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Applying a single category implicit association test methodology to organ donation attitudes – assessing the gap between implicit and explicit beliefs.

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ABSTRACT

Implicit methods such as the Single Category Implicit Association Test (SC-IAT) have been used in attitudinal research to gauge biases and beliefs towards a number of topics. This type of research is particularly useful in areas where attitude and behaviour are not congruent. One example of such an attitude behaviour gap is in the domain of organ donation. People report to have highly positive attitudes towards organ donation; however this positivity does not translate to high levels of organ donation.

An SC-IAT was conducted alongside a questionnaire so that implicit and explicit attitudes could be assessed. In total 94 participants took part. In line with previous research, questionnaire responses indicated high levels of positive attitudes towards organ donation across the entire sample. However the SC-IAT scores indicated a variety of implicit attitudes ranging from negative associations to organ donation (shown by participants being quicker at pairing organ donation images with words of a negative valence), to positive associations (shown by participants being quicker at pairing organ donation images with words of a positive valence). People whose

SC-IAT scores were in the upper third (i.e. positive), also reported strong positive explicit attitudes and were more likely to be organ donors. People whose SC-IAT scores were in the lower third (i.e. negative) also had positive explicit attitudes. However their positive attitudes were less strong than those of the former group and they were less likely to be organ donors. The implications of the results for further research are discussed as well as their implications for improving organ donation rates.

KEY WORDS:	ORGAN DONATION	IMPLICIT	EXPLICIT	ATTITUDES	ALTRUISM

Introduction

Cadaveric organ transplantation is often noted as one of the greatest developments in recent medicine, however unlike other medical procedures it ultimately requires the death of another person to take place. When people sign up to this act of altruism they could potentially save or improve the quality of life of up to nine people (NHSBT Website, 2013). According to previous research, up to 90% of people in the UK are in favour of organ donation, however only 30% of people sign the organ donation register (Levitt, 2011, p55). This suggests that the decision to become a donor is not a straightforward choice. There is a clear attitude-behaviour gap.

Each year the NHS Blood and Transplant Service (NHSBT) provide statistics concerning the number of organs donated, the number of organs needed, and the number of deaths that occurred whilst people were waiting for an organ. In the year long period 1st April 2011 - 31st March 2012, 2143 donors made 3960 organ transplants possible. Within that year there was an 8% increase in donors culminating in the highest ever number of transplants in the UK. While registrations to the organ donor register increased, 508 people died waiting for an organ (NHSBT Activity Report 2011-2012). It is evident that there is still need to increase the supply of organs available. The question is how can the supply of organs be increased?

Two approaches have been taken to the issue. Firstly governmental reports and analyses have suggested that people need more encouragement to become organ donors, this comes from the assumption that people agree with organ donation but do not get round to it. The second approach looks further into people's attitudes towards organ donation. Self-report data is used to understand differences in attitudes towards organ donation, and why these positive attitudes may not result in people signing up to donate their organs. Much of this type of research looks at ambivalence and suggests that people may not be as positive as they explicitly state.

Numerous reports and recommendations have been made about how best to influence public behaviour in a variety of health domains. These reports can be used to better understand organ donation behaviour. Two concepts of particular relevance are the Mindspace report (Cabinet Office, 2010), and 'Nudge' (Thaler and Sunstein, 2008). Informed by research in behavioural economics and social psychology the Mindspace report looks at how public policy can effectively influence behaviour. This report states nine factors as part of a model of behavioural change to be taken into consideration when forming such policies (Messenger, Incentives, Norms, Defaults, Salience, Priming, Affect, Commitment and Environment). Mindspace takes into consideration both rational and automatic thought, and recognises that not all of the decisions people make are consciously informed. Aspects such as affect and defaults are particularly pertinent to the topic of organ donation. Affect, the emotional factor in decision making, can have an impact on the choices people make. This can be seen in health advisements such as stop smoking campaigns. Secondly the

defaults, or decisions that have already been set by legislation or by social norms can impact behaviour.

Thaler and Sunstein (2008) wrote in detail about 'Nudge'; a theory whereby the state makes default decisions about behaviours that are for the good of the people. The idea of nudge has been suggested in relation to organ donation, and proposes that an opt-out system could be a successful nudge to increase rates of organ donation. However this is not directly a nudge, as it does not benefit 'the people' it is in somebody else's best interest. One example of a nudge towards organ donation already enforced by the government is the alteration of the question relating to organ donation on the driver's licence application. The Cabinet Office report: Applying behavioural insight to health (2010) details the prompted choice system now present on the driver's licence application. It aims to encourage people to think about organ donation as they are not able to skip the question. This system was found to be successful in California with subsequent sign up rates rising from 38% to 60% (p.10). The effectiveness of this change in the UK has been questioned. In an analysis in the British Medical Journal, Wellesley (2011) calls for the effectiveness of prompted choice not to be overstated and notes "The number of new entries to the donor register brought by prompted choice will be relatively small—fewer than 130,000 a year. As this represents less than 1% of the number of people already registered, prompted choice is certainly no panacea" (p.1).

The second type of research aiming to understand the attitude-behaviour gap found in organ donation is focused on empirical research, and tries to unpick the many factors which may influence the individual decision to become an organ donor. Outlined below is previous research of the attitude-behaviour gap, and research relating to organ donation such as the effects of religion, gender, the 'Ick' factor and ambivalence.

A long running debate in social psychology concerns the predictive power of attitudes. In the case of organ donation, it is evident that attitudes are not a straightforward predictor of sign up rates. This difficult relationship has been found in other areas of health such as attitudes towards alcohol, and actual alcohol consumption rates; people report negative attitudes towards alcohol consumption, but still drink (Gregson and Stacey 1981). The famous example of LaPiere (1934) demonstrated that people may hold negative attitudes, in this case racial prejudices towards a Chinese couple, but do not necessarily act upon them by refusing them service. These examples of an attitude-behaviour gap indicate that even if strong attitudes are held, other possibly unconscious influences may intervene.

An example of early research exploring people's attitudes towards organ donation was conducted by Parisi and Katz (1986). The authors found that people with strong positive and weak negative attitudes towards organ donation were more willing to become organ donors. Many authors suggest that campaigns and education are a vital way of increasing organ donation rates. However since 1986 numerous techniques have been employed to educate people about, and promote organ donation, and yet people are still reluctant.

This suggests that something less amenable than education and promotion drives people's intention to become an organ donor.

One dimension which is acknowledged in relation to organ donation is morality. Questionnaires such as those by Parisi and Katz (1986) draw on this dimension in their questionnaire by providing statements such as 'Organ donation would enable me to help someone who is suffering' (p569) and asking people to rate their attitude towards the statement on a 6 point scale. Having a strong positive attitude towards statements such as this indicated a higher level of willingness to become an organ donor. It is evident that approval and morality in the domain of organ donation are highly interconnected.

Affect, or emotion, was found to be related to people's hesitancy in signing the organ donor register. Van Den Berg, Manstead, Van Der Pligt, and Wigboldus (2005) assessed affect in relation to organ donation, and in their sample ambivalence and affect were significant predictors of whether people had signed the organ donor register 6 months after taking part in the experiment. Ambivalence reflects a person's uncertainty about a topic and relates to not being able to make a commitment or decision. In relation to organ donation, the authors argue that ambivalence in this situation is driven by affect. The two topics are highly connected.

The 'Ick' factor is used to describe visceral feelings of disgust people may encounter in relation to organ donation. Morgan, Stephenson, Harrison, Afifi and Long (2008) discuss the effect the 'Ick' factor may have on making the decision to become an organ donor. The authors aimed to measure the effect of the 'Ick' factor alongside other possible influences on the decision to become an organ donor such as perceived benefit and media sources (e.g. newspaper portrayal of organ donation). To measure the 'Ick' factor, four questions were asked on a seven-point scale (strongly disagree to strongly agree). An example of a question asked was 'Organ donation leaves the body mutilated and disfigured' (p651). The authors found that noncognitive beliefs such as the 'Ick' factor were directly influential on donor card status. Factors such as the 'Ick' factor were more powerful predictors than knowledge and attitudes to identify whether a person was an organ donor. This research highlights the importance of looking at noncognitive factors when understanding rates of organ donation.

Many of the complex and varied reasons for differences in donation rates between ethnic groups are raised by Joshi (2011) in research comparing South Asian and White students attending higher education in the UK. Firstly large differences in donation rates were found (33% White and 9% South Asian), and reasons behind donation and non-donation were investigated through interviews and questionnaires. One reason found for reluctance to sign the organ donor was concerning family; 52% of Pakistani/Bangladeshi respondents indicated that it may be emotionally distressing to discuss organ donation with their family. Other important factors found were gender (more females than males owned an organ donor card), and religion (some people felt organ donation contradicted their religious beliefs).

The relationship between personality and organ donation was researched by Besser, Amir, and Barkan (2004) who looked at the following variables; fear of death, body image and authoritarianism. Their sample of donors generally showed lower ratings of fear of death, and authoritarianism, and showed a more positive body image. This research further highlights the complexity of individual decisions to become an organ donor.

Following on from this second strand of research, suggesting that people's attitudes towards organ donation do not necessarily predict behaviour; further research needs to be carried out to understand how much influence these self-reported positive attitudes have. With areas such as ambivalence, it could be suggested that multiple beliefs are held at one time, for example, people may find organ donation icky, but still feel positive about it on another, possibly more moral level. If this is the case in the instance of organ donation, methods looking at implicit and explicit beliefs could be utilised to examine how different factors have different levels of influence over organ donation rates. In 1993 Cacioppo and Gardner stated that a simple 'bipolar' model of attitudes towards organ donation was not sufficient for understanding organ donation behaviour. The authors suggested that a more complex 'two-dimensional' model would be more appropriate to "effectively represent and target the underlying substrates of donor behaviours." (p.271). This theory fits well with the idea that there could be several contributing factors for any one donor, and that not all of these factors may be available at a conscious level.

The idea of tapping the unconscious is not a new idea in psychology. Emphasised in the times of Wundt and Freud, the possibility of being able to access information that may not be immediately available to the individual is utilised in 'implicit' research. By capturing the essence of techniques such as introspection and applying them experimentally, one is able gain access to implicit beliefs and compare them to explicit information that people are able to freely give. Arguably new techniques are less abstract, and founded more on systematic empirical research and evidence.

Implicit research has been conducted using various methods to understand gaps between explicit attitudes and behaviour in a number of topic areas. Implicit measures can also be used to address the social desirability bias which can be problematic for research using traditional self-report measures of attitudes. In priming measures participants are presented with a target stimuli, for example a black or a white face, and simultaneously asked to make a judgement about words that appear on a screen. It has been found in research by Fazio, Jackson, Dunton and Williams (1995) that people responded differently to the words shown to them when primed with black and white faces, suggesting an implicit bias towards white faces. Attitudes demonstrated in priming study research such as that by Fazio et al (1995) have been found to be predictive of behaviour. The predictive power of implicit attitudes is important to take into consideration in relation to the gap between explicit attitudes and behaviour. Secondly, the Go / No go Association Task (GNAT), devised by Nosek and Banaji (2001) is used in implicit association research when there is only one target category. This task requires participants to respond to stimuli which relate to the target category and to 'good' items, and not to respond to

anything else, the participant must then respond to stimuli which relate to the target category and 'bad' items and not respond to good items. A comparison of reaction times and errors rates are used to infer an implicit association.

The Implicit Association Test (IAT) is a measure used to gauge preferences between two categories. Originally devised by Greenwald, McGhee and Schwarz in 1998, this measure of implicit attitude was used to further understand racial prejudice. While people generally reported to have no racial preferences, Greenwald et al (1998) found, through IAT methodology that people were quicker at pairing particular racial groups with words of good valence than other racial groups. They interpreted this to indicate an implicit preference towards one group. In the best known IAT research, Greenwald et al (2003) showed black and white faces on a screen, people were also shown words of good and bad valence. In different trials people paired different racial groups with different word types. Reaction times within each of the trials were analysed and compared with their explicit attitudes indicating a gap between the two. People were quicker at pairing white faces with words of good valence than they were at pairing black faces with words of good valance. The researchers interpreted this as indicating an implicit racial preference, which is not expressed in explicit attitudes due to a climate of opinion deeming it socially unacceptable to have racial preferences.

The Single Category IAT (SC-IAT) was developed in response to the original IAT test which cannot be used for topics which do not have an obvious comparator (Karplinski and Steinman, 2006). Topics such as organ donation do not have an obvious opposite like many of the topics used in traditional IATs, for example preference of fat or thin people. Similar to the IAT methodology the SC-IAT uses good and bad words along with target stimuli. Reaction times are taken as implicit measurements of preference. Steinman (2005) used the SC-IAT methodology to measure consumer attitudes towards the brand 'Gap'. The research found a more positive than negative association of the brand within their sample.

Implicit research, in particular the IAT has been widely used to understand different behaviours and associations. Currently on the 'Project Implicit' website, which houses a variety of IAT experiments, there are 14 examples of this methodology. These examples include the 'Presidents IAT' looking at presidential popularity and the 'Race IAT' looking at people's preferences towards black and white faces. These examples show some of the possibilities of using the IAT methodology, for purposes of public opinion, market research and wider topics such as race.

Implicit research has been used to understand this attitude-behaviour gap with health behaviours. Perugini (2005) looked at the role of implicit attitudes in predicting smoking behaviour. The contrast category used was exercise. Results showed that smokers had both more implicit and explicit positive associations with smoking than non-smokers. Perugini acknowledges one of the main limitations of the IAT methodology - needing to have a contrast category.

Implicit association research has also been conducted looking at 'undecided decision makers' (Galdi, Arcuri, and Gawronski, 2008) in an effort to understand people's decision making process. The authors used an SC-IAT to gauge attitudes towards an enlargement of a US military base in Italy. They found that people's scores in the SC-IAT significantly predicted later conscious decisions for undecided participants. The authors state that this has implications for understanding voting behaviour. Taking this research on board, SC-IAT research in the domain of organ donation could also be predictive for participants who are undecided about becoming a donor.

Bassett and Dabbs (2003) researched implicit and explicit attitudes towards death. Their sample included both psychology undergraduates, and individuals studying funeral services. The authors used the IAT methodology to test whether these two samples had different attitudes towards death. A pen and paper IAT was administered alongside questionnaires measuring death anxiety. In the self-reports people reported little death anxiety, however the IAT measure found that participants had negative associations of death. The two sample groups did not differ in their IAT score, meaning that they did not differ in their implicit negative associations of death. However funeral students reported less death anxiety in the self-report measures. This research raises important questions about whether to take information given during self-reports at face value.

So far, implicit research has not been applied to attitudes towards organ donation. Because there is such a large gap between attitude and behaviour in this case, it could be suggested that it is not only conscious 'Ick' attitudes but also unconscious implicit attitudes which may play a role in people's intentions and motivations to take the next step and sign the organ donor register. By applying an SC-IAT methodology to this area of interest it may be possible to indicate a gap between peoples positive or negative implicit associations of organ donation, and their explicit reported attitudes to the this topic.

Aim

This research aims to compare explicit attitudes towards organ donation (measured through the use of a questionnaire), with implicit attitudes towards organ donation measured through the use of an SC-IAT methodology. Within both the implicit and explicit measures, attitudes to both the moral and icky aspects of organ donation will be gauged. Due to the exploratory nature of this research, no directional hypotheses are given.

Methodology

Participants

In total 94 people, 36 male and 58 female, participated in this experiment. The ages of participants ranged from 19 to 74 years with a mean of 32 years, and a mode of 21 years (one person declined to submit their age). 42 people (45%) were registered as organ donors, 43 people (46%) were not, and the remaining 9 people were unsure whether they had signed the organ donor register.

Recruitment
Participants were opportunistically recruited. Firstly participants were recruited via word of mouth from friends and family. Secondly recruitment took place in the Psychology department of Oxford Brookes University.

SC-IAT Methodology
An SC-IAT methodology was used to measure people's implicit attitudes towards organ donation. 'Organ Donation' was used as a single target topic represented by a series of pictures (Appendix. 2.) alongside words of good and bad valence. Two different types of good and bad words were used; words which related to the 'Ick' factor (e.g. Repulsive or Lovely), and words which related to morality (e.g. Compassionate or Fraudulent) (Appendix.3.). The keys 'E' and 'I' on the computer keyboard were assigned as left and right. At the top left and right of the test screen the words 'Good' and 'Bad' were shown, as well as the word 'Pictures' which was paired with either 'Good' or 'Bad' at any one time. These labels would move from left to right at different stages of the experiment (See Table 1. P18). Words and pictures were presented and participants would click left or right to place the stimuli into the correct category. (See appendix 4). The experiment was developed using SuperLab 4.5. Reaction times for classifying pictures both with words of good and bad valence were collected for comparison. Figure 1 shows a series of screen shots of the test screen to demonstrate the design of the experiment.

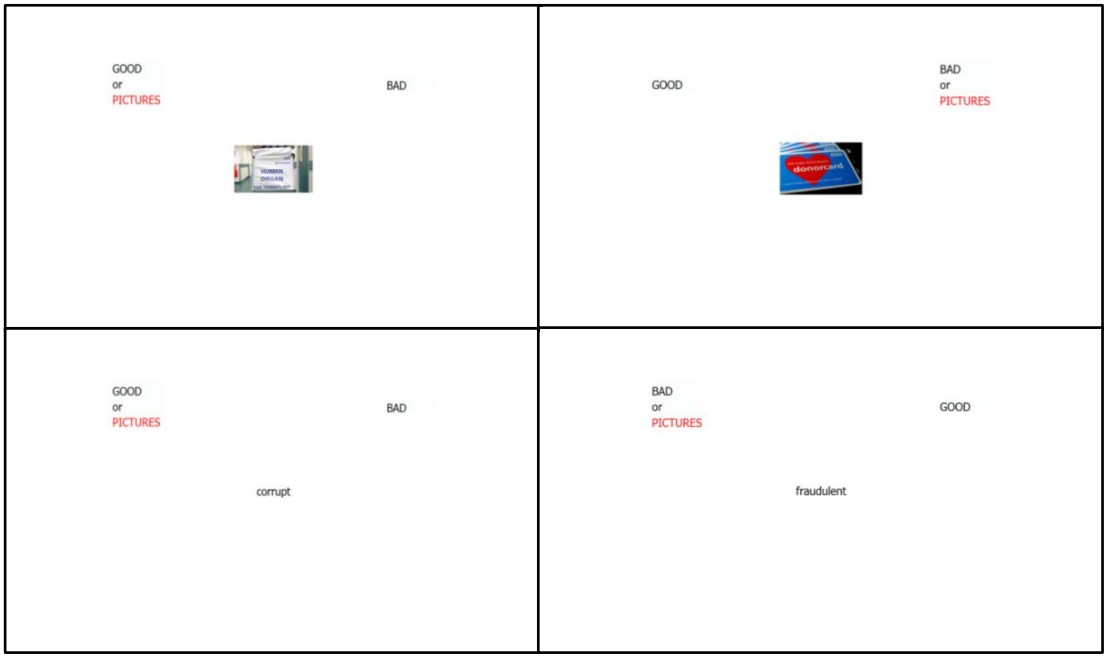

Figure.1. Screen shots from the SC-IAT indicating what different trials look like.

A repeated measures method was used for this experiment as participants took part in both the 'Moral' and the 'Ick factor' trials. Each participant took part in a total of 2 practice rounds and 8 recorded trials: Table 1 is an example of the

order of trials a participant would take part in; Table 2 demonstrates the order in which the four groups of participants carried out the trials.

Table.1
Example order of trials

Practice / Trial	Description	Number of Stimuli
Practice	Left – Good and Organ Donation Right – Bad	21
Trial – Moral	Left – Good and Organ Donation Right – Bad	54
Trial – Moral	Left – Good Right – Bad and Organ Donation	54
Trial – Ick Factor	Left – Good and Organ Donation Right – Bad	54
Trial – Ick Factor	Left – Good Right – Bad and Organ Donation	54
Practice	Left – Bad and Organ Donation Right – Good	21
Trial - Moral	Left – Bad and Organ Donation Right – Good	54
Trial - Moral	Left – Bad Right – Good and Organ Donation	54
Trial – Ick Factor	Left – Bad and Organ Donation Right – Good	54
Trial – Ick Factor	Left – Bad Right – Good and Organ Donation	54

Table.2
Order of trials for the four groups.

Group	1st Task	2nd Task	3rd Task
MQ	Moral Trials	Ick Factor Trials	Questionnaire
QM	Questionnaire	Moral Trials	Ick Factor Trials
OQ	Ick Factor Trials	Moral Trials	Questionnaire
QO	Questionnaire	Ick Factor Trials	Moral Trials

Word and Picture Selection
Two types of good and bad words were be used to capture both the moral and icky aspects of organ donation. The word lists (Appendix.3) were loosely based on those found on the Project Implicit Website (2012) which were piloted on 10 people, each of the four categories originally contained 12 words. Participants in the pilot study had to classify the 48 words into four categories (Moral, Not Moral, Icky, Not Icky). From each of the categories two of the words which were placed least accurately were removed. This left four categories of 10 words which were placed correctly 93% of the time. The pictures selected clearly

represented NHS organ donation without being of a graphic nature (e.g. donor cards and promotional materials, See appendix 2).

Questionnaire

Participants were asked to answer a short questionnaire consisting of 7 questions. (Appendix. 1. P.39) Half of the participants answered the questions before the SC-IAT, and half answered the questionnaire after. The questionnaire aimed to assess people's explicit attitudes towards organ donation. Participants were asked to rate their approval of organ donation (relating to the concept of morality) and emotional ease towards the subject (relating to the 'Ick' factor) on a seven point Likert scale. These two questions were asked in order to address the two aspects of organ donation of interest, the 'Ick' factor and morality. Participants were also asked whether they were on the organ donor register, if they were not they were asked to indicate if and when they intended to sign the register.

Results

In order to score the results obtained, the following paper of reference was used. Greenwald, Nosek, and Banaji (2003) provide several scoring criterion: scores longer than 10,000ms are to be eliminated, participants with a latency of less than 300ms for more than 10% of trials should be eliminated, incorrect responses are to be included. The study only used latencies for the classification of the organ donation pictures are to be used, and these latencies were averaged across trials.

Table 3 shows speed of response according to word type. A 2x2 Anova was conducted to see the effect of word type (Ick/Moral) and valence (Good/Bad) on response speed. A significant main effect of valence was found, ($F(1,93)=4.277$, $p=0.041$). Participants were significantly quicker when organ donation shared the same key as good words, than with bad words. There was not a significant main effect on reaction times depending on whether words were moral or icky ($F(1,93)=3.577$, $p=0.062$), although this did approach significance, people were quicker at pairing organ donation images with icky words than moral words. There was no significant interaction between the valence of the word used (good/bad) and whether it was moral or icky on people's reaction times ($F(1,93)=0.888$, $p=0.348$).

Table.3
Means and Standard Deviations for Valence and Word Type.

	GOOD		BAD		
	Mean(MS)	*SD*	*Mean(MS)*	*SD*	
MORAL	733.13	175.10	765.88	251.99	749.51
ICK	721.85	162.64	736.85	194.93	729.17
	727.30		751.37		

(N=94)

Due to differences in the explicit attitudes of men and women in past literature, their data were looked at seperately. Gender and the likelihood of being on the organ donor register approached significance, women were more likely to be on the organ donor register (X^2 (1, N = 94) =3.725, p = .054). There was a

significant difference in how women paired organ donation pictures with good and bad words, (t(57) = 2.576, *p* =0.013. Women responded significantly faster when organ donation was paired with good. There was no significant difference for word type for men, (t(35) = -.147, *p* =.884). Men's speed of response did not differ according to whether the organ donation pictures were paired with good and bad words.

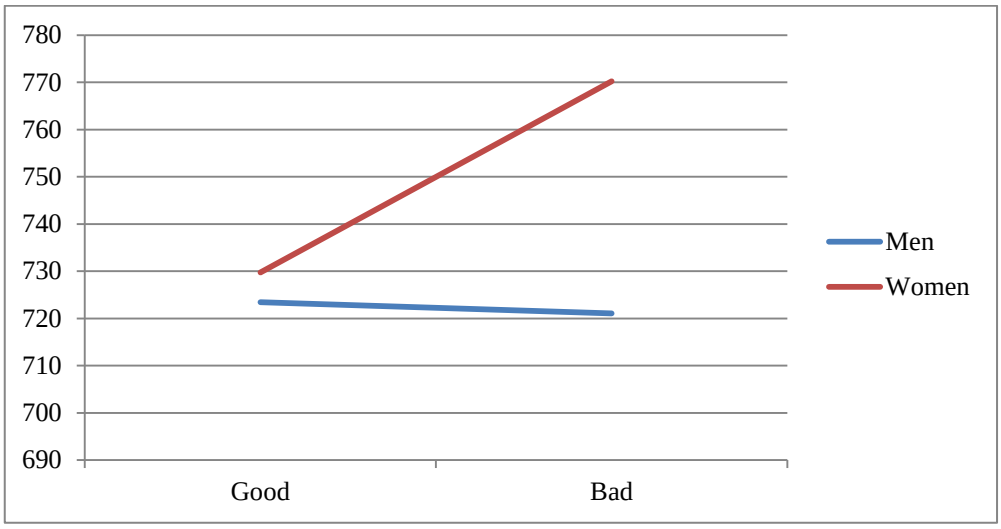

Figure.2. Gender differences in reaction time (*MS)* for men and women across words of good and bad valence.

Table.4.
Means and Standard Deviations for men and women across good and bad trials.

	GOOD Mean (MS)	SD	BAD Mean (MS)	SD
MALE (N=36)	723.41	133.47	721.05	155.18
FEMALE (N=58)	729.72	174.72	770.19	238.30

(N=94)

For the next phase of analysis people's, good scores were subtracted from their bad scores. This enabled a clear 'zero' point whereby, if people scored 0, they were no quicker at pairing organ donation pictures with words of good or bad valence. If people had a negative score, it indicated that they were quicker at pairing organ donation pictures with words of bad valence, and finally, if people had a positive score it indicated that they are quicker at pairing organ donation pictures with words of a good valence.

Participants were divided into three equal sized groups in terms of their "bad minus good" scores creating a negative association group, a positive association group, and a neither negative nor positive association group. Single sample T-tests were used to confirm that the groups represented positive, neutral and negative SC-IAT scores. The negative group was significantly slower at pairing organ donation with good words (t (29) = -9.521, *p* <.001), the

ambivalent group showed no significant difference of reaction time (t (30) = 1.622, *p*=.115), the positive group showed significantly quicker reaction times when pairing organ donation with good, (t (31) =5.921, *p* <.001).

Table.5.
Table showing mean and standard deviation reaction times of Bad-Good scores.

	Negative SC-IAT	Neutral SC-IAT	Positive SC-IAT
Mean (MS)	-60.62	3.89	131.29
SD	40.05	13.35	125.44

(N=93)

Comparing the two extreme groups, a significant relationship was found between SC-IAT score and whether people were organ donors (X^2 (1, N = 62) = 4.089, p = .043). 62% of donors scored positively on SC-IAT. In contrast only 36% of non-donors scored positively on the SC-IAT (See table 6).

Table.6.
Percentages of donors and non-donors in the negative and positive SC-IAT groups.

	Negative SC-IAT	Positive SC-IAT
Not A Donor (N=37)	64%	36%
Donor (N=25)	38%	62%

(N=62)

Approval towards organ donation was very high as measured by question one which used a 7 point scale (See Appendix 1). Across the whole sample the mean response was 6.37 (SD 1.12) the modal response was 7. People in the two extreme SC-IAT groups were compared in terms of their expressed attitudes. Participants who rated themselves as 1-5 (relatively negative) on the scale of approval were more likely to be in the less positive implicit group (100%), (X^2(2, N = 62) = 8.417, p = .004 using Fishers exact) than were people who rated themselves as 6-7 (relatively positive). There were only 7 people who did not rate themselves as 6-7 on the approval scale. Interestingly none of these seven people rated themselves below a 4 (indifferent). (See Table 7).

Table. 7.
Percentages of how people who rated themselves at approving or disapproving scored on the SC-IAT

	Negative SC-IAT	Positive SC-IAT
Relative Negative Approval (N=7)	100%	0%
Relative Positive Approval (N= 55)	42%	58%

(N=62)

Emotional ease towards organ donation was also high as measured by question two which used a 7 point scale (See Appendix 1). Across the whole sample the mean response was 5.60 (SD 1.35) the modal response was 7.

People in the two extreme SC-IAT groups were compared in terms of their expressed attitudes. There was a tendency for participants who rated themselves as 1-5 (relatively negative) on the scale of emotional ease to be in the less positive implicit group (X^2 (2, N = 62) = 3.175, p = .064) than were people who rated themselves as 6-7 (relatively positive).(See Table. 8).

Table.8.
Percentages of how people who scored themselves as emotionally ill-at ease, or at ease scored on the SC-IAT.

	Negative SC-IAT	Positive SC-IAT
Relative Negative Emotional Ease (N=22)	64%	36%
Relative Positive Emotional Ease (N=40)	40%	60%

(N=62)

Discussion

A variety of interesting results were produced by using the SC-IAT methodology to understand attitudes towards organ donation. Similar to previous research (Joshi, 2011), gender differences were found, with women showing more positive associations of organ donation, and this being reinforced by their likelihood of being an organ donor. More novel, was the exploration of three distinct groups which emerged through the SC-IAT methodology, positive, neutral and negative. People who did not rate themselves on the highest levels of approval towards organ donation, were more likely to show negative associations via the SC-IAT. This suggests that respondents lack of commitment to a strong positive, meant that they possibly had more negative implicit views about organ donation that they were aware of, or wished to share.

A number of implications can be drawn from this research linking implicit and explicit attitudes towards organ donation. Those who scored negatively on the SC-IAT are of particular interest regarding intention to become an organ donor. Research by Galdi et al (2008) suggested that IAT measures are a predictor of undecided decision makers future behaviour. If this is the case for the present study, this group may be unlikely to become organ donors despite their positive reported attitudes. Further research into how to influence people within the group who scored negatively on the SC-IAT would be valuable. A more indepth examination of the characterisitcs of this group, and the reasons they may not be as positive about organ donation as they explicitly suggest, may help to postively influence future campaigning and promotion work in relation to organ donation. For example, as participants were quicker at pairing organ donation images with words of good valence regardless of whether the word was moral or icky, no heavier weighting should be given to either of these topics when considering organ donation recruitment.

When conducting research of this nature, it is essential to look at the strengths and weaknesses of the measure used, and how these may affect the obtained results. Schnabel, Asendorpf and Greenwald (2008) discuss the strengths and limitations of using implicit association tests in personality research. The authors report that IATs have a higher reliability than other implicit measures

such as priming tasks and go / no go tasks, however they report that the test-retest reliability is not strong at .56 across various studies. This suggests the need for replication of the current study to examine reliability of its use for measuring attitudes towards organ donation. One benefit of IATs is that they are less fakeable than explicit measures, if people try to fake results, their reaction time increases too much and their results are discarded. This makes it desirable for use against self-report measures which may be influenced by social desirability. The SC-IAT is an answer to the one of the main limitations of the IAT; not all items have a direct contrast. The SC-IAT enables researchers to investigate attitudes towards a single category making it appropriate for looking at organ donation, however by using the SC-IAT there is reduction in reliability

The SC-IAT as a measure may be the most appropriate way of looking at implicit attitudes towards a single target category, in this case organ donation, but appropriateness in this way does not necessarily make it the most accurate measure. Schnabel et al (2008) discuss the apparent low levels of reliability of this measure, they suggest that these low levels may be influenced by the way people base their responses. In the standard IAT, participants always have to consciously think about 2 topics (if concentrating on one side of the screen), however in the SC-IAT, at all times, either the left or right of the screen will only show one category. If they attend to that one category e.g. good on the left, for anything that is good they press left, for all other stimuli, they press right; this could potentially mean that they are not fully processing the target stimuli.

Questions have been raised regarding the validity of implicit measures, how can we be sure that they measure the implicit? By its nature the implicit is not directly accessible, this makes implicit measures difficult to falsify, and therefore difficult to ‘prove’ as valid. Siegel, Dougherty and Huber (2012) looked at the role of cognitive control while taking the implicit association test. The authors compare the IAT with the Stroop Task (Stroop, 1935), essentially participants are required to attend to one charicteristic of a stimuli whilst ignoring another. Siegel et al (2012) suggest that the IAT may be measuring cognitive ability by examining ability to deal with the interference of this other characteristic. This research raises questions about the role of individual differences such as cognitive control on the IAT, and how this may affect the validity of results. The authors indicate that caution must be taken when conducting IAT research, and preferably cognitive control measures should be included in the research.

This sample consisted of 94 participants, which seems small when compared to some of the samples seen in studies such as those by Greenwald et al (2003) who used a total of 8218 data sets when looking at implicit preferences between political parties. Although much of the research using IAT methodology does not use such large samples, there seems to be a convincing case to access a much larger sample than was available. This was made apparent when analysing the data. When splitting people into groups such as donors/non-donors, or into different levels of approval, this group of 94 participants is reduced making data analysis difficult as the individual groups may be too small to compare. This measure produces individual results which only differ by a matter of milliseconds, with a larger sample an effect would be

detected more easily. Part of the reason for such high levels of data collected by Greenwald et al (2003) is the use of web data; their experiment is completed online and can be accessed worldwide. For this experiment, the SC-IAT was available on one laptop computer which limited the number of participants available over the time period.

Due to the limited sample of this experiment, and also some of the issues surrounding validity and reliability of the measure, an extended full IAT version of the experiment would be advisable. In order to do this it would be necessary to find a contrasting topic to research alongside organ donation. This highlights the complexity of organ donation as a subject matter; there are several related spheres, so finding the best contrast is essential.

Firstly organ donation can be seen as a health behaviour, for a full IAT this could translate to comparing organ transplantation, or organ donation campaigns with other health related issues and campaigns such as smoking or obesity (Figure 3). Secondly signing the organ donor register could be seen as a charitable or altruistic act (Figure 4), meaning if one were to take this stance for the full IAT, charities could be used as the comparative. And thirdly, possibly more crudely, organ donation could be compared with green behaviour. Taking a step back from the aspect of death within organ donation, it could be seen as the ultimate act of recycling (Figure 5); reusing and not wasting valuable and lifesaving organs. Also using the full IAT methodology, would somewhat mask organ donation as the topic of interest which may be beneficial. Below are examples of current campaign images aiming to increase organ donation resgistrations.

Figure 3. Organ donation campaign image focusing on the health of the recipient.

Figure 4. Organ donation campaign image focusing on the altruistic dimension of organ donation.

Figure 5. Organ donation campaign image focusing on the 'green' nature of organ donation.

The stronger effects of question one suggest that research needs to be conducted to understand conditionality of approval. People report high levels of approval, but for some people these levels do not translate to high levels or organ donation, it is of imporance to understand why this particular group are less likely to be on the organ donor register. In the current climate there is a large amount of distrust in the governement regarding several issues. One possible comaprison is foreign aid. In this case, people may approve in foreign aid investment, but still may be distrusting concerning what happens to the money. In a poll conducted by Ipsos Mori (2012) it was found that "Half of those surveyed globally (51%) believe that the money their country spends on financial aid to developing countries is wasted". Relating this to organ donation, people may at one level approve of organ donation, but simultaneously have doubts or a lack of trust in the system which provides the sevice. Issues like this could be holding people back from becoming organ donors.

In an improved methodology, participants could be given a questionnaire relating to several topics of public interest (E.g. Smoking, Organ Donation, Charitable Behaviour and Recycling), they would then be told that two of the topics (1+ Organ Donation) would be used for the IAT. A large sample would be needed, i.e. a couple of hundred for each IAT, this would not only investigate

people's implicit associations towards organ donation, but would also gauge peoples thoughts and attitudes towards organ donation in comparison to conditions of approval and morality. This methodology could have implications concerning improving rates of organ donation; if people generally see organ donation as related to charitable behaviours for example, campaigns should be focused on this aspect.

Within in the last five years there have been advances in the number of organs available for use. Partly this is due to tackling issues post mortem, such as family refusal, however part of the increase will be due to more people signing the organ donor register. A more complex version of this resarch, looking at multiple aspects of organ donation reluctance could aid both understanding organ donation rates, and how best to encourage people to become donors. Despite increased levels of organs available in the UK, the NHSBT activity report (2012) has suggested that donor characteriststics are changing, i.e. organs harvested from an obese population, or an older population. These factors may mean a lower quality of some of the organs transplanted "Donor characteristics are continuing to change: donors are older, more obese, and less likely to have suffered a trauma-related death, all of which have adverse effects on transplant outcomes" (NHSBT Activity Report 2011-2012, p.8). This shows the another complicated link between the general health of the population and organ donation.

The ODT provided a set of 14 recommendations in 2008 for our current opt-in system to try and improve donation rates by 50% within 5 years. These recommendations aimed to provide a 'structured and systematic approach' to increasing the number of organs available for transplant in the UK. Recommendations targeted legislation, the NHS, education, promotion, and organisation issues surrounding organ donation. 'Building on Progress : where next for organ donation policy in the UK', a report by the British Medical Association in 2012, suggested that so far, the progress as a result of these recommendations was good, with donation rates from deceased donors increasing by 25% in three years. The report however, still suggests that the UK is lagging behind donation rates for the rest of Europe even with the 25% increase. The European Commission organ donation report (2012) compares organ donation rates per million population across Europe. The country with the highest number of deceased donations occurs in Spain with 35.3 PMP, the UK has a deceased donation rate of 17 PMP. The British Medical Association report (2012) finished by indicating that even if the ODT's (2008) recommendations do reach the 50%, there will still be a shortfall in the number of organs needed. They suggest targeting several areas to maximise the improvement of organ donation rates such as adopting the Opt-Out system, targeting ethnic minority groups for campaigns and attempting to reduce the rates of family refusals.

Taking people's positive attitudes at face value, the 'Opt-Out' system has been suggested as a way to increase rates of organ donation. If people are positive about organ donation but do not get around to signing the register, this could be the answer. At present the UK has an opt-in system, whereby individuals have

to formally state their intention or wish to become an organ donor. One of the issues with the current system is that people are able to avoid making a decision about becoming an organ donor. With the proposed opt-out system, presumed consent would be taken. If people did not wish to become an organ donor they would have to formally opt-out. In 2008, the Organ Donation Taskforce (ODT) reported on the potential impact of an opt-out system for organ donation in the UK. This report suggests several potential areas which need to be taken into account when deciding on an opt-out system such as legal, ethical and practical issues, legislative implications, public attitudes and the importance of understanding the needs of those from particular faiths or belief systems. This report does not just focus on the potential difficulties of implementing an opt-out system, but also mentions the success of other countries which have taken this approach. Reviewing studies looking at the effectiveness of the opt-out system, the taskforce reports “an increase in donation rates of up to 25%” (ODT, 2008, p22). The notion of implementing an opt-out system seems to be a compelling idea, however, more information and further research is needed looking into how it may be successfully implemented

Referring again to the example of Spain where there is a relatively high organ donation rate, it has been suggested by the BMA (2012) that this is not to do with a formal opt-out organ donation system, but instead “It is, however, generally accepted, including by the BMA, that Spain’s success is not due to its legislation but its organisational model.” (BMA, 2012, p66). Additionally a report by Miranda, Fernandez Lucas, de Felipe, Naya, Gonzales-Posada and Matesanz (1999) discusses the success of the system in place in Spain. Rigorous training and support is given to transplant coordinators, as well as a system which appears to be well organised from the transplant coordinators in the local hospitals to the structure spanning the country as a whole. This high level of organisation may lead to the high rates of organ donation, and promote trust and the normalisation of organ donation in the wider community. Conversely another stance which could be taken on Spain’s high rates of organ donation could be their score relative to the UK on the individualism/collectivism dimension. Using information provided by the Hofstede Centre (Hofstede Centre Website 2013) Spain score 51 on the individualism scale, compared the the UK’s score of 89. Interpreting these statistics it is evident that spain is a more collectivist culture, and arguably organ donation could be seen as more or a collectively beneficial behaviour. Taking this and possible further implicit reasearch on attitudes towards organ donation, it may be more beneficical for the government to focus on the infrastructure of the organ donation system in the UK rather than the legislation surrounding it.

The ‘nudge’ that has already been put in place in the UK, i.e. the prompted choice question on the driver’s licence application does not appear to have been particularly successful in recruiting new organ donors. Looking at statistics for people who have signed the organ donation register via the DVLA over the last few years, there appears to be no clear improvement.The prompted choice question was introduced in August 2011. In 2010-2011 before the prompted choice question was introduced 58% of organ donation recruits were made via the DVLA, however in 2011-2012 57% percent of organ donation recruits were made via the DVLA (NHSBT Activity Report 2011-2012). If this nudge was not

successful, how much emphasis should be placed on further nudges such as the proposed opt-out system? Furthermore, the opt-out would be a nudge which is in someone else's interest, placing great importance in finding out whether people are as approving of organ donation as they explicitly say.

If further research was to validate the use of implicit beliefs in this area, the opt out sytem may not be as productive as expected. Looking at expressed attitude, implicit attitude and behaviour, it could be argued that there are two groups of people, firstly a group whos implicit and explicit attitudes are in line, for this group an opt out sytstem may be effective as they may just need the extra concouragement to become an organ donor. The second group however, report positive attitudes, but their implicit attitudes suggest that they are less approving of organ donation than their explicit attitudes state. Subsequently people in the second group are less likely to have signed the organ donor register further supporting the fact that they are less approving of organ donation than their explicit attitudes state. If the government were to take into account implicit research, it could undermine their assumpion that the majority of people agree with organ donation but just do not get round to it.
To conclude, by using the Single Category Implicit Association Test, it was possible to further understand and gauge differences in people's implicit and explicit attitudes towards organ donation. This method was particularly good at showing a connection between people who did not rate themselves on the highest levels of approval towards organ donation, and their low donation rates. This has implications for targeting this particular group to encourage an increase in sign up rates to the organ donation register. There is however, real scope to develop this methodology further to understand the complexity of different groups, their implicit and explicit beliefs, and donation rates. It is hoped that by applying this new area of social psychology to the topic of organ donation, our understanding of organ donation patterns will be enriched.

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