Age, transport, and technology: A survey of older Queenslanders[1]

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Abstract

In late 2018- early 2019, the authors of this paper implemented the 'Aging Adults, Transport, and Technology Survey.' The survey gathered data on the travel behaviours and preferences of Queenslanders over 65, including their use of transport-related technologies. We received 634 completed responses. This paper summarises and discusses the results of the survey. While the sample is representative of the populations' with regards to gender and ethnicity, it skews heavily towards younger age cohorts (65-75) and people residing in Southeast Queensland. We found that non-drivers and infrequent drivers make significantly fewer social trips than more frequent drivers. Respondents preferring public transport, rides from other household members, or walking to visit friends and family made significantly fewer visits than those who are able to drive. It is particularly concerning to find evidence of social exclusion among non-drivers in this survey considering the sample skews towards people living in urbanised areas with relatively robust transport networks. Additionally, we found that non-drivers and people over 75 are significantly less likely to own smartphones than their younger, driving counterparts. The implication is that any transport or real time information service that requires the ownership of a smartphone will almost certainly exclude many older non-drivers and people over 75. New transport modes requiring the use of a smartphone are unlikely to solve the mobility issues and transport-related social exclusion facing older Queenslanders.

1 Introduction

Like many developed nations, Australia's population is aging. According to the Australian Bureau of Statistics (ABS), the proportion of Australia's population over age 65 increased from 12.1% to 15.4% between 1997 and 2017 and is projected to reach just over 18% by 2030 (Australian Bureau of Statistics, 2017; Australian Bureau of Statistics, 2018).This demographic shift will affect all sectors of society and require thoughtful, innovative planning from Australia's policymakers, health professionals, and engineers. Transport planners and engineers have a particularly challenging task ahead of them as they consider how to provide transport options to an aging population in the largely car-reliant Australia (Browning & Sims, 2007). As people age,

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they are more likely to develop cognitive or physical limitations which require them to regulate their driving, or to stop driving altogether (Australian Institute of Health and Welfare, 2014; Anstey, Windsor, Luszcz, & Andrews, 2005). Evidence from the fields of psychology and transport planning suggests that once people cease driving, they are more likely to experience social isolation, which can in turn lead to declines in mental health (Engels & Liu, 2014; Hensher, 2007). Transport engineers and planners have the opportunity to intervene in this process by developing age-friendly transport alternatives that allow older adults to participate fully in society without driving a car.

Unfortunately, there is a lack of current, detailed information on the real and desired travel behaviour of older people living in Queensland, making it difficult for transport policymakers and professionals to build effective programs and services.To our knowledge, there is no research on how older adults interact with the internet, smartphones, and mobile applications to find, reserve, and navigate transport services. Considering the influence of these technologies on the delivery of transport services and information, an understanding older adults' use of and preferences regarding information technology will be important components of creating an age-friendly transport system.

To better understand the travel behaviour of Queenslanders over 65 years of age, including their relationship to transport-related technologies, we conducted a survey. This survey is a first step towards understanding the travel behaviours and needs of Queenslanders over 65.

2 Methodology

This paper evaluates the results of the 2018-2019 Aging Adults, Transport, and Technology survey. While the survey was primarily distributed online, respondents had the option of printing an offline version of the survey to complete and mail to researchers. The data used in this analysis was collected between 5 November 2018 and 30 January 2019. The survey was closed from mid-December to mid-January in an effort to minimize the effects of the holidays on respondents' reported travel behaviour.

The following methods were used to distribute the survey: included in a Translink e-newsletter, posted on the Queensland Seniors Facebook page by the Department of Communities, Disability Services, and Seniors, included in Council of the Aging newsletter, posted on Council of the Aging website, and distributed by members of several regional councils.

We received 634 complete responses to this survey. A very small number of survey respondents (n < 5) received paper copies of the surveys through friends and family and, therefore, did not require internet access to complete the survey. However, the remaining respondents (n > 630) were recruited through email, websites, or social media, and completed the survey on a website. Based on the timing of survey responses, we believe the inclusion of the survey in Translink's e-newsletter led to at least half of the completed surveys.

Considering this survey was primarily distributed through online methods, we do not expect the sample to include people without internet access or those who do not feel comfortable navigating websites. Based on a 2015 survey conducted for the Australian Communications and Media Authority (ACMA), approximately 80% of people over 65 use the internet and 95% of older internet-users use the internet at least once a week

(Australian Communications and Media Authority, 2016). We will, therefore, treat this as a sample of the 80% of people over 65 who are online and refrain from commenting on the behaviours or beliefs of seniors who do not use the internet.

3 Sample description

This section describes and analyses the demographics and location of survey participants. Throughout this paper, we determine the significance of results through Chi-Squared Tests, unless stated otherwise.

3.1 Age, gender, and ethnicity

The sample analysed in this report includes 634 completed surveys collected between November 2018 and January 2019.

Comparing survey respondents to the general population of Queenslanders over 65 (Australian Bureau of Statistics, 2016), we find the sample is significantly skewed towards younger age cohorts. This is not surprising considering the online method of distribution.   The gender distribution of 333 Female respondents to 299 Male respondents is representative of the gender distribution of Queensland's seniors. Two respondents chose not to identify their gender.

In Queensland, 1.14% of people over 65 identify as Aboriginal or Torres Strait Islander. 2.37% (15) of the survey respondents identify as Aboriginal or Torres Strait Islander. While the small number of Aboriginal or Torres Strait Islander respondents is reflective of the state's population, the small number will restrict us from using survey data to identify any needs specific to Aboriginal and Torres Strait Islanders over 65.

3.2 Location

Of the 634 respondents, 611 provided accurate Queensland postcodes. Southeast Queensland (SEQ) is significantly overrepresented in this sample. While SEQ is home to 66% of older Queenslanders, it is home to 92% (564) of the survey respondents. Further analysis within SEQ at the local government level shows that Brisbane City and the Moreton Bay Region are overrepresented, while the Gold Coast and Sunshine Coast are underrepresented in the sample.

4 Travel behaviours of older Queenslanders

4.1 Driving frequency

Among the survey respondents, just under 80% reported driving daily or weekly, while only 12% reported never driving. Driving frequency did not change significantly between age groups, meaning the survey did not find evidence that age alone contributes to changes in driving behaviour in respondents over 65.

4.2 Trip frequency

The survey asked respondents to indicate how many trips they had made in the previous week to common types of destinations, for example to visit a friend at home, to shop for groceries, or to see a healthcare professional.

Daily driving significantly influences the number of trips respondents made to visit friends and family at home, visit cafes and pubs, participate in hobbies, shop for food and other items, and visit parks or beaches. For each of these trip types, daily driving is associated with more frequent trips to the destination. Non-drivers make significantly

fewer trips to visit friends and family at home and to participate in hobbies. Less than weekly drivers made fewer trips to nearly all destinations, with the exceptions of visits to healthcare professionals, visits to parks and beaches, and general shopping. Reported driving frequency did not significantly affect the number of trips respondents made to healthcare professionals.

Without further information, it is not clear how to interpret the difference between daily drivers and less frequent drivers. One possibility is that people are driving less, because they do not desire to make as many trips. However, it is also possible that exogenous factors are preventing people from driving and, in the absence of other options, are unable to make as many trips as they desire. The differences between high-frequency drivers and non-drivers are most pronounced among social trips, particularly trips to visit friends and family at their homes and to participate in hobbies.

4.3 Mode choice

In the survey, respondents are asked to provide their most preferred modes for visiting the homes of family and friends, and their most preferred modes for visiting friends and family in public places. Respondents are asked to only consider modes available in their region. This section will focus on respondents' top-ranked modes.

Unsurprisingly, daily and weekly drivers show a strong preference for driving themselves to visit friends and family at home. The preferences of less frequent drivers are more evenly spread amongst the modes, however being a passenger in a vehicle driven by a household member is the most preferred mode. Non-drivers show a strong preference for taking public transport to the private homes of friends and family. Respondents report similar mode preferences for visiting friends and family in public.

Respondents reporting preferrences for public transport made significantly fewer trips to visit friends and family than respondents reporting preferences for driving. Respondents who prefer being a passenger also made significantly fewer trips to visit family and friends in both private and public places. Those who prefer walking to visit friends and family also made significantly fewer trips to visit friends and family in private and in public places. If we consider a decrease in the number of trips to visit friends and family as an indicator of social exclusion, these results suggest that inability or limited ability to drive leads to social exclusion. Again, it is particularly concerning that we found this result in a sample heavily skewed towards people living in urbanised areas with relatively robust public transport and pedestrian networks.

5 General technology ownership and use

The survey asks respondents to identify which of the following devices they own: laptop, desktop, tablet (or eReader with the ability to connect to the internet), mobile phone, and/or landline telephone. If they own a mobile phone, they are asked whether or not the phone is connected to a data plan.

All respondents owned at least one device, with the vast majority (88%) owning three to five devices. The most-owned device among respondents is the mobile phone. The majority of mobile phone owners connect their phone to a data plan. While many respondents own both a mobile and land line telephone, mobile phones are more widely owned. Survey respondents own more tablets than laptops or desktops.

This sample demonstrates a relationship between age and technology ownership, though the only age cohort with a statistically significant difference in ownership

pattern is the 80-84 year age group. Ownership of landlines, mobile phones without data plans, and desktops increases by age group, while ownership of tablets, laptops, and smartphones decreases by age group. Taken as a whole, this means that people in older age groups (75-85) are less likely to own devices that allow them to connect to internet outside of the home than younger age cohorts (65-75).

When we examine the relationship between driving frequency and technology ownership, we find that non-driving respondents own significant less technology than expected based on their proportion of the population. While non-drivers own fewer and different devices than drivers, 88% of non-drivers own at least one Wi-Fi capable device (laptop, tablet, and/or smartphone). However, this survey shows a statistically significant difference in the ownership of smartphones between daily drivers and non-drivers. This is distinctly different from technology ownership patterns based on age. The low levels of technology ownership among non-drivers suggest that the same latent variables that keep people from driving may also prevent them from owning smartphones and other devices.

6   Conclusions and future research

This survey provided new insights into travel behaviours and transport-related technology use of Queensland's population over 65. We found that non-driving respondents make significantly fewer trips than other respondents to visit family and friends, and to participate in hobbies outside of the home. After examining the modes people use to visit friends and family at their homes, we determined that respondents who prefer public transport, being a passenger, or walking make significantly fewer trips to visit friends and family at their homes. It is worth noting that the majority of respondents live in Southeast Queensland. If social isolation due to driving cessation is a problem in Southeast Queensland, we suspect the problem is worse in regional and rural areas with fewer transport options.

We also learned new information on technology use among Queensland's seniors. Non-drivers are significantly less likely to own smartphones, laptops, desktops, tablets, and landlines than drivers. The finding that non-drivers own fewer smartphones than drivers is particularly important as many new and emerging forms of transport require smartphone ownership.   Based on this survey, we expect any form of transport requiring the ownership of a smartphone to exclude a large number of non-drivers and people over 75. Similarly, transport planners should not expect older, non-drivers to have access to real time information services requiring a smartphone.

As previously mentioned, one of the issues with this survey is it's skew towards Southeast Queensland and younger age cohorts. We expect this significant bias is the result of the online distribution method. In the coming months, we intend to conduct focus groups across Queensland, including in rural and regional areas. These focus groups will allow us to understand some of the specific transport problems facing aging Queenslanders living in rural and regional areas, and to capture the opinions of people who for any reason would not respond to an online survey.

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