The medium shapes the message: Can advertising campaigns rehumanise cyclists?

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1. Introduction

Riding a bicycle is one of the most efficient and environmentally sustainable modes of travel. Yet there continues to be a tension between people riding bicycles and people driving on Australia's roads. Collisions between motor vehicles and cyclists are responsible for most of the serious injuries and fatalities of cyclists in low cycling countries (Kim et al., 2007, Räsänen and Summala, 1998). Although separated cycling infrastructure is the most effective way to improve safety and increase cycling participation, motorists and cyclists will be sharing the road for many years to come.

A range of studies has found that attitudes toward cyclists are predominantly negative. Worryingly, negative attitudes toward cyclists are associated with self-reported aggression and hostility toward cyclists. Public references to violence against cyclists are not uncommon and rarely given the same condemnation as, for example, violence toward women or bullying (Johnson, 2014).

In a pilot study, the authors (Delbosc et al., 2019) found that around half of non-cyclists held dehumanising beliefs about cyclists. Dehumanisation means treating people as if they are less than fully human, or not fully evolved, and it is usually applied to racial or ethnic groups, homeless people or psychiatric patients. On-road cyclists look and act differently to 'humans': they move in a mechanical way and their faces are not often seen by motorists. Critically, these dehumanising beliefs were correlated with negative attitudes to cyclists and were associated with self-reported aggression such as throwing objects at cyclists or using a car to deliberately block a cyclist.

It is crucial that we do not stop at simply furthering our understanding the prevalence of dehumanising beliefs – the current study will explore ways to reduce the dehumanisation of cyclists on our roads. If we can put a human face to cyclists, we may improve attitudes, increase support for cycling infrastructure, increase willingness to try cycling and reduce aggression directed at on-road cyclists. It may increase community willingness to support the investment in safe cycling infrastructure, reducing the likelihood of conflict in the first place. This could result in a reduction in cyclist road trauma or an increase in public acceptance of cyclists as legitimate road users.

The overall aim of this paper is to determine whether 'humanising' public education campaigns improve attitudes and decrease dehumanisation more than 'non-humanising' campaigns. We achieve this aim through an online survey of people in the Australian Capital Territory,

comparing the responses to different styles of advertising campaigns among people who do and do not ride bicycles themselves.

2. Research methods

The research team designed a questionnaire that was ostensibly testing reactions to a proposed media campaign promoting the new law requiring drivers to provide at least a metre between their vehicle and cyclists. Two aspects of the campaign image were manipulated: whether the image showed the rider face-on and whether the image was a photograph or a graphical version of the photo (see Figure 1). Half of the participants were shown the photo and then the image, both from the front (e.g. image A and B). The remaining participants were shown both versions from the rear (e.g. image C and D).

Based on past research, it was expected that both the photo and the front-on images would be more 'humanising' than images from the rear or from graphics.

Figure 1: Campaign poster designs shown to participants
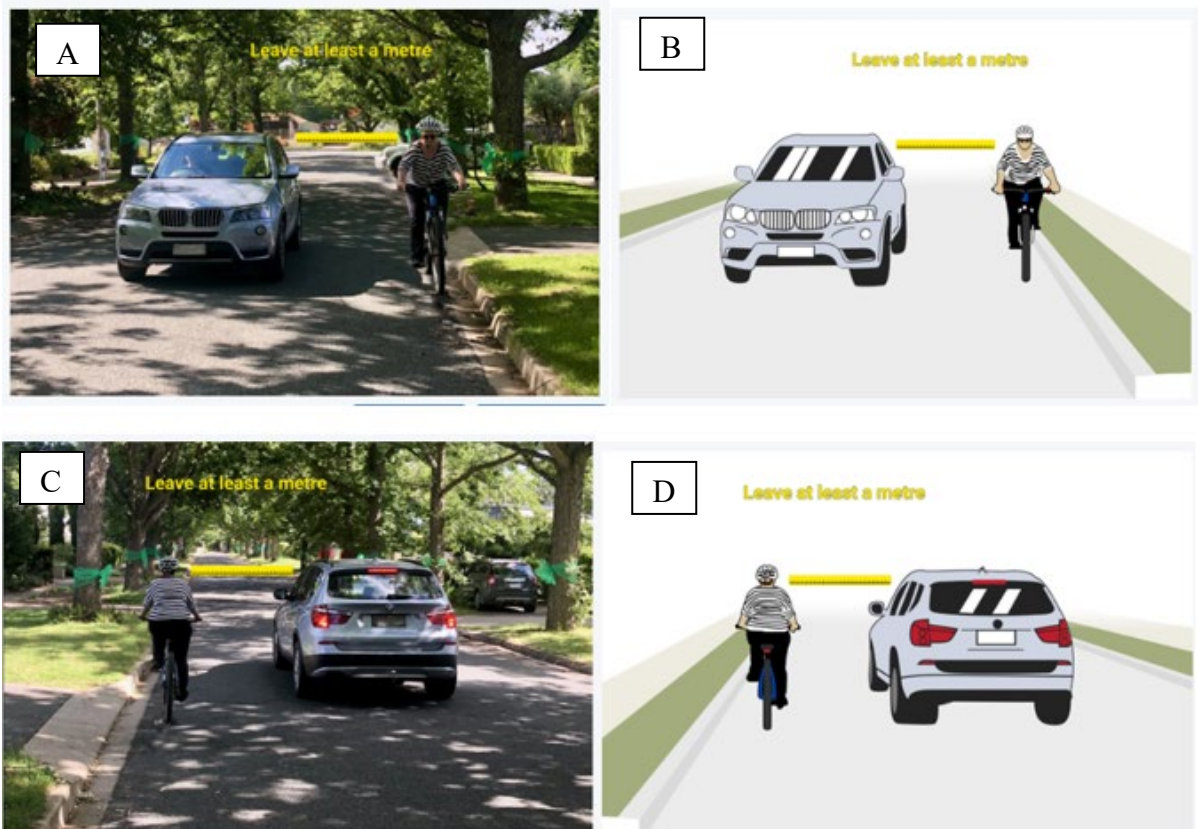
After viewing the images, participants were asked a range of questions measuring:
- Evaluation ratings of the poster designs (clarity, memorability and effectiveness)
- Attitudes to cyclists using the Attitudes to Cyclists Scale (ATCS), developed by Rissel et al. (2002)
- Aggression and harassment toward cyclists (how often they shouted at cyclists, threw objects at cyclists, etc)
- How often respondents drove a car or rode a bicycle (to classify people as cyclists, who ride a bicycle at least monthly, or drivers, who haven't ridden a bike in the last year but drive a car at least monthly)

In particular, we measured dehumanising beliefs using two measure of dehumanisation that have been validated both in psychology and in transport research (Delbosc et al., 2019, Limb and Collyer, 2023). One measure was the Dehumanisation Trait Scale which asks people to rate cyclists on scale capturing human characteristics (see Bastian and Haslam, 2010 for full description). The other measure was Blatant Dehumanisation Slider (Kteily et al., 2015) where respondents read the following statement:

"Some people believe that people can vary in how human-like they seem. According to this view, some people seem highly evolved whereas others seem no different than lower animals. Using the image below as a guide, indicate by marking on the line below how evolved you consider the average cyclist to be."

The image shown is provided in Figure 2, where higher ratings equate to less dehumanising beliefs. For both dehumanisation and the attitude scales, participants were asked to rate 'riders like this' (in the poster). For brevity, only the blatant dehumanisation results are presented in this paper.

Figure 2: Ape to human scale used to measure blatant dehumanisation
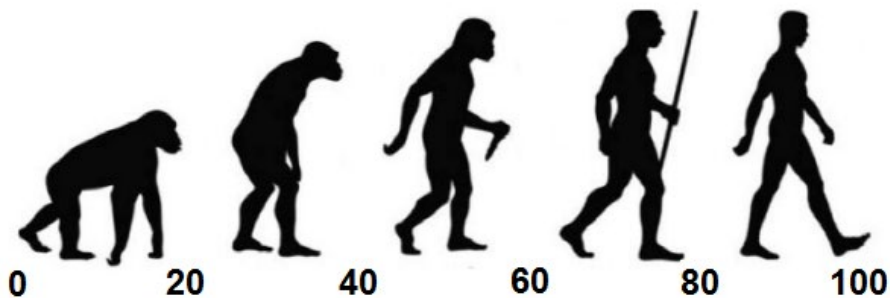
The survey was advertised via paid Facebook ads as well as newsletters, ACT government email and social media. A total of 379 people commenced the survey, with a final result of 267 responses (168 cyclists and 98 drivers) after data cleaning and removal of incomplete responses.

2.1 Analysis method

Given that the experimental design included both within- (repeated) and between-subjects variables, Generalised Linear Models were used to test whether the Attitudes to Cyclists Scale and dehumanization ratings differed according to whether the participant was a cyclist or driver, whether the campaign poster was in photographic or graphical form and whether it showed the cyclist from the front or the back. Age and gender influences were unable to be tested because some combinations of age, gender, cyclist or driver and photographic or graphic image had no participants.

3. Results

This paper will focus on the results regarding how the design of the posters influenced attitudes and dehumanising beliefs. For each poster, the mean score on the Attitudes to Cyclists Scale was significantly higher ($F_{(1, 243)}=44.572$, $p<.01$) for cyclists than drivers (see Figure 3). The design of the image (front or rear view, photo or graphic) had no effect on attitude ratings. However, there was a statistically significant interaction ($F_{(1, 243)}=6.372$, $p<.05$) in which drivers reported more positive attitudes to the cyclist shown from the front than from the rear (25.0 vs 22.8), while this was not evident for the cyclist participants (28.1 vs 28.6).

Figure 3: Attitude to Cyclists Scale ratings for cyclists and non-cyclists depending on poster design
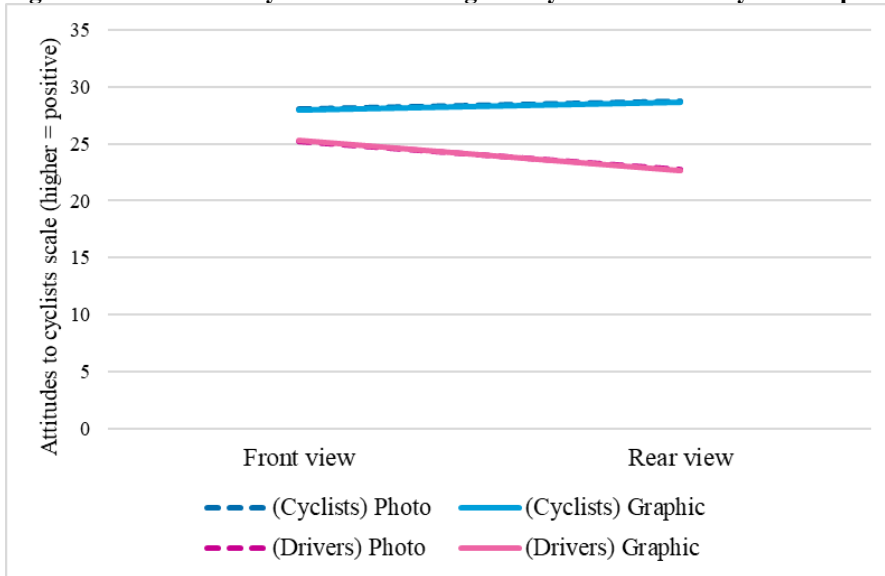
In contrast, poster design *did* have a significant impact on measures of dehumanisation. The two measures of dehumanisation found similar results, so we focus on the Blatant Dehumanisation (Ape to Human) Scale (where higher values represent lower levels of dehumanisation).

The statistical analysis of these scores showed that participants who were cyclists rated the cyclist shown in the posters as more human than did the driver participants (91.6 vs 82.9, $F(1, 240)=7.444$, $p<.01$). The rider in the photographic posters (dashed line in Figure 4) was rated as more human than the person in the graphical posters (solid line, 89.6 vs 87.8, $F(1, 240)=11.831$, $p<.01$). However, overall there was no statistically significant difference between the scores for the front and rear versions of the posters, although this did appear to have an effect on drivers.

Figure 4: Blatant dehumanisation ratings for cyclists and non-cyclists depending on poster design
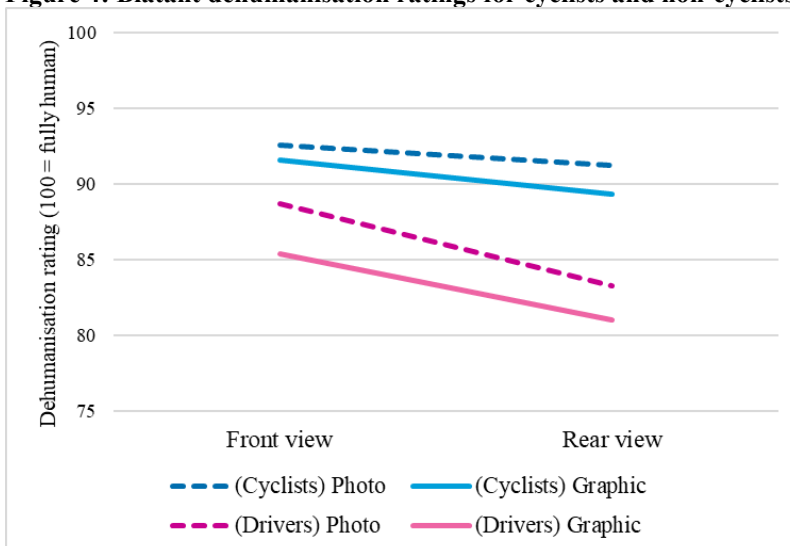
*Note: higher ratings represent **lower** levels of dehumanisation*

4. Discussion

Based on previous research, it was predicted that the lowest levels of dehumanisation would be reported for campaign posters showing face-on photographs of cyclists. The results from this study showed that using photographs did lead to lower levels of dehumanisation compared to using graphical representations of riders. However, the reduction in dehumanisation resulting from showing the front of the rider instead of the back was not statistically significant. These results suggest that using photographs in campaigns is more humanising than using graphical images, but that whether the rider is shown from the front or the back makes little difference. While past research in other domains has shown that faces are humanising, we could speculate that the current findings reflect that drivers see riders from the back before passing, and so the rearview depiction is more relevant to the message being portrayed in the poster.

Interestingly, there was little effect on poster design on attitudes to "riders like this". The scores on the Attitudes to Cyclists Scale (ATCS) did not differ between the photographic and graphical posters or between those showing the rider from the front versus the rear. The only difference found was that drivers (but not cyclist participants) reported more positive attitudes to the rider shown from the front than the rear.

This difference could indicate that attitudes to cyclists are more static and fixed, or at least that they are not sensitive to small changes in how cyclists are portrayed. However, the dehumanisation measures appear to be more sensitive to context and portrayal of people on bicycles.

The overall prevalence of dehumanizing beliefs is still concerning, with over half of respondents rating the bike riders in the posters as less than 100% human on the Blatant Dehumanisation Scale. Regardless of the campaign design, people who ride bicycles themselves had more positive attitudes and more humanizing beliefs toward other cyclists. This suggests that if we can get more people onto a bicycle, we may set off a virtuous cycle that erodes dehumanizing beliefs and increases support for safe cycling infrastructure.

7. References

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