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An Intergenerational Value Change Theory-Based Study to Explore Taxicab Application Usage among Developing-Market Millennials

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ABSTRACT

This paper conducted an intergenerational value change theory-based study to provide a classification of main cues motivating taxicab application usage. A qualitative approach was adopted for the prediction of cues explaining the formation of beliefs for millennials. Based on the interpretivist paradigm, this research provided the main latent cues explaining post-technological impact and social changes on millennial beliefs by using inductive reasoning. To achieve this aim, open interviews were conducted in Pakistan using a manual spreadsheet format for coding the data. Based on a six-step procedure used to analyse the transcribed data, twenty-three cues were categorized into four main contemporary dimensions: technology advancements, social awareness, security concern, and managerial skills. The results of this research may support policy makers and managers operating in taxicab companies to design and develop technological applications according to the social change affecting millennials in emerging countries.



Introduction

Ongoing global exploration has led to an era of technological advancements. Certainly, it has transformed the social lives of consumers in the majority of the emerging, and progressive countries that blotch the globe (Rahman, 2014; Keong, 2015). In addition, drastic developments in the mobile phone industry had an extraordinary impact on millennials living in different worldwide

societies, and communities (Wang, 2015; Keong, 2015). Moreover, the transformation of mobile phones into a smartphone has empowered the millennial generation towards synchronization of activities through an amazing touch screen interface (Wallsten, 2015). Being a million-dollar industry smartphones have been widely adopted and frequently used in various contexts of millennials' everyday lives (Lee, 2014). They lure into these devices at any given moment to navigate the world of applications through their fingertips. Furthermore, smartphones provided instant access to several applications simultaneously (Sharma & Das, 2017).

By the first quarter of 2017, the global revenue for smartphone sales accounted for 478.7 billion dollars (Statista, 2018). Subsequently, by 2018 the global sales for smartphones reached

1.56 billion \$ (Statista, 2018). Not surprisingly, the high smartphone usage rate amongst the millennials provided an opportunity for global businesses to launch several mobile applications (Holicza & Kadana, 2018). In like manner, several business activities were performed through Whats app, Facebook, YouTube, Twitter, and Skype application usage. On the other hand, a total of 29 million jobs were created in the smartphone industry, thus made a substantial contribution to the global employment market (Shabrin et al., 2017). Simultaneously, smartphone usage continued to climb in South East Asian markets from 25% in 2013 to 87% in 2015 (Poushter, Bishop & Chwe, 2018). In the case of Pakistan, the smartphone users reached 120 million (Ali, Rizvi & Qureshi, 2014). Additionally, by 2019 market share of smartphone users in Pakistan rose to 83.53% (Aslam et al., 2018). As a matter of fact, 59% of the millennials aged between 15 and 24 in Pakistan owned a smartphone (Gallup Pakistan, 2015). Furthermore, approximately 26% of half feature phone users intended to switch to a smartphone in the year 2014 or later (Gallup Pakistan, 2015).

To put it differently, taxicab application usage in Pakistan has increased immensely (Rasheed, Mazhar & Shahid, 2018). 62% of the millennials residing in urban areas use the taxicab application to book a ride (California Department of Transportation, 2016). Not to mention, usage of taxicab application, established in dissimilar cities of Pakistan has improved, like other South Asian Nations (Virkus, 2017). For example, taxicab applications have gained significant market share in Rawalpindi, Lahore, and Karachi. Also, contributing to the overall service sector GDP in Pakistan (PIDE, 2011). Additionally, in the last couple of year's taxicab applications became the biggest mover of people in Pakistan, with a target market of close to 380 million urbanites (Abraaj Group, 2017). Furthermore, the taxicab application has increased the worth of consumer-driven peer-to-peer car rental market by \$26 billion globally (Abraaj Group, 2017). This established growth clearly supported the significance of taxicab application usage in Pakistan.

Several eminent global scholars have complied with a vast and valuable resource on the usage of smartphone applications in industries such as; health care, crime, hospitality, education, tourism, and online shopping. For example, Chol and Stvilla (2015) examined the factors stimulating the choice of smartphone health/wellness application. Likewise, Yaman et al. (2015) inspected the usage rate of smartphone medical applications in family practice settings. In addition, Nikou (2015) investigated the factors influencing the adoption of mobile health and wellness applications by young-elderly smartphone users. In comparison, Baechler et al. (2017) investigated the usage of smartphone application assistance in crime scene investigation. Whereas, Confente and Vigolo (2018) explored the social and attitude influence on smartphone hotel booking applications usage. Han and Yi (2018) stressed the significance of investigating the smartphone application usage of college students' effect on their performance. Also, Mang, Piper, and Brown (2016) signified the usage of various smartphone applications amongst tourists. Moreover, Hubert et al. (2017) research identified the factors motivating consumers on using smartphone shopping applications.

The horizon of smartphone application studies was not limited to health care, crime, hospitality, education, tourism, and the online shopping industry. An immense amount of literature was established in several related domains. For example, Moon et al. (2017) explored the usage of smartphone applications impact on language development scores in young children. Garrett et al. (2014) examined the use of a smartphone application for payment technology. Jung and Yim (2018) studied the effect of mental model and intrinsic motivation on the behavioural intention of smartphone application usage. Jung (2014) established the understanding of various values users achieved with smartphone applications. Also, Nguyen et al. (2016) conducted an economic level study in Singapore on understanding various smartphone applications used by consumers. Moreover, Stachl et al. (2017) examined the personality trait prediction based on the choice of smartphone applications. Furthermore, Tregarthen, Lock, and Darcy (2015) research indicated the significance of developing a smartphone application used for eating disorders and self-monitoring.

Despite a wealth of globally established studies on the smartphone application usage in industries such as health care, crime, hospitality, education, tourism, and online shopping, minimal evidence was documented on the exploration and classification of cues motivating the beliefs of millennial generation while exposed to major external events taking place in their surroundings. In addition, in contrast to using quantitative analysis as a traditional method for establishing statistical results, this study applied an exploratory approach that relied on a small sample. Therefore, this research effort was directed towards the exploration of cues. Followed by mapping of cues into contemporary categories. This objective was achieved keeping in view the Intergenerational Value Change Theory. This theory helped in unleashing the cues motivating the fundamental beliefs of millennials residing in prevailing social orders in a society towards taxicab application usage. Consequently, sharing insights into the application usage beliefs of millennial generation.

Equally, important a few theoretical and managerial contributions were made through this effort. First, adopting an exploratory inquiry unleashed a list of latent cues providing an improved understanding of millennial beliefs towards taxicab application usage. In fact, providing the classification of cues into four dimensions (Table 3). In accordance, it extended the IVC theory by mapping out twenty-three cues besides the previously established ones. Second, the majority of the studies on smartphone application usage were established in U.S.A, U.K, Italy, Germany, France, and Singapore. Limiting the generalizability of the findings towards South East Asian countries, specifically Pakistan. As discussed earlier, cultural values differed from country and region wise (Naeem, Butt, & Khanzada, 2018). Third, to date no studies in Pakistani context established twenty-three cues grouped in four categories in light of IVC Theory. Most significantly, from a managerial perspective, this research provided taxicab companies with a vast list of cues keeping in view post-technological advancements and ordained changes in society and community. This would help in redefining their service marketing strategies, and orientation with underlining beliefs and values of millennials residing in the major cities of Pakistan.

The rest of the document is structured in the following sequence. Section two reviewed the literature on smartphone significance, theory, and smartphone application usage studies. Section three described our methodology. In section four, we documented the findings derived from one-to-one interviews. Section five was based on the discussion related to the themes derived from the findings. Finally, in section six, we discussed the theoretical and managerial implications for this paper.

Literature review

Smartphone application significance

High social acceptance of smartphone applications revolutionized several industries including banking, hospital, retail, apparel, tourism, shopping malls, and educational institutions (Chen and Hsieh, 2012; Wang and Wang, 2016). For example, smartphones provided instant access to YouTube, Twitter, Instagram, Facebook, display photo, entertainment, communication, transportation, shopping, mapping, and online gaming application simultaneously (Koo et al., 2014). Consequently, making it a multi-tasking device for millennials (Sarwar & Soomro, 2013). Moreover, smartphone application usage significance and presence were highly rated amongst urban, rural, rich and poor millennials (Pheeraphuttharangkoon, 2015). Previous research stated that by 2020 70% of millennials around the globe would own a smartphone (Qader & Omer, 2015). On the other hand, 75% of millennials aged 15-34 residing in different parts of the world relied on smartphone applications (Qader & Omer, 2015). In addition, the majority of the adolescents enrolled in elementary schools, colleges and universities indulged in daily basis smartphone activities (Holicza & Kadena, 2018). Important to realize, academicians found 102 billion applications downloaded in 2013 with projected revenues of \$26 billion (Inukollu et al., 2014).

Moving towards South East Asia, and specifically Pakistan the taxicab application was the most used amongst millennials. Careem being a leading taxicab service provider, in December 2015 was valued at US \$68 billion through private investors including venture capital investments (Kamran et al., 2018). Also, it received US \$3.5 billion in investment from Saudi Telecom in June 2016. Moreover, in December 2016 Careem was valued at US \$1 billion (Kamran et al., 2018). Additionally, the lack of efficient transportation infrastructure in urban and rural areas of Pakistan increased the popularity of taxicab applications. For example, in cities such as Rawalpindi, Islamabad, Lahore and Karachi majority of the millennials mean of transport was substandard public vehicles, and obsolete private taxi services (Rasheed, Mazhar & Shahid, 2018). Being millennials and influenced by technological advancements, and up to date events established beliefs different from Generation X, and baby boomers.

Millennials

Millennials were defined as a bunch of people born between 1980 and 2000 (Berry, 1994; Devezas and Modelski, 2003; Hannus, 2016). They are considered to be the largest generation in the modern era (Maiers, 2017). Not to mention, they are highly educated when compared to previous generations such as traditionalist, baby boomers, and generation X (Ozcelik, 2016; Pyoria, 2017). Additionally, they are competent and exhibit a tendency to use information and communication technologies (ICTs) with ease (CNA Corporation, 2008; Haeger and Lingham, 2014). Moreover, they are accustomed to the world of social networks (Hannus, 2016). Being the generation of space agers, they adapt faster to smartphones and internet services (Sweeney, 2006; Pyoria, 2017). They expect speed, convenience, flexibility, and power while adopting digitally provided services (Moreno et al., 2017). On another note, it was established that millennials expect all their routine matters to be integrated digitally online (Smith & Nichols, 2015). For example, it was established that 88% of the millennials identify news updates from Facebook (Andersen, 2017). This enabled them to pick, choose and decide on how and when to complete a particular task on a daily, weekly, and monthly basis. Nevertheless, this exposure to a more intensive and pervasive internet shifted their work engagement faster than previous generations (Andersen, 2017). Therefore, the following section discussed the Intergenerational Value Change Theory (IVC) and its relevance in predicting the cues motivating millennials taxicab application usage.

The intergenerational value change theory

The theory of Intergenerational Value Change (IVC) suggested that post-technological global advancements transformed the fundamental values and beliefs of millennials residing in prevailing social orders in a society (Alonso et al., 2013). Consequently, shaping the characteristics of millennials. Elkelani, (2016) further expanded by emphasizing that, major external events such as technological advancements and internet revolution as cues imprinted a tougher and more lasting mark on millennials than on traditionalists, baby boomers, and generation X living through the same period. On another note, it was indicated that events taking place in the surroundings at different points in time acted as cues and influenced millennials, in return guiding their beliefs and leading to action in the society. Hence, reaction to these happenings amalgamated into steady orientations directly influencing the target generation. This theory was well supported by millennial studies done in the US (Winograd & Hais, 2014), UK, Canada, Spain, and Australia (Buckley, Viechnicki, & Baruahttp, 2016).

Global smartphone application studies

Empirical efforts were made in several countries to systematically review the literature on beliefs towards smartphone application usage. Nonetheless, their specific objectives differed slightly. For example, in Canada and Switzerland crime scene investigation exploration via smartphone application revealed the significance of persuasion of scientific and pragmatic research as a cue for effective results (Baechler et al., 2017). On the other hand, the examination of smartphone payment technology in 50 states and the District of U.S and Columbia unleashed convenience as a cue (Berkowitz & Robb, 2014). In comparison, two intellectuals in the U.S examined the choice of health wellness applications by college students and found free applications as a cue for downloads (Chol & Stvilla, 2015). On the contrary, in Italy Confente and Vigolo (2018) emphasized social influence and attitude as cues for hotel booking intention. Whereas, Fortunati and Taipale (2014) relied on advanced smartphone options as cues for British and French, followed by Germans, Spanish, and Italians. In comparison, Han and Yi (2018) signified frequent application usage in academics motivated groups of students enrolled in different disciplines. On another note, Hubert et al. (2017) stressed on ease of use and usefulness influence on intentional and behavioural outcome of smartphone application users. Likewise, Stachl et al. (2017) findings established personality traits as cues to predict application usage in categories such as communication, photography, gaming, transportation, and entertainment. The documented studies on smartphone applications were not limited to the U.S, U.K, France, Germany, Spain, Canada, and Switzerland only.

Quite a few studies were conducted in countries such as South Korea, Greece, Singapore, Finland, China, and Turkey, focused on several demographic segments. For example, in South Korea Hwang and Nam (2017) relied on accessibility, competence and information usage as cues to bridge the digital divide between age groups. Similarly, Jung and Yim (2018) argued that both intrinsic motivation and behavioural intention as cues motivated South Koreans. In comparison, Jung (2014) proposed a model for understanding the values of smartphone users. Whereas, Moon et al. (2017) found smartphone device usage frequency as a cue towards fine motor and language development in children. Whereas in Greece Mang, Piper, and Brown (2016) investigated smartphone usage amongst tourists. In Singapore Nguyen et al. (2016) prioritized minor modification in a family unit as a cue to improve the quality of time spent together. In comparison, Nikou (2015) found sociological and psychological cues combined with specific aging features to better understand application usage adoption by the young-elderly. Then again in Finland Rasanen & Ertio (2018) emphasized on social, economic and demographic cues influence health-related applications. Likewise, Yaman et al. (2015) stressed security, cost, content quality, ease of use,

support, ease of finding, ease of accessing and motivation influence on medical application usage.

Limited and somewhat similar research was conducted in Pakistan. To begin with, Ahmed and Qazi (2011) stressed on the addictive and aggressive behaviour as cues towards smartphone applications. Whereas Ali et al. (2014) underlined fun as a cue towards application usage between social groups. Equally important medical colleges earned close attention by a couple of scholars. Aman et al. (2015), found high involvement as a cue impact on social relations with friends. Also, affected their working hours as users repeatedly checked What's app and Instagram. Additionally, Hisam et al. (2019) found the frequent usage of medical applications as a cue towards scoring minimal marks in exams. In comparison Butt and Qaisar (2015) in Lahore stressed on application usage frequently motivated academic learning. Similarly, Haji and Mehtab (2018) supported the integration of smartphone applications as a cue towards adopting creative and innovative ways of learning. In another study, Parveen (2017) stressed perceived usefulness, perceived ease of use, perceived enjoyment, social needs, subjective norms, self-efficacy and personal attitude influence on application adoption. In accordance the next section specifically discussed the studies on taxicab application usage.

Studies on taxicab application usage

Numerous studies on beliefs towards taxicab application usage were conducted in Pakistan, U.S, Saudi Arabia, Bangkok, Malaysia, and India (Table 1). To start with, Rasheed, Mazhar, and Shahid (2018) findings in Lahore stressed on application convenience, the social behaviour of the driver, time management, and taxi fare as cues towards application usage. Whereas Alemi (2018) emphasized on life stage, culture and economic dimensions stimulating the use of taxicab application in U.S. Different from, Ali et al. (2018) found mobile app convenience, driver behaviour, time reliability, price affordability, and car condition influence on Saudi Arabian customers. In contrast, Chetanont (2018) found that professionalism, service skill, behaviour, flexibility, honest of the service provider and compensation influenced the beliefs of taxicab customers in Bangkok. Slightly different findings were revealed in Malaysia. Cues such as complexity, driver knowledge, normative pressure, and coercive pressure influenced application usage. However, another scholar in Malaysia contradicted by identifying confirmation, perceived usefulness, perceived ease of use, perceived risk as the most significant cues stimulating taxicab application usage (Weng et al., 2017). Also, opening up avenues for further investigation.

As a matter of fact, taxicab application usage studies in India was a matter of concern for several eminent scholars. Initially, Kumar and Kumar (2016) found the influence of professionalism, price, car, and convenience towards booking a ride. Whereas a study conducted by Rehman (2014) in Ghaziabad revealed customer support, SMS system, online reporting, cleanliness of cab, comfort, luggage space, and driver behaviour as a part of customers' belief formation towards taxicab application usage. In comparison, Singhanian and Pimpale (2017) rated a free ride as the most significant cue for booking a ride through application usage. Different results were revealed by Sophia, Sudhakar, and Varghese (2019). Perceived usefulness, information quality, and security acted as cues for e-trust dimensions to book an application-based ride. Furthermore, Venkatasalam and Muthudinesh (2018) revealed that appropriate use of coupon redemption, discounts, festival offers, online booking, security by GPS, free WIFI attracted mass audiences towards taxicab application usage. Also, similar findings were revealed by Kumar and Sentamilselvan (2018). Customers in Chennai were influenced by the level of comfort, ease of access, tariff system, promotion, safety, and convenience forming their beliefs towards the usage of taxicab application. Besides these findings, a study by Zhang, Li & Lu (2016) in China established quite similar results. Types of cars, driver punctuality, response to booking, and discount offered by app were

identified as cues stimulating the Chinese customer in Zhejiang towards booking a ride through taxicab application.

Table 1. Cues stimulating taxicab application usage

No	Country	Cue	Source
1	Pakistan	Application convenience, social behaviour of driver, time management, and taxi fare	Rasheed, Mazhar, and Shahid (2018)
2	U. S. A	Life Stage, Cultural and Economic Dimensions	Alemi, (2018)
3	K. S. A	Mobile app convenience, driver behaviour, time reliability, price affordability, and car condition	Ali et al. (2018)
4	Bangkok	Professionalism and service skill, behaviour, flexibility, honest of service provider and compensation	Chetanont (2018)
5	Malaysia	Complexity, driver knowledge, normative pressure, and coercive pressure, confirmation, perceived usefulness, perceived ease of use, perceived risk	Keong (2015); Zailani and Iranmanesh (2017)
6	India	Professionalism, price-conscious, coupon redemption, SMS system, on-time reporting, cleanliness of cab, comfort and luggage space, e-trust antecedents, discounts, festival offers, online booking, security by GPS, free WIFI	Khan et al (2016); Kumar and Kumar (2016); Rehman (2014); Singhania and Pimpale (2017); Sophia, Sudhahar, and Varghese (2019); Venkatasalam and Muthudinesh (2018)
7	China	Types of cars, driver punctuality, response to booking, discount offered by app	Zhang, Li & Lu (2016)

It is crucial to realize that, majority of the scholarly work on smartphone application is inclined towards the identification of determinants, introducing new applications, developing a model, and testing the impact of factors on young and old consumers. Distinguished scholars paid minimal attention towards exploration and classification of cues forming the beliefs of millennial generation whilst choosing to use a taxicab smartphone application in the light of Intergenerational Value change Theory. Paradigm shifts while exposed to major external events taking place in the surroundings not in established theory. Keeping this objective in view the following section discussed in greater detail the methodology to peruse this matter of concern.

Methodology

This inquiry being exploratory in nature, a qualitative approach was deemed appropriate for the prediction of cues explaining the formation of beliefs for millennials. Dissimilar to the positivist approach, an effort was made to put into play the assumption of interpretivist paradigm. Hypothetical insights were gained into latent cues explaining post-technological impact and changes in society on millennial beliefs by exploring broad and sub-themes using inductive reasoning (Creswell, 2003). Not to mention, this would not restrict the research effort to previously established smartphone application literature (Corbin & Strauss, 1990). The open interview technique through the mechanism of conversation was held between chosen respondents and the researcher (Daniel & Turner, 2010; Edwards & Holland, 2013). Also, open interviews allowed for probes and obtained unrestricted responses so as to predict and map out significant cues and common themes millennials kept in view while forming their beliefs, further used for subsequent analysis (Straker, Wrigley & Bucolo, 2013). Moreover, a funnelling approach was adopted,

starting with broader questions such as demographic and geographic details, and then narrowing down the scope from general to specific (Daniel & Tucker, 2010; Edward & Holland, 2013).

This exploratory analysis was restricted to Pakistani millennials residing in Punjab and Sindh as the chosen unit of analysis. Millennials were selected as the sampling frame mainly because they were well educated, tech-savvy, immensely knowledgeable, great in numbers, and easily accessible (Mafini, Dhurup & Mandlazi, 2014; San Omar & Thurasamy, 2015). The researcher along with his assistant originated the open interview inquiry in January 2019. 14 respondents were chosen on the basis of a stratified purposive sampling technique (Marshall, 1996; Tongco, 2008; Palinkas et al., 2015). 9 respondents belonged to Punjab, whereas 5 were from Sindh. At the 14th interview data reached theoretical saturation (Guetterman, 2015). Also, to avoid gender discrimination 8 males and 6 females participated in the inquiry, with 4 belonging to age 15-24, whereas 10 were aged 24-34. As far as the education of respondents was concerned 5 were in the final year of their bachelor's degree. 2 were enrolled in the 2nd semester of the postgraduate degree program, and 7 respondents were below bachelors but were engaged in their own business. The refinement of the interview questions was based on the recommendations presented by Zohrabi (2013) and Sousa (2014) for addressing content, internal and external validity. Firstly, the content validity of the instrument was assessed through peer, and expert review used in critical paradigm (Creswell & Miller, 2000). Secondly, the internal validity of the interview questions was addressed through the peer examination method (Zohrabi, 2013). Thirdly, external validity was concerned with the applicability of the findings in other settings (Sousa, 2014). The finalization of the interview questions led to the recruitment of 3 Pakistani postgraduate students from a private university in Rawalpindi for conducting a pilot study (Masuwai, Tajudin, & Saad, 2016). Three respondents were deemed sufficient as it is scientifically appropriate to take 10% from the entire sample under study (Johanson & Brooks, 2009; Waweru & Omwenga, 2015). The open interviews were conducted in English on a one-on-one basis with each respondent in a pleasant and comfortable environment, with a time span of 20-25 min. Two experienced experts in the field of service marketing, and holds a Ph.D. degree, with 11 years of industry experience were then asked to give their opinion on the interviews conducted (Sousa, 2014). This peer examination procedure intended to authenticate the validity of the conducted interviews involved in the pilot study. Subsequently, the two experts were then asked to give their views on the precision of the conducted interview, including the transcribed interview, its domain, and identified cues (Creswell & Miller, 2000). The experts examined the interviews and finally agreed that the transcribed interview had considerable internal validity (Creswell & Miller, 2000). The external validity depended on the underlying similarities between the Pakistani context, and other global contexts (Zohrabi, 2013). After detailed examination, both the experts agreed that the results derived from the pilot study respondents under investigation could be generalized to a wider population (Sousa, 2014).

Fourteen face-to-face interviews were conducted between January and March 2019. The researcher induced and provoked the respondents to think about and to express their insights, feelings, and behaviour associated with the impact of post-technological advancement and societal changes on the formation of their beliefs whilst choosing a smartphone taxicab application (Dworkin, 2012). The entire interviews were audio-recorded. A single face-to-face interview lasted from 20-25 min. The documented ideas and themes were coded using manual spreadsheets (Creswell, 2012; Wargo 2013). After collecting the broader and sub-themes from the selected respondents in the English language, the interviews were transcribed. This process involved reproducing the spoken words from audiotaped interviews into written texts (Davidson, 2009). The data was manually coded using the following spreadsheet format (Wargo, 2013): theme number, theme name, participant name, line number, and page number. Multiple coders were used to establish high inter-coder

reliability in content analysis for open interview data (Kurasaki, 2000). It was a measure of agreement between multiple coders, about how they code the themes and apply them to the data (Kurasaki, 2000). Such joint agreement was used not only to measure the reliability of the coders in identifying themes in the transcripts, it also served as a proxy for testing the validity of the themes that emerged from the data. A time span of 11 weeks was spent to collect the open interview data.

A six-step manual procedure was used to analyse the transcribed data. At first, the manuscript was typed using double line spacing with consecutive line numbers included for the whole manuscript. Also, the page numbers were included followed by entering related cues as themes for each page. Secondly, a code was assigned at the top of the first page of all transcriptions. In the third step, the recordings were listened carefully to confirm the accuracy of the transcription for each transcript. At the fourth step, the manuscripts were carefully read to identify natural meaning units for each respondent. This helped in identifying the single thought or idea that participants used to express their feelings about belief transformation while exposed to major external events taking place in the surroundings. In step five, these identified thoughts were assigned a label, put in the right margin of each manuscript. In order to analyse the related themes for each participant, a spreadsheet was made in the sixth step. For example, column one was assigned to the number of themes. Column two was assigned to the name of each theme. Column three was assigned to giving a code to each participant. Lastly, all the identified themes were transferred to the spreadsheet (Wargo, 2013). Themes from the coded information on predicted cues forming the beliefs of millennials towards choosing a taxicab application were used to analyse qualitative data through thematic development. Finally, the themes were aggregated together to form the major findings of this study (Creswell, 2003).

Findings

Open interview results

This exploratory investigation was designed to search for emerging themes within the segmented interview transcriptions. Fourteen open interviews were conducted over a period of 11 weeks. The entire 403 units of text were coded into 57 units of raw themes. Fifty-seven units of raw themes were identified using the manual spreadsheet method (Wargo, 2013). Twenty-three cues belonging to 4 dimensions were mapped out. The open interview inquiry for millennials residing in Pakistan deemed successful in identifying the cues which formed their beliefs.

Table 2. Themes, frequency and percentage

<i>No</i>	<i>Themes</i>	<i>Frequency</i>	<i>Percentage</i>
01	Online Tracking System	7	5.26
02	Alternative Route Planner	6	4.51
03	Vast Application	1	0.75
04	Easy to Use	10	7.51
05	Online Record of Km Travelled	5	3.75
06	Reliable and Secure	7	5.26
07	Bonus and Free Rides	4	3.00
08	Time Management	8	6.01
09	Information Transparency	7	5.26
10	Online Driver Rating	9	6.76

11	Pre-fare Estimation	5	3.75
12	Route Sharing	7	5.26
13	Detailed Online Billing	2	1.50
14	E-promotion Deals	2	1.50
15	Captain Socialness	4	3.00
16	Ride Options	5	3.75
17	Driver Details Shared	9	6.80
18	Credit in Account	6	4.51
19	Driver Location Shared	13	9.80
20	Online Station Addition	7	5.30
21	E-Shopping	5	3.75
22	Shared Risk	3	2.25
23	24/7 Application	1	0.76

Predicted themes

The frequency of themes in Table 1 indicated that seven of the fourteen respondents agreed on prioritizing the online tracking system as the most significant cue in transforming their belief towards getting engaged with smartphone taxicab application. Being well aware of the security threats in the national environment they felt quite secure traveling on Careem, as their family members and friends continuously tracked their location during the ride. Additionally, six respondents stressed on alternative route planner as a cue towards belief formation while deciding to use taxicab application. Likewise, one respondent emphasized that it is a vast application. It provided him with options such as choosing a captain, choosing a vehicle, calculating the estimated fare, and ride cancelation. This as compared to hiring a local taxi was a flexible approach. Similarly, ten respondents shared their views by stating that their family members belonging to Generation X and Baby Boomers also used the taxicab application with ease. Furthermore, five of the fourteen respondents appreciated the idea of keeping track of their kilometres travelled. Not to mention, four of these respondents highlighted the luxury of getting a bonus and free rides. A free ride was offered by Careem after traveling a certain number of kilometres. Also, it provided them satisfaction, and build their value of staying with the same service provider. However, seven of the fourteen respondents prioritized information transparency and thirteen of the fourteen respondents viewed the location of the driver as the most significant cue which formed their beliefs towards using this application. Not to mention, six of these respondents were females aged between 21-34. In comparison to these seven respondents, nine respondents shared somewhat different views. While interviewing these respondents on a one-to-one basis it was found that the online rating of the driver mattered a lot before booking a ride.

Being educated, ethics has become a permanent share of their mindset. Therefore, while choosing a Captain they want to know how customers have rated him/her against a pool of other captains. In return, this would put pressure on the captain to improve its rating for getting more rides. On the other hand, pre-fare estimation (5 times) and route sharing (7 times) was given prime importance while forming their belief towards traveling with Careem. Four of the fourteen respondents showed concern for detailed online billing (2 times) and e-promotion of Careem deals (2 times). They shared their views by stating that, the rising field of e-marketing had a profound impact on their overall beliefs and values. While moving in the marketplace almost every brand whether local, international or global was doing promotion for their product or service. This continuous bombardment had left an impact on their mindset and made them think of promotions whenever they got in contact with a smartphone application. Moreover, the interview findings also

revealed that the 24/7 Careem application appealed to the school of thought for one respondent. Similarly, six respondents liked the idea of crediting the remaining balance in the account. They shared by stating that, the online Careem application is very well developed. It gave them the option of a balance transfer facility. In the instance of having no change, they were not worried about paying the exact amount to the Captain. Once the destination was reached the Captain entered the amount paid to him in the Careem application. Consequently, the excessive amount was credited in their Careem account. Furthermore, a very interesting finding originated during the interviews. Seven of the fourteen respondents appreciated the idea of adding stations. The respondents stated that, during the ride, the application gave the option of adding another station. This gave them an opportunity to add more friends in between the ride and share the fare at the end of the destination. Three of the respondents added by stating that, this also shared financial and social risk amongst them as friends. Also, five out of fourteen respondents' beliefs about Careem were motivated due to e-shopping. On booking a ride they would inform the Captain to bring convenience goods such as cigarettes, bread, eggs and breakfast on the way to their home. Thus, having more time to spend with their families. The horizon of identification of cues was not limited to the dimension of technology. Eight of the fourteen participant's beliefs were founded by the time management of the Careem application while booking a ride. For example, the exact time of arrival was displayed on the screen while waiting for the captain. In addition, four respondents highlighted the social behaviour of the Captain. It was found that the millennials in Pakistan gave a significant amount of weight to the friendly and warm behaviour of the Captain during the ride. Figure 1 on highlighted the thematic diagram for cues leading to the formation of beliefs for millennials towards taxicab application in Pakistan.

Discussion

This exploratory inquiry aimed to predict the cues forming beliefs of millennials while exposed to major external events taking place in their surroundings, consequently extended the Intergenerational Value Change (IVC) Theory. Consistent with the past studies, cues such as discounts offered by app, and types of car influenced Chinese millennial beliefs towards usage of taxicab application (Zhang, Li & Lu, 2016). On the other hand, Pakistani millennials in majority relied on behaviour of the driver, time management, and mobile app convenience as the most significant cues while using taxicab application (Rasheed, Mazhar, & Shahid, 2018). However, in comparison with previously documented quantitative research, this study predicted new patterns for the formation of beliefs in millennials. A list of 23 dissimilar cues classified in four dimensions of technological advancement, social awareness, security concern, and managerial skills were revealed (Figure 1). Also, the previously established cues forming the beliefs of millennials refused to be a part of each of the 14 open interviews conducted in the province of Punjab and Sindh in Pakistan.

For instance, Kashif (age 23) views signified that technological advancement in the taxicab application played a vital role in choosing to book a ride. On the other hand, Areej (age, 34) was influenced by the depth of options included in the taxicab application such as ease of use, application reliability, record of kilometres travelled, and free ride. Whereas, Zahra (age, 24) shared a mix of views. Her formation of beliefs relied on a combination of social and technological cues. Other respondents relied on the combined effect of technology, social, security and time management cues as having a strong influence in forming their attitudes and beliefs while deciding to choose a taxicab application. In addition, it was also established that Pakistani Millennials while choosing a taxicab application to book a ride considered the cues from several dimensions. As indicated in previous studies, a majority of this cohort regularly interacts, and shares values,

beliefs, and norms on the world's largest social network site (SNS), Facebook (Duffett, 2015). This made them well aware of the latest paradigms and philosophies prevailing in the global taxicab applications. Furthermore, millennials having minimal set values and being at the preliminary stages of development were open to new ideas and changes that took place in their surroundings.

Simultaneously, it was found that 19 themes (82.6%) were directed towards technological advancements. These included online tracking system, alternative route planner, vast application, ease of use, online record of kilometres travelled, bonus and free rides, information transparency, online driver rating, pre-fare estimation, detailed online billing, e-promotion deals, driver details shared, driver location shared, credit in account, ride options, online station addition, e-shopping, route sharing and 24/7 application. Persistent with previous research it was established that millennials spend the majority of their time utilizing smartphone applications (Smith & Nichols, 2015). Also, it was found that millennials dependency on smartphone applications started from an earlier age as compared to Baby Boomers and Generation X (Moreno et al., 2017). On another note, it was mentioned that, as this generation started using a smartphone from the age of 1, they are more proficient in the use of applications as compared to any other generation on this planet. Additionally, it was established that millennials working in organizations are more inclined to use smartphones frequently, making it a part of the daily work routine (Moreno et al., 2017). This frequent usage of smartphone applications has led to an era of high social engagement.

Not surprisingly, this research unleashed the impact of dimensions other than technological advancement acting as cues in the formation of beliefs for the millennial generation. Of the 23 themes (Table 2) drawn from 14 open interviews, it was found that 1 theme (4.34%) was directed towards the social dimension. This included captain socialness. Being culturally enriched, hospitable, and relying on social values such as the joint family system, the millennials residing in Pakistan gave significant weight to social cues while traveling with Careem. This included the friendly behaviour of Captain and his social concern for the passenger. The reason being the use of applications such as Facebook and Instagram redefined the environment into a materialistic society. Also, having a second life by the use of social applications, millennials were very much concerned about the comfort and luxury of the taxicab during their ride. Unlike other Western, and European countries millennials in Pakistan being exposed to the technological explosion have steadily learned the art of maintaining social stature and personal relations (Saleem & Gul, 2016). Additionally, 2 themes (8.69%) were directed towards the dimension of security concern. This included personal security and shared risk. The authors agreed with (Smith & Nichols, 2015) explanation about the role of past events in shaping the beliefs of millennials. For example, it was documented that millennials' attitude was shaped by terror attacks such as September 11, London underground bombing, and killing hundreds of children in Pakistan (Smith & Nichols, 2015). Moreover, it was also mentioned that life-threatening moments in the society affected as cues towards millennials' attitudes in the future (Schuman and Corning, 2012). Furthermore, it was revealed that a part of their belief was formed through the dimension of managerial skills. Consistent with previous research, millennials were found to be objective oriented (Moreno et al., 2017). Being aspirational and achievers by nature, they strived to surpass previously achieved targets. Also, they spend long hours in the office with minimal tea breaks, determined to reach new heights. Moreover, by making Gantt charts and yearly planners the millennials kept track of every minute spend on a daily basis. Consequently, the taxicab application aligned with their time management skills. Careem application displayed the exact location of the driver, and the exact minutes it would take to reach the client doorstep (Moreno et al., 2017). This discussion led to the classification of cues in Table 3.

Table 3. Classification of cues stimulating taxicab application usage

<i>No</i>	<i>Classification</i>	<i>Cues</i>	<i>Percentage</i>
01	Technological Advancements	19	82.60
02	Security Concern	2	8.69
03	Social Awareness	1	4.34
04	Managerial Skills	1	4.34

Conclusion

Theoretical and managerial contribution

Several intellectual studies conducted on smartphone applications related to impact of social influence, determinants of smartphone application, smartphone usage pattern amongst teenagers, and adoption of smartphone application (Ali et al., 2014; Praveen, 2017; Rasanen & Ertio, 2018; Confente & Vigolo, 2018). Nevertheless, minimum research was conducted on inquiring about the formation of millennial beliefs exposed to major external events taking place in the surroundings of Pakistan. The novelty of this research is nested in the prediction of cues keeping in view technological advancements and internet revolution in the region of Punjab and Sindh in Pakistan. This matter of concern was of high significance as the shifts in paradigm and prevailing philosophies shaped the attitude of millennials towards smartphone gadgets. Secondly, this qualitative inquiry applied the Intergenerational Value Change Theory (IVC) to predict the cues forming the initial beliefs of millennials while choosing to use a smartphone application. 82.6% of the formation of beliefs for millennials related to taxicab smartphone application was founded on cues such as online tracking system, alternative route planner, vast application, ease of use, online record of kilometres travelled, bonus and free rides, information transparency, online driver rating, pre-fare estimation, detailed online billing, e-promotion deals, driver detail shared, credit in account, online station addition, e-shopping, and 24/7 application. Results proved that; millennials were considered as tech-savvy. A core of their daily based decision making related to companies relied on their application usage experience. Moreover, 8.69% of cues were identified in the domain of security concern, whereas 4.34% of cues each were identified in the domain of social awareness and managerial skills. Furthermore, by unleashing new cues that formed the beliefs of millennials this research extended the IVC theory. Finally, despite receiving global attention from academicians, to date, there is hardly any study that delves into the impact of major external events on the formation of beliefs of millennials in the Pakistani context. Instead, quite a number of studies have borrowed labels from U.S, U.K and German sources to conveniently differentiate Pakistani respondents and achieve the purpose of their study. However, there is fundamentally no theoretical underpinning when making claims about the applicability of millennials to a country, apart from the U.S, and other developed economies.

Simultaneously, a few managerial implications were unleashed as a result of this effort. To begin with, origination of 23 themes (Table 2) could guide taxicab companies to design and align their smartphone applications to the specific needs of millennials. For example, it is essential for marketing executives to focus on the change in technological paradigms while developing software. Icons such as driver social rating, e-promotion deals, bonus and free rides, e-shopping through Careem, and strategic alliance of Careem application with fast food and apparel industry could improve their customer traffic. Additionally, evidence from this study revealed that an organization in the taxicab industry should appropriately exploit the social marketing platforms.

Understanding millennials beliefs from YouTube documentaries, Facebook chats, international blogs, social forums, Instagram, Twitter and Viber would enhance the knowledge of marketers towards introducing new icons of attraction in the taxicab application. Furthermore, companies operating in the taxicab industry need to equip themselves with the industrial knowledge of post-technological advancements' impact on the formation of beliefs for millennials in Pakistan. For example, companies need to get hold of global taxicab applications to see the newly added features stimulating millennial beliefs convincing them towards application usage.

Limitations and future research

This qualitative inquiry has several limitations and opportunities for future research. To start with, this study was mainly focused on the millennials residing in urban areas of Punjab and Sindh, in Pakistan. Future studies could explore millennials residing in rural areas of Pakistan. Since it was also found that the response of millennials towards taxicab application varied from one country to the other, therefore, a comparative study of two or more countries would bring further insight in understanding the attitude of millennials towards the smartphone taxicab application. The findings of this qualitative inquiry by means of open interviews were based on the millennials. A comparative study on the attitude formation of millennial and Generation X consumers towards taxicab application in Pakistan could also be explored in the future. Moreover, this study did not consider variation in the context of demographic factors such as; income, occupation, and lifestyle on the attitude formation towards taxicab applications in Pakistan. Therefore, future research could also incorporate demographic factors to broadly understand the behaviour of millennials. Furthermore, Pakistan is an ethnically diverse country, and hence millennials' attitudes, emotions, and behaviour towards taxicab applications might vary by ethnicity. Future research could focus on a comparative study by ethnicity comprising of different sub-cultures.

References

1. Ahmed, I., & Qazi, T.F., (2011). Mobile Phone Adoption & Consumption Patterns of University Students in Pakistan. *International Journal of Business and Social Science*, 2 (9), 205-213.
2. Alemi, F., (2018). *What Makes Travelers Use Ridehailing? Exploring the Latent Constructs behind the Adoption and Frequency of Use of Ridehailing Services, and Their Impacts on the Use of Other Travel Modes*. Thesis (PhD). University of California Davis.
3. Ali, S., Magati, A.A., Dosari, M.A., Mandil, F.A., (2018). Taxi Services in Saudi Arabia through Mobile Apps: An Empirical Investigation. *Research Journal of Finance and Accounting*, 9 (4), 95-104.
4. Ali, S., Rizvi, S.A.A., & Qureshi, M.S., (2014), "Cell Phone Mania and Pakistani Youth: Exploring the Cell Phone Usage Patterns among Teenagers of South Punjab", *FWU Journal of Social Sciences*, 8 (2), 42-50.
5. Alonso Y., Lopez, F.R.J., Vargas, G.G., & Nieto, J.G.R, (2013). Value Change and Post Modernism: A Preliminary Study of a German Sample. *International Journal of Psychology and Psychological Therapy*, 13(3), 277-287.
6. Aman, T., Shah, N., Hussain, A., Khan, A., Asif, S., & Qazi, A., (2015). Effects of Mobile Phone Use on the Social and Academic Performance of Students of a Public Sector Medical College in Khyber Pakhtunkhwa Pakistan. *Khyber Journal of Medical Sciences*, 8 (1), 99-103.
7. Andersen, C.L., (2017). *Millennials and the future of work*. Available from: <https://www.imf.org/external/pubs/ft/fandd/2017/06/pdf/fd0617.pdf>

8. Aslam, W., Farhat, K., Ejaz., & Arif, I., (2018). Adoption of Android Smartphones and Intention to pay for Mobile Internet: An Empirical Analysis of Consumers in Pakistan. *International Journal of Business Innovation and Research*, 1-29.
9. Baechler, S., Gelinas, A., Tremblay, R., Lu, K., & Crispino, F., (2017). Smartphone and Tablet Applications for Crime Scene Investigation: State of the Art, Typology, and Assessment Criteria, *Journal of Forensic Sciences*, 1-11.
10. Berry, B.J.L. (1994). As 2000 approaches: Millennial conjunctures and apocalyptic prophecy.
11. *Technological Forecasting and Social Change*, 47 (1), 115-123.
12. Buckley, P., Viechnicki, P., & Baruahttp, A., (2016). *The Millennial Survey: Winning over the next generation of Leaders*. U.S: Deloitte.
13. Butt, I.H., & Qaisar, S., (2017). Readiness of Pakistani University Teachers and Students for M-Learning in a Public University. *Journal of Research and Reflections in Education*, 11 (1), 86-96.
14. California Department of Transportation, 2016. *Mobile Apps and Transportation: A Review of Smartphone Apps and a Study of User Response to Multimodal Traveler Information*. California, Caltrans: Shaheen, S., Martin, E., Cohen, A., Musunuri, A., & Bhattacharyya, A.
15. *Careem Partner Company Case Study*, (2017). Abraaj Group. Available from: <http://www.abraaj.com/wp-content/uploads/2017/02/Abraaj-Case-Study-Careem.pdf>.
16. Chen, P.-T., Hsieh, H.-P. (2012). Personalized mobile advertising: Its key attributes, trends, and social impact. *Technological Forecasting and Social Change*, 79 (3), 543-557.
17. Chetanont, S., (2016). Quality Perception of Public Taxi Services towards Satisfaction in Using among Foreign Tourists: The Case Study of Taxis in Bangkok. *Journal of Economics Business and Management*, 4 (8), 499-503.
18. Choi, W., & Stvilia, B., (2014). How Do College Students Choose Mobile Health/Wellness Applications? *Association for Information Science and Technology*, 1-4.
19. CNA Corporation, (2008). *A Review of Millennial Generation Characteristics and Military Work Force Implications*. USA: Department of the Navy.
20. Confente, I., & Vigolo, V., (2018). Online Travel Behavior Across Cohorts: The Impact of Social Influences and Attitude on Hotel Booking Intention. *International Journal of Tourism Research*, 1-11.
21. Continues to Rise in Developing Countries but Plateaus Across Developed Ones, 2018. *Digital Divides Remain, both within and Across Countries*. U.S.A: Pew Research Centre.
22. Corbin, J., & Strauss, A., (1990). Grounded Theory Research: Procedures, Canons, and Evaluative Criteria. *Journal of Qualitative Sociology*, 13 (1), 3-21.
23. Creswell, J.W., & Miller, D.L., (2000). Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39 (3), 124-130.
24. Creswell, W.J., (2003). *Research Design Qualitative, Quantitative, and Mixed Method Approaches*, 2nd edition. Sage Publications: London.
25. Danial, W., & Turner, (2010). Qualitative Interview Design: A Practical Guide for Novice Investigators. *The Qualitative Report*, 15 (3), 754-760.
26. Davidson, C., (2009). Transcription: Imperatives for Qualitative Research. *International Journal of Qualitative Methods*, 8 (2), 35-52.
27. Devezas, T., Modelski, G. (2003). Power law behavior and world system evolution: A millennial learning process. *Technological Forecasting and Social Change*, 70 (9), 819-859.
28. Duffett, R.C., (2015). The influence of Facebook advertising on cognitive attitudes amid

- Generation Y. *Electron Commerce Res*, 15, 243-267.
29. Dworkin, S.L., (2012). Sample Size Policy for Qualitative Studies Using In-Depth Interviews. *Journal of Arch Sex Behavior*, 41, 1319–1320.
 30. Edwards, R., & Holland, J., (2013). *What is Qualitative Interviewing? 1st edition*. Bloomsbury: London. Elkelani, Z., (2016). *Intergenerational Value Change in Egypt*. Thesis (PhD) Cairo University.
 31. Fortunati, L., & Taipale, S., (2014). The Advanced Use of Mobile Phones in Five European Countries.
 32. *British Journal of Sociology* 65 (2), 317-337.
 33. Garrett, J.L., Rodermund, R., Anderson, N., Berkowitz, S., & Robb, C.A., (2014). Adoption of Mobile Payment Technology by Consumers. *Family and Consumer Sciences Research Journal*, 42 (2), 358-368.
 34. *Global revenue from smartphone sales from 2013 to 2018 (in billion U.S. dollars)*. Available from: <https://www.statista.com/statistics/237505/global-revenue-from-smartphones-since-2008/>
 35. Guetterman, T.C., (2015). Descriptions of Sampling Practices within Five Approaches to Qualitative Research in Education and the Health Sciences. *Forum: Qualitative Social Research*, 16 (2), 1-23.
 36. Haji, R., & Mehtab, H., (2018). Teaching and Learning with Smartphone: Qualitative Explorative Study from Pakistan. *4th International Conference on Higher Education Advances*. Islamabad, 471-478.
 37. Han, S., & Yi, Y.J., (2018). How Does the Smartphone Usage of College Students Affect Academic Performance? *Journal of Computer Assisted Learning*, 1-10.
 38. Haeger, D.L., Lingham, T. (2014). A trend toward Work-Life Fusion: A multi-generational shift in technology use at work. *Technological Forecasting and Social Change*, 89, 316-325.
 39. Hannus, S., (2016). *Traits of the Millennial Generation: Motivation and Leadership*. Thesis (MSc). Aalto University School of Business.
 40. Hisam A., Shafique, M.U., Khurshid, M.N., Hamza, A., Asad, M.B., & Shakeel, T., (2019). Usage and Types of Mobile Medical Applications amongst Medical Students of Pakistan and its Association with their Academic Performance. *Pakistan Journal of Medical Sciences*, 35 (2), 432-436.
 41. Holicza, P., & Kadena, E., (2018). Smart and Secure? Millennials on Mobile Devices. *Interdisciplinary Description of Complex Systems*, 16 (3-A), 376-383.
 42. Hubert M., Blut, M., Brock, C., Backhaus, C., & Eberhardt, T., (2017). Acceptance of Smartphone-Based Mobile Shopping: Mobile Benefits, Customer Characteristics, Perceived Risks, and the Impact of Application Context. *Psychology & Marketing*, 34 (2), 175-194.
 43. Hwang, H., & Nam, S.J., (2017). The Digital Divide Experienced by Older Consumers in Smart Environments. *International Journal of Consumer Studies*, 1-8.
 44. Ibtasam et al., (2017), “An Exploration of Smartphone Based Mobile Money Applications in Pakistan”, *Proceedings of ICTD, Lahore, Pakistan*. Retrieved from <https://doi.org/10.1145/3136560.3136571>
 45. Imtiaz, S, Y., Khan, M, A., & Shakir, M., (2014), Telecom Sector of Pakistan: Potential, Challenges and Business Opportunities, *Telematics and Informatics* 32 (2015), 254-258.
 46. Inukollu, V.N., Keshamoni, D.D., Kang, T., & Manikanta, I., (2014). Factors Influencing Quality of Mobile Apps: Role of Mobile App Development Life cycle. *International Journal of Software Engineering & Applications*, 5 (5), 15-34.
 47. Iqbal, S., Khan, M, N., & Malik, I, R., (2017), Mobile Phone Usage and Students’

- Perception towards M- Learning: A Case of Undergraduate Students in Pakistan, 32 (1), 1-17.
48. Johanson, G.A., & Brooks, G.P., (2009). Initial Scale Development: Sample Size for Pilot Studies.
 49. *Educational and Psychological Measurement*, 70 (3), 394-400.
 50. Jung, W., & Yim, H.R., (2016). Effects of Mental Model and Intrinsic Motivation on Behavioral Intention of Smartphone Application Users. *Electronics and Telecommunications Research Institute Journal*, 38 (3), 589-598.
 51. Jung, Y., (2014). What a Smartphone Is to me: Understanding User Values in Using Smartphones.
 52. *Information Systems Journal*, 24, 299-321.
 53. Kamran, H., Rehman, Z., Chaudri, A.A., & Farukkah, S., 2018. *Ride-sharing Apps and Privacy in Pakistan, a detailed study on the practices of Uber and Careem*. Pakistan: Digital Rights Foundation.
 54. Keong, W.E.Y., (2015). Factors Influencing Malaysian Taxi Drivers Behavioral Intention to Adopt Mobile Taxi Application. *International Journal of Economics, Commerce and Management*, 3 (2), 139- 156.
 55. Keong, Y. E. W., (2015). Factors Influencing Malaysia Taxi Drivers Behavioral Intentions to Adopt Mobile Taxi Applications. *International Journal of Economics, Commerce and Management*, 3 (11), 139-156.
 56. Khan, A.W., Jangid, A., Bansal, A., Maruthappan, S., Chaudhary, S., Tyagi, V., & Roa, P.H., (2017). *Factors Affecting Customer Satisfaction in the Taxi Service Market in India*. Available from: <http://www.publishingindia.com/>
 57. Koo, Y., Lim, S., Kim, K., Cho, Y. (2014). Analysis of user characteristics regarding social network services in South Korea using the multivariate probit model. *Technological Forecasting and Social Change*, 88, 232-240.
 58. Kumar, P.K., & Kumar, N.R., (2016). A study on Factors Influencing the Consumers in Selection of Cab Services. *International Journal of Social Science*, 4 (3), 557-561.
 59. Kumar, V.H., & Sentamilselvan, K., (2018). Customer Satisfaction Towards Call Taxi Services a Study with Reference to Chennai, *International Journal of Pure and Applied Mathematics*, 119 (12), 14919-14928.
 60. Kurasaki, K.S. (2000). Intercoder Reliability for Validating Conclusions Drawn from Open-Ended Interview Data. *Journal of Field Methods*, 12 (3), 179-194.
 61. Mafini, C., Dhurup, M., & Mandhlazi, L., (2014). Shopper typologies amongst a Generation Y consumer cohort and variations in terms of age in the fashion apparel market. *AOSIS Open Journals*, 14 (1),1-11.
 62. Maers, M., (2017). Our Future in the Hands of Millennials. *The Journal of the Canadian Chiropractic Association*, 61 (3), 212-217.
 63. Mang, C.F., Piper, L.A., & Brown, N.R., (2016). The Incidence of Smartphone Usage among Tourists.
 64. *International Journal of Tourism Research*, 1-11.
 65. Marshall, M.N., (1996). Sampling for qualitative research. *Family Practice—an International Journal*, 13(6), 522-525.
 66. Masuwai, A., Tajudin, N.M., & Saad, N.S., (2016). Evaluating the Face and Content Validity of a Teaching and Learning Guiding Principles Instrument (TLGPI): A Perspective Study of Malaysian Teacher Educators. *Malaysian Journal of Society and Space*, 12 (3), 11-21.
 67. Moon, J.H., Cho, S.Y., Lim, S.M., Roh, J.H., Koh, M.S., Kim, Y.J., Nam, E., (2017). Smart Device Usage in Early Childhood is Differentially Associated with Fine Motor and

- Language Development. *US National Library of Medicine National Institutes of Health*, 18 (5), 903-910.
68. Moreno, F.M., Lafuente, J.G., Carreon, F.A., & Moreno, S.M., (2017). The Characterization of the Millennials and Their Buying Behavior. *International Journal of Marketing Studies*, 9 (5), 135- 144.
 69. Naeem, S., Butt, K., & Khanzada, B., (2018). The Impact of Pakistani and Chinese Cultural Differences on Project Success in Project Oriented Chinese Companies. *Journal of Business & Financial Affairs*, 7(1), 1-6.
 70. Nguyen, N.C., Bosch, O.J.H., Ong, F.Y., Seah, J.S., Succu, A., Nguyen, T.V., & Banson, K.E., (2016). A Systemic Approach to Understand Smartphone Usage in Singapore. *Systems Research and Behavioral Science Journal*, 33, 360-380.
 71. Nikou, S., (2015). Mobile Technology and Forgotten Consumers: The Young-Elderly, *International Journal of Consumer Studies* 39, 294-304.
 72. Ozcelik, G., (2015). Engagement and Retention of the Millennial Generation in the Work Place through Internal Branding. *International Journal of Business and Management*, 10 (3), 99-107.
 73. Pakistan Institute of Development Economics, (2011). *Contribution of Services Sector in the Economy of Pakistan*. Islamabad: Pakistan Institute of Development.
 74. Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N., & Hoagwood, K., (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Admission Policy Mental Health*, 42 (5), 533-544.
 75. Parveen, S., (2017). Consumer Intention to Adopt Smartphone Apps: An Empirical Study of Pakistan.
 76. *Journal of Business and Management*, 19 (1), 43-53.
 77. Pheeraphuttharangkoon, B.S., 2015. *The Adoption, Use and Diffusion of Smartphones among Adults over Fifty in the UK*. Thesis (PhD). University of Hertfordshire.
 78. Poushter, J., Bishop, C., & Chwe, H., (2018). *Social Media Use Continues to Rise in Developing Countries but Plateaus Across Developed Ones*. U.S: Pew Research Centre.
 79. Pyoria, P., Ojala, S., Saari, T., & Jarvinen, M.K., (2017). The Millennial Generation: A New Breed of Labor? *Journal of Sage*, 1-14.
 80. Qader, I.K.A., & Omar, A.B., (2015). Smart phones usage among the millennial generation in Malaysia. *Journal of Scientific Research and Development*, 2 (14), 1-4.
 81. Rahman, T., (2014). Organized Sector Radio Taxi Operator in Guwahati, A case study on “prime cab”. *International Journal of Advance and Innovative Research*, 1 (1), 19-25.
 82. Rahman, T., (2014). Organized Sector Radio Taxi Operator in Guwahati-A Case study on “Prime Cab”. *International Journal of Advance and Innovative Research*, 1 (1), 19-25.
 83. Rasanen, P., & Ertio, T., (2018). Consumerism in Online Health Information Search and Self-Tracking Devices. *International Journal of Consumer Studies*, 43 (3), 245-252.
 84. Rasheed, R., Mazhar, F., & Shahid, M., (2018). Mobile App-Based Taxi Services and Customer Satisfaction: An Empirical Review from Lahore City, Pakistan. *International Journal of Economics, Commerce and Management*, 6 (5), 330-340.
 85. Research Executives at Gallop, 2015. *Mobile Phone Usage and Access in Pakistan: An Analysis of Trends in 2015 and 2014*. Pakistan, Gallop Pakistan: Abdullah Waqar Tajwar.
 86. Saleem, T., & Gul, S., (2016). Family Dysfunctioning and Social Competence in Adolescents: A Comparative Study of Family Structures. *Pak J Physiol*, 12 (3), 19-22.
 87. San, L.Y., Omar, A., & Thurasamy, R., (2015). Online Purchase: A Study of Generation Y in Malaysia.
 88. *International Journal of Business and Management*, 10 (6), 1-7.
 89. Sarwar, M., & Soomro, T.R., (2013). Impact of Smart Phone's on Society. *European*

- Journal of Scientific Research*, 98 (2), 216-226.
90. Shabrin, N., Khandaker, S., Kashem, S.B.A., Hie, C.K., & Susila, T., (2017). Factors Affecting Smart Phone Purchase Decision of Generation Y. *The Journal of Contemporary Issues in Business and Government*, 23 (1), 47-65.
 91. Shanti, D., Venkatasalam, A., & Muthudinesh, P., (2018). A Study on Factors Influencing the Consumer in Selection of Cab Services. *International Journal of Intellectual Advancements and Research in Engineering Computation*, 6 (2), 857-860.
 92. Sharma, K., & Das, S., (2017). Service Quality and Customer Satisfaction-With Special Focus on the Online Cab Industry in India. *International Journal of Business and Management*, 12 (7), 192-200.
 93. Singhanian, M., & Pimpale, V., (2017). Opportunities and Challenges for App Based Taxi Service in Mumbai. *Podar Prabodhan*, 5, 139-151.
 94. Smith, T.J., & Nichols, T., (2015). Understanding the Millennial Generation. *Journal of Business Diversity*, 15 (1), 39-47.
 95. Sophia, S., Sudhahar, J.C., & Varghese, J., (2019). Antecedents of E-Trust in Cab Services Market.
 96. *International Journal of Recent Technology and Engineering*, 7 (6), 861-866.
 97. Sousa, D., (2014). Validation in Qualitative Research: General Aspects and Specificities of the Descriptive Phenomenological Method. *Qualitative Research in Psychology*, 11, 211-227.
 98. Stachl, C., Hilbert, S., Au, J.Q., Buschek, D., Luca, A.D., Bischl, B., Hussmann, H., & Buhner, M., (2017).
 99. Personality Traits Predict Smartphone Usage. *European Journal of Personality*, 1-22.
 100. Straker, K., Wrigley, C., & Bucolo, S., (2013). Comparing and Complementing Methods: Traditional Market Research Vs. Deep Customer Insights. *Consilience and Innovation in Design Proceedings and Program*, 1, 5046-5057.
 101. Sweeney, R., (2006). *Millennial Behaviors and Demographics*. Unpublished work. New Jersey Institute of Technology.
 102. The Competitive Effects of the Sharing Economy: "How is Uber Changing Taxis?", 2015. *Studying the Global Information Economy*. New York: Technology Policy Institute.
 103. Tongco, M.D.C., (2008). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research & Applications*, 5, 147-158.
 104. Tregarthen, J.P., Lock, J., & Darcy, A.M., (2015). Development of a Smartphone Application for Eating Disorder Self-Monitoring. *International Journal of Eating Disorder*, 48, 972-982.
 105. Virkus, H., (2017). *Ride Sharing Companies' Best Practices for Global Expansion*. Thesis (Masters).
 106. Tallinn University of Technology.
 107. Wang, A., (2015). *The Economic Impact of Transportation Network Companies on the Taxi Industry*, Thesis (Bachelors). Scripps College.
 108. Wang, H.-T., Wang, T.-C. (2016). Application of the grey Lotka-Volterra model to forecast the diffusion and competition analysis of the TV and smartphone industries. *Technological Forecasting and Social Change*, 106, 37-44.
 109. Wargo, W.G., (2013). *Qualitative Data Analysis (Coding) of Transcripts*. Academic Information Center. Available from: <http://www.academicinfocenter.com/qualitative-data-analysis-coding-of-transcripts.html>.
 110. Waweru, P.K., & Omwenga, D.J., (2015). The Influence of Strategic Management Practices on Performance of Private Construction Firms in Kenya. *International Journal of Scientific and Research Publications*, 5 (6), 1-36.

111. Weng, G.S., Zailani, S., Iranmanesh, M., & Hyun, S.S., (2017). Mobile Taxi Booking Application Services Continuance Usage Intention by Users, *Transportation Research Part D*, 57, 207-216.
112. Winograd, M., & Hais, M., (2014). *How Millennials Could Upend Wall Street and Corporate America*. Washington: Brookings Institution.
113. Yaman, H., Yavuz, E., Er, A., Vurai, R., Albayrak, Y., Yardimci, A., & Asilkan, O., (2015). The Use of Mobile Smart Devices and Medical Apps in the Family Practice Setting, *Journal of Evaluation in Clinical Practice*, 22, 290-296.
114. Zhang, J., Li, J., & Lu, S., (2016). Factors Affecting the Demand for the Taxi Evidence from Zhejiang, China. *Rev. Intger. Bus. Econ. Res*, 5 (4), 379-394.
115. Zohrabi, M., (2013). Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. *Theory and Practice in Language Studies*, 3 (2), 254-26

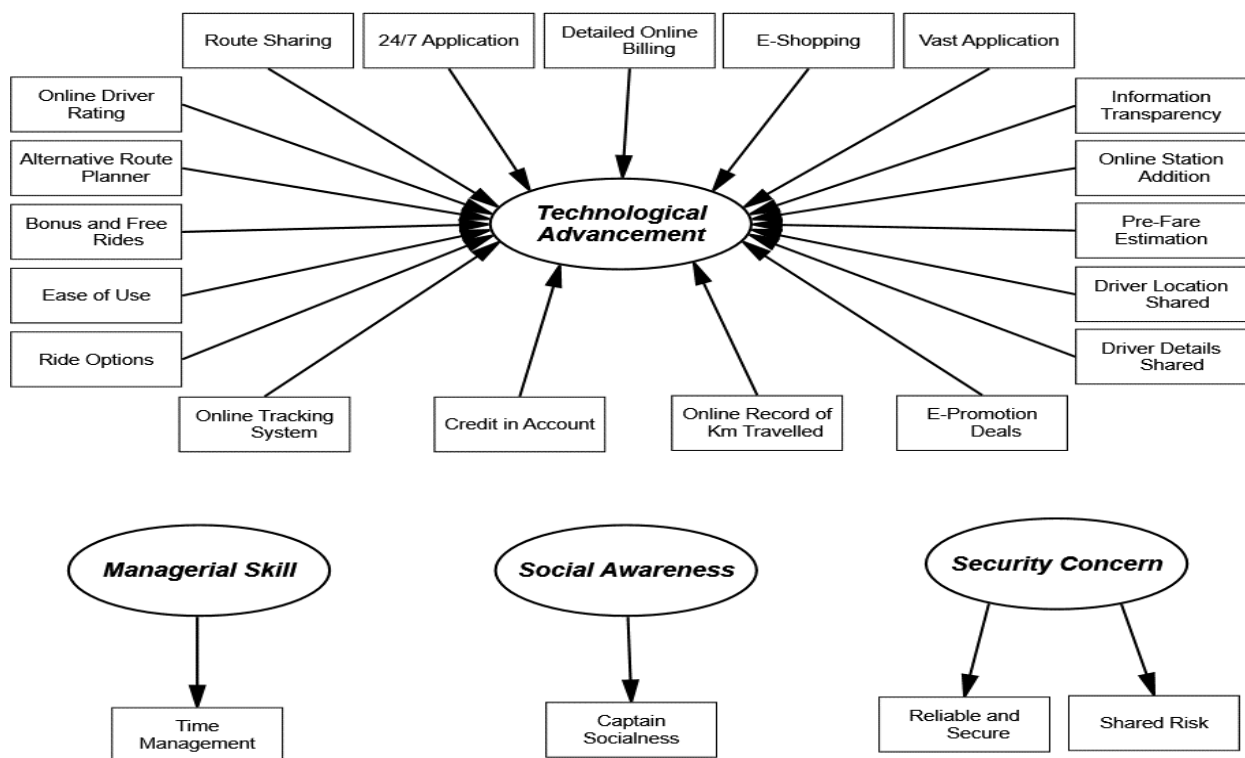


Figure 1. Thematic mapping for broad and sub theme