



RESEARCH REPORT

Olive Express

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THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

 **Bupa Aged Care**



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Introduction

Tourism participation can present opportunities to seniors to maintain physical and social activities.

For example, travel can involve physical exercise, contributing to healthy lifestyles (Ferrer, Sanz, Ferrandis, McCabe, & García, 2016) and provide opportunities for socialisation, that seniors may be less likely to encounter in their daily lives (Ryu, Hyun, & Shim, 2015).

Generally speaking, tourism participation is regarded as a significant contributor to living a high quality of life (QOL) (Uysal, Sirgy, Woo, & Kim, 2016). QOL is a multidimensional construct which most researchers investigate with subjective measures such as self-rated health (Ferrer et al., 2016; Gu, Zhu, Brown, Hoenig, & Zeng, 2016), psychological well-being (Wei & Milman, 2002), and life satisfaction (Ferrer et al., 2016).

Recently, a series of empirical studies has supported the relationship between traveling and high level of QOL among seniors in particular (Bai, Hung, & Lai, 2016; Ferrer et al., 2016; Gu et al., 2016; Kim, Woo, & Uysal, 2015; Wei & Milman, 2002).

However, despite the importance of travel to healthy aging and quality of life, many seniors and members of our aged care communities have ceased participating in travel because they are simply not able to do so. Nyaupane, McCabe, and Andereck (2008) found that, compared with the younger generation, health issues are among the most significant constraints among seniors, whereas structural constraints such as time and money may also be relevant. While some seniors can afford to travel, health issues and mobility can serve as a significant inhibitor.

Virtual or simulated travel is emerging as a viable alternative to physical travel with a number of studies citing positive impacts of virtual travel participation on well-being and physical and cognitive function (for example: Ortet, Veloso & Costa, 2022; Fiocco et al, 2021). However, many of these studies incorporated virtual headsets as opposed to fully immersive experiences such as that offered by the Olive Express Virtual Train Journey.

To address this gap in our knowledge, University of Queensland Researchers, Associate Professor Gabby Walters and Professor Nancy Pachana on behalf of the founders of the Olive Express Virtual Train Journey, Che and Kim Turner, conducted 20 face to face interviews with aged-care residents following their experience 'riding' the Olive Express Virtual Train. In doing so, the researchers evaluated the impact of this fully immersive travel experience on their well-being and how the Olive Express enhanced their social engagement, emotional state and general enthusiasm towards immersive travel.

This research addressed the following five questions:

- 1) How did the Olive Express incite **anticipation** and excitement among aged-care residents before, during and after the experience?
- 2) Did the Olive Express elicit **social engagement** with other residents during and after the experience?
- 3) Did the Olive Express elicit **nostalgic memories** about previous travel experiences?
- 4) Did aged care residents feel more **interested in travel and learning** about other cultures and countries after the virtual trip?
- 5) How did the Olive Express journey influence the aged-care residents' **emotional state**?



Method

Interviews with 20 residents across three BUPA aged care homes were undertaken on site between August and September, 2024.

The interviews took place on site after the resident had experienced the Olive Express virtual train journey. Interviews lasted an average of 20 minutes and were limited to residents with full cognitive ability.

Gender was generally well represented with 13 females and 7 males agreeing to be interviewed.

All but one resident agreed to have the interview recorded via informed consent; for the resident who opted out of having the interview recorded, notes were taken during the interview. The recordings were transcribed by the researcher.

In addition to the interviews, biometric data were collected using biosensors that detect emotional arousal from a total of 10 residents. Emotional arousal was measured via a small non-intrusive wearable device worn around residents' wrists with electrodes attached to their pointer and middle fingers. This device measures emotional arousal via changes in electrodermal activity (heat in the skin), otherwise referred to as skin conductance – a known physiological indicator of emotional state.

Data were analysed using a thematic approach where responses were organised and coded into key themes that were guided by the five research questions listed above.

Images used in this report have been provided by Olive Express from their work with Bupa, at the time of this study conducted by University of Queensland.

RESULTS

Felt anticipation and excitement among aged-care residents **before, during and after** their experience on the Olive Express





Before boarding

There was much anticipation and excitement among aged-care residents on news that they were going to have the opportunity to experience the virtual train journey.

The main feelings among residents was the excitement of doing something different and the curiosity of not really knowing what it was all about.

Residents who had rich travel experiences in their past were also quite excited about the prospect of 'travelling' again...



I didn't know what to expect to be honest, but I really enjoyed it

I was really curious, really curious

Well I love the idea of travel so I thought, why not

It was something different

I was excited about seeing what was going to happen. Yeah, a bit of a mystery...



Well it was available to residents so I gave it a go, and I've had quite a bit of experience in travelling and I'm about to add a little bit more

I went to a lot of places you know, so I thought yeah I will go and have a look at this and just see, and I was quite surprised

I love the idea of travel, yeah. I worked with the airlines for several years so done a lot of overseas things. So when she told me the bus is going to Switzerland I wanted to go



Residents at most sites were provided with a boarding pass and a passport prior to boarding the bus to enhance the realism of the experience and generate a sense of excitement. When asked about these two items and how it made them feel, there was quite a mixed response with some residents commenting that it was nice to receive a map and some information about where they were going while others had very little to say.

One resident was quite enthusiastic about the collateral and was keen to collect them to incite memories of the experience.

“Yeah, they [the boarding pass and passport] were lovely cause I came back and I stuck the little poster on my wardrobe and I stuck the postcard next to it. No, whatever ones or the other ones I go to, I'll do the same thing because then I can look at them and think oh yeah, that was great, you know”

There was some element of surprise among those who were experiencing the Olive Express for the first time in that they believed they were actually going on a bus ride and were surprised to learn they wouldn't be leaving the site.

“Yeah, yeah. I didn't understand what it was about. I thought we were going somewhere on a bus, you know? And then... and then... I thought, OK, and then... I saw. And I love the way the bus is set out.

Well, I felt rather I didn't know what it was all about, you know. So when we got in the bus and they closed the curtains, it was like we were going to move. Yeah. And then all these screen things came on and off we went to Switzerland (laughter)





**FRIST CLASS
BOARDING PASS**



NAME : _____	
TRAIN 01234	GATE 03
SEAT 1 A	TIME 10 : 30
FROM BUPA	TO OLIVE EXPRESS



BOARDING PASS

TRAIN 01234	GATE 03
SEAT 20 A	TIME 10 : 30
FROM BUPA	TO OLIVE EXPRESS






During the experience

The majority of residents enjoyed their experience immensely with many expressing their gratitude for the opportunity and their admiration for Che and Kim for development of this experience.

Che's presence and engagement with the residents while they experienced the Olive Express was also much appreciated.

The destinations were mostly very appreciated although one or two residents were quite critical of the London trip due to the footage being from a different era. There was also some critique around the lack of commentary for some journeys. Irrespective, many residents spoke of the opportunity to witness the lives of others from countries whose cultures they know little about – especially China and Japan.



...and the man that does it. He's so nice and respectful...You know, and he's got a smile on his face. And oh then he tells us what's gonna be on next time, you know, so you get to gear yourself up for that, yeah"



China was really good. I thought it was an excellent idea you know, sitting in the bus and you could actually see the people walking and talking and going about their lives, we don't see that much"

[It was interesting] just really to look around. And just see how they live in. How they look. Yeah, the people, yeah"



The realism of the virtual train journey

With any attempt at creating virtual and immersive experiences it is important to ensure there is an element of realism and the participants feel a sense of presence.

There is no doubt that the Olive Express has successfully achieved this feeling with many residents commenting about how real the virtual train journey felt to them, as demonstrated by the following quotes.



...but you see all these different places and you can't believe it? Well, the bus is standing still"

Actually, I thought, 'Gee, that's good idea doing that.' Yeah, because there's something about it when you are looking at the window on the inside the van as it is going along and it's like, 'did you see that?' That was public transport moving along that as you would see it if you were there..."



Anyway, so it's brilliant. And then you think you're sitting near a window and then it becomes a screen. Yeah, and the fact that you really feel like you're on a train"

...and you know, the fact that people thought they were actually in a train and how they were gonna get back and that sort of thing, asking 'where are we going? Where are we now ' sort of thing"

To me, it felt like I was moving. You know, we looked at all these wonderful places. I really enjoyed it and then we could have a cup of tea and, you know, everything was like, really sitting in the bus, watching the crowd and seeing everybody going past and so amazing to me, really"

You really felt like back in the European way of life, which is different from Australia"



These quotes suggest that the Olive Express experience may represent an opportunity for 'escape' for these residents, escape from their every day routines and the seemingly long days aged-care residents endure from time to time.

The theme of 'escapism' was actually raised by a resident (former geography teacher) in reflecting on what the overall experience offers not only themselves but other residents.



"I think this this experience is more about offering a virtual... Perhaps for those who haven't travelled to see and experience something different and actually feel a sense that they're escaping In this train and some people have said, 'I feel like I'm on a train going on a trip.' Some people have said 'it was really nice to see another country. I've never been overseas before'"



After the experience

Of interest to this research was how residents reflected on their immersive journey once returning to their everyday lives. Firstly we explored whether the experience lived up to their expectations and in the majority of cases it did.



Yes it did, [live up to my expectations], it exceeded them, and they make a great cup of tea"

It's just the best thing ever, wonderful experience"...

"fantastic'...."oh it does, it really does [live up to expectations].

Oh I thoroughly enjoyed it, that is why I went back again, it's so exciting"

Ohh yes, I'm just. I'm just glad that they came here because it is, it's wonderful. Yeah. Yeah, yeah. It's very, very good. And I recommend it to anybody."

Also of interest was how the residents felt after their virtual journey. While this report will feature some biometric results that captured the emotionally aroused state of residents, their self-reported emotions were generally very positive. Common terms used by residents to describe how they felt following their journey included "exhilarated, wonderful, well, happy and very good".

When reflecting on the experience itself, residents provided some very rich descriptions of their time on the Olive Express with these differing somewhat between first timers and those who had journeyed previously. First timers reported feeling amazed and surprised when experiencing the virtual journey.



I just thought I couldn't believe how good it was. Yeah, and it's a wonderful thing to do, you know. And plus, you get out of here for a while"

Oh yeah, it was, it was better than what I thought it was gonna be. It's funny because I didn't know whether it's in your mind or whether it's really happening or not"



Social engagement

Another objective of this research was to explore whether the virtual experience is likely to incite social engagement between residents both during and after their journey.

The interviews revealed that residents are less likely to engage with each other during their time on the virtual train for a number of reasons. First, many participants indicated that it was difficult to converse whilst on the journey due to the fact that they were either listening to the commentary or focused on the virtual footage.

For example, when asked if they spoke to others while on the train, respondents replied:



No, no, we didn't. We were busy sort of looking around and seeing what the what's to see"

It's hard to talk and listen and watch"

This sentiment was very common across many respondents, essentially, residents prefer not to interact and talk at length with others as they worry about missing something.

However, there were some comments about the body language observed and shared moments that suggested residents were enjoying what they saw.



I don't know how you explain it... you are sitting there and you just look at them [other residents] when something's beautiful and you both smile and look and you don't have any interaction, well, I don't anyway, with the other people because you're too busy looking at what you're seeing"



After the experience residents mainly spoke to family members about their virtual journey as opposed to other residents. Here is where the photo featured strongly with quite a number of residents sharing the photo/s with their family.



And I was really glad that we got the little pamphlets there and whatever, like the lolly or chocolate or whatever for that country, you know, to take with us as well and the photo and I, I have got them all in a box and I showed them to my family and they looked them all over and thought it was a wonderful idea as well, you know"

Well, two of them [the photos] are sent to New Zealand to my granddaughter because she said she didn't have a photo of me. And I sent her some money for her birthday and I put these two little photos. She was so happy"

When asked if they would recommend the Olive Express to family and friends outside of the aged care home, there were mixed responses. Some residents felt their family would not really enjoy the experience as they are still young enough to travel while others commented on the fact that many of their friends are not interested in travelling.



Nostalgic memories of previous travel

While there was not a lot of interactive discussion among residents during and after their virtual journey, there was certainly some reflection on their past travel experiences – as shared with the interviewer.

It is important to note however, that due to the risk of causing emotional discomfort among aged care residents who are no longer able to travel despite a desire to, the following responses reflecting residents' travel memories were unprompted and emerged naturally through discussions between the resident and the interviewer about the Olive Express experience. Some gentle probing occurred when the interviewer felt the interviewee was in a positive happy mindset and it was appropriate to do so. Examples of some of the unprompted memories shared by the residents after their virtual train experience are as follows:



...because you remember all the lovely trips you had. And I've got all the photos and everything back to the days when you had to get them developed".



..“but seeing this it just reminded me of the wonderful times that I have had travelling and on trains like the same trains”.

Just reminded me of all the places I've been to. My husband's not with me now, he passed away. it just brought back memories with him. And then a friend and I were talking about it, you know and everything and we went back, you know, and I thought I'd forgotten all about that. I remember Frankfurt and when I when we went there. It's got one of the biggest undercover railways in the world"

It was nice to see some of the places in the UK that I had been to, you know because I stayed two years in England with my daughter and her family, so that's why that's nice.... Made me feel very good, happy memories, very happy memories".



This next quote represents the challenges some of our aged care residents face in terms of mobility and how this restricts their opportunity to travel. The Olive Express is referred to as a viable alternative and a more accessible alternative for those who still yearn to engage in travel activities.

“Yes, it felt nice because I used to love to travel. Even though mostly in America, but I travelled on my own all the time, but met wonderful people and I just love to travel. These are things I miss now. When you can't just like go through an airport now. You gotta have a wheelchair. Everything's so many miles now that you can't. Whereas the good old train [Olive Express] you just get on this platform, get on the train and get off the thing and that it felt so nice. Yeah, just makes you feel good. And I think that's what it's all about. When you get older, you gotta feel good because you can't do a lot of the things that you used to do”.

Two residents did comment that their virtual train journey gave them 'itchy feet'. This was more common among those who had travelled extensively in their past. There was no indication of sadness or regret however, this was more so referred to in a jovial way.

On speaking to residents, most had resigned to the fact that their travel careers were behind them and were very grateful to have the opportunity to experience a virtual alternative.

For this resident with limited travel history, the virtual travel adventures were very exciting.

“I was just excited to see what country we were going to next. OK, for someone who's never travelled much, that's really exciting for me.”

And offered a learning experience that they may no longer be able to encounter firsthand.

“Yeah, it's like, so you, you're learning something. Just seeing something different, something new”



Discussions about their travel careers

While residents were not asked directly about whether their experience with the Olive prompted memories of past travel, 12 of the 20 interviewed were very forth coming with travel stories. These included listing the various destinations they had visited, who they travelled with and the kinds of travel they engaged in.

For example, one resident told stories about her time backpacking with her daughter while another resident talked of his time working for the airlines that entitled him and his wife to travel business class.

The stories shared indicate that the Olive Express experience certainly generated both conscious and subconscious memories about past travel adventures.

DATA

Emotional arousal of residents while riding the Olive Express



Emotional Arousal of Residents

while riding the Olive Express

As formerly mentioned, emotion arousal of residents while they were experiencing the virtual train journey was captured via the measurement and monitoring of their skin conductance, or emotion elicited changes in skin temperature. 10 participants (5 males and 5 females) from the Merrimac aged-care home volunteered to participate in this non-intrusive form of physiological data collection.

Data were collected from 5 participants at once to align with the seating capacity of the van. To ensure the data was manageable the researcher captured emotional arousal data for the first 15 minutes and the last 12 minutes of the 41-minute footage. The researchers were also interested to explore as to whether the emotional arousal could be sustained towards the end of the experience. Baseline data was noted to identify any significant shift on commencement of the VR footage. The results indicated that overall, the Olive Express experience generated statistically significant arousal among eight of the 10 residents[1]. The table below features the number of peaks that occurred for males and females for all residents.

[1] One resident who joined the first group did not pay any attention to the footage.

Table 1
Total Number of Emotional Peaks Among the 10 Residents While Experiencing the Olive Express

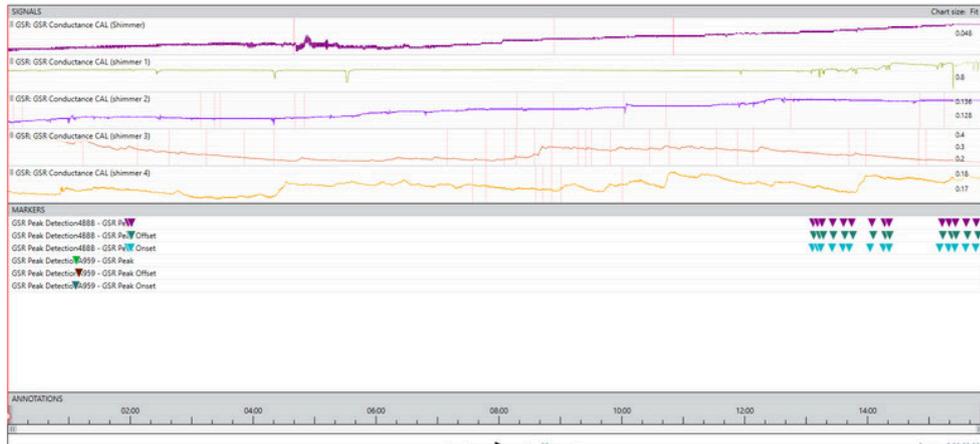
Shimmer Device Numbers -and Group	Gender	Emotional Peaks (first round)	Emotional Peaks (second round)	Emotional peaks (Two rounds)
Shimmer_ADB2_Group 1	Male	0	0	0
Shimmer1_4BBB_Group 1	Female	16	26	42
Shimmer 2_2371_Group 1	Female	0	1	1
Shimmer 3_A959_Group 1	Female	1	20	21
Shimmer 4_A5C5_Group 1	Male	0	15	15
Shimmer_ADB2_Group 2	Male	1	4	5
Shimmer1_4BBB_Group 2	Male	0	0	0
Shimmer 2_2371_Group 2	Male	2	0	2
Shimmer 3_A959_Group 2	Female	39	56	95
Shimmer 4_A5C5_Group 2	Female	1	0	1
Peaks in total (10 participants)	-NA-	60	122	182

Group 1 – First 15 minutes

featuring historical and current footage of London in (1900, 2024) and footage of England

In the top section one can see the raw data signals that illustrate the emotional arousal that occurred over the first 15 minutes. In the middle section, we see the markers and the GSR device number of those who responded on the left. The number of peak moments are marked by coloured triangles. The grey line at the bottom represents the corresponding timeline that these peaks occurred. As indicated by the markers, only two residents (Male wearing GSR Device #4BBB and Female wearing GSR Device#A959) experienced statistically significant emotional arousal during the first part of their journey

Figure 1. Emotional Arousal Results of Group 1 Residents During First 15 Minutes



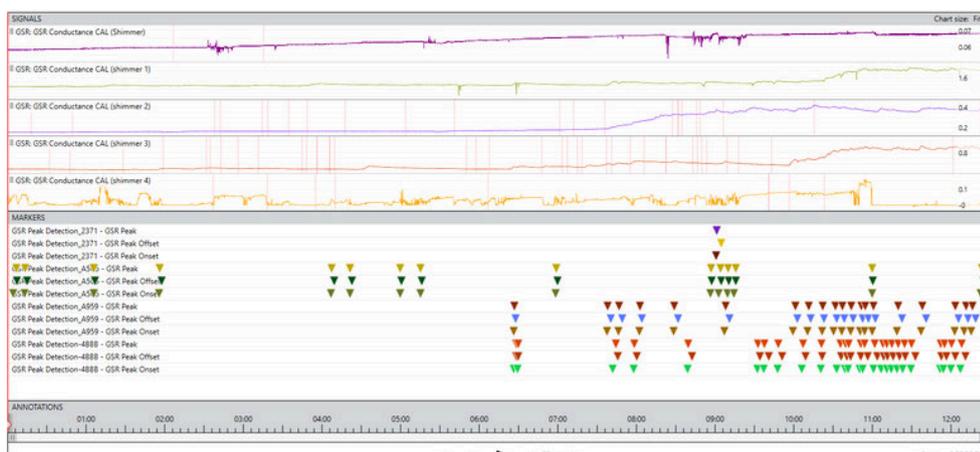
NB: Onsets and offsets are detected on the phasic signal. Onsets are all the points where the phasic signal crosses above the onset threshold: parameter [Peak onset threshold [microSiemens]]. Offsets are the points where the phasic signal crosses below the offset threshold: parameter [Peak offset threshold [microSiemens]]. Each onset–offset pair defines a window, and the maximum value attained by the calibrated signal in a window is marked as a possible peak. The amplitude of a possible peak is defined as the difference between the maximum value of the calibrated signal in the window and its value at the onset point.

Group 1 – Final 12 minutes

featuring footage of Scotland and Ireland

In Figure 2 below, we observe that during the final 12 minutes four residents from Group 1 experienced a substantial number of emotional peaks when virtually journeying through Scotland and Ireland. The only resident that didn't respond was the resident referred above that did not pay any attention to the VR footage. Clearly the scenery and footage of Scotland and Ireland was more emotionally arousing than that featuring London and England for these residents.

Figure 2. Emotional Arousal Results of Group 1 Residents During Final 12 Minutes

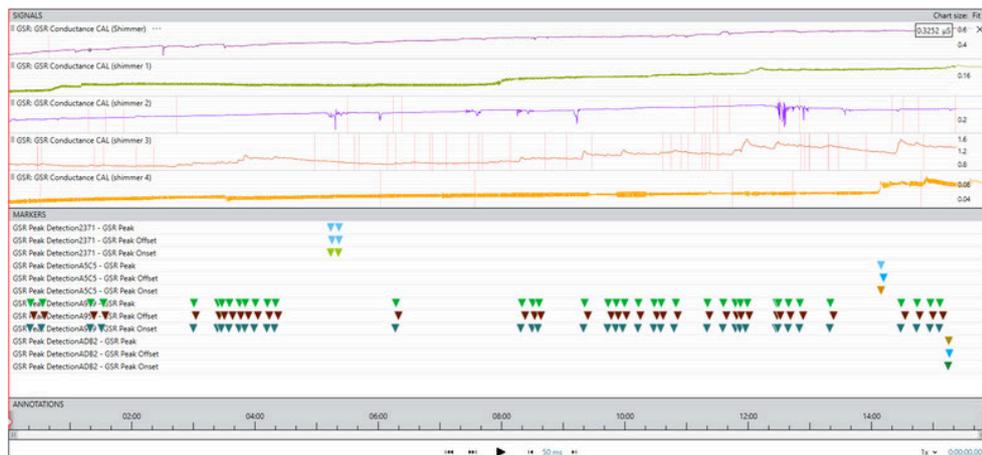


Group 2 – First 15 minutes

featuring historical and current footage of London in (1900, 2024) and footage of England

Within this second group, four of the five residents experienced emotional arousal with significantly more peaks than those in Group 1 when viewing the London / England footage. One will note that the peaks for the female resident wearing shimmer device #A959 were comparatively more consistent over the time frame compared with those of others across the two groups in response to this footage.

Figure 3. Emotional Arousal Results of Group 2 Residents During First 15 Minutes



Group 2 – Final 12 minutes

featuring footage of Scotland and Ireland

In contrast with Group 1, there was less evidence of emotional arousal among Group 2 in the final 12 minutes of the footage featuring Scotland and Ireland with only two residents responding – a female wearing GSR device #A959 a male wearing GSR Device#ADB2. We see the same substantial number of emotional peaks from the same female who appeared very responsive to the first 15 minutes of footage.

Figure 4. Emotional Arousal Results of Group 2 Residents During Final 12 Minutes



Potential for Further Research Collaboration Between UQ, BUPA and the Olive Express

The Olive Express clearly has the ability to increase QOL for older adults in aged care. It is a low-cost intervention with multiple positive effects, which can be equally enjoyed by those with and without cognitive decline.

The purpose of the National Health and Medical Research Council Partnership Project grant scheme is to create partnerships among decision makers, policy makers, managers, clinicians and researchers.

Partnership Projects answer a specific research question to influence health and wellbeing through changes in the delivery, organisation, funding and access to health services.

A continuous application process allows applicants to apply at any time during the year, rather than through just one annual round. This is to allow researchers and partner organisations to develop timely collaborations. The grant commencement date will be aligned with the timing of each peer review cycle. This allows funding to be administered more quickly after grants are awarded, providing all necessary documentation is in place.

Duration of funding

5 years

Level of funding

\$1,500,000 – comprising cash, in-kind and matching funding support from the scheme.