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Recognising motivation in others: The effectiveness of using social proof to change driving behaviour

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Abstract

Purpose: This paper extends the literature on social proof by looking at the effectiveness of social proof on behaviour change for environmental benefit.

Design/methodology/approach: The research is based on real case studies currently intended to encourage behaviour change among residents of a large UK city. An initial study assesses the motivation displayed within each case study. A second study then examines whether recipients recognise their own motivation in each case study.

Findings: Results indicate that participants did not recognise their own motivation in the case studies that were expected to be most similar to them, suggesting that recipients do not recognise 'social proof' according to motivation. However, a relationship is observed between recipients' gender and the gender of the case studies.

Originality: The research contributes a new direction in this field, using Self Determination Theory to match social proof examples to recipients.

Research limitations/implications: Demographics appear to be a better basis for social proof than motivation. We recommend several future avenues for further exploration, including using case studies that represent a wider range of characteristics (such as demographics). The current range of stimulus materials is limited, as these are real materials currently being used in a large UK city.

Practical implications: Our results indicate that portraying motivation is not a good basis for using the social proof principle. Instead, social marketers ought to focus on representing similarity to the intended audience based on other characteristics such as gender.

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Keywords: Self-Determination Theory, MTES, Social Proof, Peer Effects

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1. Introduction

Many public authorities control driving behaviour through the threat of punishment. For example, drivers are discouraged from exceeding 70mph on UK motorways with a £100 fine. This approach assumes that the adoption of acceptable behaviour is driven by external threat. Many cities are now imposing the same approach when regulating driving behaviours for environmental benefit, such as imposing lower speed limits for urban areas and extending clean air zones, both of which rely on the threat of financial penalties to encourage adherence. Aside from punishment though, the social marketing literature includes a range of research into communication-based approaches to changing driving behaviour, including inoculation (Gidron *et al.,* 2015; Geegan, 2023), priming effects (Koyuncu and Amado, 2008; Taubman-Ben-Ari, 2012; Lemarié, Chebat, and Bellavance, 2017), and use of fear (De Pelsmacker, Cauberghe and Dens, 2011; Carey, McDermott and Sarma, 2013; Diegelmann, Ninaus, and Terlutter, 2020). A further approach is known as 'social proof' (Cialdini, 1984), presenting examples of others who have adopted the behaviour.

Like many local authorities within the UK, Bristol City Council is encouraging residents to reduce their use of cars. As well as punitive measures, the council has created a website including examples of Bristol residents who have adopted a new behaviour, with stated motivation ranging from a desire to save money to making a difference to the planet. Our research investigates perceptions of these 'social proof' case studies, extending the current body of knowledge around what constitutes 'similarity' or 'people just like us' (Cialdini, 1984).

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Provision of 'social proof' is a technique familiar to many social marketers and relates to research into 'social norms' (for a review see Legros and Cislaghi, 2020) and a wider framework involving the influence of observable behaviour known as Social Cognitive Theory (Bandura, 1986). Previous applications of social proof have included discouraging hotel guests from needlessly washing towels (Shang, Basil, and Wymer, 2010), promoting healthy behaviours among older people (Tan *et al.*, 2010), and encouraging the Portuguese to change their diet

(Bucea-Manea-Tonis *et al.,* 2023). In addition, several social marketing studies have examined motivation to change behaviour, revealing self-determined motivation relating to environmental car choice (De Groot and Steg, 2010), intrinsic motivation supporting a range of pro-environmental behaviour (Afsar, Badir and Kiani, 2016) and waste prevention (Cecere, Mancinelli, and Mazzanti, 2014), and demonstrating the antecedents to self-determined flood risk mitigation (Tweneboah-Koduah, 2022).

Our studies combine motivation and social proof. Whereas previous studies have explored psychological similarity through attitudes (Byrne, 1962) and personality (Byrne, Griffit and Sefamiak, 1967), our research assesses similarity in terms of motivation. In particular, the research seeks to understand whether observers recognise the motivation of others as being internally or externally-driven.

1.1. Social cognitive theory

Human learning often occurs though observation of others, either in person or through a wide variety of media. Bandura and colleagues (1961) demonstrated that humans learn to 'model' their behaviour on others through observation. A well cited example of such learning is children learning to use a toy (Bandura, 1961), although further studies demonstrated the same

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'social learning' effect for behaviours witnessed through video (Bandura, Ross, and Ross, 1963). Bandura later described the process as 'social cognitive theory' (1986). Social cognitive theory has been applied to a variety of contexts, including use of the internet (LaRose and Eastin, 2004), development of vocational skills (Zikic and Saks, 2009), and education of nurses (Burke and Mancuso, 2012). In particular, social cognitive theory has been applied to the adoption of environmental behaviours (for a literature review, see Sawitri, Hadiyanto, and Hadi, 2015).

1.1.1. Peer effects

Although Bandura's triadic model demonstrates the importance of personal as well as environmental determinants (Bandura, 2001), communicators tend to focus on the creation of observable role models. In the marketing industry this is referred to as 'social proof', a concept coined by Robert Cialdini (1984). Among the features of effective social proof, Cialdini emphasizes the importance of similarity between the proof point and the recipient: referred to as 'peer-suasion'. Others simply refer to social proof as 'peer influence' or 'social effect' (Manski, 1993) where behaviour is observable within a reference group. Such groups, or "people just like us" (Cialdini, 2021), provide a point of comparison for self-appraisal (Hyman, 1942).

There is a large body of research into peer effects, for example relating to alcohol consumption (Sancho, Miguel, and Aldas, 2011) and obesity (Conroy, Smith, and Frethey-Bentham, 2018). The effect of peers on environmental behaviour has also been studied extensively (for a full review see Wolske, Gillingham and Schultz, 2020). One aspect is the effect of explicit endorsement for an adopted product or behaviour such as renewable energy (Fornara *et al.,* 2011), and recycling (Schultz, 1999) and wider peer effects on efficient stoves (Beltramo *et al*, 2015) and energy-efficient lighting (Carranza and Meeks, 2016). More

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specifically, visibility increases product adoption, such as neighbours installing solar panels (Bollinger and Gillingham, 2012; Richter, 2013), especially when close to a main road (Rode and Muller, 2019). Yet, social proof also relies on perceptions of similarity.

1.1.2. Similarity between peers

Using 'social proof' typically involves showing examples of a behaviour adopted by others who are in some way 'similar' (Cialdini, 1984), such as in business (Brock, 1965) or academic settings (Berscheid, 1966). Similarity might include names (Burger *et al*, 2004; Garner, 2005; Jena, Sunstein and Hicks, 2018), or birthdays (Finch and Cialdini, 1989; Miller, Downs and Prentice, 1998; Burger *et al*, 2004), but many studies also indicate that individuals are influenced by demographic similarity.

Demography includes categorizable aspects of a population such as age, gender, location, ethnicity and occupation (Kotler *et al.,* 2020). For example, online audiences recognise similarity in age and gender (Rosenthal and McKeown, 2016). Similarity in gender then affects the likelihood of smoking (McVicar, 2011), the likelihood of developing a new business (Markussen and Roed, 2017), and educational outcomes for both males (Ficano, 2012) and females (Huntington-Klein and Rose, 2018; Bostwick and Weinberg, 2022). Similarity in age then influences doctors considering new drugs (Yang, Lien, and Chou, 2014), co-workers trading stock (Balakina, 2022), and criminal activities of siblings (Mikkonen *et al.,* 2020). Further studies demonstrate ethnicity peer effects, for example performing breast self-examination (Anderson and McMillion, 1995), HIV testing (Kalichman and Coley, 1995), and making decisions to save money (Mugerman, Sade, Shayo, 2014).

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There are also several studies demonstrating that observers recognise psychological similarities, such as personality (Izard, 1960; Byrne, Griffit and Sefamiak, 1967; Russell and Wells, 1991; Figueredo, Sefcek and Jones, 2006) increasing the persuasiveness of the message source (Cohen, Weimann-Saks, and Mazor-Tregerman, 2017; Hoeken, Kolthoff, & Sanders, 2016). The current research looks at motivation as another potential psychological source of similarity between an observer and a portrayed behaviour.

1.2. Defining motivation

In psychological terms, motivation is "the force that prompts us to take action towards a goal" (Holt *et al*, 2024). Many studies assess motivation towards environmental issues using a measure designed to assess motivation to engage in pro-environmental behaviour, known as the Motivation Towards the Environment Scale [MTES] (Pelletier *et al*, 1998). MTES assesses the degree to which people are motivated by either an internal or external force as originally defined by Deci and Ryan's (1985) Self Determination Theory [SDT]. MTES uses the same labels as the original measures in SDT, but specifically asks respondents about their motivation to adopt environmental behaviour. Self-determined behaviours that are interesting or satisfying are 'intrinsically' motivated, whereas behaviours that anticipate potential punishment or reward are 'extrinsically' motivated (Deci and Ryan, 2009). Along a continuum, three further motivation types sit within 'intrinsic' and 'extrinsic' motivation, known as 'introjected regulation' (when people accept regulations without endorsing them), 'identified regulation' (recognition of the personal benefit to a person's own goals), and 'integrated regulation' (when they recognise the coherence with their sense of self). Amotivation is the label used to describe a complete lack of motivation.

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This current study is investigating motivation (as measured through MTES) specifically towards driving less to reduce environmental impact. However, it is also assessing the effect of modelling such behaviour using 'social proof'.

RQ: To what extent do observers recognise their own motivation in social proof case studies?

Data collection included two stages. First, to assess the displayed motivation within the social proof case studies, one set of participants was asked to assess each case study against the six motivation types described through MTES. Second, a new set of participants was asked to view each social proof case study and describe the extent to which each case study appealed to them. These participants were also asked about their own motivation. The analysis then compared participants' own motivation with the extent to which they believed the motivation displayed by the person/people in each case study reflected their own motivation to drive less.

2. Materials and Methods

2.1. Study 1

2.1.1. Method

Participants were recruited through the Prolific online data collection tool (www.prolific.com) and received £1.50 payment for their completion of the questionnaire. Participants completed an online questionnaire, created in Qualtrics. As well as collecting data on gender, age, ethnicity, and income band, participants were asked to assess the motivation for the behaviour described within each of the five case studies (figure 1). They were required to

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base their judgement on only the screenshot provided. All participants gave consent for this data to be used for research purposes, and they were informed that they were free to withdraw at any time. Ethical approval was granted by the Faculty Ethics Committee.

2.1.2. Sample

All participants were adults aged between 20 and 79 years (M = 42.35, SD = 13.28), who were living in the United Kingdom at the time of the study. 118 (39.2%) were male and 178 (59.1%) female (five participants indicated another gender or preferred not to say). The majority of respondents were White British, but the sample included a range of ethnic backgrounds (see Table 1). Income ranged from £0 to £100,000+. A total of 301 responses were received. There were no incomplete responses.

INSERT TABLE 1 ABOUT HERE

2.1.3. Measures

Each participant was asked the extent to which they agreed (between 1 'totally disagree' and 7 'totally agree') with six statements describing the person/people in the case study 'being motivated by pleasure to adopt this behaviour' (intrinsically motivated), 'has integrated this behaviour into their lives' (integrated regulation), 'thinks this behaviour is sensible' (identified regulation), 'is avoiding negative feelings such as guilt or regret' (introjected regulation), 'has adopted the behaviour due to concern about the views of others' (externally motivated), 'doesn't believe this behaviour is helping' (amotivated).

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2.1.4. Results

Identified motivation was perceived to be the highest motivation for the person/people in every case study (Table 2). ANOVA was used to compare differences in mean scores for each perceived motivation type. No significant differences were identified for motivation scores, including intrinsic motivation (F [4, 1500)] = 48.94, p = <.001), integrated motivation (F [4, 1500] = 28.07, p = <.001), identified motivation (F [4, 1500] = 45.56, p = <.001), introjected motivation (F [4, 1500] = 9.48, p = <.001), external motivation (F [4, 1500] = 45.40, p = <.001), and amotivation (F [4, 1500] = 20.07, p = <.001).

Post-hoc comparisons using the Tukey HSD test compared differences in intrinsic motivation between case studies. Results indicate a significant difference (<0.001) for the intrinsic motivation scores between Case Study B and all other case studies, with a higher intrinsic motivation mean for Case Study B. A significant difference (<0.001) was also found for the integrated motivation scores between Case Study B and all other case studies, with a higher integrated motivation mean for Case Study B. For identified motivation, a significant difference (≤ 0.001) was found for Case Study D and all other case studies, and Case Study E and all other case studies; the mean is lowest for Case Study D and second-lowest for Case Study E. A significant difference (<0.001) is also identified for the extrinsic motivation scores for Case Study A and all other case studies and Case Study B and all other case studies: the mean is lowest for Case Study B and second-lowest for Case Study A. Lastly, a significant difference (<0.001) is found for the amotivation scores between Case Study D and case studies A, B and C, with a higher amotivation mean for Case Study D.

INSERT TABLE 2 ABOUT HERE

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Overall, Case Study B has a significantly higher score for intrinsic motivation and integrated motivation. Case Study D has a significantly lower score for identified motivation and a significantly lower score for amotivation than most other case studies. Case Studies A and B have significantly lower scores for external motivation.

2.2. Study 2

2.2.1. Method

Participants were recruited through the Prolific online data collection tool (www.prolific.com) and received £1.50 payment for completing an online questionnaire, created in Qualtrics. As well as collecting data on gender, age, ethnicity, and income band, an initial question asked participants whether consideration for the environment had led them to drive less. This question then determined the tense of the following questions: participants who were already driving less were asked about their 'reasons for driving less', whereas those who were not yet driving less were asked about their 'reasons for driving less in the future'. Questions were otherwise identical for all participants. Participants were asked whether the displayed motivation reflected their own motivation to drive less. All participants gave consent for this data to be used for research purposes, and they were informed that they were free to withdraw at any time. Ethical approval was granted by the Faculty Ethics Committee.

2.2.2. Sample

All participants were adults aged between 20 and 88 years (M = 41.60, SD = 13.38), who were living in the United Kingdom at the time of the study. One participant recorded their age as

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400 and was therefore removed from the data. 126 (42.1%) were male and 173 (57.9%) female. The majority were White British, but the sample included a range of ethnic backgrounds (see Table 3). Income ranged from £0 to £100,000+. After removing incomplete responses, the sample size was 299.

INSERT TABLE 3 ABOUT HERE

2.2.3. Measures

Motivation towards the environment was measured using the MTES scale (Pelletier *et al*, 1998). This includes 24 questions, with four questions for each type of motivation. Participants scored each statement on a 7-point scale to indicate agreement from 'does not correspond at all' to 'corresponds exactly'. The scale has a reported (Pelletier *et al.*, 1998) Cronbach's alpha coefficient for each subscale ranging from $\alpha = .71$ to $\alpha = .92$. In the current study, the Cronbach's alpha coefficient for each subscale ranged from $\alpha = .86$ to $\alpha = .94$, indicating high reliability.

Participants then assessed the extent (on a scale 1 'extremely unlike me' to 7 'extremely like me') to which the motivation displayed by the person/people in each case study reflected their own motivation to drive less.

2.2.4. Results

An independent samples t-test revealed significant differences in the extent to which participants believed each case study reflected their own motivation, between those who already drive less and those who do not yet drive less ($t [297] = -8.76$, $p = <.001$), Case Study B ($t [297] = -7.52$, $p = <.001$), Case Study C ($t [297] = -9.13$, $p = <.001$), Case Study D ($t [297] = -8.40$, $p =$

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<.001), and Case Study E (t [297] = -8.14, p = <.001). In every case the recognition of motivation is greater for participants who already drive less (see Table 4).

INSERT TABLE 4 ABOUT HERE

An independent samples t-test also revealed significant differences between those who already drive less and those who do not yet drive less and participants' own intrinsic motivation (t [297] = -9.81, p = <.001), integrated motivation (t [297] = -12.99, p = <.001), identified motivation (t [297] = -13.14, p = <.001), introjected motivation (t [297] = -10.08, p = <.001), and amotivation (t [297] = 8.49, p = <.001). In every case the recognition of motivation is greater for participants who already drive less (see Table 5), except amotivation where the opposite is found. However, there was no significant difference in scores for external motivation (t [297] = -.94, p = .35).

INSERT TABLE 5 ABOUT HERE

Pearson correlations assessed relationships between motivation scores for participants, and the degree to which participants believed each case study reflected their own motivation (Table 6). This demonstrated a significant relationship between each case study and every motivation type. The strongest correlations indicted that participants recognised Case Study C as being a particular reflection of themselves for those scoring higher for intrinsic motivation (ρ = .63, p< .001), identified motivation (ρ = .59, p< .001), and introjected motivation (ρ = .59, p< .001). Case Study D is recognised as being a particular reflection of those scoring higher for integrated motivation (ρ = .60, p< .001) and external motivation (ρ = .31, p< .001). A negative

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correlation is found for amotivation and all case studies, indicating that none are believed to reflect amotivation.

INSERT TABLE 6 ABOUT HERE

Further analysis was then undertaken to check for relationships according to other aspects such as age, gender, ethnic group, and income group. A negative correlation was identified for age, indicating that younger participants believed Case Study B ($\rho = -.13$, $p < .05$) and Case Study C ($\rho = -.13$, $p < .05$) reflected them. A T-test compared scores for male and female participants, finding a significant difference between males ($M = 4.63$, $SD = 1.64$) and females ($M = 4.20$, $SD = 1.76$); $t(297) = 2.16$, $p = .016$, two tailed, for Case Study B and between males ($M = 4.67$, $SD = 1.51$) and females ($M = 5.00$, $SD = 1.31$); $t(245.26) = -1.99$, $p = .048$, two tailed, for Case Study E. Males particularly identified with Case Study B and females particularly identified with Case Study E.

ANOVA was used to compare identification scores for each case study according to ethnic group. No significant differences were identified for any ethnic group. Finally, Spearman Rank Order correlation was used to assess correlation between income band and each case study. This revealed small but significant relationships between income bands and Case Study B (rho = .123, $n = 299$, $p < .05$) and Case Study E (rho = .139, $n = 299$, $p < .05$), indicating that those with higher incomes relate more to these case studies.

3. Discussion

The finding that motivation levels towards driving less are generally lower for those who do not yet drive less (compared to those who already drive less) is unsurprising. In turn, the

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finding that participants who already drive less are more likely to recognise their own motivation (for intrinsic, integrated, identified, and introjected motivation) is also unsurprising given that the observed case studies had also already taken steps to change behaviour for environmental benefit. This demonstrates a challenge with using social proof to motivate a new behaviour, as observers are more likely to identify with case studies if they have already adopted the behaviour demonstrated. Social proof case studies therefore reinforce rather than prompt new behaviour.

More importantly, this exploratory research makes an important contribution to understanding of similarity. Previous studies have demonstrated the effect of similarity according to demographics such as age (Yang, Lien, and Chou, 2014), gender (McVicar, 2011) and ethnicity (Mugerman, Sade and Shayo, 2014). Our research provides some support for the peer effect of gender-based similarity. Males particularly identified with Case Study B (featuring a lone male) and females particularly identified with Case Study E (featuring a lone female), reflecting other studies for both males (Ficano, 2012) and females (Bostwick and Weinberg, 2022). The lack of significant difference in the 'reflected motivation' scores for each case study according to the ethnic group of the observers is surprising though and contradicts previous findings for ethnicity in social marketing where participants identify with examples from a similar ethnic background, (Anderson and McMillion, 1995; Kalichman and Coley, 1995; Spence *et al.*, 2013).

Although both featured cyclists, the age of the people in Case Studies B and C was not stated nor obviously deducible. Yet, younger participants believed Case Study B and Case Study C reflected their own motivation. Despite official statistics demonstrating the popularity of cycling across age groups (UK Government, 2021), a hypothesis for future exploration is that

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cycling is perceived to be an indicator of youth, therefore leading younger observers to recognise aspects of themselves in cycling case studies.

Our findings also suggest that motivation is not an aspect through which observers recognise similarity, and therefore a poor basis for designing social proof case studies. The 'reflected motivation' results for Study 2 indicate that participants did not recognise their own motivation in the case studies that Study 1 suggested should have been most similar to them.

4. Limitations and future directions

One important limitation with this research is the use of real case studies, currently being used by Bristol City Council to promote behaviour change. Future research might therefore design a wider range of case studies for research purposes, displaying a wider range of behaviours. For example, variables to assess might include a wider range of reasons for changing behaviour and clearer display of personal characteristics such as age. Future research might also use a different method of data collection, such as focus groups, allowing a more in-depth discussion about the profiles of the case studies.

Although these initial findings have indicated that the gender of the case studies may have affected the extent to which observers recognised their own motivation, there was otherwise generally little relationship between case studies and observers. In particular, no relationship has been found between the motivation displayed in the case studies according to Study 1 and recognition among observers in Study 2 that the displayed motivation matched their own motivation. Further research is therefore required to investigate this further, in particular to identify what features or characteristics the observers saw in the people within these case studies. Our results suggest that observers recognised gender, but other aspects for future exploration

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might include family situation, or personality traits. Further research could also seek to understand when observers do assess similarity according to motivation, age and ethnicity. Another limitation is the focus on Bristol, which is known for its liberal and 'progressive' (Godding, 2020) views and may affect perceptions of similarity. Further research in other cities would help to demonstrate whether, for example, ethnicity ever affects perceptions of similarity. Further research might also seek to ascertain a hierarchy for these aspects and the order with which potentially similar aspects are assessed, as well as understanding which aspects are most important contributors to perceptions of similarity. Further research is also required to understand which topics or contexts increase the effectiveness of social proof role models, particularly when seeking to change environmental behaviour.

The finding that those with higher incomes believed Case Study B and Case Study E reflected their own motivation is also intriguing. Case Study E is particularly focused on money-saving, which again requires greater exploration through future studies to investigate whether those earning more money are also more likely to recognise their own motivation in case studies of money-savers.

5. Conclusion

These findings appear to demonstrate that motivation is not a dimension by which observers can accurately recognise similarity between themselves and a social proof case study: motivation alone should not be the basis for 'peer-suasion' (Cialdini, 1984). Although participants in Study 2 were specifically asked to assess motivation, there was some evidence that observers recognised similarities with the case studies according to other characteristics.

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Where social proof is used, our study suggests the importance of using case studies that are demographically, rather than psychologically, similar to the audience. Yet even demographics do not consistently lead to perceived similarity among recipients. This is an important point for social marketing practitioners using social proof, as it underlines the difficulty in relying on social proof communication. There have been many examples of initiatives aimed at providing role models as 'social proof' to encourage specific groups to participate in new behaviours, such as the UK government REACH programme. (ETHNOS, 2011). The findings of this current work indicate that demographic similarity is not consistently recognised.

Rather than relying on communication-based tactics, such as social proof case studies, communication ought to be part of a wider package of policies that might also include enforcement measures such as fines or physical restrictions. Such a combination might therefore appeal to those requiring either extrinsic or intrinsic motivation.

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Tables

	Frequency	Percent
Ethnicity		
Asian / Asian British	17	5.6
Black / African / Caribbean / Black British	11	3.7
Mixed / Multi ethnic group	4	1.3
White British	239	79.4
White Irish	1	.3
White Other	25	8.3
Other ethnic group	1	.3
Prefer not to say	3	1.0
Income		
£0-10,000	35	11.6
£10,001-£20,000	54	17.9
£20,001-£30,000	87	28.9
£30,001-£40,000	55	18.3
£40,001-£50,000	30	10.0
£50,001-£60,000	20	6.6
£60,001-£70,000	7	2.3
£70,001-£80,000	5	1.7
£80,001-£90,000	1	.3
£90,001-£100,000	3	1.0
£100,001+	4	1.3

Table 1. Frequencies for ethnic group and income

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		Intrinsic	Integrated	Identified	Introjected	External	Amotivation
Case Study A	Mean	4.79	5.86	6.34	4.49	3.59	2.01
	N	301	301	301	301	301	301
	Std. Deviation	1.337	.954	.819	1.612	1.457	1.230
Case Study B	Mean	5.68	6.22	6.34	4.09	3.04	1.91
	N	301	301	301	301	301	301
	Std. Deviation	1.156	.859	.786	1.805	1.426	1.343
Case Study C	Mean	4.74	5.87	6.24	4.87	4.39	2.02
	N	301	301	301	301	301	301
	Std. Deviation	1.460	1.075	.846	1.543	1.563	1.387
Case Study D	Mean	4.44	5.41	5.49	4.38	4.24	2.77
	N	301	301	301	301	301	301
	Std. Deviation	1.398	1.308	1.112	1.392	1.394	1.483
Case Study E	Mean	4.20	5.47	5.95	4.55	4.27	2.41
	N	301	301	301	301	301	301
	Std. Deviation	1.601	1.176	1.033	1.524	1.538	1.529

Table 2. Mean motivation scores for each case study

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	Frequency	Percent
Ethnicity		
Asian / Asian British	18	6.0
Black / African / Caribbean / Black British	6	2.0
Mixed / Multi ethnic group	3	1.0
White British	241	80.6
White Irish	7	2.3
White Other	21	7.0
Other ethnic group	2	.7
Prefer not to say	1	.3
Income		
£0-10,000	36	12.0
£10,001-£20,000	51	17.1
£20,001-£30,000	80	26.8
£30,001-£40,000	48	16.1
£40,001-£50,000	44	14.7
£50,001-£60,000	15	5.0
£60,001-£70,000	9	3.0
£70,001-£80,000	7	2.3
£80,001-£90,000	2	.7
£90,001-£100,000	2	.7
£100,001+	2	.7
Not given	3	1.0

Table 3. Frequencies for ethnic group and income

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		N	Mean	Std. Deviation
Reflected motivation in Case Study A	Do not drive less	168	3.80	1.558
	Already drive less	131	5.23	1.268
Reflected motivation in Case Study B	Do not drive less	168	3.79	1.667
	Already drive less	131	5.15	1.470
Reflected motivation in Case Study C	Do not drive less	168	3.53	1.496
	Already drive less	131	5.02	1.327
Reflected motivation in Case Study D	Do not drive less	168	3.68	1.341
	Already drive less	131	4.89	1.145
Reflected motivation in Case Study E	Do not drive less	168	4.35	1.477
	Already drive less	131	5.51	.980

Table 4. Mean scores for reflected motivation within case studies

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		N	Mean	Std. Deviation
Intrinsic	Do not drive less	168	3.9435	1.26465
	Already drive less	131	5.3187	1.11849
Integrated	Do not drive less	168	2.8185	1.16867
	Already drive less	131	4.6088	1.19980
Identified	Do not drive less	168	3.9911	1.16969
	Already drive less	131	5.5859	.92807
Introjected	Do not drive less	168	2.6622	1.28852
	Already drive less	131	4.1737	1.28299
External	Do not drive less	168	2.0104	1.04012
	Already drive less	131	2.1260	1.06806
Amotivation	Do not drive less	168	3.9568	1.28586
	Already drive less	131	2.7099	1.22467

Table 5. Mean scores for participants' own motivation

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		Reflected motivation in Case Study A			Reflected motivation in Case Study B			Reflected motivation in Case Study C			Reflected motivation in Case Study D			Reflected motivation in Case Study E		
		Combined	Past	Future	Combined	Past	Future	Combined	Past	Future	Combined	Past	Future	Combined	Past	Future
Intrinsic	Pearson Correlation	.58**	.44**	.47**	.46**	.36**	.32**	.63**	.46**	.55**	.54**	.49**	.38**	.53**	.41**	.42**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168
Integrated	Pearson Correlation	.57**	.39**	.46**	.45**	.24**	.33**	.58**	.37**	.47**	.60**	.51**	.44**	.50**	.36**	.36**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.01	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168
Identified	Pearson Correlation	.53**	.40**	.36**	.52**	.26**	.45**	.59**	.31**	.52**	.56**	.39**	.43**	.57**	.43**	.45**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.00	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168
Introjected	Pearson Correlation	.55**	.47**	.39**	.42**	.23**	.32**	.59**	.43**	.49**	.58**	.47**	.47**	.48**	.30**	.39**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.008	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168
External	Pearson Correlation	.15**	-.00	.24**	.12*	-.02	.20**	.23**	.08	.33**	.31**	.22*	.38**	.15**	-.03	.24**

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	Sig. (2-tailed)	.01	.99	.00	.03	.86	.01	<.001	.38	<.001	<.001	.01	<.001	.01	.74	.00
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168
Amotivation	Pearson Correlation	-.40**	-.18*	-.31**	-.27**	-.02	-.18*	-.39**	-.09	-.33**	-.33**	-.05	-.26**	-.41**	-.34**	-.26**
	Sig. (2-tailed)	<.001	.05	<.001	<.001	.86	.018	<.001	.32	<.001	<.001	.57	<.001	<.001	<.001	<.001
	N	299	131	168	299	131	168	299	131	168	299	131	168	299	131	168

Table 6. Correlation between participants' own motivation and recognition of reflected motivation

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Figures

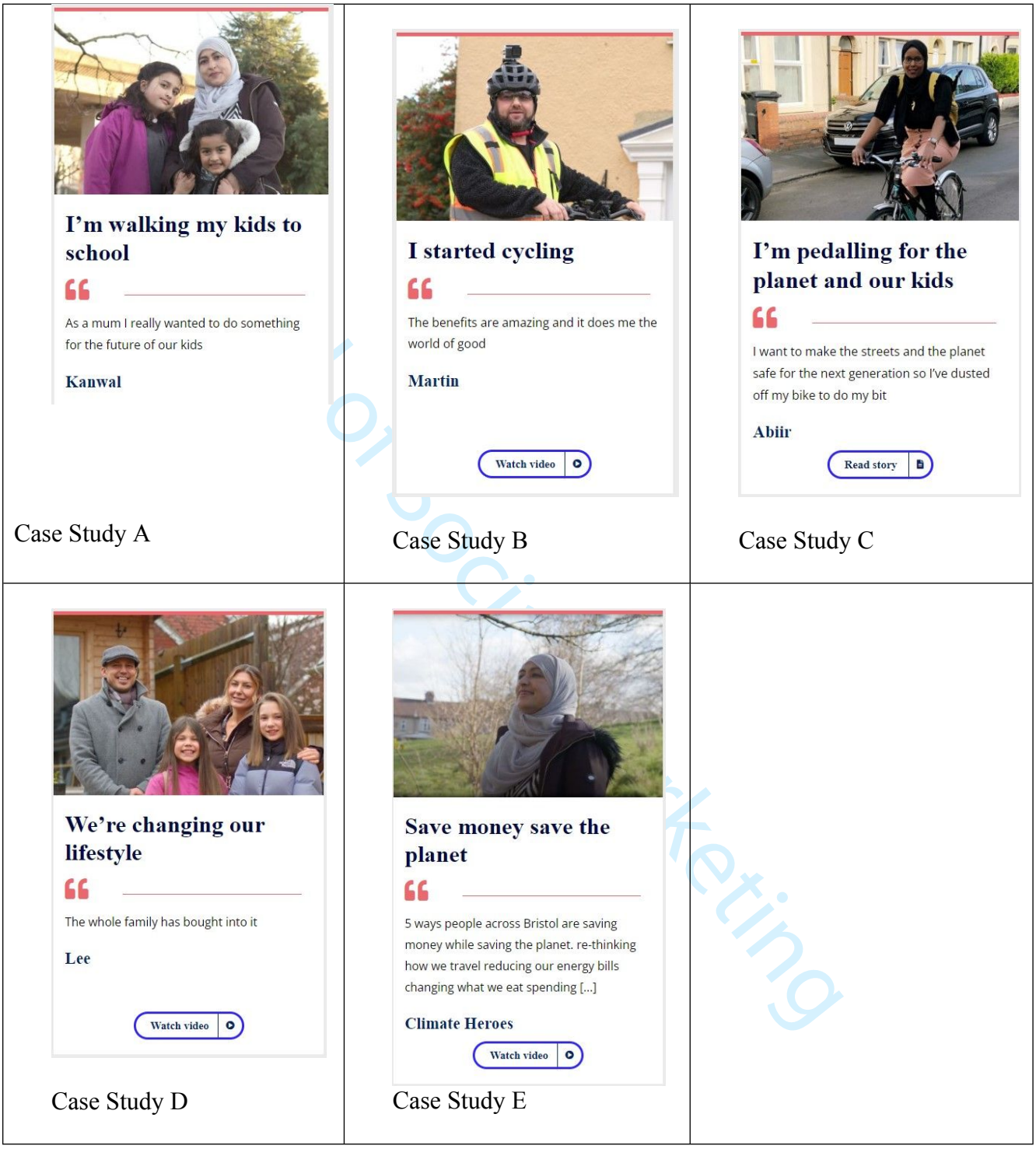

Figure 1. Case Studies

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