Mobile business travel application usage: are South African men really from Mars and women from Venus?

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Structured Abstract

Purpose – Research abounds highlighting the differences between males and females when they travel. Even in business travel, these differences have been acknowledged, with suppliers and marketers spending significant money to develop and market products to accommodate them. The purpose of the study is to ascertain whether differences exist in terms of mobile application usage between male and female business travellers.
Design/methodology/approach – A mixed method approach is followed. An internet-based survey is distributed and in-depth interviews conducted with South African business travellers. The Mann Whitney U-test is utilised to test the differences between males and females and their mobile application usage. Content analysis is used to analyse the interviews.
Findings – The results show that mobile applications are perceived as more important by females than males in all the phases of the travel cycle, although most of these differences in perceived importance were not significant.
Research limitations/implications – Due to the online data collection method and the self-selective process, the findings cannot be generalised to the global population of business travellers who use mobile applications.
Practical implications – The results should caution corporate organisations, travel management companies and their application developers not to spend unnecessary technology and financial resources on developing applications to accommodate differences between males and females, which might not exist. Companies should rather spend money on developing applications that will enhance and add convenience to the business traveller's experience.
Originality/value – The main contribution of this study lies in investigating the applications market, particularly in the context of business travel. Applications focused on specific sectors of the tourism industry, such as business travel applications, serve business travellers differently from generic travel applications. Our research examines business travel specific applications and expands the scale and scope of the enquiry, concentrating on the travellers' view.
Article Classification - Research Paper

Introduction

Travellers have a need to be online before, during as well as after a trip (Hjalager and Jensen, 2012). For this reason, Husson and Ask (in Eriksson, 2014:17) state that mobile device "adoption is growing and with it activities usually associated with PCs, such as booking hotels, finding nearby restaurants, or simply browsing the internet". Ukpabi and Karjaluoto (2017) report that travel applications are the seventh most downloaded applications, with 60% of mobile device users across the globe

downloading travel applications onto their devices and 45% of them utilising these applications frequently to organise trips (GoodWorkLabs, 2016). However, various researchers have noted the dearth of studies on the adoption and usage of mobile devices (Mang *et al*., 2016; Liang *et al*., 2017; Tan *et al*., 2017; Ukbapi and Karjaluoto, 2017). Even though past results have shown mobile applications to be useful in purchasing tourism related products (Kim *et al*., 2015; Rivera *et al*., 2015; Murphy *et al*., 2016) improving the tourism experience (Tom Dieck and Jung, 2015), and even providing the disabled tourists with information for their everyday tourist activities (Ribeiro *et al*., 2018), it is known that not all individuals accept or use technological innovations in the same way or at the same pace (Parasuraman, 2000). For example, Ukpabi and Karjaluoto (2017) noted that individual differences influence mobile device acceptance of tourism related services, while Vallespín *et al*. (2017) found the results of studies investigating the attributes of tourists who belong to diverse levels of mobile device usage when buying tourist services inconsistent. Mang *et al*. (2016) state the importance of understanding how consumers are in fact utilising their mobile devices since this could improve interaction between consumers and businesses, resulting in a more enjoyable and personalised tourism experience (Neuhofer *et al*., 2014). This requires of companies to recognise the profiles of individuals that would make use of mobile applications when designing their mobile device strategies and to offer services altered to their needs (Vallespín *et al.*, 2017). Gender remains one of the most popular methods of profiling individuals and is utilised by advertisers and marketers alike, with the expectation that men and women will differ in terms of how they process information and make decisions. With regards to mobile usage, Okazaki and Hirose (2009) found females to be more willing candidates for active mobile Internet use than males while Vallespín *et al.* (2017) established that gender does have an influence on the usage of mobile devices for booking tourism products. Even in South Africa Lubbe and Louw (2009) found significant differences between genders in terms of their mobile readiness. What is not known is if gender differences are also pertinent in the use of mobile applications, when travelling for business purposes. According to Kim (2009) business travellers show dissimilar characteristics and make use of diverse evaluative measures based on the reason for their trip. As stated by Eriksson (2014) it seems reasonable to think that mobile travel services would mainly be targeted towards individuals who travel regularly for business. Be that as it may, Denstadli *et al.* (2013) have recognised that not much consideration has been given to the variety of technology accessible in business travel while Ladkin *et al.* (2016) commented that the use of ICTs for business travel is only partly understood. To date, only a few authors have looked at business travellers' use of mobile travel applications (Budd and Vorley, 2013; Bretschneider, 2016). Previous research have looked at gender differences among business travellers (Smith and Carmichael, 2006; Shields, 2011), but to date, researchers have not examined whether male and female business travellers differ in terms of their mobile application usage. The overall purpose of the study is thus to ascertain whether males and females differ in their mobile application usage. More specifically, the study will investigate whether men and women are different in terms of their frequency of use and level of importance that they assign to different functions of applications, and also if they differ in the perceived importance that they attach to mobile applications in the various phases of the business trip. Failing to recognize these gender differences in travel expectations and behaviour could result in defective marketing strategies and dissatisfied consumers (Shields, 2011).

The paper is structured as follows: first, a literature overview relating to the use of mobile applications in the business travel cycle, gender in consumer behaviour and the influence of gender on mobile application usage is given. Next, the methodology is explained. Finally, this paper concludes with a discussion of the results and closes with directions for future research.

Literature review

Mobile application usage in the business travel cycle

Business travel has become common in many organisations (Gustafson, 2012) and in its simplest form, refers to the sporadic movement of a worker to enable him/her to transact business in a different location, where the expenditure to travel to the location is paid for by the employer (Lirio, 2014). Time taken to travel is often viewed as unproductive, with employees preferring the trip to be as quick as possible to improve productivity. However, if technology could enable employees to work whilst travelling, their productivity could also improve, because ICTs are increasingly being viewed as 'mobility allies' (Haynes, 2010), facilitating connectivity and enabling access anywhere and anytime (Koroma *et al*., 2014). For this reason, Ladkin *et al.* (2016) are of the opinion that ICTs are redesigning the experience of business travel. One such technological advance that is redesigning the business travel experience and that could enable employees to remain productive whilst travelling is mobile devices, and their accompanying mobile applications. According to Chen *et al.* (2018) mobile devices assist in searching for information, making on-site choices and sharing experiences. This allows travellers to delay choices until after they start their trip, and not having to plan everything beforehand (Xiang *et al.,* 2015). In addition, it offers mobile recommendations (Meehan *et al.,* 2016) and has the ability to change the tourist experiences completely (Wang *et al.,* 2016) altering behaviours, information requirements, decision-making, sharing and documenting (Dickinson *et al.,* 2014; Lamsfus *et al.,* 2015). Researchers have also recognised the perceived benefits of mobile devices to consumers for example money savings, convenience, innovation, personalization, access to information, ubiquity, pragmatism, planning capability, immediacy and entertainment (Kim *et al.,* 2008; Okazaki and Mendez, 2013). Im and Hancer (2017) feel that the impact of mobile devices is more significant in the tourism and hospitality sector as travellers face more risk when making choices as a result of unfamiliar situations and differing requirements linked to information searches, building social relationships, and entertainment (Dickinson *et al.,* 2016).

In leisure travel, Okazaki *et al.* (2015) conceptualized the use of mobile tourism services as a model consisting of three-stages: (1) pre-travel search for travel planning information, (2) on-site search for travel execution information, and (3) post-travel feedback. Travellers' information search usually consists of making bookings, with the transaction being concluded once the traveller arrives at the destination. With mobile devices, travellers continue the information searches even after they have reached their destination. In fact, because tourists know that information is freely available from their mobile devices, they may even plan less before their journeys (Wang *et al.*, 2014). After reaching the travel destination, rapid information search at the exact location becomes a crucial issue. Mobile devices enable tourists to adapt their schedules in reaction to unforeseen situations that happen while they are travelling (Lamsfus *et al.,* 2015; Wang *et al.,* 2016). Wang *et al.* (2016) add that tourists could use mobile devices

for communication purposes, making them feel more secure, as it enables them to be instantly connected with friends and family back home. Post travel feedback relates to writing reviews and rating the overall travel experience (Okazaki *et al.,* 2015). In the past, tourists would have shared their experiences and feedback once they returned from their trip, but mobile devices have made it possible to share experiences on-site, guaranteeing that social circles are instantly kept up to date (Wang *et al.,* 2014; Zhang *et al.,* 2017).

When considering business travel specifically Lenz *et al.* (2015) divide the trip into three phases: preparing for travel (pre-trip), processing travel (on-trip/destination stage) and travel follow-up (post-trip). The pre-trip stage for business trips – as opposed to leisure trips –lasts just a few hours or days (Freyer in Lenz *et al.,* 2015). During this phase, employees make choices about their means of transport or accommodation which is typically booked before leaving, while other times, only transport is booked beforehand (Hammer and Naumann in Lenz *et al.,* 2015). Subject to the structure of the organisation, this stage is typically completed by the business traveller him/herself or an assistant or with the support of a travel management company (Lenz *et al.,* 2015). Research shows that business travellers generally feel comfortable to conduct simple bookings on booking portals (Mahnicke in Lenz *et al.,* 2015). Lately, all these functions can also be completed on a mobile application. The destination stage includes at least transportation and probably lodging at the destination (Lenz *et al.,* 2015). One of the major stressors for business travellers is the loss of productivity while travelling, due to flight delays or cancellations (Kwoka in Lenz *et al.,* 2015). They will therefore benefit from early notifications (delivered via mobile applications) in such situations so that they can schedule their time more productively. Electronic tickets, online check-in and bar code boarding passes are all services accessible via mobile applications and could assist the traveller in saving time– prior to the flight and at the airport (Kwoka in Lenz *et al.,* 2015). Expenses that arise during travel are mostly settled by credit card or occasionally cash. The post-trip phase entails the billing and repayment of travel expenditures process (Lenz *et al.,* 2015), which is nowadays being simplified by allowing the employee to complete all the necessary requirements on an application.

Gender could influence whether these mobile applications will be adopted and used by business travellers. Numerous studies have shown that when women are compared to men, women are less probable to embrace new technology and if accepted they are inclined to utilise it less than men (Michie and Nelson, 2006; Li *et al.,* 2004). There could also be a relationship between gender and the use of mobile applications in the various phases of the business trip as discussed above. It is thus hypothesised that:

H_1: There is a relationship between gender and the level of importance that business travellers attribute to mobile applications in the various phases of the business trip.

This relationship could possibly be explained by examining the role of gender in tourism consumer behaviour.

Gender in tourism consumer behaviour

Figueroa-Domecq *et al.* (2015:87) categorise tourism gender research into four main categories: gendered tourists; gendered hosts; gendered labour; and building theories and research structures. The first theme involves gendered consumption, investigating the ways in which men and women travellers differ based on their requirements and anticipations (e.g. Dole, 2002). The third research theme, namely gendered labour includes studies on gendered technology engagement (e.g. Figueroa-Domecq, Segovia-Pérez and Nordbø in Figueroa-Domecq *et al.,* 2015) and gendered tourism marketing and representation (e.g. Pritchard and Morgan, 2000). This gendered technology engagement could be explained by the research of Chong (2013) who found that males and females share different beliefs about technology while Chang and Melbourne (2010) showed that male and female users of an innovation are motivated by diverse goals.

The influence of gender on mobile travel application usage

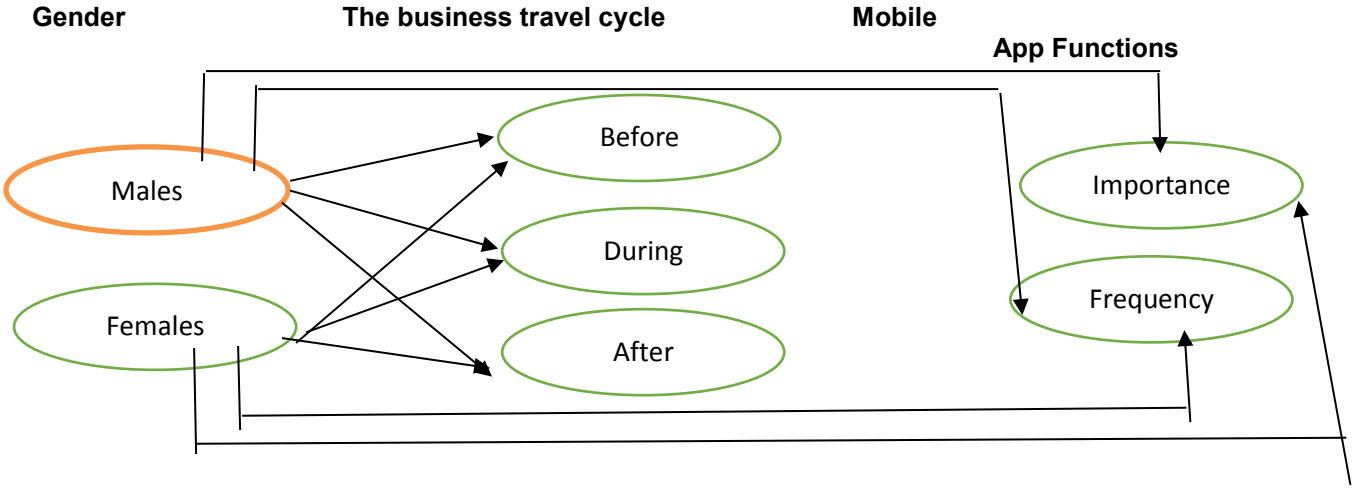
It is clear that mobile applications offer great opportunities for consumers and are vital to the success of any organisation, but even so, studies in the tourism industry remain scarce (Tan *et al.,* 2017), with only a few studies investigating the influence of gender on application usage. Kang *et al.* (2014) found mobile device adoption to be moderated by gender while Fang et al. (2017) found gender to significantly affect a traveller's psychological engagement with mobile travel applications. More specifically, Eriksson (2014) showed that males are more inclined to look for information on their mobiles than females while Okazaki *et al.* (2015) indicated that females are more likely to utilise mobile devices prior to, but not during their journey whereas males show the contrary by connecting to their phones the moment that they reach their destination. Other researchers claim that gender differences are no longer present in terms of mobile technology adoption (e.g. Ding and Chai, 2015; Vallespin *et al.,* 2017). In Finland for example internet usage is more or less the same for both genders (Eriksson, 2014). Verma *et al.* (2012) conclude their study by stating that any differences between genders that might have been present in the past have vanished. What remains unclear is if these gender differences have also disappeared in business travel and if male and female business travellers differ in the importance that they attach to mobile business travel applications during the different phases of the business trip. In her article, Lirio (2014:162) notices that "it often goes unexamined in research on business travel, that the majority of employees traveling for business are men". Still other research has indicated the same patterns of more men than women in business travel (Demel and Mayrhofer, 2010; Aguilera, 2008). One of the explanations for this overrepresentation of males is the fact that the consequences of work-related travel are gendered, with the mobility of females restricted because of their propensity to accept more responsibility for caring roles leading to limited career opportunities (Black and Jamieson, 2007). With this overrepresentation of males, it seems likely that the majority of policies related to business travel, will also be geared towards the needs of men, including the policies related to the use of mobile business travel applications. It is thus necessary to identify whether differences exist between male and female business travellers regarding their usage of mobile business travel applications, so that these applications could be developed to cater for both genders. Therefore, it is hypothesised that:

H_2: Males and females differ in the level of importance that they assign to various functions of mobile business travel applications.

H_3: Males and females differ in the frequency with which they use various functions of mobile business travel applications.

From the discussion above, a conceptual model is built (see figure 1) and tested. The methodology used to test this model is explained next.

Figure I. A conceptual model of mobile business travel application usage



Methodology

This study adopted a mixed method approach to collect data by using surveys and interviews allowing for a more in-depth understanding of complex phenomenon, in which consensus among diverse sources establish validity (Malterud, 2001). South African business travellers who made local or international business trips, were used as the target population. The sample for the survey consisted of travellers who made their travel arrangements with a global travel management company (with offices in South Africa) during the period from 1 August 2013 to 31 July 2014. We made use of non-probability convenience sampling to share a link to the survey via email to these travellers. Two hundred and thirty two (232) surveys were completed. Next, telephone interviews with business travellers who share similar profiles to the ones included in the quantitative survey were conducted. Snowball sampling was used and rendered a total sample of 10 interviews. South African business travellers were selected as the target population, since statistics show that in Africa, South Africa has the most adults possessing mobile devices. Furthermore, in South Africa, mobile is responsible for over 75% of all web traffic (Qwerty Digital, 2017). What is more, Africa is often the forerunner in mobile applications and functionality, particularly in the payment space. The idiosyncrasies and needs of the specific markets make it vital for the travel industry to innovate, sometimes even out-performing the first world players (de Vries in Hayes, 2018). Furthermore, researchers have also noted the need for more research in terms of the acceptance and use of mobile applications in Africa (Ukpabi and Karjaluoto, 2017). For this reason, the aim of the paper is to assess the usage of mobile business travel applications by South African business travellers, and if this use differ between males and females. Taking the dearth of studies related to the topic

into consideration and because the results of this study do not duplicate prior research studies and are not compared to other studies, a new survey was developed from the literature. Some measurement scales used in earlier industry surveys (such as CWT Travel Management Institute, 2014:52 [functions of mobile business travel applications]) and those developed by Goh *et al*. (2010:37) [mobile tourism services in a leisure context]; Kim *et al.* (2008:399) [type of traveller mobile devices]; Wang *et al.* (2016) [mobile device use in everyday life] and Wang *et al.* (2014) [categories of mobile device uses] were revised for use in this study. The survey covered a number of sections. The first section asked the demographic profile of the traveller in terms of level of education, gender and age. The following section related to the business traveller's general usage of mobile applications. In this section respondents were asked to rate the perceived importance of mobile applications in the various phases of the business travel cycle. Importance was measured on a scale from 1-4 with 1=futile and 4=very important. In the final section, more than 100 functions of mobile travel applications were tested in terms of their frequency of use as well as their importance. Frequency of use was measured on a scale from 1-5 with 1=never and 5=very frequently. Importance was measured by ranking the top three functions per activity in each of the travel phases. The purpose of the qualitative interviews was to delve deeper into the categories covered in the survey, to render the results more robust. An additional category covered in the interviews was the value of mobile applications during business trips, responding to the call from Tan *et al*. (2017) and Mang *et al.* (2016) that further research into travellers' motivation to use mobile applications is needed. In order to meet the goals of the study diverse techniques for data analysis were used. The Mann Whitney U-test was used to test the differences between the gender of the business traveller and their use of mobile applications (in terms of frequency of use and importance of use). Chi-square tests (Pearson chi-squared tests of independence) were performed to measure the association between gender and the importance of mobile applications in the various phases of the business trip. The qualitative analysis methods adopted by the study were: 1) respondent verification (findings and conclusions were confirmed by respondents and tested against the data by comparing all data against each other (Rich and Ginsburg, 1999) to establish the soundness of data and interpretations with target population representatives; and 2) negative case analysis to look for non-confirming proof such as outliers to guarantee precise depiction of the range and variation of the target population (Nastasi and Schensul, 2005). Lastly, simultaneous data analysis in which both data sets of quantitative and qualitative design were combined and integrated during the reporting stage (Rittichainuwat and Rattanaphinanchai, 2015).

Results

Table I shows that the majority of the survey respondents were male, confirming the overrepresentation of males in business travel, reported by several previous researchers (Lirio, 2014; Julsrud *et al.,* 2012). More than 30% of respondents belong to the 18-38 years category, while another third of respondents fell in the 39-48 years category. The majority of respondents had a post-graduate qualification. Most of the respondents' companies (52.3%) recommended the use of specific applications. More than two thirds of respondents (68.5%) said that they used their mobile devices daily. Of the ten interviewees, six were female and four male. Their ages ranged between 30-64 years. Interviewees were asked to comment on their frequency of mobile use. Interestingly, most interviewees were of the opinion that their frequency of use remain

the same regardless of whether they are travelling for business purposes or during their daily activities at home. One female interviewee (6) said: *"I use a greater variety of applications. I use the applications that I use at home less and others more, but generally the use stays the same."* This was corroborated by interviewee 7. Another female interviewee (3) noted that during a business trip, she uses applications more for personal reasons, to stay in contact with her family and "*to know what is happening back home*." This confirms the results of Black and Jamieson (2007) who found that women accept more responsibility for caring roles, even while travelling for business purposes.

Table I. Demographic profile of quantitative respondents

Demographic profile		**Percentage**
Gender (n=221)	**Male**	**68.3**
	Female	31.7
Age (n=219)	19-38 years old	30.6
	39-48 years old	**33.3**
	49-58 years old	27.9
	59+ years old	8.2
Corporate companies' views regarding the use of mobile travel applications (n=199)	Enforced	7.2
	Recommended	**52.3**
	Prohibited	4.1
	I don't know	16.3
	None of the above	22.1

Table II. Importance of mobile travel applications in the travel cycle

	Futile (%)	**Not important (%)**	**Important (%)**	**Very important (%)**	**Mean**
Searching (n=195)	3.1	17.9	46.2	32.2	3.09
Male	3.6	20.3	45.7	30.4	3.03
Female	1.8	12.3	47.4	38.6	3.23
Booking (n=195)	2.6	12.3	45.7	39.5	3.22
Male	2.9	13.8	46.4	37.0	3.17
Female	1.8	8.8	43.9	45.6	3.22
Travelling (n=197)	2.0	8.6	48.2	41.1	3.28
Male	2.2	9.4	46.4	42.0	3.28
Female	1.7	6.8	52.5	40.0	3.29
Post Travel (n=196)	9.2	48.5	31.6	10.7	2.44
Male	13.1	45.3	32.8	8.8	2.37
Female	0	55.9	28.8	15.3	2.59

Table II shows the importance of mobile travel applications during the business trip (perceived importance was measured on a 4 point scale where 1=futile and 4=very important). Surprisingly, respondents indicated that mobile applications are more important in the booking phase than in the searching phase, confirming the use of mobiles as a channel of distribution, and not only a channel of information thereby contradicting the results of Murphy et al. (2016) who found that travellers are likely to switch to their personal computers in the final booking stage while they tend to make use of mobile devices during the search stage. During the interviews, it became clear

that the level of importance that travellers attach to mobile applications in the different phases depends on whose responsibility it is to make the bookings. Where the traveller had a personal assistant or made use of a travel management company, they indicated that mobile applications were more important in the searching phase, but when they were responsible for their own bookings, mobiles became more important in the booking phase. In terms of gender, females consistently rated mobile applications as more important than males in all the travel phases. Pearson chi-squared test of independence was used to test the relationship between gender and the importance of using mobile travel applications in the different travel phases. The only significant association ($p < 0.01$) was in the post travel phase, where males were more likely to rate mobile applications as futile than females.

Table III. The most important and most frequently used mobile travel application functions

ACTIVITY	MOST IMPORTANT FUNCTIONS	MOST FREQUENTLY USED FUNCTIONS
PRE-TRAVEL		
Planning	1. Travel requirements (e.g. visa, vaccinations etc)	1. Destination applications (e.g. weather-, exchange rate applications, general destination information)
	2. Door-to-door planning (Applications supporting address-to-address travel).	2. Travel requirements
Pre-travel booking	1. Make air bookings	1. Loyalty programme manager (view points/status)
	2. Preferencing (The ability to select preferences)	2. Make accommodation bookings
Itinerary consolidation	1. Flight details (e.g. boarding gate changes)	
	2. Consolidated itinerary information/Automated itinerary sync	
DURING TRAVEL		
During travel cancellation/modification	1. Make air bookings	1. Search for alternative flights
	2. Alerts on delays/cancellations	
Continuous support	1. Flight details	
	2. Flight status notification	2. Destination applications
Check-in/Check out	1. Advanced check-in (flight/hotel)	
	2. Fast check-in/check-out	
Transportation/Hotel comfort	1. Seat choice	
	2. Lounge access	
Extra travel information	1. Local restaurants	
	2. Advice on discount possibilities	
Work related supporting applications	1. Mobile e-mail	
	2. Integrated expense management	2. Mobile instant messaging (E.g. Whatsapp, Facebook Messenger)
POST TRAVEL		
Reviews and personal experience	1. Preferencing	1. Loyalty programme manager
	2. Loyalty programme manager	2. Preferencing
Expenses	1. Picture upload of expenses	1. Expense approval
	2. Expense approval	2. Upload of invoices

Table III provides a summary of the mobile travel application functions that respondents showed to be the most important and most frequently used. Since more than hundred functions were tested, for briefness, only the top two most important and top two most frequently used functions in each activity are given. Worth mentioning, in many cases, if a function was shown to be the top two most important, it also featured in the top two most frequently used list for that activity. This was also

confirmed in the interviews, where all interviewees indicated that the functions that are most important are also those that they use the most frequently. Goh *et al.* (2010) suggest that travellers like the basic mobile services for example those offering information about accommodation, transportation and food, more than context-aware services and trip planning. Our results show that respondents value a combination of basic and context aware services.

Mang *et al.* (2016) showed the usage of mobile devices for specific purposes, but they failed to identify the intensity of usage of these purposes, and mentioned the substantial scope for future research in these areas. Our results revealed the intensity of usage by not only looking at the most important functions, but also identifying the functions that are the most frequently used by travellers. Mang *et al.* (2016) found certain mobile device applications to be more valuable to tourists than others. They recognised the significance of social networking among persons confirming the results of Gretzel *et al.* (2011) who also acknowledged the significance of sharing the travel experience with others. Our results differ from Gretzel *et al*. (2011) and Mang *et al.* (2016), but confirm Chen *et al.* (2016) in that respondents neither found social networking applications important nor did they use it frequently on a business trip (even though they used work related supporting applications such as Whatsapp and Facebook messenger frequently). Mang *et al.* (2016) also identified other uses of mobile devices that are less common for example looking for restaurants and shops, looking for information on tourist attractions and carrying out language translation. Our results showed that finding restaurants was the most important and most frequently used function in the during travel phase.

Even though Chen *et al.* (2016) conducted their research in the context of hotels, some of our results overlap. They identified the top ten most important mobile features to be: contact details, booking and reservation function, directions to the hotel, map, photos, hotel search, transportation information, check-in/out information, facilities information and hotel overview. Our results also found the booking and reservation function (for airlines and hotels) important to use and respondents also indicated that they use it frequently in the pre-travel and during travel phases. Transportation information, in the form of preferencing, flight details, flight status notifications, alerts on delays and cancellations were also found to be important and frequently used by our respondents. Our business travellers also indicated check-in/out information to be important and frequently used. In the qualitative interviews, all the interviewees rated the use of navigation functions as extremely important during travel, corresponding with the results of Mang *et al.* (2016).

In their research Atan *et al.* (2002) found that differences between genders disappear when only the most basic computer skills are measured, but when more advanced and varied applications are measured, the gender difference appears to be evident again. For this reason, it was deemed important to see if differences exist between males and females in terms of the varied application functions listed above. Only the three functions listed below showed significant results. Results of the Mann Whitney U-test where a statistically significant difference exists at a 5% level of significance are stipulated in Table IV.

Table IV. Gender differences in mobile travel application functions

Breakdown of question description	The frequency of using **mobile boarding pass**	The frequency of using **events notification and ticket purchase**	The importance of **uploading invoices**
Z	-2.173	-1.977	-2.197
Asymp. Sig. (two-tailed)	.030	.048	.028

The mean rank indicates that:

- Female business travellers (mean rank: 112.67) tend to use **mobile boarding passes** more frequently than male business travellers (mean rank: 93.91).
- Female business travellers (mean rank: 111.42) tend to use **event notification and ticket purchase** functions more frequently than male business travellers (mean rank: 94.44).
- Female business travellers (mean rank: 112.30) tend to rank the use of **invoice uploading** as more important than male business travellers (mean rank: 94.07).

The mean ranks are the sum of the ranks, assigned in ascending order to all observations, for each specific subgroup, divided by the number of observations for each subgroup/category. A mean rank does not indicate a fixed point on a scale, but only shows a tendency to the left or right anchor points of a scale. As such, it can take on any positive value and are not restricted to the original scale values. In the case of this research, a higher mean rank of one group vs. the other groups thus indicates a tendency towards the higher points of the scale.

In the interviews, females were more likely to share their reviews on platforms such as Tripadvisor than males. Allyn (2003) found that male and female employees make use of computers for different reasons. The same seems to be true for mobile business travel applications, even though only limited significant differences were shown.

An additional question was posed to interview participants, asking them to elaborate on the value of mobile applications in the business travel cycle. Some interviewees were more convinced about applications improving their productivity than others. One interviewee (4) responded: "*Yes, applications generally improve my productivity, but the **phone can also be a distraction**",* while another interviewee (5) said: *"If you have to wait, you can at least read your emails on your phone, while waiting, so yes, it **improves my productivity**."*

Mobile applications were definitely seen as reducing uncertainty, making the traveller feel safer and reducing the stress related to business travel. One interviewee (3) opined that: *"Yes, there is **security** in knowing I have my phone with me, and I can do almost anything on it."* This was reiterated by two participants (2 and 6). One participant (2) disagreed by saying that: *"Sometimes it adds to more stress. When you are away from home and all the emails keep coming in, relating to other projects, **you become more stressed.**"*

Interviewees were more cautious about applications' ability to assist in keeping a work-life balance. One participant (2) explained it as follow: *"Yes, to an extent. You are away from your home, even **though you can remain in contact, you are still not there."***

Another participant (6) elaborated further: *"**It is not necessarily a true balance**, because you are still away. It creates the illusion of a balance."* In terms of keeping a work-life balance, female respondents were more likely to refer to applications' value in remaining up to date with what is going on at home, while this was seemingly of less importance to males.

Discussion and conclusion

Conclusions

Law *et al.* (2018) identified the need for more research into mobile devices in other sectors of the tourism industry, such as the business travel industry, to enhance our understanding of this rising phenomenon. Moreover, since there are multitudes of applications available, and it costs large sums of money to develop such applications, it is crucial to understand the reasons for consumers to adopt and use these applications (Tan et al., 2017). The overall purpose of the study was thus to ascertain whether differences are evident in terms of mobile application usage between male and female business travellers, and more specifically, whether males and females differ in terms of their frequency of use and level of importance that they attach to different applications in the various phases of the business trip. Our results are significant considering that other studies on mobile device usage in the context of tourism including those of No and Kim (2014) and Kim *et al.* (2015) have not paid attention to variances in gender. Our results showed limited differences between genders in terms of the level of importance that they attach to mobile applications in the various phases of the business trip. A few differences did transpire when the importance and frequency of use of specific functions of applications were tested, supporting the results of Atan *et al.* (2002). Our results also confirmed the results of Mang *et al.* (2016) who found few statistically significant differences in the mobile application usage behaviours of men and women when they travel. Even though Mang *et al.*'s (2016) study looked at the likeliness of mobile device use while travelling they noted that the intensity of usage is still unexamined in the literature and comment that it may be so that differences in gender are evident in frequency of usage when travelling. Our results challenge their prediction in that only a few statistically significant differences in the behaviours of men and women in terms of frequency of use were shown.

Practical implications

This paper holds various managerial implications for the industry. The broader application market is fiercely competitive and Nielsen (2015) reports that that if an application is not established as one of the "favourite 27" of applications installed, then acceptance is probable to be short lived. In their research, Okazaki and Hirose (2009) provided a practical recommendation for organisations to develop gendered travel marketing through mobile devices. Our results show that this might be a risky strategy, since it seems that gender gaps in terms of ICT usage are indeed lessening, as many previous researchers have shown (Rainer *et al.,* 2003; Verma *et al.*, 2012). Our results should caution corporate organisations, travel management companies and their application developers not to spend unnecessary technology and financial resources on developing applications to accommodate differences between males and females, which might not exist. Companies should rather spend money on developing

applications that will enhance and add convenience to the business traveller's experience. Companies are also encouraged to build a profile of the typical usage of mobile business travel applications. This should provide better managerial contributions than building a profile of users based on demographic variables, such as gender, aiding companies to tailor their mobile strategies even further.

Theoretical implications

The main theoretical contribution of this study to the literature lies in investigating the applications market, particularly in the context of business travel. Generic travel applications offer an extensive range of travel planning functions and information. Applications focused on specific sectors of the tourism industry, such as business travel applications, serve business travellers differently from generic travel applications (Wang *et al.,* 2015). This study adds to the existing knowledge by rating the importance and the frequency of use levels of application functions from a business travellers' perspective. It expands to more than 100 functions and features, considerably more than the 51 functional features used and tested in the study by Chen *et al.* (2016). This research also responds to a call from Wang *et al.* (2016), requesting future research on mobile devices to expand beyond functionalities. In addition, the findings from the interviews on the value of mobile applications during a business trip respond to Tan *et al*. (2017) and Mang's *et al.* (2016) request for further research into travellers' motivation to use mobile applications. This research study answers the appeal from Figueroa-Domecq *et al.,* (2015:96) to build gender research capacity in less research-intensive institutions and countries across the globe. Figueroa-Domecq *et al.* (2015) further mention a vital need to expand tourism gender research to know more about new lines of questioning and expose current views around gendered tourism behaviours, given the importance of women as consumers of tourism products. This paper fulfils part of this need by explaining women and men's usage of mobile travel applications in the context of business travel.

Limitations and future research

In their research, Choi *et al.* (2018) examined the factors that influence the continued use intention of mobile travel apps. Future research could assess if the factors are the same for business travellers. Furthermore, given differences in mobile phone adoption internationally, national background is also theorized to moderate behaviour (Mang *et al*., 2016). Future studies could identify if business travellers from diverse nationalities, differ in their mobile application usage. Like all research studies, this study is not without limitations. The results of this study cannot be generalised to the global population of business travellers who make use of mobile applications, since the sample was non-random. The results do however demonstrate certain trends that may certainly be an indication of the global population of business travellers' mobile travel application use.

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