



UNDERSTANDING THE ATTITUDE OF GENERATION Y TOWARDS TRANSPORT APPS: THE CASE OF DUBAI

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ABSTRACT

Purpose: This research aims to understand the attitudes and use patterns of the abundant, government supported transport-related mobile apps by Generation Y in the City of Dubai. The research question is whether the travel/transport service mobile apps have improved or brought about a change in travel behaviour of Generation Y in Dubai.

Design/Methodology/Approach: Data for this research were collected from the targeted audience via an online survey questionnaire. Suitable statistical hypotheses were formulated and tested.

Findings: Results show that market penetration and use of the apps is still limited, despite the multitude and customisation of apps and high access to mobile devices in the City. Less than 50% of targeted users are aware of the

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apps and the service available through them, but the majority of them use only some of the apps only rarely. The formal results of the hypotheses tests further helped ascertain that the observations and patterns were systemic and not random patterns. The research identified some of the factors contributing to the findings.

Originality: The research and results confirm that simple availability of incentives, including mobile device apps, to promote more sustainable transport options among generation Y in the City of Dubai, necessary as it may be, is not producing the desired outcome.

Practical Implications: Carefully designed and implemented disincentives to using traditional transport choices may be necessary in parallel with the incentives and tools (including mobile apps) to attain transport sustainability goals.

Keywords: Generation Y; sustainable transport; transport apps; travel behaviour

INTRODUCTION

With Dubai's rapid growth and urbanisation, traffic congestion on its roads has increased dramatically over recent years. Growing private car ownership and usage, and the chaotic traffic conditions on Dubai roads, are of great concern for the government. Traffic jams in Dubai do not follow typical spatial and temporal congestion patterns, or so it seems. The resulting loss of fuel and time is disturbing the people of the Emirate. The government has invested heavily in Dubai's road infrastructure, although this has not kept pace with the increase in the number of vehicles (Chaudhry, 2012). Figure 1 (below) shows a sample, but typical, scene of traffic congestion during peak hours on one of Dubai's roads.



Figure 1 Traffic Congestion Al Ittihad Road in Dubai during Evening Peak Hour

Source: Masudi, 2013

Generation Y and Transport Apps

In 2005, it was estimated that about AED 4.6 (US\$1.25) billion in wasted time were lost annually due to traffic congestion in Dubai. Public transport comprised only 6% of the total trips within the Emirate (Chaudhry, 2012). As demand for transport infrastructure keeps increasing, the city's answer cannot be just to keep building new infrastructure. A major shift is already taking shape in the transport sector of the Emirate as the city moves towards accessibility-driven strategies in order to meet travel demand and achieve sustainable development (Chaudhry, 2012).

Over the past 10 years, and in order to accommodate and resolve the rising trend in private car ownership and its burden on the Dubai roads, the Dubai Road and Transport Authority (RTA) has embarked on an ambitious approach to managing travel demand through policies and legislations that favour intermodal public transport. This intermodal public transportation of Dubai comprises of metro, tram, buses, taxis and water taxis and passenger ferries (known locally as *Abras*) (Shahbandari, 2015c). Figure 2 below presents a summary of the significant growth in various mass transit modes of Dubai over the past 10 years.

To encourage the public to embrace new, more sustainable, travel choices/behaviours, the RTA declared the transition of all its applicable services available 'smart' through mobile applications. The aim is to integrate all available modes of public

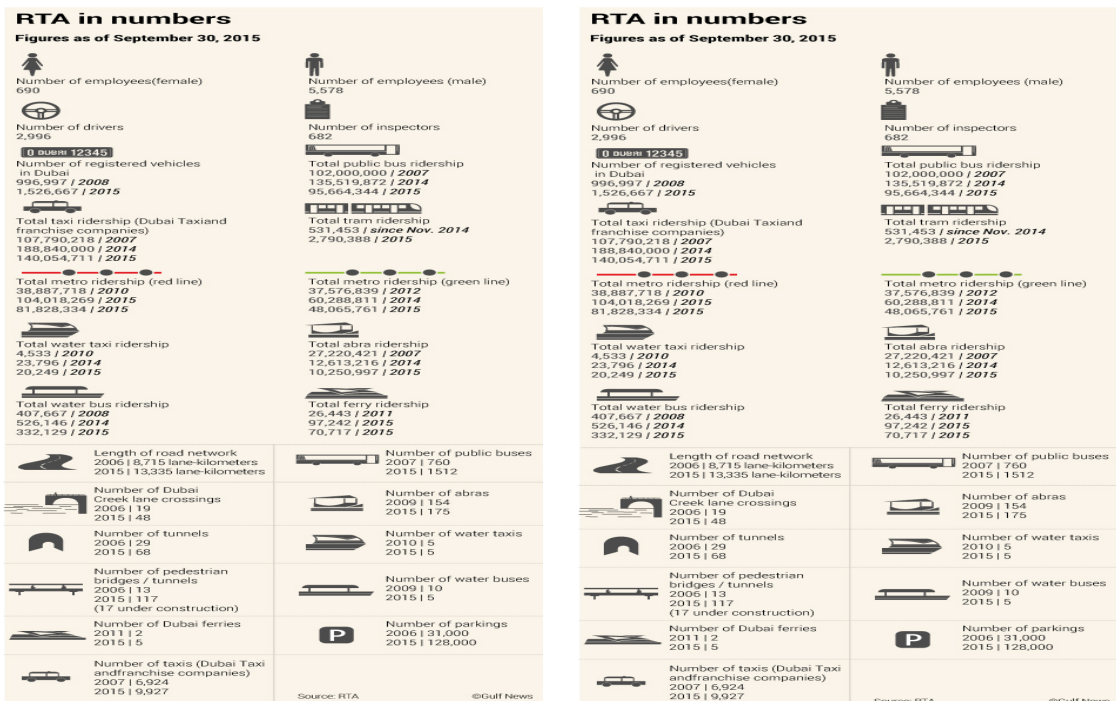


Figure 2 RTA in Numbers - Figures as of 30 September 2015

Source: Shahbandari, 2015c

transport from different areas/places within the Emirate to one place (the smart-phone). This is to ease travel planning by providing travellers (Generation Y included) with real-time transport information before starting a journey. These mobile apps, it is theorised, would help travellers to find and choose the right mode(s) for a journey. This ‘smart’ initiative is now part of the ‘Dubai Strategy Plan 2021’, under the theme, ‘A Sustainable and Smart City’.

DUBAI’S TRAVEL-RELATED MOBILE APPS AND ITS ANTICIPATED IMPACT

At present, the RTA’s mobile apps have the highest penetration rate (23%) in the UAE (see Figure 3) compared to other government-owned mobile applications (Zawya, 2014).

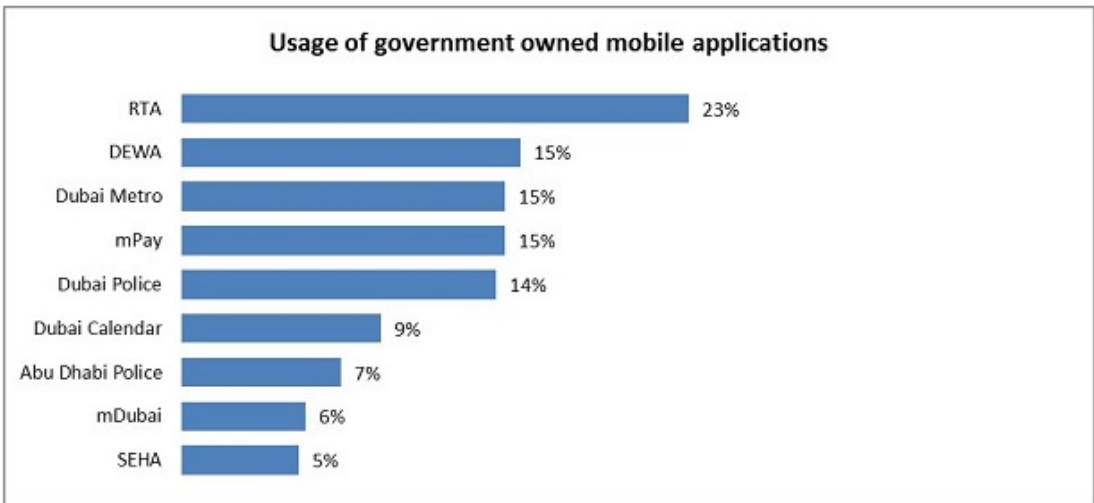


Figure 3 Awareness and Usage of Government Operated m-services

Source: Zawya, 2014

As of November 2015, the government of Dubai, in collaboration with the RTA, offers 173 services through 10 mobile apps. Among these, 83 serve drivers/car owners, 31 cater to public transport users, and 59 services support the business (corporate) sector (Shahbandari, 2015a).

GENERATION CATEGORIES AND THEIR CHARACTERISTICS

The Table 1 below summarises the categories of living generations. At the present time there are five categories of generation.

Generation Y and Transport Apps

Table 1 List of Living Generation

<i>Birth Years</i>	<i>Generation Name</i>	<i>Age in 2013</i>	<i>Social Role</i>	<i>Values and Beliefs</i>
1925–1942	Silent or Veterans or Builders	88–71	Leadership: transferring values	Human rights, discipline, role models and rules
1943–1960	Baby Boomers	70–53	Leadership: transferring values, leading institutions	Work ethic, security, advancement
1961–1981	Generation X	52–32	Power: asserting values, managing institutions	Variety, freedom, individuality, skepticism
1982–2002	Generation Y	31–11	Vitality: testing values	Lifestyle, self-discovery, social, fun
2003 –	Generation Z	10 or younger	Growth: acquiring values and beliefs	In process

Generation Y is 18–34 year olds, recognised by the United Nations as a major force for development and social change (UNWTO and WYSETC, 2010). According to Benckendorff et al. (2010), Generation Y has completed its ‘childhood’ phase of life and has entered the ‘young adulthood’ phase; a generation in this phase is responsible for testing values in society. They are now at the centre of attention of mass media and are an emerging topic in academic literature.

Generation Y and Smartphone Usage in the UAE

The UAE is ranked as the first globally in the use of smartphones. The share of smartphone users in the UAE jumped from 61% in 2012 to 78% in 2014 (Nielsen, 2014; Gulfnews, 2015; The National, 2016). The share is expected to be 82.8% by 2019, as per the report, titled ‘Global Media Intelligence’ (GMI). Generation Y in the UAE was first in the world in terms of smartphone usage at 91.1%, followed by Britain with 90.7%. The share for the US is 74.6% (MOHESR, 2013). Generation Y makes up 43% of Dubai’s population (see Figure 4).

Travel Behaviour and Attitudes of Generation Y

According to the World Trade Organisation (WTO) and United Nations Environment Programme (UNEP) (2005), Generation Y travellers represent a significant segment in the travel and tourism sector, and the dynamics of this sector’s growth puts them at the centre of attention of the travel industry. There are five main factors that affect their travel behaviour:

- 1) local weather conditions;
- 2) urban form;
- 3) social-demographic variable;

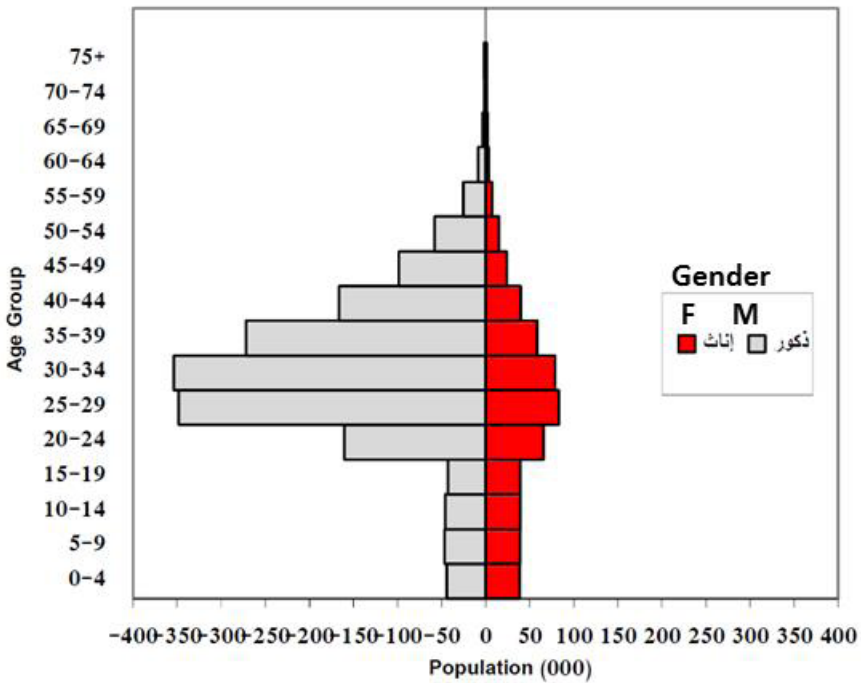


Figure 4 Population Pyramid, Emirate of Dubai 2013

Source: DSC, 2015

- 4) psycho-social variable; and
- 5) factors pertaining to convenience in public transportation.

STUDY OBJECTIVES

The objective of this study is to understand the mind-set or attitude of Generation Y towards Dubai’s travel-related mobile apps. It is also to find out if the recent transition of various RTA services into ‘smart’ is encouraging Generation Y to use the apps, and if that is changing their travel behaviour including trip planning, number of trips to government offices, reduction in private auto ownership, reduction in single occupancy travel, and use of public transport.

Significance of Research

Car ownership in Dubai, and dependency on private vehicles for most travel needs, is among the highest in the world. The common daily scenes of congestion are perhaps a testament to that, despite considerable investments in roadway capacity. The government of Dubai, together with the RTA, launched a number of mobile applications,

offering various government services with the aim of reducing or eliminating the need to travel to receive government service. In addition, real-time travel information and other travel apps were launched to encourage more sustainable travel behaviour among the public. However, serious congestion problems persist in many parts of the City, and anecdotal evidence abounds that solo driving/travel still dominates, despite all investments and incentives. This research will confirm (or refute) current observations (Gulfnews, 2015; Kiilunen, 2013) and provide a window into the mind-set of the public (and Generation Y in particular) thus helping to guide future actions.

METHODOLOGY

Data using a self-administered online survey from subjects in the City of Dubai were collected to specifically test the five hypotheses noted below. Only responses from Generation Y respondents were used in the analysis. Attitudes, opinions and behaviours were quantified and then used to test the following hypotheses. Sufficient responses were collected to enable statistically significant observations and conclusions. The survey was pilot-tested and revised before it was widely distributed. The following hypotheses were tested (but not all results are presented in this paper):

- I. Generation Y in Dubai are smartphone users and are aware of the travel-related mobile apps;
- II. Mobile apps play an important role in the transportation sector by providing real-time public transport, location and timing information;
- III. Services provided by the apps may have a positive impact on Generation Y's travel choices by managing their travel demands and reducing unnecessary trips, especially during peak hour traffic;
- IV. Travel-related mobile applications may serve as an appropriate tool for communicating with Generation Y by encouraging the use of smart services for trip planning, thereby reducing the use of private automobiles;
- V. Factors such as weather conditions, urban form, social-demographic variable, psycho-social variables and convenience in public transport promote preference for using private automobiles over public transportation.

RESULTS

Only 48.8% of the targeted audience, Generation Y, uses either all or some of the travel-related mobile apps. Among this (app users) segment, only 2.9% use the mobile apps on a daily basis, 23.5% use them several times a week, and 24.5% use them only several times a month. Just under half (41.2%) rarely use the apps (see Figure 5).

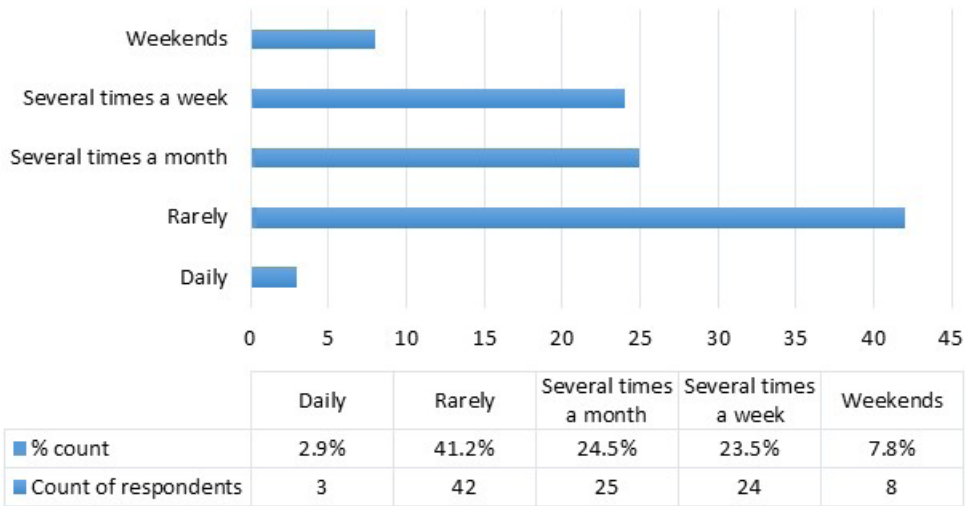


Figure 5 Travel-related Mobile App Use

Source: Kachora, 2016

The majority of the app users used them for the RTA transactional (not mobility/travel-related) services; these included inquiries and payments for fines, parking payment, renewal of vehicle registration, NOL (transport services debit card), card recharging, etc. The use of apps for public transport route and time inquiries accounted for 32.4%, 27.5% used the apps for route and location navigation. Only 4.9% used the apps for live traffic updates. The remaining 2.0% used the apps for parking location identification and to practice the written driver’s license test (see Figure 6).

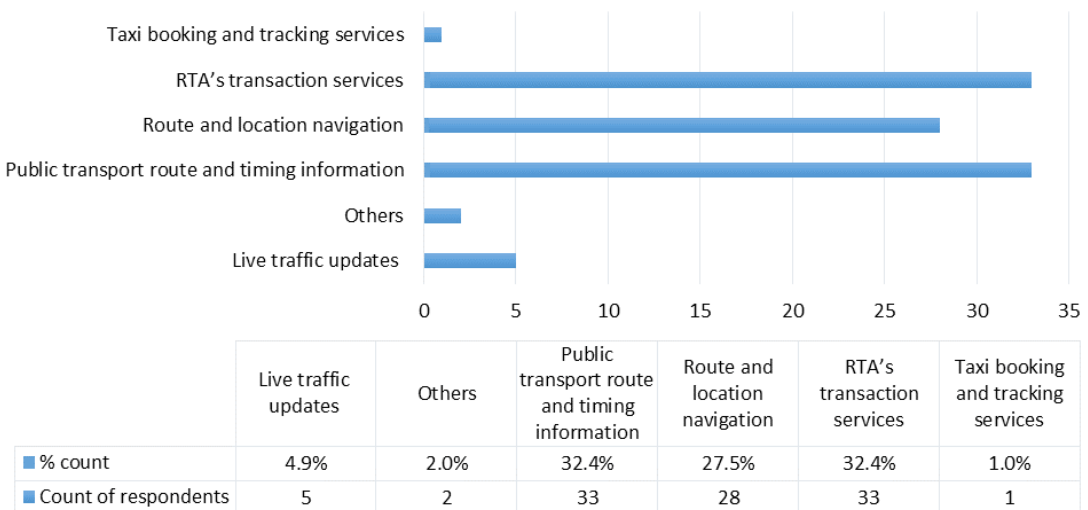


Figure 6 Primary Purpose for Using Travel-related Mobile Apps

Source: Kachora, 2016

Generation Y and Transport Apps

The majority of respondents (Generation Y, in Dubai) used their private/personal car for their work related trips, and 25.5% used public transport (see Figure 7). Walking and cycling to work accounted for 7.8%. To verify the significance of this pattern, the Pearson’s Chi-square test¹ was applied. The test of the pattern resulted in a probability value <0.001%; that is, there is a 0% chance that this pattern is happening randomly. This, in part at least, explains the daily peak period traffic congestion in many parts of the City.

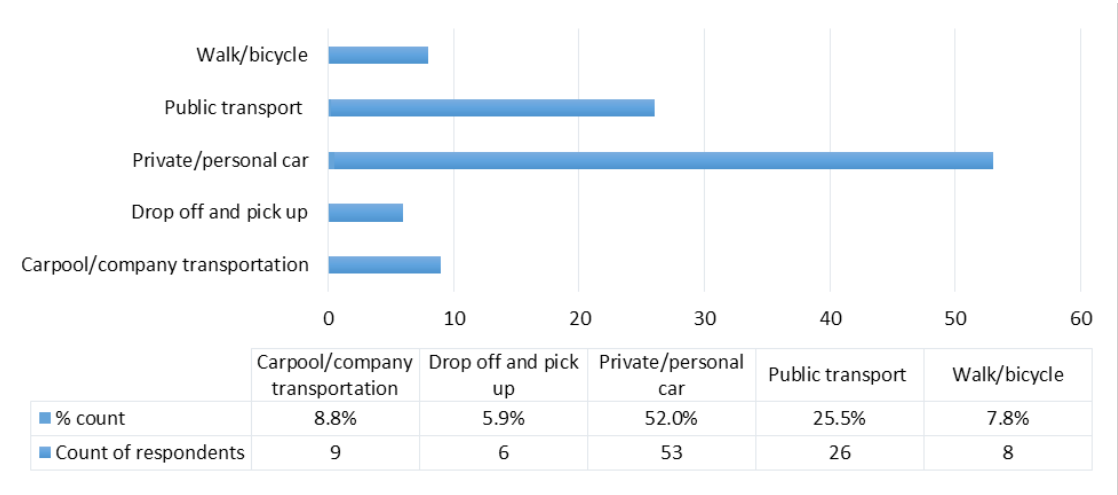


Figure 7 Mode Choice for Work Related Trips

Source: Kachora, 2016

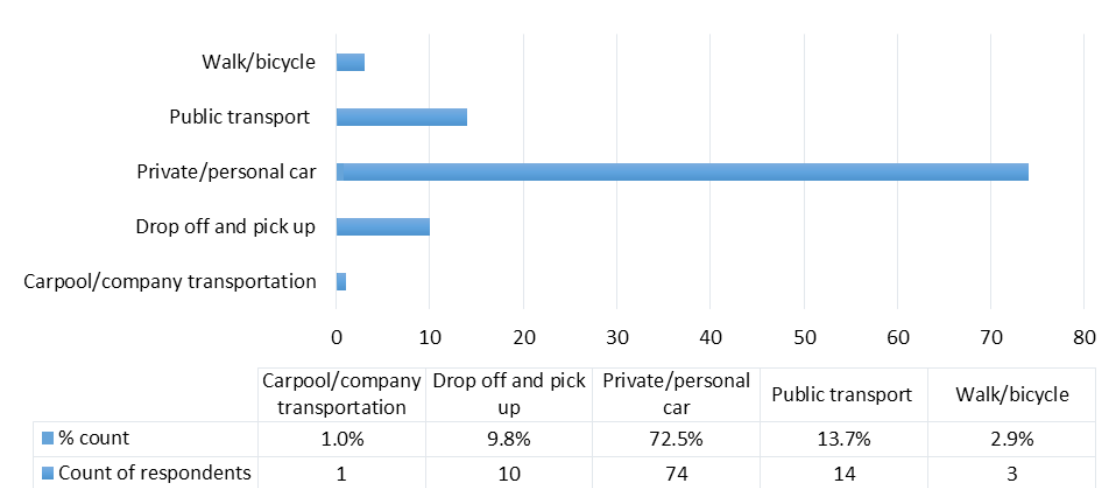


Figure 8 Mode Choice for Leisure/weekend Related Trips

Source: Kachora, 2016

¹ This is a statistical test applied to sets of categorical data to evaluate the likelihood of any observed difference between sets arising by chance.

For leisure travel, the majority (72.5%) of respondents use their private/personal car for most of their leisure or weekend trips with the Emirate; a small proportion of respondents (13.7%) use public transport for their leisure or weekend trips (see Figure 8). Similar to the case of work travel above, the Pearson’s Chi-sq test was applied here and the result was similar: there is a 0% chance this pattern is happening randomly.

The above two test results, in a way, were expected: chronic daily congestion is a hallmark of the Dubai area.

Hypotheses Testing Results

All five hypotheses presented earlier were tested as follows:

Hypothesis I: The Generation Y in Dubai are smartphone users and are aware of the travel-related mobile-based applications.

The Pearson’s Chi-square test of the pattern resulted in a probability value <0.001%: there is a 0% chance that this pattern is happening randomly. Therefore, the above findings and discussions prove the first half of the hypothesis that Generation Y in Dubai are all smartphone users. However, it contradicts the second half as about 50% of the users are not aware of the travel-related mobile applications or the services provided by it.

Hypothesis II: Mobile apps play an important role in the transportation sector by providing real-time public transport route, location and timing information.

Related to the above hypothesis, the contingency table/matrix between the following variable questions (from the survey form): “Q3. What is your primary purpose for using Dubai’s travel-related mobile apps?” and “Q13. Which category below includes your age?”, reveals that the majority of Generation Y respondents use the

Table 2 Pivot Table between Variable Questions Q3 and Q13

<i>Primary purpose for using the apps</i>	<i>18–26 years</i>	<i>27–34 years</i>	<i>35 years or older</i>	<i>Grand Total</i>
Live traffic updates	3	2		5
Others	2			2
Public transport route and timing information	26	5	2	33
Route and location navigation	22	5	1	28
RTA’s transaction services	9	17	7	33
Taxi booking and tracking services	1			1
Grand Total	63	29	10	102

Source: Kachora, 2016

Generation Y and Transport Apps

travel-related mobile apps for public transport route and timing information (see Table 2). To verify the significance of this pattern, statistical analysis was conducted. The Pearson's Chi-square test for all the three patterns resulted in a probability value $<0.001\%$. Therefore there is a 0% chance that these patterns are happening randomly. The pattern therefore verifies the above hypothesis.

However, the above finding contradicts the observation where the majority of respondents use their private/personal car for their work related trips (52.0%) and leisure/weekend trips (72.5%), and less than 20.0% of respondents use public transport. Therefore another contingency table (see Table 3) was created between the variable questions Q3 and "Q2: How often do you use Dubai's travel-related mobile apps?" to identify the reasons behind the above contraction in the findings.

Table 3 Pivot Table between Variable Questions Q3 and Q2

<i>Primary purpose for using the apps</i>	<i>Daily</i>	<i>Rarely</i>	<i>Several times a month</i>	<i>Several times a week</i>	<i>Weekends</i>	<i>Grand Total</i>
Live traffic updates	1	3			1	5
Others		2				2
Public transport route and timing information	2	15	6	8	2	33
Route and location navigation		6	9	8	5	28
RTA's transaction services		15	10	8		33
Taxi booking and tracking services		1				1
Grand Total	3	42	25	25	8	102

Source: Kachora, 2016

As noted in Table 3, the majority of the respondents use the mobile apps rarely to several times a week. The Pearson's Chi-square test for the above contingency table resulted in a probability value $<0.001\%$. Therefore, this particular finding implies that the respondents *might* use the mobile apps for public transport route and timing information and other services, but they actually rarely use the travel-related mobile apps since their preferred travel mode is their own personal/private cars. However, although the data and the statistical analysis lead to accepting the hypothesis, this contradicts current travel behaviour where 50% of the public prefer their own personal/private car for their work related trips, and about 70% of the public once again prefer their own personal/private car for their leisure/weekend trips.

Hypothesis III: Services provided by the apps may have a positive impact on Generation Y's travel choices by managing their travel demands and reducing unnecessary trips they make, especially during peak hour traffic.

The summary statistics related to this hypothesis reveal that 41.2% of the respondents agreed to the statement that Dubai’s travel-related mobile apps provide live traffic and route information for trip planning. To verify the significance of this pattern, the Pearson’s Chi-square test of the pattern resulted in a probability value $<0.001\%$, that is, there is a 0% chance that this pattern is a random one. In other words, live traffic information and the route, location and navigation services provided help in managing the public’s travel demands; it did this by selecting alternative routes and/or times for their travel. However, there is a contradiction: only 19.6% of the respondents agreed to the statement that the travel-related mobile apps encourage lesser car use during peak hours through live traffic updates. The majority were either neutral (46.1%) or disagreed (22.5%) with the statement. In order to identify the reason behind this contradiction, a contingency table between the variable questions “Q4: Please indicate your level of agreement with the following statements on your experience with using Dubai’s travel-related mobile apps”, and Q2 were created (see Table 4).

Table 4 Pivot Table between Variable Questions Q4 and Q2

<i>Level of agreement</i>	<i>Daily</i>	<i>Rarely</i>	<i>Several times a month</i>	<i>Several times a week</i>	<i>Weekends</i>	<i>Grand Total</i>
Agree	1	6	5	6	2	20
Disagree		11	7	1	4	23
Neutral	1	20	11	14	1	47
Not Applicable	1	5	2	3	1	12
Grand Total	3	42	25	24	8	102

Source: Kachora, 2016

The above contingency table highlights the reason behind the contradiction in the hypothesis: a large number of respondents who rarely use the apps were either neutral or disagreed with the statement that the travel-related mobile apps encourages lesser car use during peak hours through live traffic updates. To verify the significance of this pattern, statistical analysis was conducted. The Pearson’s Chi-square test of the pattern resulted in a probability value $<0.001\%$. Therefore, there is a 0% chance that the reported pattern is happening randomly. Hence, the statistical test confirms that the lesser agreement with the statement was because the majority of the public rarely use the travel-related mobile apps for live traffic updates, and was therefore not aware that the live traffic information would have discouraged their car trips during peak hours. However, since the statistical test has already confirmed the significance of the 19.6% of the respondents agreeing with the statement, the patterns found from the data verify the significance of the above hypothesis. Hypotheses IV and V were also tested and data related to them examined. The outcomes (but not the details) of both hypotheses are briefly noted in summary and conclusions section below.

SUMMARY AND CONCLUSIONS

There appears to be potential for the mobile-based apps introduced in Dubai to change the travel behaviour of Generation Y. However, factors such as local weather conditions, urban form, social-economic variables, and inconvenience in public transport, lead to the majority of travellers preferring to use their private cars over public transport, and the smart services related to it.

More the 50% of the public (especially Generation Y) in Dubai are not aware of the travel-related mobile based applications or the services provided through them. The majority of those who are aware of the travel-related mobile apps, only use some of the apps but very rarely. Among the less than 50% mobile app users, the apps are used for public transport and route travel time information. The majority of the current non-users of the apps would use them if they were to provide clear information on the services and could improve their travel experiences. This is a possible indication of the need for publicity and awareness.

Private vehicle ownership and use are high: 75% of the public either own or have access to a private vehicle, over 45% prefer and use their private/personal car for work related trips, and more than 60% prefer and use their private/personal car for their leisure/weekend trips. Users in this group use travel-related apps for smart transaction services, route and location navigation, parking payment, and live traffic updates - but not for public transport. Weather conditions in Dubai, urban form, societal/family factors, and public transit attributes are factors contributing to people being in favour of travel by private vehicles.

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