Griffith UNIVERSITY

Social Marketing @ Griffith

Redland CITY COUNCIL

Koala Awareness and VMS Campaigns 2019/2020: Supplementary Report

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Introduction

The aim of this study was to evaluate the effectiveness of two trials that were conducted in the Redlands regions in 2019/2020, namely the Koala Awareness Campaign, and the Variable Message Sign (VMS) campaign. In the 2019/2020 year Council continued to implement a series of koala-focussed advertisements that aimed to increase local residents' awareness and attitudes toward koalas in the community during the koala breeding season. This was the second year of advertising led by Council. In addition to the advertising program, VMSs were implemented in the Ormiston neighbourhood to remind residents to slow down and remain vigilant.

Social Marketing @ Griffith conducted two waves of face-to-face intercept surveys: first in October 2019 and follow up surveys in February and March 2020 to assess program effectiveness for the advertising and VMS. The objectives of this evaluation work were to evaluate the effectiveness of the Koala Awareness Campaign and the VMS campaign, by understanding:

1. Community's level of koala awareness pre and post campaign
2. Community's attitudes toward koalas pre and post campaign
3. Recall of both campaigns and an assessment of channel effectiveness

An overall report with all findings was submitted in April 2020, and the purpose of this supplementary report is to provide additional detail and findings. This supplementary report presents multi-group analysis comparing gender and age.

Method

Pre and post campaign surveys were administered to participants in person (see Appendix A). A community intercept survey was conducted in October 2019, following survey approval by the Redland City Council working group. A follow up survey was conducted in February/March 2020. Face to face intercept surveys involved going into community and intercepting people to gather information about behaviour, characteristics, or general views of Redland Coast residents. An important benefit of the intercept survey methodology is that it allows access to members of the target audience who are less likely to engage in online surveys.

Prior to going into field, locations to conduct the intercept survey were selected. The locations included public spaces such as train and bus stations (e.g., Redland Bay Marina Bus Interchange, Cleveland Bus Interchange), parks (e.g., Capalaba Regional Park, Raby Bay Foreshore Park), shopping centres (e.g., Victoria Point Shopping Centre, Cleveland Central Shopping Centre), and local markets (e.g., Cleveland Markets at Bloomfield Street) see Figures 1 and 2.

Figure 1: Pre Survey Locations

Train and bus stations:
- Redland Bay Marina Bus Interchange and Redland Bay
- Marina Ferry Wharf

Parks and regions:
- Victoria Point
- Capalaba (Capalaba Regional Park)
- Cleveland (Raby Bay Foreshore Park)
- Wellington Point

Events:
- Sunday: 7am to 1pm
  Cleveland Markets at Bloomfield St

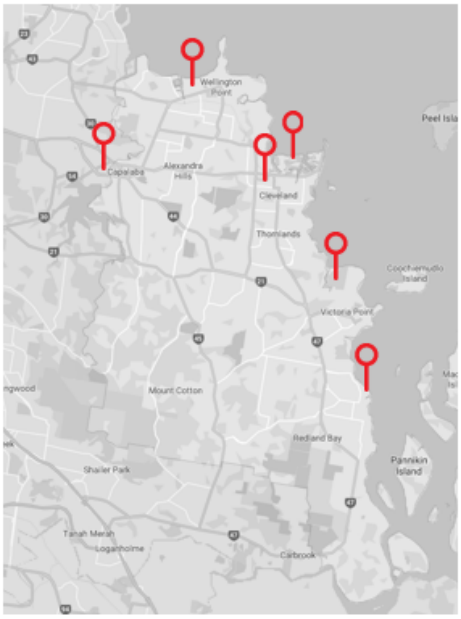


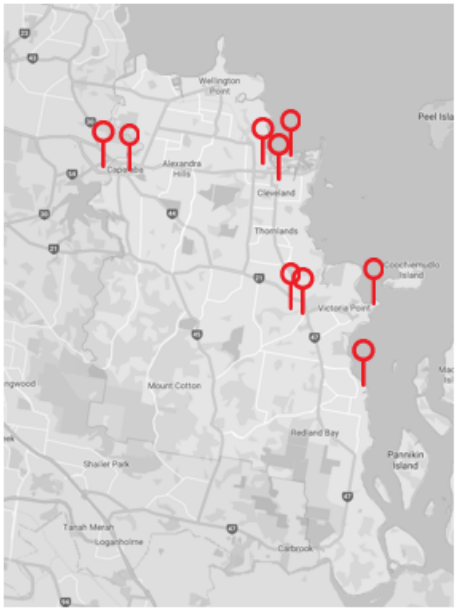
Figure 2: Pre Survey Locations

Bus stations:
- Victoria Point Jetty
- Cleveland Bus Interchange
- Redland Bay Marina Bus Station

Shopping centres:
- Victoria Point Shopping Centre
- Victoria Point Lakeside Shopping Centre
- Cleveland Central Shopping Centre

Parks and regions:
- Capalaba (Capalaba Regional Park)
- Cleveland (Raby Bay Harbour Park & Raby Bay Foreshore Park)

Online:
- Facebook targeted advertising



These locations were selected to capture a broad representation of the Redland Coast community, as well as optimise data collection. Griffith University ethical clearance and TransLink approvals were sought prior to field research. Data collection points slight differed between baseline and follow up due to logistic reasons (for example, there was no approval from Queensland Rail to use train stations to recruit participants in the post survey phase).

Data analyses were conducted to test demographics' differences, and results show there is no statistically significant difference between pre and post samples.

The baseline and follow up questionnaires consisted of the exact same questions, including koala awareness, knowledge of koala fatality, perceived ability to protect koala, and psychological factors that are associated with the intention to slow down at VMSs. To measure the effectiveness of the campaign, recall questions were also added to the post survey (see Appendix A for the questionnaire) in the follow up questionnaire, including unaided recall of campaigns, campaign locations, the content of the ads, and the ad channels.

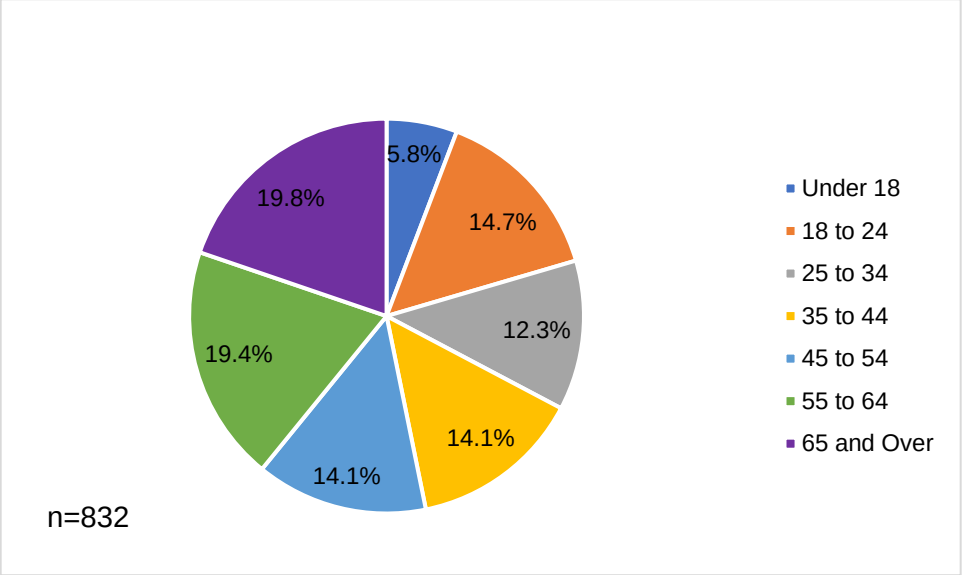
Data from paper surveys was entered into SPSS and data was cleaned prior to analysis. Coding was undertaken to identify themes for open ended questions. Additionally, data analysis was performed using descriptive statistics. Chi-square, t-tests and ANOVA tests were undertaken to examine gender and age group differences. Campaign effectiveness was evaluated using independent samples t-tests and descriptive statistics. Structural Equation Modelling was also conducted in order to identify any potential factors explaining knowledge change.

Results

Demographics

Respondents were asked a series of questions to provide a profile of the sample obtained in the survey. This section of the report presents the respondents' characteristics. Respondents were asked to indicate their gender. The sample was approximately evenly distributed with 57.2% female and 42.4% respondents were male. Data analysis of age demonstrated that participants belonged to different age groups, indicating the largest group (19.4%) belonged to 55 to 64 years old age group. More details of the distribution by age groups are included in Figure 1 below.

Figure 1. Age distribution



Respondents were also asked to report their postcode. Table 1 below shows the frequency of postcodes reported by survey respondents.

Table 1. Respondent's postcodes

Postcodes	Suburb(s)	N=1003
4157	Capalaba, Sheldon	126
4158	Thorneside	26
4159	Birkdale	91
4160	Ormiston, Wellington Point	139
4161	Alexandra Hills	83
4163	Cleveland	170

4164	Raby Bay	116
4165	Thornlands	156
4183	Mount Cotton, Point Talburpin, Redland Bay, Victoria Point	37
4184	Bay Islands (Karragarra, Lamb, Macleay, Russell, Coochiemudlo)	59

Recall – Koala Awareness Campaign

The recall rate by Redland residents that remember the 2019-2020 campaign was 68% in the 2019/2020 year. This is a significant increase from 2018 rates, which were 30%.

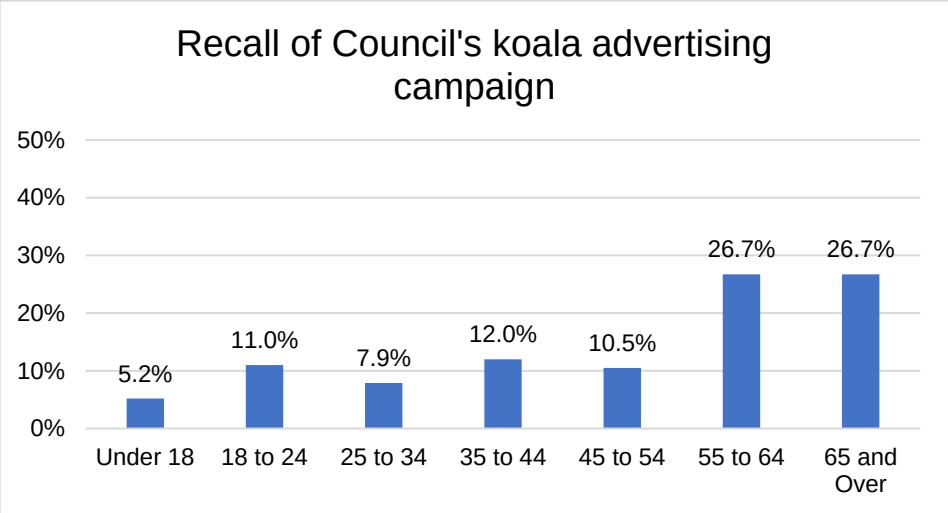
When asked what message they can recall after seeing the Council's campaign messages, there were 158 qualitative comments recorded in the survey. Thematic analysis indicated the most remembered theme was *bushfires* (n=22), followed by *driving carefully* (n=18), and *breeding season/moving around* (n=15). *Bachelor/bachelorette* (n=14) and *how to protect koalas* (n=10) were recalled the least.

In terms of the channels recalled by survey respondents in the post survey, *social media* was found to be the most effective promotional channel (n = 120), followed by *bus shelters* (n=71), *print* (n=66) and *billboards* (n=66). *Cinema ads* were recalled the least (n=32).

Approximately one-third (35%) of the respondents admitted the campaign message prompted them to behave differently, an increase from the 2018 campaign (23%). Prompted behaviors included driving carefully, being more aware, donating money, and taking steps to help with koala protection.

Analysis of the post survey results indicates that there was a significant difference between males and females' ability to recall seeing the koala advertising campaign ($p < 0.05$). Of the 189 males who responded 73.5% recalled seeing the campaign compared to 64.7% of the 224 female respondents. Those in the age groups '55- 64' and '65 and over' were significantly more likely to recall the koala advertising campaign than all other age groups ($p < 0.05$) see Figure 2.

Figure 2. Recall across different age groups



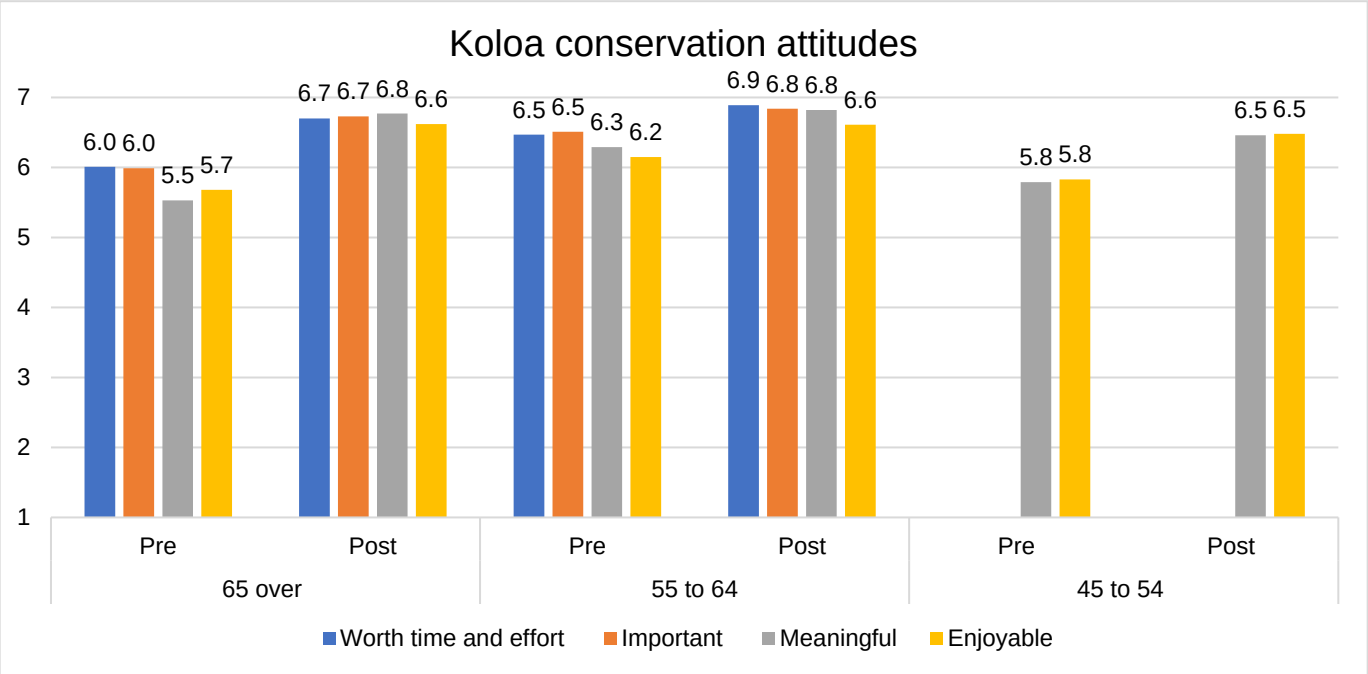
Koala Awareness and Attitudes

Respondents were asked a series of questions to understand their views towards koalas and koala protection. This section of the report presents views toward koalas.

Respondents were asked to indicate to what extent they agree that Redland is home to a significant koala population (strongly disagree is -3, and strongly agree is 3), and the respondents show significantly positive attitudes (Mean = 2.7). The majority (90%) of respondents believe that koala conservation is a shared responsibility between the city council and community. Perceived ability to protect koalas increased from 5.6 to 5.9 after the koala awareness campaign.

Respondents were asked to report whether they felt koala conservation is (a) worth time and effort, (b) important, (c) meaningful and (d) enjoyable (strongly disagree is -3, and strongly agree is 3). There was a significant increase from baseline (Mean = 6.4) to follow-up (Mean = 6.7), using the T-tests ($p < 0.05$). There were no significant differences between males and females. Likewise, attitudes towards koala conservation were high amongst all age groups. Groups '55-64' and '65 and over' significantly increased their attitudes towards conservation across all measures (worth time and effort, important, meaningful, enjoyable) ($p < 0.05$). Those aged 45 to 54 significantly increased between pre and post attitudes that conservation is meaningful and enjoyable ($p < 0.05$) see figure 3.

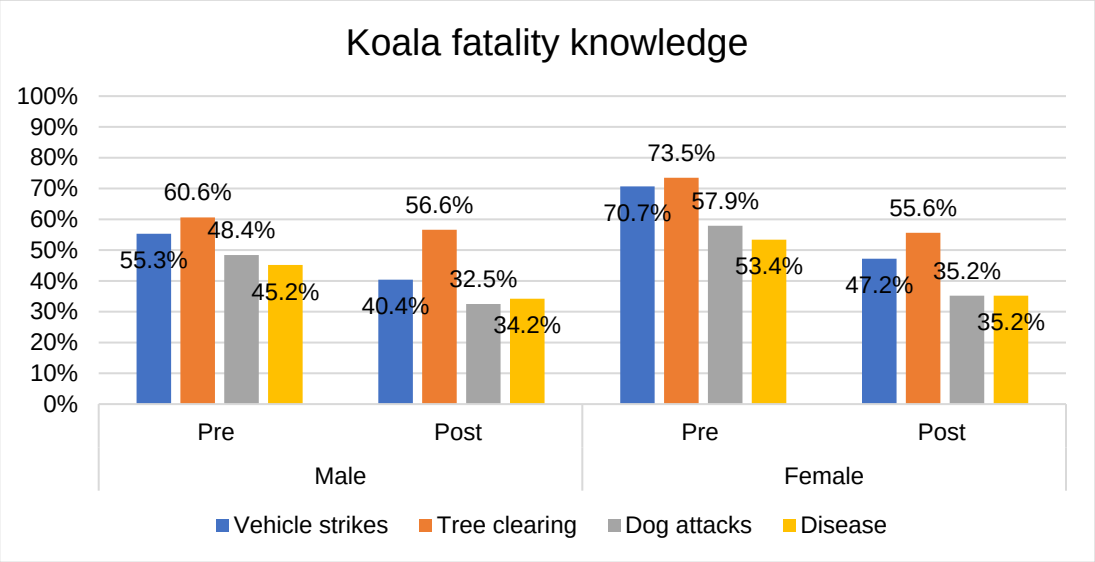
Figure 3. Koala conservation attitudes across age groups



Redland Coast residents' were asked to report their understanding of the main causes of Koala deaths. Respondents could choose more than one answer. Analysis indicated that respondents showed decreased knowledge about all four causes of koala fatality (vehicle strikes, tree clearing, dog attacks, and diseases) post koala awareness campaign.

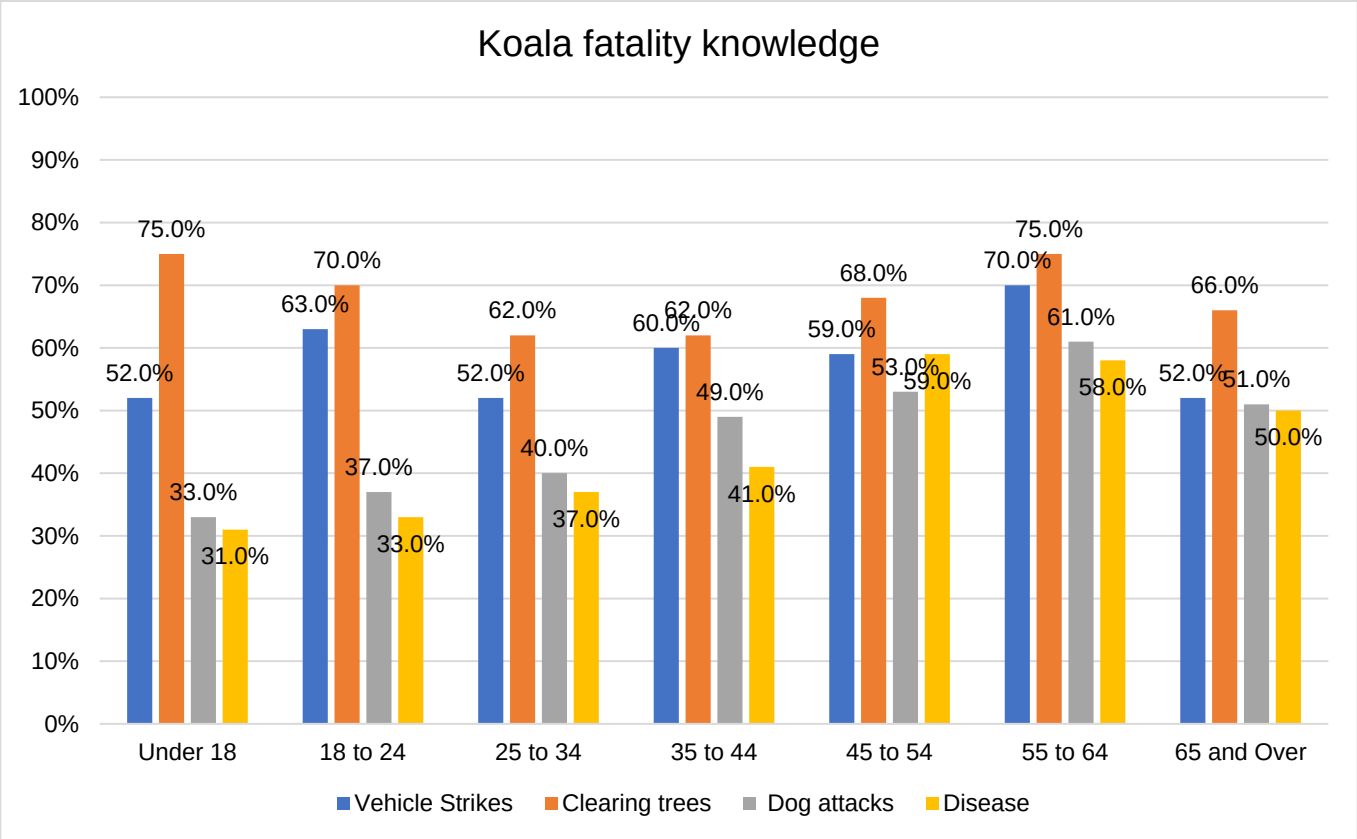
Analysis indicated there was a significant difference between males and females' koala fatality knowledge, specifically vehicle strikes and tree clearing in the pre survey ($p < 0.05$) but no significant differences in knowledge post survey. However, females' knowledge significantly decreased across all fatality groups, whilst men's knowledge significantly decreased across fatality groups except tree clearing ($p < 0.05$) see figure 4.

Figure 4. Koala fatality knowledge across gender



Furthermore, analysis indicated there was a significant difference between age groups and their koala fatality knowledge for vehicle strikes, dog attacks and disease ($p < 0.05$; $p < 0.001$ respectively) refer to figure 5. Respondents in the '55-64' age group generally showed higher fatality knowledge than the other age groups. They were significantly more knowledgeable than age groups 'under 18' ($p < 0.05$), '18-24' ($p < 0.001$) and '25-34' ($p < 0.05$) to know that dog attacks are a main cause of koala fatality. Furthermore, age groups '45-54' and '55-64' ($p < 0.05$) had significantly higher knowledge than age groups 'under 18', '18-24' and '25-34' that disease is a main cause for koala fatalities.

Figure 5. Koala fatality knowledge across age groups



A structural equation model (SEM) was conducted in order to find out what factors explain people's knowledge about koala fatality. The results indicate that perceived ability to protect koalas explained people's knowledge about koala fatality (beta = 0.115, p = 0.019). It is interesting to note that thoughts about koalas, koala sightings, koala awareness, and environmental consciousness are not significantly associated with residents' knowledge of the causes of koala fatality (see Table 3). Taken together, these results indicate that abilities to protect koalas need to be increased in the Redland City Council area and that residents understand they have a role to play, in addition to Council, in protecting koalas.

Table 2. Estimates of psychological factors on knowledge

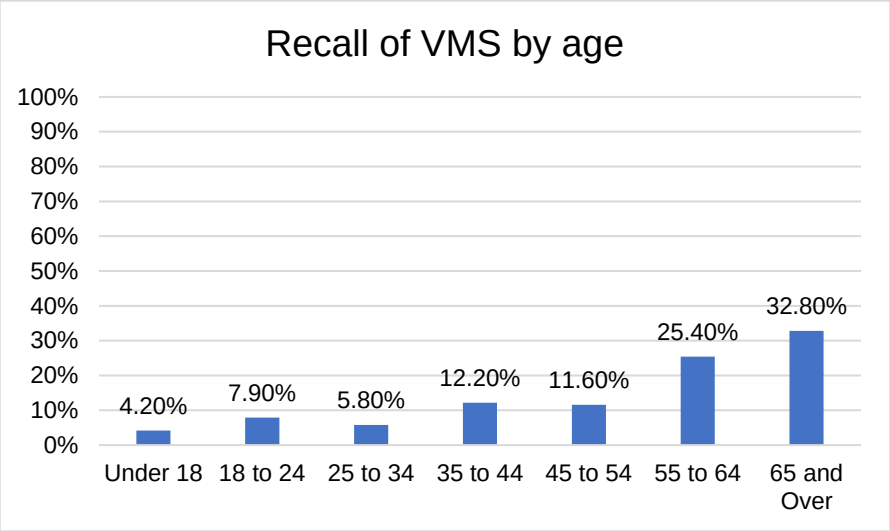
Influencing factors	Estimate	p-values
Thoughts	-0.037	0.453
Sights	0.017	0.718
Koala Awareness - Home	0.016	0.755
Koala Awareness – Urban landscape	0.079	0.113

Perceived ability to protect koalas	0.115	0.019*
Environmental consciousness	0.03	0.533

Recall - VMS Campaign

Respondents were asked to indicate whether they had noticed VMS (variable message signs) (not flashing school signs) in Ormiston in the last 3 months. According to t-testing there were no statistical differences between males and females in noticing the VMS signs in Ormiston. Chi-square test showed those aged 55 and above were statistically more likely to recall the VMS signs in Ormiston ($p < 0.001$). See Figure 6 for recall breakdowns

Figure 6. VMS Campaign recall breakdown

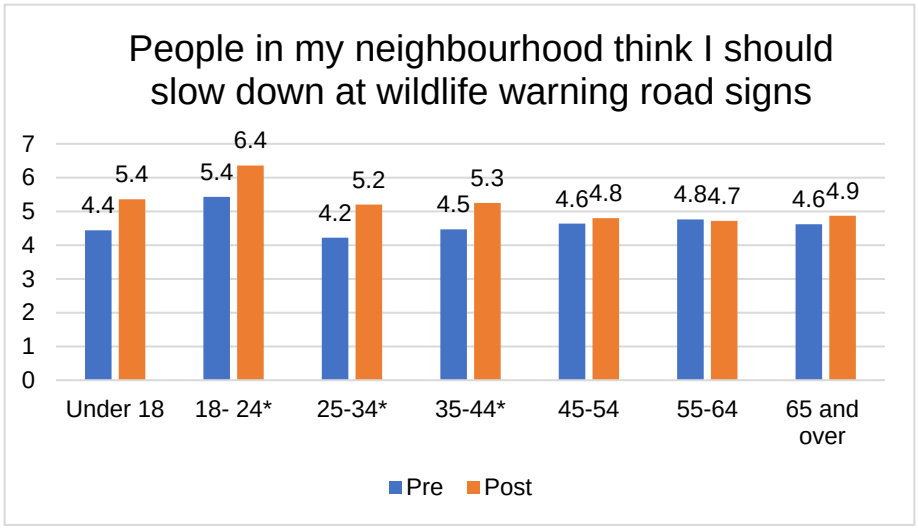


Social Norms and Attitudes - VMS Campaign

Analysis was undertaken to examine whether changes in social norms varied by age group over time (see Figure 7) and gender (see Figure 8).

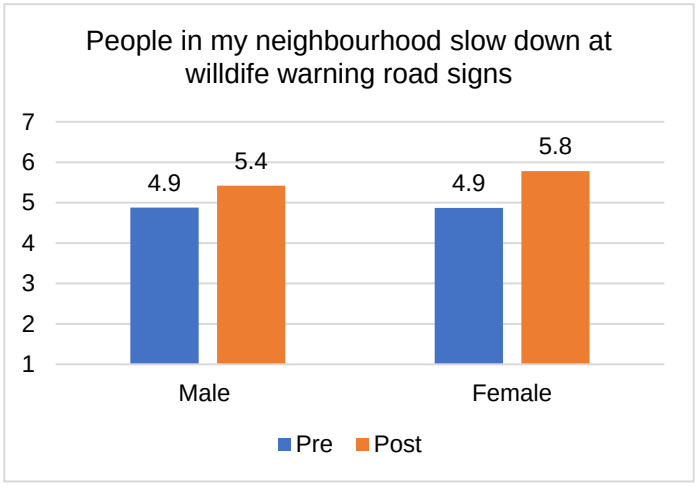
T-test analysis showed that age groups '18-24', '25-34' and '35-44' all significantly increased in the post results for the social norm that 'people in my neighbourhood think I should slow down at wildlife warning road signs' ($p < 0.05$) (see figure 7 below). Furthermore, the age group '18-24' significantly increased from mean= 6.3 to mean= 6.7 in the post survey for intention to slow down at wildlife signs ($p < 0.05$) and agreeing that 'people in their neighbourhood slow down at wildlife warning signs' which increased from 4.4 to 5.7 ($p < 0.00$).

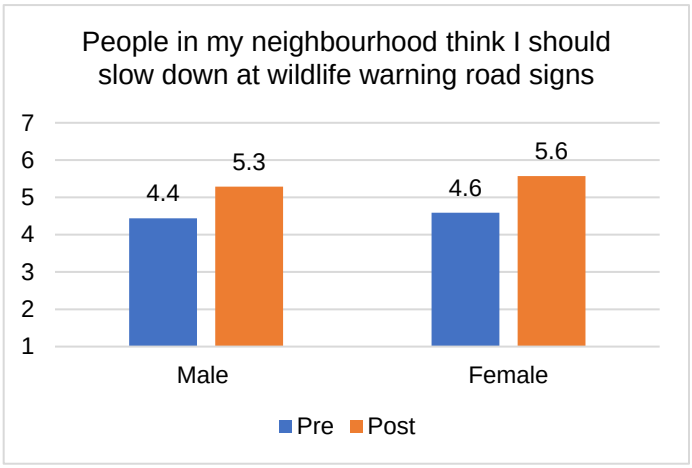
Figure 7. Social norm- age breakdown



T- test analysis indicated that were significant increases in social norms for both males and females over time (pre to post). Males and females significantly increased agreement that people in their neighborhood slow down at wildlife warning road signs ($p < 0.001$) and that people in their neighborhood think that they should slow down at wildlife warning road signs ($p < 0.001$). Despite of the difference between genders, both genders significantly increased their social norms over time.

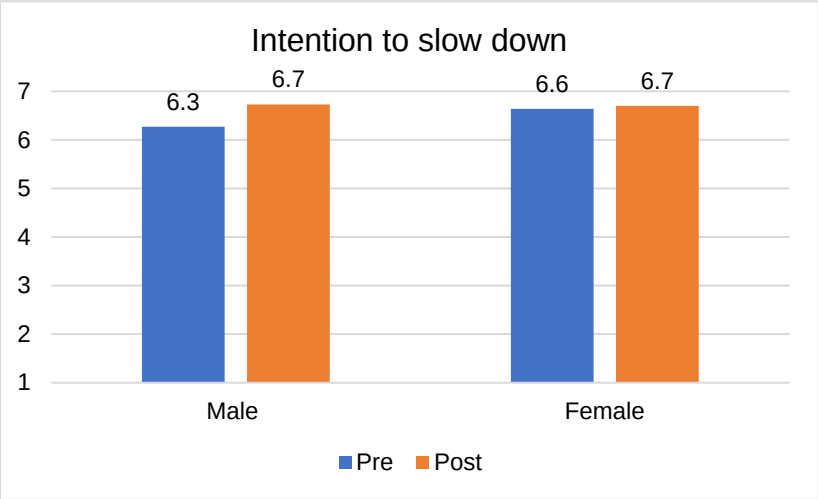
Figure 8. Social norms- gender breakdown





Men also had a significant increase in intention to slow down at wildlife warning road signs with an increase from 6.27 to 6.73 ($p < 0.001$). There was no significant increase in females' intentions to slow but their pre (6.64) and post (6.70) responses were already in high in agreement to the statement.

Figure 9. Intention- gender breakdown



Respondents were asked to indicate their agreement to the following statement 'for me slowing down at wildlife road signs is (beneficial, good, valuable, pleasant, exciting and enjoyable). There were few statistical differences in attitudes to slowing down at wildlife road signs between age groups and none between gender. Those in the age group '65 and over' significantly increased attitudes towards slowing down at wildlife signs being 'good' and valuable' between pre and post ($p < 0.05$) see Appendix B for a further breakdown across age groups.

Conclusion and recommendations

In conclusion, the following insights are drawn from the results. For the Koala Awareness Campaign:

- The campaign recall was improved from 30% to 68%.
- Social media was most effective and billboards, bus shelters, buses, and print media were effective. Cinema advertisements did not perform well.
- The koala awareness campaign prompted 35% of people to behave differently (drive slower and being more alert).
- Attitudes toward koala conservation and people's perceived abilities to protects koalas improved as a result of the campaign.
- Respondents showed decreased knowledge about the causes of koala fatality. A potential explanation is the confounding effect of the promotion of the bushfires during the campaign period.

The following recommendations were made for future koala awareness campaign design and implementation:

- Continue the koala awareness campaign to extend community support for koala conservation.
- Tailor messaging to give clear calls to action showing the Redland community how they can help/protect koalas – and align this to koala fatality key causes to ensure ongoing awareness.
- Continue to communicate the efforts undertaken by Redland City Council to protect koalas. For example, tell the stories about koalas saved in the Redland City Council area.
- Extend use of social media and review broadcast media choices in light of 2019 performance to optimize communication Return on Investment.
- Explore the use of digital influencers to extend social media performance.

For the VMS campaign:

- 64% respondents recall the VMS, 92% of the Ormiston residents can recall the VMS.
- The most recalled messages on signs were where a koala image/picture was shown.
- Attitudes, social norms and intentions to slow down increased following VMS installation.

For the next iteration of the VMS campaign, the following recommendations should be considered:

- VMS installations should be continued.
- Alter VMS messages to avoid wear-out effects.
- Extend research:
    - Develop alternate VMS messages. Messages that prompt social support or social approval to slow down at the VMS or keep vigilant should be considered, e.g., "Your loved ones will appreciate you slowing down here, so do the koalas"

- Examine VMS efficacy on different demographics. Further trials are suggested using infield controlled experimental design to compare the effectiveness between groups e.g. highly populated areas vs non-residential areas, young versus older drivers.
- Examine wear-out effects to determine optimal VMS message length.

Appendix A – Survey

Community Survey

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Queensland, Australia

About Koalas

1. When was the last time you thought about koalas?

- ◯ Within the last week
- ◯ In the past 2 to 3 weeks
- ◯ In the past 4 to 8 weeks
- ◯ In the past 9 to 12 weeks
- ◯ Haven't thought about koalas in the past 12 weeks

2. When was the last time you saw a koala?

- ◯ Within the last week
- ◯ In the past 2 to 3 weeks
- ◯ In the past 4 to 8 weeks
- ◯ In the past 9 to 12 weeks
- ◯ Haven't seen koalas in the past 12 weeks
- ◯ I'm not sure

3. It is important to me that Redlands is home to a significant koala population
[-3 = Strongly Disagree; 3 = Strongly Agree]

-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

4. Koala conservation is:

A waste of time and effort — Worth time and effort
-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

Not important at all — Very important
-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

Meaningless — Meaningful
-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

Unenjoyable — Enjoyable
-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

5. Koalas move around a lot more in their breeding season (July to Dec)

- ◯ True
- ◯ False
- ◯ Not sure

6. The main cause of koala deaths are (Please tick all that apply)

- ◯ Vehicle strikes
- ◯ Clearing of trees
- ◯ Dog attacks
- ◯ Disease (e.g. Clamydia)
- ◯ Not sure

7. Koalas have a place in our urban landscape
[-3 = Strongly Disagree; 3 = Strongly Agree]

-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

8. I know I can help to protect koalas
[-3 = Strongly Disagree; 3 = Strongly Agree]

-3 -2 -1 0 1 2 3
◯ ◯ ◯ ◯ ◯ ◯ ◯

9. Whose role is it to protect koalas and their habitat

- ◯ The City Council
- ◯ The community
- ◯ Both the City Council and the community
- ◯ Not sure
- ◯ Other (please specify _____)

10. Did you notice Council's recent koala advertising campaign?

- ◯ Yes
- ◯ No
- ◯ Not sure

11. Which media channels do you recall seeing the ads in? (Please tick all that apply)

- ◯ Print
- ◯ Cinema ads
- ◯ Social media
- ◯ Online ads
- ◯ Bus ads
- ◯ Bus shelters
- ◯ Online ads
- ◯ Billbaords
- ◯ Other [Please specify_____]

12. What mesages are images do you remember from the ads?

_____

13. Did the ads prompt you to do anything differently?

- ◯ Yes [Please specify_____]
- ◯ No

14. Have you driven through or visted the Ormiston area in the last three months?

- ◯ Yes [How often?_____]
- ◯ No

15. Have you noticed Variable Message Signs (VMS) (road signs with flashing messages) other than school zone signs in the Ormiston area within the last three months?

- ◯ Yes
- ◯ No

16. Where have you seen this VMS?

_____

17. What message was shown on the VMS?

_____

Continued on next page

Community Survey

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Queensland, Australia

18. For me slowing down at wildlife warning road signs is:

Harmful	-3	-2	-1	0	1	2	3 Beneficial
Bad	-3	-2	-1	0	1	2	3 Good
Worthless	-3	-2	-1	0	1	2	3 Valuable
Boring	-3	-2	-1	0	1	2	3 Exciting
Unpleasant	-3	-2	-1	0	1	2	3 Pleasant
Unenjoyable	-3	-2	-1	0	1	2	3 Enjoyable

Please indicate your agreement with the following statements
[-3 = Strongly Disagree; 3 = Strongly Agree]

19. Ignoring wildlife warning road signs will cause wildlife fatalities

-3 -2 -1 0 1 2 3

20. Wildlife warning road signs will reduce wildlife road kills.

-3 -2 -1 0 1 2 3

21. Many people in my neighbourhood slow down at wildlife warning road signs.

-3 -2 -1 0 1 2 3

22. People in my neighbourhood think I should slow down at wildlife warning road signs.

-3 -2 -1 0 1 2 3

23. I will slow down at a wildlife warning road sign.

-3 -2 -1 0 1 2 3

24. It is important to keep wildlife safe.

-3 -2 -1 0 1 2 3

25. Slowing down at a wildlife warning road sign will keep wildlife safe.

-3 -2 -1 0 1 2 3

26. Slowing down at a wildlife warning road sign is inconvenient.

-3 -2 -1 0 1 2 3

27. Slowing down at a wildlife warning road sign will keep the roads safe.

-3 -2 -1 0 1 2 3

28. Slowing down at a wildlife road sign will increase my travel time

-3 -2 -1 0 1 2 3

29. There are koalas living in my neighbourhood.

-3 -2 -1 0 1 2 3

30. Koalas have a place in our urban landscape.

-3 -2 -1 0 1 2 3

31. Do you slow down at wildlife warning road signs?

- ◯ Never
- ◯ Very rarely
- ◯ Rarely
- ◯ Occasionally
- ◯ Very frequently
- ◯ Always

32. What is your gender?

- ◯ Male
- ◯ Female
- ◯ Other

33. What is your current age in years?

_____

34. What is your level of education?

- ◯ School Education level
- ◯ Certificate level
- ◯ Advanced Diploma and Diploma
- ◯ Bachelor's Degree
- ◯ Graduate Diploma and Graduate Certificate
- ◯ Postgraduate Degree

35. What is your postcode?

_____

Appendix B - Attitudes to slowing down

Beneficial	Pre	Post	p-vales
Under 18	6	6.64	0.099
18-24	6.33	6.71	0.054
25-34	6.64	6.7	0.788
35-44	6.69	6.4	0.134
45-54	6.62	6.71	0.598
55-64	6.68	6.69	0.961
65 and over	6.49	6.71	0.185
Good	Pre	Post	p-values
Under 18	6	6.59	0.149
18-24	6.38	6.71	0.127
25-34	6.61	6.64	0.918
35-44	6.52	6.49	0.892
45-54	6.4	6.61	0.419
55-64	6.33	6.5	0.453
65 and over	5.98	6.21	**0.012***
Valuable	Pre	Post	p-values
Under 18	5.72	6.24	**0.037***
18-24	6.34	6.58	0.321
25-34	6.32	6.09	0.542
35-44	6.56	6.26	0.235
45-54	6.42	6.59	0.516
55-64	6.23	6.57	0.112
65 and over	5.72	6.51	**0.006***
Exciting	Pre	Post	p-values
Under 18	4.32	5.45	**0.021***
18-24	4.77	5.63	**0.010***
25-34	5.27	5.43	0.671
35-44	5.11	5.29	0.569
45-54	5.46	5.37	0.781
55-64	5.21	4.8	0.161
65 and over	5.15	5.15	0.98
Pleasant	Pre	Post	p-values
Under 18	5	5.64	0.161
18-24	5.13	5.8	**0.044***
25-34	5.41	5.43	0.947
35-44	5.34	5.69	0.264
45-54	5.57	5.56	0.984
55-64	5.37	5.16	0.482
65 and over	5.3	5.33	0.92

Enjoyable	Pre	Post	p-values
Under 18	4.6	5.48	0.065
18-24	4.83	5.59	**0.029***
25-34	5.44	5.48	0.925
35-44	5.25	5.54	0.343
45-54	5.5	5.34	0.627
55-64	5.35	5.1	0.371
65 and over	5.21	5.4	0.555