285) and Yang et al. (2017:465). A possible reason for this is that app reviews and expert opinions are available online, meaning that users are able to make their decisions based on these reviews without consulting those closest to them (which the scale focused on). The result indicates further that there has been a shift in the individualism and/or collectivism paradigm in South Africa. This could be because South African young adult consumers have been found to be strongly influenced by Western fashion trends and celebrities (Marketline 2018:19), which could explain a change in mindset towards having a cultural view that is

more individualistic. Support for this can be found in the study of Izogo, Mpinganjira and Ogba (2020:192, 195), which centred on young adult consumers. Their findings indicated that South African consumers exhibited greater individualism than their Nigerian counterparts.

Attitude exhibited the greatest influence of any construct on an individual's behavioural intention to adopt a mobile app in the study. This is because, for young male adults, the stimulus is far greater for non-traditional (online shopping) store patronage than traditional patronage. This supports prior research demonstrating that young male adults favour shopping online (m-commerce) (Shephard et al. 2016:15). To increase users' positive attitudes, retailers should implement in-app advertising by being cognisant of users' interests and needs as well as the cyclical changes in clothing because of seasons. Young male adults need their clothing brands of choice to be on the cutting edge of clothing innovation, requiring continuous updating of the clothing items by the brand. Within the South African context, young male adults are found to be the main drivers of status consumption (GFK 2017:18) and utilise apparel to communicate their social status. Furthermore, young male adults use mobile apps because the apps match their needs and will try new apps if they come highly recommended by others and the apps help them keep in touch with their friends, family and peers (Stocchi et al. 2018:1208).

The study shows no support for the relationship between behavioural intention and actual use (H10), which is consistent with findings by Baptista and Oliveira (2015:425). This could be explained by mobile users requiring mobile internet access before they can utilise a mobile app. Furthermore, the study found that, on average, young male adult consumers have only purchased menswear products three to four times within a 6-month period, indicating that the intention may be there, but because the usage frequency for purchasing menswear apparel through a mobile app is low, it does not always convert into actual regular use. Instead, other studies have suggested that consumers also predominantly use mobile apps to browse and support in-store shopping (Maat & Konings 2018).

The collectivism-perceived usefulness relationship (H11) is not supported by the study, which contradicts the studies of Noh et al. (2013) and Sun et al. (2019). The collectivism-perceived ease of use relationship (H12) shows significance in the study, but the relationship is a significant negative one and not a significant positive one as the study outlined. Indicating an increase in collectivism results in a decrease in

perceived ease of use. South African young male adult consumers have been found to be strongly influenced by Western fashion trends and celebrities (Marketline 2018:19), which could explain a change in mindset towards having a cultural view that is more individualistic. This indicates that the greater the collectivism within a society, the less influence there is over the perceived ease of use for mobile apps by peers.

The last relationship in the study is the moderation of the subjective norms-behavioural intention relationship by collectivism (H13). This is discussed earlier in the moderation analysis and it is determined that no significant moderation exists from collectivism over the subjective norm-behavioural intention relationship. This finding is in line with the studies of Faqih and Jaradat (2015:47), who also found no moderating influence of collectivism in the relationship between subjective norms and behavioural intention in mobile shopping apps and technology acceptance studies.

## Recommendations

Based on the study's findings, the marketers of apparel mobile apps targeting young male adults should focus on designing the app with consumers in mind (Ghazali et al. 2018:1078) because of the impact of perceived usefulness and ease of use on attitude and behavioural intention in this study. This means that mobile app marketers need to consider the screen size, the navigation capabilities of various smartphones, and presenting the information in a straightforward manner (Faqih & Jaradat 2015:48; Xu et al. 2015:3). This could also include the placement of content and information that appears simple and straightforward to the young (Hew et al. 2015:1286), such as simple language, easy checkout facilities and smooth purchase processes. Furthermore, as young male adults are seen to be innovative and task-orientated, the marketing of the apps should focus on the positive outcomes, such as the ability to save time and effort when using mobile apps (Alalwan et al. 2018:106). Given the importance of attitude towards behavioural intention (the strongest relationship in the study), it is important that mobile app marketers attempt to shape the young male adults' attitudes in the most positive manner possible. This could include the use of in-app advertisements that promote the functionality of the mobile app, the various items that the mobile app retailer sells, and using celebrity designers or influences to assist in developing a positive attitude of the mobile app (Çiçek, Eren-Erdoğan & Daştan 2018:162).

As the study centred on young male adults, it is imperative that the marketer of the apparel mobile apps understands the consumer and the current technologies that influence attitudes – for instance, gamification (Cheung & To 2017:108). Therefore, the mobile app should offer an element of gamification where consumers are given exclusive viewings of certain apparel items or receive certain discounts based on their behaviour on the app. Moreover, mobile app marketers should ensure that the app is as innovative as possible to

retain current consumers and attract new consumers (Natarajan et al. 2017:17). This could include voice translation, augmented and virtual reality, and social shopping platforms that would be considered innovative and continuously nurture the innovative element.

## Conclusion

The study aimed to determine how young male adult consumers intend to use and use mobile apps when purchasing apparel online. In turn, the moderating influence of collectivism on the relationship between subjective norms and behavioural intention was explored. The study established that behavioural intention does not influence actual use. However, it was determined that perceived usefulness and attitude are important drivers of the behavioural intention of young male adults towards mobile apps when purchasing apparel online. Furthermore, it was established that innovativeness plays a pertinent role in strengthening the perceived ease of use and perceived usefulness perception of young male adults towards mobile apps when purchasing apparel online. Conclusively, the study's findings contribute to a deeper understanding of the factors influencing the intent and use of mobile apps for purchasing apparel by young male adults in an emerging market context. Therefore, from an emergent market perspective, it is advised that retailers selling apparel in emerging markets develop enhanced knowledge of consumer technology needs when using applications. Through such an approach, retailers will be more enabled to deliver applications to their customers that are perceived as technologically innovative. Additionally, retailers need to secure an improved ease of use of mobile applications when providing customers with such technology to make online purchases. Consequently, aspects including voice translation, augmented and virtual reality, and social shopping platforms need to be considered to enhance ease of use, usefulness and innovativeness.

The study is limited considering that only four antecedents to behavioural intention – namely perceived ease of use, perceived usefulness, subjective norms and attitude – were considered in a single service setting. Yet, the study secures in-depth insights into the selected antecedents to behavioural intention within a South African retail context and into the fact that behavioural intention does not influence actual use in an emergent African market setting. This knowledge can guide South Africa's retail industry to prioritise the strengthening of behavioural intention that could enhance future actual use in an online retail environment in an emerging environment. Given the findings of this study, future research could include determining whether the findings are relevant across various categories (e.g. purchasing electronics, and groceries) and conducting a comparative study based on the findings. In addition, future studies could also consider other generational cohorts to determine whether the findings differ according to age.

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

## Authors' contributions

M.C., N.C. and M.R.-L. contributed equally to this work.

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## Data availability

The data that support the findings of this study are not openly available but are available from the corresponding author, N.C., upon reasonable request from the corresponding author.

## Disclaimer

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