

Supplementary Materials for

Museums in the Age of Ask: Fostering an Interactive Experience through Voice-Activated Technology

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Appendix A. Authorship

Introduction: Written and edited by Trung Tran Trong. Major revisions contributed by Jane Lockery, Owen France, and Katherine Schweikert.

Background:

Museum visitors & their motivations: Jane Lockery

Digital technology in museums:

Websites: Katherine Schweikert

Smartphone applications: Katherine Schweikert

QR codes: Jane Lockery

Instant messaging: Katherine Schweikert

Audio tours & soundscapes: Jane Lockery, Trung Tran Trong

Augmented & virtual reality: Katherine Schweikert

3D printing & scanning: Katherine Schweikert, Jane Lockery

Voice-activated technology: Owen France, Katherine Schweikert

Major revisions: Trung Tran Trong and Jane Lockery

Methods & Results: Written and edited by Owen France, Jane Lockery, Katherine Schweikert, and Trung Tran Trong.

Graphics: Figure 3 (Owen France, Jane Lockery, Trung Tran Trong), Figure 7 (Trung Tran Trong), Figure 8 (Katherine Schweikert), Figure 9 (Jane Lockery), Figure 11 (Jane Lockery, Owen France), Figure 12 (Jane Lockery, Owen France), Figure 13 (Trung Tran Trong), Figure 14 (Katherine Schweikert), Figure 16 (Jane Lockery), Figure 18 (Jane Lockery), Figure 19 (Trung Tran Trong), Figure 21 (Katherine Schweikert), Figure 22 (Jane Lockery), Figure 23 (Katherine Schweikert)

Tables: Table 1 (Katherine Schweikert, Jane Lockery), Table 2 (Katherine Schweikert, Jane Lockery), Table 3 (Katherine Schweikert, Jane Lockery)

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Forest Gallery team: Owen France, Trung Tran Trong

Phar Lap team: Jane Lockery, Katherine Schweikert

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Primary survey questions: Katherine Schweikert, Jane Lockery

Secondary survey questions: Katherine Schweikert, Jane Lockery

Data analysis: Jane Lockery

Interviews:

Questions written by Jane Lockery.

Conducted by Katherine Schweikert.

Response analysis by Jane Lockery and Katherine Schweikert.

User Testing:

Participant solicitation & interaction by Kate Schweikert, Trung Tran Trong.

Observations and timing by Jane Lockery, Owen France.

Video recorded by Owen France.

Data analysis by Jane Lockery.

Focus Groups:

Protocol written by Jane Lockery and Katherine Schweikert.

Conducted by Katherine Schweikert and Trung Tran Trong.

Response analysis by Jane Lockery and Katherine Schweikert.

Programming: Owen France, Katherine Schweikert, and Trung Tran Trong.

Photographs: Taken by Trung Tran Trong and Katherine Schweikert.

Booklet: Designed by Owen France.

Appendix B. About the Sponsor

Museums Victoria is a public museums organisation in Victoria, Australia that manages three museums: the Melbourne Museum, Scienceworks, and the Immigration Museum. The Melbourne Museum offers a wide range of programs for kids and adults. The exhibits range in content from indigenous culture to natural history to world history and more. ScienceWorks has a lot of programming for kids and is considered to be world renowned science museum. They focus on hands-on exhibits to encourage participation and have implemented large displays to add another level of engagement. The Immigration Museum is a museum to educate visitors on Australia's history with immigration. They utilise soundscapes and other forms of audio and video to share immigrant stories. They also use touchscreens to show visitors their ancestry through interaction. The Museums Victoria organisation is currently considering implementing voice-activated technology into its museums, both on- and off-site, in order to greater engage the public and keep up with trending technology.

B.1. Organisational Structure & Mission

Museums Victoria is governed by the Museums Board of Victoria, which is overseen by the Minister for Creative Industries, Martin Foley MP (Museums Victoria, 2016). The organisation of Museums Victoria itself includes just under 700 staff members and 500 volunteers (Museums Victoria, n.d.). The CEO, Lynley Marshall, oversees General Managers of each of the three museums (Melbourne Museum, Immigration Museum, and Scienceworks), the COO and Chief of Staff, and the heads of five departments: Experience & Engagement, Research & Collections, Marketing & Publicity, Development, and People & Culture. The Marketing & Publicity department would be most relevant to our project, as the Audience Insights team falls under this branch. The organisation's research is funded by the government of the State of Victoria through private grants.

The mission of Museums Victoria is as follows:

As a cherished cultural organisation, we engage in contemporary issues of relevance, interest and public benefit. Both within and beyond our museums, we encourage participation in the diversity of experiences we offer. We develop and use our knowledge, collections and expertise to build connections with and between individuals and communities to enhance understanding and a sense of belonging. (Museums Victoria, n.d.)

B.2. Resources & Partnerships

Museums Victoria has access to a wealth of resources, both fiscal and otherwise. Their total income in the 2016-2017 period was AUD 86.9M, with almost 20 times that in assets. They receive grants from the Australian government worth AUD 41.9M in operating appropriation with another AUD 8.6M in capital appropriation (Creative Victoria, 2016). Museums Victoria in turn funds grants of their own in addition to museum and collection upkeep, and they also fund additional side projects such as educational programs for children, and on occasion, lobbying. The organisation also has corporate partnerships that provide financial support, including Melbourne Airport and Virgin Australia, among others (Museums Victoria, 2018).

Museums Victoria has both infrastructure and personnel that can be used to help tackle the implementation of voice-activated technology. In addition to their over 600 employees, volunteers contribute well over 41,000 hours per year combined (Creative Victoria, 2016; Museums Victoria, 2018). Some of these personnel are equipped to tackle technological projects (e.g. a tour guide would not be asked to write software), as shown by the several mobile applications that Museums Victoria has already developed. Even if these were not developed in-house, they still show that the organisation has potentially useful connections with partners they have repeatedly used. Regarding infrastructure, Museums Victoria already has experience implementing programs for those who need special accommodations, which is most clearly demonstrated by their Autism Friendly Museum initiatives, which offer resources related to all three of the museums they manage (Museums Victoria, 2017). It is likely that future accessibility projects will benefit from the experience that Museums Victoria has gained from implementing their current program.

Organisations in Australia that are presently working with voice activated technology include the National Bank of Australia, the Australia Post, and Woolworths. None of these organisations are currently partnered with Museums Victoria, but the Australia Post is funded and owned by the Australian government, which could aid in a future partnership. Additionally, Salmat is an Australian marketing company which provides companies with strategies that utilise voice activated technology to improve and increase interaction with customers (Salmat). Voice activated technology is growing in popularity in Australia but is still behind the United States in this field, although it is predicted that Australian brands will start to adopt this technology (Nann).

Appendix C. Observation Data

Exhibit: Phar Lap

Dates: 3/21, 3/22, 3/23

Time	Tally of People	Average Sound Level (dB)	Notes
<i>Day 1</i>			
11:15 am	23	57	Tour present, included
11:20 am	23	56	Tour present, included
11:25 am	5	58	
11:30 am	5	56	
11:35 am	14	59	
<i>Day 2</i>			
1:00 pm	2	54	
1:05 pm	1	58	
1:10 pm	3	59	Many children in the next room
1:15 pm	7	60	Children in other side of room very audible
1:20 pm	2	59	
<i>Day 3</i>			
3:10 pm	2	55	
3:15 pm	10	59	
3:20 pm	6	58	
3:25	0	58	
3:30 pm	4	57	

Exhibit: Wild

Dates: 3/21, 3/22, 3/23

Time	Tally of People	Average Sound Level (dB)	Notes
<i>Day 1</i>			
11:16 am	29	60	Occasional booming

			bass noise; a lot of children
11:21 am	35	59	
11:27 am	13	58	
11:32 am	19	58	Fewer children
11:37 am	28	58	Children are back
<i>Day 2</i>			
12:59 pm	2	54	No school groups
1:04 pm	2	54	
1:09 pm	2	58	Children audible in adjacent exhibit
1:15 pm	37	62	Many children present
1:20 pm	8	59	Many students present
<i>Day 3</i>			
3:07 pm		57	
3:12 pm		54	A handful of high schoolers
3:17 pm		53	
3:22 pm	2	56	
3:27 pm	2	54	

Appendix D. Visitor Survey

We are a team of students from Worcester Polytechnic Institute, a university in the United States of America. We are working with Museums Victoria to develop some tools that make exhibits more interactive. Would you mind answering a few questions about your experience in the museum? This will take ten minutes.

1. We have been wondering whether people might have some questions about the exhibit that they would like to have answers to. Is there anything that you are curious to know about this exhibit?
2. Are there any other exhibits that you particularly enjoyed during your visit?
3. Now thinking about something a little different, can you please tell me what you understand when you hear the words voice-activated technology?
4. Do you personally use any voice-activated devices?
 - a. Yes
 - b. No
5. Where do you use these devices?
 - a. At home
 - b. At work
 - c. In the car
 - d. In public
 - e. Other (Write-in)
6. How do you use voice tech?
 - a. Productivity (set a timer, navigation, etc)
 - b. Information (news, weather, etc)
 - c. Entertainment (movies, music, etc)
 - d. Other (Write-in)
7. How do you feel about this form of technology? (Enjoy it, hate it, not sure about it)
8. Do you have any concerns about this form of technology?
 - a. Yes
 - b. No
9. Are there ways that you can see how such technology could be used in a museum?
 - a. Yes
 - b. No
10. Have you been to Melbourne Museum before?
 - a. Yes
 - b. No
11. What was your age at your last birthday?
 - a. 15-19
 - b. 20-24
 - c. 25-29
 - d. 30-34
 - e. 35-39
 - f. 40-44
 - g. 45-49
 - h. 50-54
 - i. 55-59
 - j. 60-64
 - k. 65-69

- l. 70-74
 - m. 75-79
 - n. 80-84
 - o. 85 and over
12. Are you visiting...?
- a. Alone
 - b. With only adults
 - c. With only children
 - d. With adults and children
13. Do you live in Australia?
- a. Yes
 - b. No
14. What is your postcode?

Thank you, that is the end of our survey today. Thank you so much for your feedback; we greatly appreciate your time completing it. We hope you enjoy the rest of your day!

15. Record exhibit:
16. Record gender:
- a. Male
 - b. Female

Interviewer initials:

Appendix E. Tour Guide Interview Protocol

Preamble:

Hello, my name is [NAME]. I am working with a team of three other students from Worcester Polytechnic Institute, a university in the United States of America. We are working with Museums Victoria to develop a technological tool to make exhibits more interactive. We are hoping you could help us with the project by answering a few questions about your experience giving tours around the museum. This interview will last about ten minutes. If you are willing to participate, please fill out this informed consent form.

If consented:

Before we begin, please know that this interview is voluntary and you can stop at any time. You have the right to refuse to answer any questions I ask. I will be taking notes of your responses. Do you have any questions for me before we begin?

Introductory:

- How long have you been a tour guide at this museum?

Tour-related questions:

- In your tour experiences, what are the top 3 exhibits that visitors tend to ask questions about?
- What are the most common questions for each of those exhibits?
- Which of these exhibits do you think is the most interesting to visitors overall?
- Which exhibit do you personally find the most interesting?

Conclusion:

Thank you for your participation in this interview. We greatly value your feedback. If we have any follow-up questions later, would it be okay for us to contact you again? Thank you! Have a great day!

Appendix F. Phar Lap Exhibit Questions

BIO

Questions:

Who was Phar Lap?

Who is he?

Explain who Phar Lap was.

Tell me what this horse is.

Tell me who this is.

What's this horse?

What am I looking at?

Who is this?

What is Phar Lap?

Responses:

Phar Lap was a legendary racehorse.

Phar Lap was a New Zealand bred horse who won many races.

Phar Lap was a legendary racehorse and symbol for Australia.

BIRTH-DATE

Questions:

When was he born?

When was Phar Lap born?

When is his birthday?

Responses:

Phar Lap was born on October 14, 1926.

He was born on October 14, 1926.

His birthday is October 14.

DEATH-AGE

Questions:

How old was Phar Lap when he died?

How old was he when he died?

Responses:

Phar Lap was only five years old when he died in 1932.

DEATH-AMERICANS

Questions:

Did the Americans poison Phar Lap?

Did the Americans poison him?

Did someone poison Phar Lap?

Did someone poison him?

Was Phar Lap poisoned?

Was he poisoned?

Who killed Phar Lap?

Who killed him?

Responses:

No real evidence of involvement by a criminal element exists.

Many people believe the Americans poisoned Phar Lap because scientists have found high levels of arsenic in his body. However, there is not enough evidence to say it was poison.

His death is a point of speculation because there is not enough evidence to claim he was poisoned, but people have their suspicions.

DEATH-DATE

Questions:

When did he die?

When did Phar Lap die?

Responses:

Phar Lap died on April 5, 1932.

He died on April 5, 1932.

Phar Lap died in April in 1932, but he lives on forever in our hearts.

DEATH-INFO

Questions:

How did Phar Lap die?

How did he die?

What caused his death?

What caused His death?

Responses:

Phar Lap died from inflammation in his stomach.

There are many theories about how Phar Lap died, including speculations about him being poisoned by the Americans.

Phar Lap died from an infection.

DEATH-PLACE

Questions:

Where did he die?

Responses:

Phar Lap died in Atherton, California in 1932. Is there anything else you want to know?

He died in Atherton, California after a sudden illness. What else would you like to know?

FUNFACT

Questions:

Tell me a fun fact

Share trivia with me

Tell me something about Phar Lap

I want to know trivia about Phar Lap

What's a fun fact about him?

What's a fun fact about Phar Lap?

What else can you tell me about Phar Lap?

Responses:

In November of 1930 Phar Lap won the Melbourne cup and stopped the nation.

Phar Lap has been voted the greatest Australian trained racehorse of all time.

Phar Lap was trained in sand to strengthen his muscles.

His nickname was Bobby Boy.

His heart weighed 6.35 kilograms.

Phar Lap came in last in his first race.

Phar Lap was nicknamed Big Red and Red Terror because of his large size and beautiful chestnut coat.

His total stake money was 56,425 British pounds, plus 50,000 US dollars.

In March 2017, Australian racehorse Winx surpassed his race record by winning 15 consecutive races. What else would you like to know?

HEART-LOCATION

Questions:

Where is his heart?

Where is his heart?

Where do we keep His heart?

Where is his heart kept?

Where is His heart kept?

Responses:

His heart is in Canberra.

His heart is kept in Canberra.

His heart is at the Australian Institute of Anatomy in Canberra.

HEART-WEIGHT

Questions:

How big is his heart?

How big is His heart?

Responses:

His heart weighs 6.35 kilograms.

His heart weighs 6.35 kilograms.

His heart is much bigger than average and weighs 6.35 kilograms.

NAME

Questions:

Why is his name Phar Lap?

What does Phar Lap mean?

What does his name mean?

Why is he called Phar Lap?

Responses:

His name means lightning in Thai

Phar Lap means lightning in Thai.

His name means Lightning and mimics the style of other successful race horses.

His name is Phar Lap because Phar Lap translates to Lightning.

RACE

Questions:

How many races did Phar Lap win?

Responses:

Phar Lap completed 51 starts and won 37 races.

Phar Lap won 37 races out of 51.

Phar Lap completed 51 starts, 37 wins, 3 seconds, and 2 thirds.

SIZE

Questions:

How big was Phar Lap?

How tall is Phar Lap?

How big is he?

How tall is he?

Responses:

Phar Lap was a large horse at a height of 17 hands (1.74 meters).

His height was 17 hands.

He was 17 hands tall.

He was 174 centimeters tall.

WHO

Questions:

What is this horse?

Who is this?

Why is there a horse here?

Responses:

This is Phar Lap.

You're looking at Phar Lap.

Phar Lap was a legendary racehorse and symbol for Australia.

IMPORTANCE

Questions:

Why was Phar Lap important?

What is special about Phar Lap?

What else can you tell me about Phar Lap?

Answers:

In November of 1930 Phar Lap won the Melbourne cup and stopped the nation.

Phar Lap has been voted the greatest Australian trained racehorse of all time.

Phar Lap was a legendary racehorse and symbol for Australia.

Appendix G. User Testing Observations

Day 1, Session 1/1

Date: 4/09 2:30 pm - 3:30 pm

Observer initials: JL & OF

#	Duration	Difficulties	Notes (size of group)	Reaction to Answer
1	60 sec	Had to repeat question b/c it didn't understand	How tall was Phar Lap 1 adult 2 kids, kid asked question	
2	30 sec	Bent way over and asked question inches away from device	Man Asked 1 question	
3	2 min 33 sec (153 sec)	Didn't understand when asked how many races (understood the second time though) Obviously didn't know the trump question	Woman and 3 children Q1 Kid: Who was phar lap? Q2 other kid: How many races 3: How did Phar Lap die? 4: When did Phar Lap die? 5: How old is Donald Trump? Kids very interested	Kids very interested
4	Immediately left (5 sec)		Middle aged man	
5	57 sec		Kid alone	Asked one question then was satisfied and left
6	58 sec	I don't believe we have when his first win was?	6 children watching, then there were 3 Q1: how old when he died Q2: When was phar lap's first win?	
7	20 sec + 36 sec + 23 sec (kept returning) (79 sec total)	Couldn't answer Q4	2 girls and woman Q1/Q2: Q3: How tall was phar lap (asked by woman) Q4: How many horses were in the first race that he won? (asked by girl)	

Day 2, Session 1/1

Date: 4/10 1:15 pm - 2:15 pm

Observer initials: JL & OF

#	Duration	Difficulties	Notes (size of group, survey?)	Reaction to Answer
1	~ 2 min (120 sec)	Didn't hear her first two times	Teen girl Q1: How fast was he Q2: How tall was he	Asked more

			Q3: Name meaning Larger group approached as she asked more questions Q4: Kid asked how old he was	
2	1 question but chatted with group afterwards (30 sec)	Had to restart test app	Man (MV staff) Q: Where is his brain (just to mess with device)	
3	1 min (60 sec)		Middle aged couple Q1: What is the average horse height?	laughed
4	3 min (180 sec)	Had exited app (but still answered correctly) Kept saying OK Google even in the app Toward the end it didn't understand his question	Middle aged man (Marvel shirt), then kid joined He works in JB Hi-Fi and he has a google home Q1: How many races did he win (answered by wikipedia) Q2: Kid: How tall was he Q3: Man: what's that in cm Q4: Man: How old was he when he passed away Q5: Man: Was Phar Lap our most successful racehorse?	Smiled, satisfied, laughed (at fallback response)
5	2 min (120 sec)	Exited app due to lack of speaking We're gonna have to see if we can override that	Man + kid They just watched Kate talk to it, did not ask questions	
6	2 min 40 sec (160 sec)	It doesn't know math Could not answer if any horse has won more	Young girl, brought in father Girl seems to have used it before Q1: Ok Google, what's 9 plus 10? Q2: How old is Phar Lap? Q3: How did he become a famous horse? Q4: Man: Why is he special? Q5: Girl: Tell me a fun fact Q6: Man: Has any horse won more races than Phar Lap?	Girl seemed into it
7	1 min 20 sec (80 sec)	Repeated the same answer several times for questions it didn't quite understand	Q1: How long ago did phar lap die? Q2: How old was he when he died Q3: How old was Phar Lap's	Smiled

			father?	
8	< 1 min (50 sec)	Were nervous until they heard Kate prompt it with examples	2 kids and adult Q1 Girl: How many races did Phar Lap win? Q2 Boy: Hey google tell me a joke	
9	Just under 3 min (170 sec)	Had to repeat Q1 Didn't know favorite food Kid poked it and turned it off	4 children, 1 kid left to bring back another so total of 5 at that time Q1: How many races has Phar Lap won Q2: How old is Phar Lap? Q3: how tall is he Q4: How he die? Q5: what was the fastest speed that Phar Lap had run? Q6: Who was his owner? Q7: Who was Phar Lap's jockey? Q8: What was Phar Lap's favorite food?	1 kid left after q1 2nd kid left after q2 Kids were engaged The 2 kids who left brought back a bunch more "You confused it and it DIED!!!" They said they liked it when Kate asked them

Day 3, Session 1/2

Date: 4/11 11:00 am - 12:00 pm Observer initials: JL & OF

#	Duration	Difficulties	Notes (size of group)	Reaction to Answer
1	1 min (60 sec)	Difficulty picking up on/understanding how many times he won (just fixed it. It should work now with the phrasing she used)	1 woman (MV staff) Q1: How old Q2: How tall (I missed the third question) Q4: How many times did phar lap win	None outwardly
2	1 min 5 sec (65 sec)	Couldn't answer first 2 bc not programmed for those wordings	Guy from IT 1: How many hands is Phar Lap? 2: What is Phar Lap's dimensions? 3: How many wins 4: How many times did he race in Australia	Didn't seem the most impressed during interaction (he did stay to watch / talk more about it though)

3	50 sec	Couldn't answer that	Woman (staff) Q1: Why does he have 2 different colored furs?	Laughed, clarified that it's not programmed to answer that
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Day 3, Session 2/2

Date: 4/11 2:00 pm - 3:00 pm Observer initials: JL & OF

#	Duration	Difficulties	Notes (size of group)	Reaction to Answer
1	35 sec + 40 sec + 12 sec (87 sec)		4 kids, 2 adults (2 kids came back after) Q1: Who was Phar Lap Q2 Who was phar lap (might've been repeating) Q3 what is the weather Q4 how tall is he Q5 where is his heart Q6 how tall is he (again) Q7 what does his name mean Q8 tell me a fun fact Q9 Who was his jockey Q10 why was he special	After q3 all wandered off except one kid, who later went and got them back Read off post its for more after Q4
2	30 sec	Didn't have answer for feet	Boy (with mom and little bro) Q1: How old was Phar Lap Q2: How tall Q3: How tall in feet	
3	18 sec	Didn't hear the kid	2 adults supervising one kid Q1: how old was he when he died	left
4	36 sec		4 young children + 2 adults Q1: How tall was he?	Smiled, then left
5	2 min (120 sec)	Didn't hear, exited app Had to repeat question several times (Kept talking over each other and then pausing so it didn't hear them)	2 adults + 3 kids Q1: How old was phar lap Q2: Where is phar lap's heart Q3 ?	Kid initially wandered off but came back after adult redirection Liked it but had to really try
6	2 min 25 sec (145 sec)	Had to repeat q7 It thought for Q5 he asked for jockey	Man (staff) Q1: When was Phar Lap born? Q2: How old was he when he died? Q3: How many hands tall is he? Q4: Tell me a fun fact	Noticeably tried to think of questions, looked at sticky notes after Q3 Stayed to watch next group's interactions and

			<p>Q5: Who was his strapper? (Answer is Tommy Woodcock)</p> <p>Q6: ?</p> <p>Q7:</p> <p>Q8: How many times did __</p>	chat more with team members
7	1 min 20 sec (80 sec)	Had to repeat a question	<p>Woman, 4 kids</p> <p>Q1: How did phar lap die?</p> <p>Q2 How many races did phar lap win</p> <p>Q3 how many races did he win (different person, louder)</p> <p>Q4:</p>	
8	1 min 15 sec (75 sec)	Had to repeat question 3 Didn't get Question 4	<p>Man with 2 kids. He instructed kids to ask the questions</p> <p>Q1: How many races has Phar Lap won?</p> <p>Q2: What does his name mean?</p> <p>Q3: How old was Phar Lap?</p> <p>Q4: What was Phar Lap's __</p> <p>Q5 man, later: Where is Phar Lap's heart?</p>	<p>Kids kept asking questions while adult chatted with team on the side</p> <p>Kids left after it couldn't answer Q4</p> <p>Man asked if it could/would become like talking to Phar Lap himself</p> <p>Very into learning about our project/giving suggestions</p>
9	16 sec		<p>Solo kid</p> <p>Q1: How many cups did Phar Lap win?</p>	Left right after it responded
10	20 sec		<p>1 adult + 2 teen kids (only one teen stayed)</p> <p>Q1: (immature question, recorded on spreadsheet)</p>	Said bye to it, it said "have a good day," he said "you too" and did a thumbs up at the device
11	90 sec	I think it answered the wrong Q1 Had to repeat Q5 For q6, it answered "i'm real, are you?"	<p>3 adults (Staff)</p> <p>Q1: Why is Phar Lap special?</p> <p>Q2: What are (taxidermied) Phar Lap's veins made of? (Note: answer is electrical cords)</p> <p>Q3: When did Phar Lap die?</p> <p>Q4: Why is Phar Lap.. a legend?</p> <p>Q5: What does Phar Lap mean?</p> <p>Q6: is Phar Lap real?</p>	Laughed at the response about being real

Day 5, Session 1/2

Date: 4/13 11:00 am - 11:35 am Observer initials: JL

#	Duration	Difficulties	Notes (size of group)	Reaction to Answer
1	2 min 4 sec (124 sec)	Device didn't understand question It then said, sorry, I can't help (?) so had to restart	2 kids, with adult (who was guiding them) Q1: How many races has Phar Lap won? (repeated many times) Q2: Hey Google, who was Phar Lap? Q3: How tall was he?	
2	1 min 15 sec (75 sec)	Device answered wrong question	4 kids Q1: How tall was he? Q2: How heavy was he? Q3: What was his weight? Q4: What was the weight of Phar Lap?	Smiled Looked impressed after answer 1 Laughed when it kept answering anything but the weight question

Day 5, Session 2/2

Date: 4/13 1:25 pm - 3:25 pm Observer initials: JL

#	Duration	Difficulties	Notes (size of group)	Reaction to Answer
1	43 sec		Woman w 3 kids Q1 girl: When did Phar Lap win his first race Q2 boy: When did Phar Lap die?	Didn't really react
2	46 sec	Q4 answered how he died instead of when	Girl, little brother came, then after a few min he came back to ask another Q Q1: How did Phar Lap die? Q2 boy:? Q3 girl: Who were Phar Lap's parents? Q4: What day did he die?	"Cool," ran away to get little brother, kept going and coming back to ask other kid what to ask next
3	52 sec	Had to repeat Q1 bc didn't hear/understand Didn't pick up on Q2 bc too quietly said Had to repeat Q3	Man and 3 kids Q1: how tall is he? Q2: How many wins did he have? Q3: Why is he special?	
4	58 sec + 2 min 12 sec (190 sec)	Q7: i think it said like two words but not helpful stuff	Boy and girl, boy came back after 1: How did Phar Lap die?	Seemed interested. After response to Q7 he made a raspberry noise and ran

		<p>Q8: Didn't answer first time. Tried repeating although it gave wrong answer second time</p> <p>Q9: didn't really answer</p>	<p>2: Where is his heart? 3: Why is he so special? 4: What does his name mean? 5: Tell me a fun fact 6: How did he die? 7: Why would the Americans poison Phar Lap? 8: What is the title of the movie about Phar Lap? 9: Is Phar Lap taller than the average horse? 10: How tall is Phar Lap? 11: How tall is a regular horse? 12: How many races did Phar Lap win? 13: Where did Phar Lap come from?</p>	<p>away</p> <p>Q8: he was like "I can't do it"</p> <p>Walking back and forth relaying info to family lmao</p> <p>(after it couldn't answer 11) "This is really bumming me out" (but still happy overall)</p>
5	1 min 4 sec (64 sec)	Q2: it did respond that there are any theories etc	<p>Woman and little boy</p> <p>1: How did he die? Statement not q?: I read in some magazines he died because of poisoning</p>	Woman was amused
6	33 sec	Answered wrong question for Q1 Didn't answer Q2	<p>Man</p> <p>1: Is Phar Lap the fastest horse of all time? 2: Is he the best horse of all time?</p>	Laughed at it answering a slightly off question
7	40 sec	Answered wrong Q2 (it said what his name meant)	<p>Man, staff</p> <p>Q1: Tell me a fun fact Q2: What was the name of Phar Lap's jockey?</p>	Smiled
8	1 min 33 sec (93 sec)	Answered Q3 incorrectly	<p>Family of 2 adults and 2 kids</p> <p>Q1: How many races did he win in Australia? Q2: In what city in America did he die? Q3: Boy, then woman - What type of poison did Phar Lap die from? Q4 other boy: unintelligible</p>	Woman said, that's about it after it asked what else
9	1 min 13 sec		<p>2 boys and adult woman</p> <p>Q1: Where was his heart? Q2: How tall is Q3: Was he murdered Q4: Do you know his first ____ Q5: Jon Hamm's phone number? Q6: Alright, Tom Hiddleston's</p>	

			phone number?	
10	1 min 17 sec (77 sec)	Had to repeat Q5	Woman maybe late 20s early 30s Q1: What is Phar Lap? Q2: What races did he win? Q3: How did he die? Q4: How do you think he died? Q5: Where was he born?	Seemed amused, said "interesting" after Q4 Said "gotcha" after answer to Q5
11	45 sec		2 boys Q1: How did Phar Lap die? Q2: Who is Phar Lap? Q3: How old was Phar Lap when he died? Q4: something about name?	
12	2 min 21 sec (141 sec)	Had hard time hearing him Exited app Answered the wrong Q2, twice Didn't hear third or fourth time Google said something went wrong, try again in a few seconds Asked Q1 again, last time it answered with favorite food i think	Little boy and woman Q1: What was he like? Q2: How tall is he?	
13	1 min 8 sec (68 sec)	Had to repeat question	Man Q1: Percentage of races that he won? Q2: How many races he placed in?	Laughed because it delayed so much in answering, but didn't seem that entranced since it couldn't answer specifically what he wanted

Reactions Data

		Reactions of each Interaction				
Interaction # by Day	Overall Interaction #	Enjoyment	Impressed	Social	Unimpressed	No Distinct Reaction
Day 1	1					x
2	2					x
3	3	x				
4	4					x
5	5		x			
6	6					x
7	7					x
Day 2	8			x		
2	9					x
3	10	x				
4	11	x		x		
5	12					x
6	13	x		x		
7	14	x				
8	15					x
9	16	x		x		
Day 3 session 1/2	17					x
2	18				x	
3	19	x				
Day 3 Session 2/2	20			x		
2	21					x
3	22					x
4	23	x				
5	24	x		x		
6	25		x			
7	26					x
8	27					x
9	28					x
10	29	x				
11	30			x		

Day 5 Session 1/2	31			x		
2	32	x	x	x		
Day 5 Session 2/2	33					x
2	34			x		
3	35					x
4	36	x		x		
5	37	x				
6	38	x				
7	39	x				
8	40	x		x		
9	41	x				
10	42	x	x			
11	43					x
12	44					x
13	45	x				

Difficulties Summary

Difficulty Code	Number of Questions	Percentage of Questions
Couldn't hear/understand	26	19.50%
Couldn't answer (question not programmed)	12	9.00%
Answered wrong question	14	10.50%
App exited	6	4.50%
Other	1	0.80%
None	74	55.60%

Additional Quantitative Data

	Duration of Engagement (s)	Group Size	# of Questions
Day 1 (4/9)	60	3	1
	30	1	1
	153	4	2
	5	1	0
	57	1	1
	58	6	2
	79	3	4
Day 2 (4/10)	120	1	4
	30	1	1
	60	2	1
	180	2	5
	120	2	0
	160	2	8
	80	1	3
	50	3	2
	170	5	8
Day 3 (4/11)	60	1	4
	65	1	4
	50	1	1
	87	6	10
	30	3	3
	18	3	1
	36	6	1
	120	5	3
	145	1	8

	80	5	4
	75	3	5
	16	1	1
	20	3	1
	90	3	6
Day 5 (4/13)	124	3	3
	75	4	4
	43	4	2
	46	2	4
	52	4	3
	190	2	13
	64	2	1
	33	1	2
	40	1	2
	93	4	4
	73	3	6
	77	1	5
	45	2	4
	141	2	2
	68	1	2

Appendix H. Focus Group Protocol

Intro

Hello, we are a group of students from Worcester Polytechnic Institute in the USA working on creating a more interactive experience in the museum. Today we'd like you to try out the prototypes we have so far.

Part I: Phar Lap

Our first prototype is a question & answer app for the Google Home that answers questions about Phar Lap. The device would sit in the Phar Lap exhibit and museum visitors could approach it and ask their questions.

After we start it up, we encourage you to ask any question about Phar Lap. We'll ask you some questions after you're done.

What did you like about the app?

Would you use this if it was in a museum?

What would stop you from using it?

Who would you use the app with, if anyone?

What do you think the benefits of it would be?

What would you improve about the app?

Part II: Trivia

Our second prototype is a trivia game that asks a few questions with multiple choice answers regarding different objects in the museum. The game is intended to be more fun than a simple question and answer app.

After we start it up, we encourage you to play along. We'll ask you some questions after you're done.

What did you like about the app?

Would you use this outside a museum?

What would stop you from using it?

Who would you use the app with, if anyone?

What do you think the benefits of it would be?

What would you improve about the app?

Part III: App Concept

We are currently developing a concept for a smartphone app that would include voice-activated technology and integrate the two voice apps we demonstrated. We are considering the following features of the app:

- Buy tickets online
- Interactive map of the museum
- Customisable experience based on what visitors are looking to get out of their visit
- Voice-activated assistant to answer questions about exhibits and play games

Show the pictures of the app concept.

Do you think this would be beneficial to museum visitors? Why or why not?

What other features do you think may be useful?

Is this something that you would use in a museum?

Appendix I. Focus Group Observations

GROUP 1: 04/19/18 3:00 PM - 4:00 PM

All people in Digital Life team (some developers, content people, managers)

Part I: Phar Lap

Observations:

Asked about jockey

How much did he weigh?

How did Phar Lap die?

Who killed Phar Lap?

What does Phar Lap mean?

- Note: taking a long time to think about responses. Weak connection?

How many races did Phar Lap win?

Where is Phar Lap's skeleton?

Where is Phar Lap's remains?

App exited after not understanding 3 times

Is there a way to get it to say something before exiting

Perhaps it's still listening when people chat after asking their question (can't really avoid this noise)

Comments:

Knowing the questions that people ask (e.g. by reading the transcripts) could help identify the gaps

What did you like about the app?

Novelty (all of them said this in unison)

Crazy Phar Lap fans will love it ("topic nerds")

Would you use this if it was in a museum?

Sure!

Yeah

Some people thinking about it

May not be a meaningful interaction, but it's a fun one

Rather than them being in a fixed location, it's almost one you want to carry around with you so you can ask questions as you go through the exhibits. Even if you just want clarification or a definition.

But that's what Brooklyn (Art) museum did, and they couldn't build a big enough range of questions to satisfy.

If it doesn't know, could pass it onto people

Overall yes, but with many comments

What would stop you from using it?

Class of school children

Too noisy (a few)

Embarrassment - sometimes galleries feel like hushed spaces

If it got the answer wrong/couldn't answer first question, I'd probably walk away like, this is stupid - so first question is important

Idea: add a leading question to help guarantee

Could safely assume many people wouldn't bother to read exhibit labels, so could use content that's on those labels too

Who would you use the app with, if anyone?

Younger kids

Teenagers would be too cool to talk to it, possibly

They'd ask stupid stuff/ try to break it

Really, if we know kids are gonna ask stupid stuff, put answers in (e.g. his farts probably smelled like digested hay)

Think of what drunk 20-year olds at nocturnal would ask

In novel experiences in a gallery: groups of diff visitors will just form

We do sometimes have museum volunteers who have stuff to say about Phar Lap / different exhibits ("touch trolleys")

What do you think the benefits of it would be?

Perhaps actually a different way of delivering information to people who don't read the labels or watch the videos - so, people who just want to get in/out quickly could learn something

People who are more audio-style learners

There is potential opportunity to do a deeper dive of info than what is on labels (e.g. people who are just interested in the taxidermy, tell them that the veins are wire, etc)

Focus in on what your interest is (e.g. People are fascinated by the taxidermy)

What would you improve about the app?

Response time (better wifi, experience should be quicker)

Part II: Trivia

Random observations:

Nobody seemed to know the question about the core of the earth

Had to repeat her answer (was pretty quiet the first time)

People laughing

They love the day Phar Lap died as an option for Black Saturday

Laughing at its built-in comments

Decided to play again

Perhaps edit / verify the "when did the first shipload of immigrants arrive" question

Laughing at the music

Nobody knows the answer about how old the first animal fossils in Aus are

Social interaction fostering

Heard a correct answer when the group was just discussing

You can say "the first one" etc. and it works

What did you like about the app?

Everyone likes a quiz

Brings out the competitiveness in people

I liked the encouragement

Lots of personality (lol thanks @ template)

It seemed like it was suited to a quiz quite well

I like that you could say "the first one" or the actual answer

Would you use this outside a museum?

If I actually had one, yeah, sure maybe
Would be good for a sort of party
Even with just the 4 of us, if it missed a word, it wouldn't hear it
But it does repeat it

What would stop you from using it?

If the questions were too hard
Having to repeat ourselves was probably the most frustrating thing
Could be the hardware as well (yeah)

Who would you use the app with, if anyone?

Anyone
Friends, family
Family friends
Maybe work colleagues

What do you think the benefits of it would be?

Learning ?
Yeah
It's really just got the entertainment and learning. And it's probably something you've interact with more than the "give me a fact" thing

What would you improve about the app?

Would be good to have instruction at the beginning about how you could answer it
Would be good to have it respond to "a, b, c" etc.
Can't sit and have a discussion about answer without the device hearing and interpreting it as an answer. If you were doing it as a group, you'd want to talk about it
It was really good though
Hints could be helpful
Levels of difficulty--would affect engagement (or lack thereof) if system is too easy or too hard
Music or some sort of signal to alert you regarding time
Topics

In comparison to Phar Lap one, would you be more inclined to use this?

Yeah, more fun because it's a bit of a back and forth
It was giving us answers as well
Maybe Phar Lap app could prompt you, like "do you want to know more about this thing you asked about"
Could do it without needing the prompting too
I think in the context of the visit, asking questions happens out of function b/c you need something in the moment, but I'm not going to naturally just sit there and ask a string of questions. Whereas this is an entertaining experience so I'd sit and do it. I think this type of thing is embedded more in our way of doing things. It's just unnatural to use purely as question and answer
Maybe put some of these in the cafe if that could be done without them getting stolen - that could be potential engagement.
That would have the group aspect as well. Whereas at home, when I use it, it's more of a functional thing.

Part III: App Concept

Do you think this would be beneficial to museum visitors? Why or why not?

I think that having the voice thing on the app - people could play at the cafe, so then we wouldn't have to provide that

Yeah that's what I was thinking secretly

These are the kinds of things people really want in a museum

I think until recently, we didn't have good maps, so we don't have a detailed map drawn rn (might've changed)

What other features do you think may be useful?

More navigation (e.g. toilets, lift)?

Multiple languages support is really the only thing that's missing

Object browser perhaps

Customization questions - people may not know what they want when asked

Give a selection of the sort of things the museum has

Do you think having to download an app would be a barrier for some?

Yes

If I could just log into the wifi and it asks if I want to download it, that would be nice

People are unlikely to download it beforehand

You would have to make it easy

Would need to promote it - look at how you promote it for before the visit, and during

Is this something that you would use at home?

No, not at home

Maybe to buy tickets before or to look up something you saw afterwards

Would not use as a hub to access trivia etc.

If there were a post-activity thing, maybe

Our experience is that people don't really go back to look at their visit

Do you think that VAT is something that should still be explored for the museum?

Yes

How accessible is it to people with disabilities?

If vision-impaired, it's an enhancement, but you need to somehow indicate that it is there (e.g. a sensor)

You need more of a customizable interface, also needs to be running/active

It would be something to do further experimentation with to see how people interact with it

GROUP 2 04/20/18 9:00 AM - 10:00 AM

People who develop exhibitions (2 people, increased to 3 after trivia app)

Part I: Phar Lap

Observations:

What is Phar Lap?

Who was Phar Lap's jockey? (had to repeat)

How did Phar Lap die?

Why is Phar Lap special? (had to repeat)

Something went wrong.

Comments:

First time I've talked to one of those. It's very weird

What did you like about the app?

It seemed to know its stuff, but I was trying to ask questions that might be a bit different.

Would you use this if it was in a museum?

It could be great if there wasn't anyone to ask and I had a burning question and wanted quick answer. I'd imagine when these get bigger and there's one in everyone's house, it would be quicker/easier

If exhibition was crowded, I might be a bit embarrassed to ask a question out loud. If there were buttons to press to ask the question I'd be more inclined to do that.

What would stop you from using it?

If it was glitchy, I'd give up pretty quickly. The payoff would have to be pretty high to get over the feeling foolish.

Who would you use the app with, if anyone?

Kids, if they were there, and possibly friends as well

I'd use it with either a big group or nobody.

What do you think the benefits of it would be?

It is interactive and personalizable.

Good for people who have issues reading.

Assuming it can, you can follow a thread and go down a hole asking questions

What would you improve about the app?

Starting it up seemed hard, so make it less glitchy

The answers seemed very short. E.g. What was Phar Lap? A racehorse. But you do need to strike a balance so people don't get bored.

Obviously there needs to be some encouraging signage to ask a question.

Have a privacy booth, although it might hamper the social gathering aspect

Part II: Trivia

Observations:

Had to repeat first answer / app didn't hear

Thought the answer was wrong but it was actually right

(heard them discussing possible answers and interpreted it as a wrong answer, although the right one was said in that)

What did you like about the app?

Not much. The setup is a bit weird - the kind of regal element is weird, would fit more if it were in a royalty exhibit or something

Not a very Australian or Victorian context, should have a more relevant context

Would you use this outside a museum?

No.

What would stop you from using it?

Personally it seems like it's aimed at kids, personal preference against quizzes

I'm probably outside the demographic of people that are into quizzes. I always find them weird in the museum context, but some people are really into them.

Maybe if it were a small area in a museum it could make more sense because it's seeing if you learned things.

Who would you use the app with, if anyone?

Kids would enjoy it

Would enjoy it more if there were a "seek and find" element rather than just a summary at the end of the museum experience

What do you think the benefits of it would be?

If it were a more rewarding experience, it would have intrinsic benefits because it would be a fun thing to do.

What would you improve about the app?

Maybe kids could need to go find things to get the answers

Less delay in response time. It's not as responsive/friendly as a person, it's clearly a robot. Although different generations would probably respond differently.

Maybe not the right format for if you wanted to go find things to answer questions bc you can't take it around. If there were multiple placed around the museum and it knew what things you visited, that could be fun.

"May as well be doing it on a piece of paper"

Would it be possible for questions/types to change based on what option you select? That could be a way to make it less confronting.

There's no engagement for learning, it really is a test

I personally think that the just asking questions is better for something that sits in the exhibit.

Part III: App Concept

Do you think this would be beneficial to museum visitors? Why or why not?

The ability to ask natural language questions to an app is really nice

I think the customizing feature is really nice. That could be useful to visitors to make sure they see the highlights they want. However, I am skeptical of an app that's just for the museum because that was hot 5-6 years ago. This could be a web app, but a downloadable, standalone app would not have huge takeup.

Unless it were aimed at kids where they could collect things over time. Even then it wouldn't be huge.

I agree that the customization aspect would be great. A lot of people say they had really good experiences when they had a tour guide all to themselves so anything that could approximate that experience would be cool.

What other features do you think may be useful?

Some way where people (esp. kids) would be able to visit exhibits to collect any sort of rewarding prize

Do you think downloading an app might be a barrier for some?

Many visitors would be very uncomfortable doing it because they don't feel tech-savvy enough, but once it is there and they don't have to fiddle with it...We do have a fleet of iPod touches so that could be a way for visitors to overcome that hurdle and just borrow it from the desk for free.

Other:

Could use it to gather data about how visitors are feeling in different exhibits - e.g. it asks you how are you feeling now

GROUP 3 04/20/18 10:00 AM - 11:00 AM

Marketing People (2) (Family and Adults, Tourism and Education)

Part I: Phar Lap

Observations:

Who was Phar Lap's jockey

How old was Phar Lap when it died?

How did Phar Lap die?

Why would the Americans poison Phar Lap? (could put this in and say he was such a great horse / who wouldn't be jealous..but def not condoning it)

Where is Phar Lap now? (could put this in...say parts of him are in diff places, but he is always in our hearts)

Where is the body of Phar Lap?

What did you like about the app?

IT was actually more perceptive to my questions than I thought it would be

Interactive, I thought it was great. Better than Siri

I guess we didn't ask the most broad/nuanced questions but these would be everyday questions anyway, so was good

Would you use this if it was in a museum?

Probably

What would stop you from using it?

If it felt a bit robotic or just not native, so if it were just Wikipedia speaking out at me. But yeah I liked how the voice was sort of customized to be an Australian accent.

If you have a lot of people around talking, that could probably be tricky.

Who would you use the app with, if anyone?

It depends on questions and context I suppose. I think not personally, but for education / kids could work.

I think it'd be more with a solo visitor or a large group where people split up.

What do you think the benefits of it would be?

Education--kids would take a fair amount away from it if they didn't all shout over it

Interactivity

It's like asking a curator/expert without one being present

Could be in discovery center

What would you improve about the app?

I foresee it as an avatar (hologram perhaps) of a researcher or something, or maybe of Phar Lap. I would want it to be more humanized rather than it being me asking the internet bc I have my phone, I can do that myself. It could also be branded to the museum and the visitor.

Part II: Trivia

Observations:

Asked it to repeat the question (and it did)

They tried answering "b" but it didn't work

Didn't know what "displayed vessels" was - could clarify that

After getting second answer wrong - "this is depressing" lol
Laughed at the built in comments
Repeated question when they didn't ask it to
Seemed to really enjoy it
"This is pretty cool"

What did you like about the app?

It's fun, it's engaging, it's cool
It did have personality
I can see people going in and doing it

Would you use this outside a museum?

Probably not, and I probably wouldn't use it around people because you don't want to look bad if you can't get any answers right. But it is cool

What would stop you from using it?

I wouldn't use it as a recreational activity.
I'm not into it, but I know people who love it.

Who would you use the app with, if anyone?

With friends yes, but I wouldn't enjoy it if strangers were around me.
It'd have to be a trivia night, but then how would you score it
Doesn't fit in with our age group I think, the way we interact

What do you think the benefits of it would be?

If not prizes or something, it would be another display for interactivity and help us move towards more tech

What would you improve about the app?

Maybe have a pop-up spot just before you leave the museum
Get a prize if you get everything right
Emails ? (I think they might mean like if it emails you a prize/certificate)
It had personality, but the voice was very mechanic/robotic which was jarring and a bit monotonous, but if it had a visual aid/avatar that would be super cool

Part III: App Concept

Do you think this would be beneficial to museum visitors? Why or why not?

Yeah it would be good to have an app.
Geolocation-based would be a great feature

What other features do you think may be useful?

The key is to keep it short/simple
Scanning mechanism to scan a code on an item, connect it to museum archives to get more info would be cool

Do you think downloading an app might be a barrier for some?

Yeah, I guess so, but also no. I have downloaded apps, and also not done that because of storage space, but it's valuable to have. Mona has an app that you download, which is interactive and then you don't have to go give back any technology which is nice. It being optional is good

Is this something that you would use in a museum?

Yes

Is this something you would use at home?

You'd have to market it so people know, so you'd have to put money/effort into that. Would also have to figure out what the purpose of that would be. I don't think someone would just be hanging out on the museum app.

GROUP 4 04/20/18 11:00 AM - 12:00 PM

Programs and Events for Public (2 people)

- Touch trolleys
- Tour guide stuff
- General programs

Part I: Phar Lap

Observations:

Who was Phar Lap's trainer? (answered where his heart was..also change answer bc the anatomy institute is now being taken over by Museum of Australia)

How heavy was his heart?

How did Phar Lap die? (we should mention the real cause after the Americans bit)

Tell me about arsenic (could put that in)

Shut off because couldn't answer that repeated arsenic question 3 times

Comments:

Someone might challenge the information, so try to prepare for that

Doesn't seem that it offers information that isn't already accessible

Would be good to make it more conversational and have the ability to remember previous questions

Brooklyn museum: people sending answers to your questions - I didn't particularly want to use it when I was there.

I'm wondering how much info people retain talking to a Google Home versus reading it.

This is a bit like an interactive audio guide. This is a more open version

What did you like about the app?

It is already there, don't need to download something to your device

When it works, it works - if you ask the right question and it answers you, it's cute.

Would you use this if it was in a museum?

No.

I might for fun. I'd want to have a play and see what's going to happen. I wouldn't use it to elicit information unless I really wasn't finding what I wanted to know.

What would stop you from using it?

Talking aloud into the air if I were by myself. Adults are the ones looking for more, but I don't know if they would ask the question.

What do you think the benefits of it would be?

Good for accessibility--people who have trouble reading the text panels. Would let those people feel like it was provided for them.

What would you improve about the app?

It could prompt you to ask things - e.g. I can tell you about ____, are you interested? I can tell you about these things, tell me which one you want to learn more about. People don't know what information is available.

Handle sarcasm

Multiple language support

Could provide music on prompt, etc. to provide an emotional experience in addition to just Q&A

Part II: Trivia

Observations:

Entertained by opening music

Liked the built in comments

It glitched right after they answered the 4th question??

Might need more context for the language family question

What did you like about the app?

That was more fun for me than the Q&A because it gave me an opportunity to think whether I'm smart or not, which is the whole idea with playing trivia. Also playing a game for fun but learning while playing the game.

Would you use this outside a museum?

Maybe, if there were general Q's about the history of Melbourne b/c the trivial pursuit has started to be more about certain cities and people seem to really like that. Trivia is big in Melbourne. Also, in the past I've created Q's where people need to go find the answers in the museum, so it gives commercial groups something to do between drinking champagne and eating canapes. That gives incentive for a group task too because is not a written piece of paper, which is old school.

It was fun, I enjoy the challenge of it, but I also don't necessarily like trivia because I don't like being wrong. I found it a bit contextless and was sort of trying to guess what the context was, such as the giant pine tree.

What would stop you from using it?

Doesn't personally like trivia

What would you improve about the app?

Introduce some sort of context so some of the questions make more sense (e.g. the pine and the languages in Victoria...they only knew the pine because of extensive museum knowledge and experience)

Encourage/force people to look around the museum, be present with the things there

Part III: App Concept

Comments:

I think this is very thoughtful regarding what a visitor needs and wants

I like how there are prompts on the page to give people an idea of what is available

Do you think this would be beneficial to museum visitors? Why or why not?

Buying tickets beforehand good

I think it would be useful, it's all easily set out, I don't know why we don't already do things like this

Yeah I don't know either. Lately people have focused more on design than on the possibility of the actual content offered

What other features do you think may be useful?

Map could include a sensory map for areas of high/low sensory stimulation

In addition to just segments, can also use choices like science or history, or "mature art and architecture tour" or something.

- Older audiences say that nothing is offered to them

Simple walkthrough

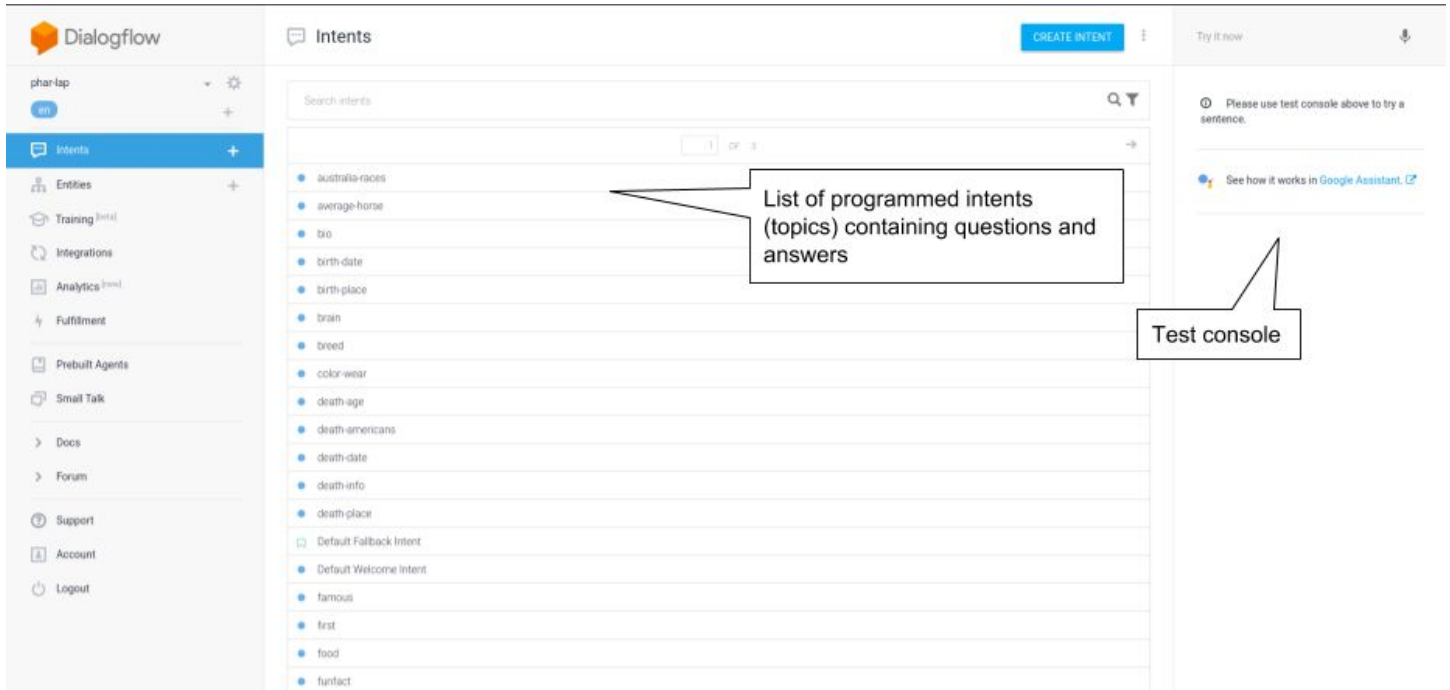
Web app would be good because often people don't want to download

Parking

Do you think downloading an app might be a barrier for some?

Yes

Appendix J. Dialogflow Console



Console home screen for Phar Lap agent.

Dialogflow

phar-lap

en

Intents

Entities

Training

Integrations

Analytics

Fulfillment

Prebuilt Agents

Small Talk

Docs

Forum

Support

Account

birth-date

SAVE

Try it now

Please use test console above to try a sentence.

See how it works in Google Assistant.

Training phrases

Search training phrases

☞ Add user expression

☞ Tell me what year Phar Lap was born.

☞ Tell me when Phar Lap lived.

☞ When did Phar Lap live?

☞ How long ago did Phar Lap live?

☞ How long ago was Phar Lap around?

☞ When is Phar Lap's birthday?

☞ When is his birthday?

☞ When was he born?

☞ When was Phar Lap born?

Programmed training phrases for the device to detect a user's question

Dialogflow

phar-lap

en

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SAVE

Try it now

Please use test console above to try a sentence.

See how it works in Google Assistant.

Action and parameters

Enter action name

REQUIRED	PARAMETER NAME	ENTITY	VALUE	IS LIST
<input type="checkbox"/>	Enter name	Enter entity	Enter value	<input type="checkbox"/>

+ New parameter

Responses

DEFAULT GOOGLE ASSISTANT

Text response

- Phar Lap was born on October 14, 1926. What else would you like to know?
- He was born on October 14, 1926. What else would you like to know?
- Enter a text response variant.

ADD RESPONSES

Set this intent as end of conversation

Programmed responses designed to match various styles of questions

Intent training phrases and responses.

Dialogflow

Small Talk

SAVE

Try it now

phar-lap

Intents

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Training [beta]

Integrations

Analytics [beta]

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Your agent can learn how to support small talk without any extra development. By default, it will respond with predefined phrases. Use the form below to customize responses to the most popular requests.

User: How are you?
Agent: Wonderful as always. Thanks for asking.

User: You're so sweet.
Agent: Thanks! The feeling is mutual.

Enable

Small Talk Customization Progress

About agent 65%

Courtesy 100%

Emotions 100%

QUESTION: Haha ha ha

ANSWER:

- 1 Laughter is good for the soul.
- 2 Enter a Answer variant

QUESTION: Wow!

ANSWER:

- 1 I know, right?
- 2 Same!
- 3 Enter a Answer variant

Custom responses to small talk prompts

Custom small talk.

Dialogflow

Analytics

Last 7 days

Try it now

phar-lap

Intents

Entities

Training [beta]

Integrations

Analytics [beta]

Fulfillment

Prebuilt Agents

Small Talk

Docs

Forum

Support

Intents

Intent	Sessions	Count	Exit %
Default Fallback Intent	4	13	30.77%
Default Welcome Intent	5	5	0%
death-info	4	4	0%
jockey	3	3	0%
death-americans	2	2	0%
bio	2	2	50%
heart-weight	1	1	0%
heart-location	1	1	0%
weight	1	1	0%

Intents called during session

Number of times intent was called

Percentage of times intent was called and caused exit

Dialogflow analytics.

Appendix K. Trivia Configuration

Question	Correct Answer	Incorrect Answer 1	Incorrect Answer 2	Follow Up
8 Which of the following is a monotreme?	Platypus	Kangaroo	Wombat	Monotremes are mammals that lay eggs
9 How many races did Phar Lap win?	37	51	25	Phar Lap was an incredible horse that w
10 How old was the whale on the main floor of the museum?	6	9	12	
11 How many items are in the museum collection?	17 million	10 million	3 million	
12 How many carats is the Argyle Pink Jubilee?	8	6	12	The Argyle Pink Diamond is the largest s
13 How much did the biggest gold nugget weigh?	68 kilograms	100 kilograms	80 kilograms	The nugget was found during the Victor
14 How many people does the largest vessel on display at the museum hold?	20	30	25	
15 Why did the Tasmanian Tiger go extinct?	Hunting	Malnutrition	Invasive species	Tasmanian Tigers were hunted to extinc
16 The Royal Exhibition Building is the oldest of its kind still holding exhibitions.	TRUE	FALSE		
17 What is the Burjil usually depicted as?	A wedge-tailed eagle	A parrot	A quail hawk	
18 Which of the following Australian spiders is not poisonous?	Huntsman	Redback	Funnel Web	
19 True or false: the two pythons on display were obtained from someone who owned them as exotic pets but could no longer take care of them.	FALSE	TRUE		A circus donated them after they died.
20 Who was the bearded stranger that tried to buy land from the Aboriginals?	John Batman	William Buckley	Malcom Tumbull	
21 When did the first shipload of immigrants arrive?	1839	1850	1812	
22 What was the population of Melbourne in 1850	20,500	125,000	4.3 million	
23 Who laid out the Melbourne street grid?	Robert Hoddle	Richard Bourke	John Batman	
24 What animals are on the Melbourne coat of arms?	Sheep, bull, and whale	Kangaroo and emu	Platypus and echidna	
25 Who named Melbourne?	Sir Richard Bourke	Lord Melbourne	John Batman	
26 What was Melbourne's first newspaper called?	The Melbourne Advertiser	The Melbourne Times	The Age	
27 When did the Gold Rush begin?	1851	1860	1839	
28 When were the National Museum of Victoria, Public Library, and University of Melbourne founded?	1854	1860	1858	
29 What was the giant gold nugget called?	Welcome Nugget	The Nugget of Truth	Heaven's Light	
30 What was Cobb & Co?	A line of coaches	A mail service	A shoe maker	
31 How many Aboriginal languages were there before contact?	250	120	11	
32 Which was NOT a use of a boomerang?	Clearing	Sport	Hunting	
33 How many families of indigenous languages are there in Victoria?	11	15	25	
34 What animals was used to make cloaks?	Possum	Wombat	Koala	
35 What is the diameter of the Kauri Pine?	8 feet 6 inches 8 feet 6 8 foot 6 inches 8 foot 6	9 feet 9	5 feet 4 inches 5 feet 4 5.4	
36 What was Black Saturday?	Worst bushfire in history	Stock market crash	The day Phar Lap died	
37 What distinguishes the two groups of whales?	Their teeth	Their fins	Their diet	
38 Where was the earliest evidence for human occupation found?	Arnhem Land	Victoria	Perth	
39 What is the limestone of the Twelve Apostles made of?	Shells of marine organisms	Bones of animals	Granite	
40 Which of the following is an echinoderm?	Sea urchin	Echidna	Eucalyptus	An echinoderm has a calcium skeleton.

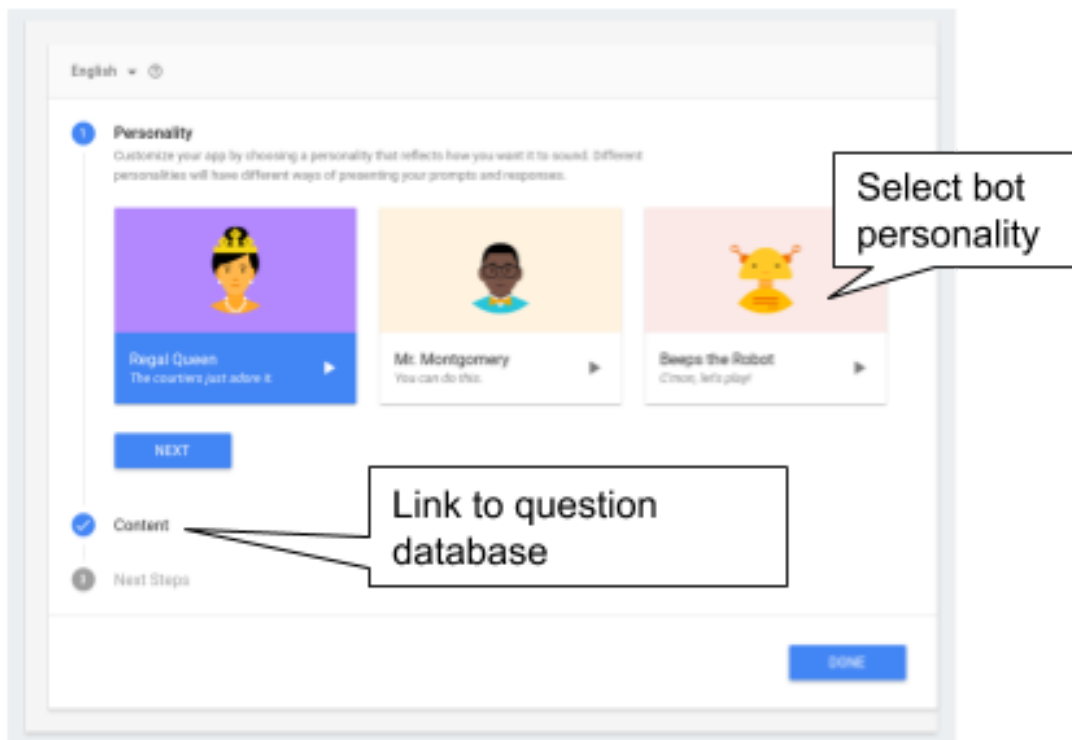
Questions and multiple choices for Museums Victoria Trivia.

Trivia Game Configuration

Customize your Trivia Game by adjusting the values below.

Key	Value
Title	Museums Victoria Trivia
QuestionsPerGame	4

Game configuration.



Custom settings for trivia bot.

Appendix L. Gold Rush Adventure Flowchart

