An application of the Theory of Planned Behaviour to blood donation: the importance of self-efficacy

M. Giles¹,², C. McClanahan¹, E. Cairns¹ and J. Mallet¹

Abstract

Given that self-efficacy has emerged as a key construct in health psychology, this study set out to explore its utility in the context of blood donation as defined within the Theory of Planned Behaviour (TPB). An Ajzen and Fishbein-type questionnaire was administered to 100 undergraduate students at the University of Ulster, Coleraine. A hierarchical multiple regression analysis provided strong support for the role of self-efficacy as a major determinant of intention. It not only helped to explain some 73% of the variance, but also made a greater contribution to the prediction of intention than the other main independent variables of the model—past behaviour and self-identity. Demonstrating the utility of self-efficacy in the context of blood donor behaviour not only has several important practical implications, but serves to further highlight its importance within the TPB.

Introduction

The increased demand for blood products by the health service has meant that hospitals are dependent on a constant supply of blood (Ferguson, 1996). Recent figures provided by the Blood Transfusion Service in Northern Ireland suggest that 10,000 new donors are needed each year alone. However, despite this need, it has been estimated that whilst 67% of men and 55% of women are eligible to give blood in the US, only 8% actually donate in any given year (Linden et al., 1988). Moreover, most blood is given by a relatively small number of repeat donors. This shortage has undoubtedly become more alarming amidst the transfusion-related tragedies and scandals associated with the AIDS epidemic in the US (Anderson et al., 1998). Consequently, there is a need to recruit and retain more blood donors.

However, whilst much research has focused on the concept of blood donation, we still do not clearly understand why some people are more likely to repeatedly give blood than others (Lee et al., 1999). Admittedly, research has identified a number of willingness factors with respect to first-time donors. For example, Piliavin et al. (Piliavin et al., 1982) report that social pressure, curiosity, specific replacement requests, guilt and the need to master fear are all important triggers. Some demographic descriptors of the typical blood donor are also available. For example, donors tend to be between the ages of 20 and 50, male, and generally donate via organized social or professional groups (Ferrari et al., 1985; Boulware et al., 2002). Further, they tend to be motivated by humanitarian or altruistic reasons [e.g. (Oswalt, 1977; Glynn et al., 2002)] and by peer social pressure [for a review, see (Piliavin, 1990)]. However, these findings offer little in the way of suggesting possible interventions, therefore highlighting the need for psychologists to explore procedures that might increase the commitment of blood donors (Ferrari et al., 1985). Whilst there are several

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theoretical models that might offer a number of practical recommendations for recruitment and maintenance of blood supply, one that shows much promise is the Theory of Reasoned Action/Theory of Planned Behaviour (TRA/TPB). In a review of studies applying the TPB in behavioural change interventions, Hardeman et al. (Hardeman et al., 2002) suggest that it could make a valuable contribution, particularly amongst those whose motivation to act cannot be taken for granted.

The TPB
The TPB operates on the premise that the best way to predict behaviour is to measure behavioural intention, which in turn is seen to be a function of three independent variables, i.e. attitude, subjective norm and perceived behavioural control (Ajzen, 1985, 1988). Briefly, attitude, i.e. an individual’s positive or negative evaluation of behaviour, is seen to reflect beliefs about the likely consequences of performing a behaviour, whilst subjective norm is an individual’s perception of social pressure and thus reflects the beliefs about the normative expectations of others (Ajzen and Fishbein, 1980; Ajzen, 2002). Perceived behavioural control, a more recent addition to the model (Ajzen, 1985), is intended to accommodate situations in which people may lack complete volitional control and as such is seen as a reflection of the perceived ease or difficulty involved in performing a behaviour.

Whilst the theory has generated much support in a wide variety of settings (Armitage and Conner, 2001b), some concerns have been expressed regarding the conceptualization of the control variable. Specifically, it has been suggested that a distinction should be made between the concepts of self-efficacy and perceived control since we cannot assume that an individual’s perception of the extent to which a behaviour may be impaired by external factors will necessarily correspond with their judgements as to how easy that behaviour would be to perform (Terry and O’Leary, 1995). Indeed, a person may perceive there to be few environmental constraints operating, i.e. they may consider the behaviour to be under their control, but at the same time they may perceive that behaviour as difficult to carry out (Pomazal and Jaccard, 1976; Giles and Cairns, 1995; Manstead and Van Eekelen, 1998; Armitage and Conner, 1999a,b, 2001a,b; Armitage et al., 1999).

Whilst there is no clear evidence as to which is the preferred measure of control within the TPB (Armitage and Conner, 2001b; Ajzen, 2002), evidence is accumulating to suggest that self-efficacy is not only an important addition to the theory, but it frequently emerges as the most significant predictor of both intention and behaviour (Armitage and Conner, 2001).

Self-efficacy, blood donation and the TPB
Self-efficacy theory has been applied to a very diverse range of human behaviours [e.g. (Lee, 1982; Levinson, 1982; Rollnick and Heather, 1982; Barling and Beattie, 1983)], demonstrating that a sense of self-efficacy can make a difference to how people think, feel and act (Schwarzer and Fuchs, 1995). Over the years, the concept has become so appealing to health psychologists, in particular, that it has been adopted as part of most health behaviour theories [e.g. (Conner and Norman, 1995)]. However, despite its appeal, few have explored its potential for explaining blood donor behaviour generally. Further, whilst it has been reported that ‘perceived ability is a crucial moderator variable for the applicability of Fishbein’s model to altruistic intentions’ [(Pomazal and Jaccard, 1976), p. 322], only two studies have so far employed the TPB to explore blood donor behaviour.

An application of the Theory of Planned Behaviour to blood donation
More recently, Armitage and Conner (Armitage and Conner, 2001a) reported two studies on blood donation, both of which were designed to explore a model based on the TPB. The findings from both these studies support those of Giles and Cairns (Giles and Cairns, 1995) proving that the theory is a useful predictor of blood-donating intentions and behaviour. In the first study, for example, 76% of the variance in blood-donating intention was explained, with self-efficacy proving to be a more important predictor than perceived control. In fact, self-efficacy was found to be the most significant predictor of behavioural intention. Similar findings were also reported in the second study, thereby highlighting the importance of personal resources in blood donation behaviour. Interestingly, an analysis of the underlying beliefs did suggest that self-efficacy is associated with a ‘fear of needles’, ‘a lack of previous experience’, ‘perceived inadequate health status’ and the perception that donating blood is ‘time consuming’, all of which could have important practical implications.

However, whilst this study suggests that we might be able to improve the effectiveness of interventions by focusing on self-efficacy, no attempt was made to explore previous experience of giving blood and yet it has been acknowledged that donor career path must be examined if we are to reach precise conclusions about donor behaviour (Ferguson, 1996). For example, is self-efficacy equally important for donors and non-donors alike? Research has shown that the predictive power of factors associated with blood donation changes as people progress from being first-time donors to donating on a regular basis (Callero and Piliavin, 1983; Allen et al., 1992). Callero and Piliavin (Callero and Piliavin, 1983), for example, report that first-time donors are more influenced by external social pressures (e.g. friends) and are more concerned about pain, whereas regular donors are more likely to mention a ‘concern for others’ as a motivation to donate blood and are more concerned about having to wait. If this is so, it may be that the efficacy beliefs also differ, in which case different interventions may be implied. Perhaps more importantly, Armitage and Conner (Armitage and Conner, 2001a) employed a proxy measure of behavioural enactment as opposed to an actual measure of behaviour with the result that it is again difficult to be conclusive about the various relationships purported within the model.

Demonstrating the utility of self-efficacy in the context of blood donor behaviour would have several important practical implications. However, there is clearly a need to replicate findings if research is to confidently inform practice. The aim of this study therefore was to obtain further support for the role of self-efficacy as a useful predictor of blood donating intentions. However, measures of actual behaviour and previous experience of blood donation were also included, thereby allowing for more precise conclusions regarding blood donor behaviour. Given recent suggestions that social identity/self-categorization theory may be a better way to reconceptualize norms within the TPB [e.g. (Terry and Hogg, 1996; Terry et al., 1999, 2000)] and various reports suggesting that people are more likely to give blood if donating blood is an important part of their self-identity (Charng et al., 1988; Armitage and Conner, 2001a), a measure of self-identity was also included.

Method

Participants and design
Participants in this study were 100 first-year undergraduate students (21 male and 79 female) from the Faculty of Social and Health Sciences and Education at the University if Ulster, Coleraine. Approximately 1 week prior to the arrival of the Blood Transfusion Service (BTS), students were approached during lectures, told about the anticipated arrival of this service and asked to participate in a survey designed to assess attitudes to blood donation. All participants were assured of anonymity and confidentiality. In the week following the departure of the BTS, students were approached again in order to ascertain who had actually given blood. Whilst all students approached at Time 1 (i.e. 100%) agreed to participate, the response rate
at Time 2 fell to 52% since fewer of the original sample were in attendance.

**The questionnaire**

The design of the questionnaire was such that it allowed for the measurement of those constructs contained within the Ajzen and Fishbein (Ajzen and Fishbein, 1980) framework. Given the importance of deriving salient beliefs from the target population (Fishbein and Ajzen, 1975), attitudinal, normative, self-efficacious and control beliefs were elicited in one-to-one interviews with a small representative sample (n = 20). Respondents were asked to consider the advantages and disadvantages of giving blood, and to list significant others who might approve or disapprove of them donating blood and factors that might prevent or encourage them to give blood. The most frequently mentioned beliefs were included in the questionnaire.

**Intention**

Intention is a measure of the extent to which an individual is motivated to give blood. Three items located at intervals throughout the questionnaire were used to assess this variable. These included, ‘I intend to give blood at the University this week’ (likely–unlikely), ‘I will try to give blood at the University this week’ (probable–improbable) and ‘I have decided to give blood at the University this week’ (agree–disagree). In each case, a seven-point scale was used. The summed response of all three items served as a measure of intention. Its internal consistency as indexed by Cronbach’s α was 0.93.

**Attitudes toward giving blood**

Attitudes represent individual’s feelings and beliefs about giving blood. The direct assessment required respondents to rate the act of ‘giving blood at the University this week’ on a set of five seven-point semantic differential items. These included: pleasant/unpleasant, satisfied/dissatisfied, good/bad, happy/sad and repulsive/attractive. Cronbach’s α was 0.85. A belief-based measure of attitude was derived from the summed product of 16 outcome evaluations and the corresponding behavioural beliefs. Each outcome evaluation (e.g. it would be painful, others would think well of me) was rated on a seven-point good–bad dimension. To assess behavioural beliefs, respondents indicated the likelihood that each outcome would be a consequence of them giving blood. Each behavioural belief statement was rated on a seven-point likely–unlikely dimension.

**Subjective norm and normative beliefs**

Subjective norm is a measure of the extent to which an individual perceives significant people in their life endorse blood donation. At a direct level, each participant evaluated the following statement: ‘Most people who are important to me think I should give blood at the University this week’.

A belief-based measure of subjective norm was derived from the summed product of five normative beliefs and motivations to comply. The strength of each normative belief (e.g. parents, friends) was assessed by asking respondents to indicate the likelihood that significant others would think they should donate blood. Motivations to comply were assessed on a domain basis by asking respondents to indicate their willingness to do what each referent thought they should do with respect to giving blood. All items employed the seven-point likely–unlikely dimension.

**Self-efficacy**

Self-efficacy is a measure of the extent to which an individual believes he/she has the confidence/capability to give blood. A direct measure of self-efficacy was obtained by averaging responses to four items, each employing a seven-point scale. These included: ‘How confident are you that you will be able to give blood at the University this week’ (not at all confident–very confident), ‘If it were entirely up to me, I am confident that I would be able to give blood at the University this week’ (strongly agree–strongly disagree), ‘I believe I have the ability to give blood at the University this week’ (definitely do–definitely do not) and ‘To what extent do you see yourself as capable of giving blood at the University this week’ (extremely capable–extremely incapable). Internal consistency as measured by coefficient α was 0.78.
Perceived control

Perceived control is a measure of the respondent’s judgement about the extent to which his/her decision to give blood is influenced by factors outside his/her control. The direct measure of perceived control was obtained by averaging responses to four scales. These included: ‘My giving blood at the University this week is likely to be influenced by factors beyond my control’ (strongly agree–strongly disagree), ‘How much control do you feel you have over giving blood at the University this week’ (complete control–no control), ‘It is mostly up to me whether or not I give blood at the University this week’ (strongly agree–strongly disagree) and ‘How much do you feel that giving blood at the University this week is beyond your control?’ (not at all–very much so). An \( \alpha \) coefficient of 0.74 was obtained for this scale.

Control beliefs

Given that Ajzen’s recommended two-part formulation [e.g. (Ajzen, 2002)] did not work particularly well for facilitating variables during the pilot of this questionnaire, it was decided to base the belief-based measure on single items as has been the practice in previous applications [e.g. (Ajzen and Madden, 1986)]. As such, respondents were required to indicate how likely it would be that each of nine factors would facilitate and/or prevent them from giving blood (e.g. previous experience, fear of being sick). All items were rated on a seven-point likely–unlikely dimension. An \( \alpha \) coefficient of 0.85 was obtained for this scale.

Self-identity

Self-identity ‘reflects the extent to which an actor sees him or herself as fulfilling the criteria for any societal role, e.g. ‘someone who is concerned with green issues’ [Conner and Armitage, 1988], p. 1444]. Three items assessed the extent to which giving blood is an important part of an individual’s self-identity, e.g. ‘To give blood is an important part of who I am’, scored from (1) ‘no, definitely not’ to (7) ‘yes, definitely’. Coefficient \( \alpha \) was 0.88.

Actual behaviour

Actual behaviour was reported following the departure of the BTS. Respondents were simply asked to indicate whether or not they had given blood during the visit of the BTS. Some demographic information was also collected (e.g. age and sex) together with an ID number, thereby allowing responses to be matched with those obtained at Time 1.

Additional information

Each respondent was asked to supply relevant background information including, for example, their age, sex, socioeconomic status and current marital status. They were also asked to indicate how often they gave blood (never; less than once a year; once a year; twice a year; 3 times a year; more often) and whether they thought payment should be given to those who donate.

Results

Descriptive and correlational analyses

Descriptive data for the scales used are displayed in Table I. Although not a direct focus of this study, it may be of interest to note that the attitudes of respondents toward giving blood were favourable, with 32% reporting that they did intend to give blood, of whom 12% were extremely likely to do so. Further, whilst 72% had never given blood previously, 15% reported to give blood often (i.e. twice a year or more). Whilst only six of the 55 people achieved at follow-up reported to have given blood (10.9%, or 6% of the original sample), a further 9.1% (or 5% of original sample) presented, but were not permitted to donate blood on this occasion.

Zero-order correlations between selected variables are also displayed in Table I. From this information it is apparent that whilst all variables have correlated significantly with intention, the strongest relationship is with self-efficacy. Self-identity, however, has also produced a strong correlation with the intention variable.
Prediction of intentions

In order to further explore the relative importance of the main independent variables in the prediction of intention, a hierarchical regression analysis was conducted in which intention was regressed on attitude and subjective norm on Step 1 (TRA), self-efficacy and perceived control on Step 2 (TPB), self-identity on Step 3 and past behaviour on Step 4. The results of this analysis are displayed in Table II.

From these results, it is clear that the TPB has worked extremely well. Indeed, together the independent variables have produced a multiple correlation of 0.857, accounting for some 73% of the variance in intention \[ F(6, 92) = 42.72, P < 0.01 \]. Attitude and subjective norm accounted for 8% of the variance \[ F(2, 96) = 4.26, P < 0.05 \], self-efficacy and perceived control entered on Step 2 contributed an extra 64% of the variance \[ F\text{ change (2, 94)} = 106.42, P < 0.001 \], self-identity, entered on Step 3, added another 1.5% \[ F\text{ change (1, 93)} = 5.42, P < 0.05 \], while past behaviour on Step 4 added a non-significant 0.2% \[ F\text{ change (1, 92)} = 0.69, P = \text{NS} \]. Moreover, the standardized regression coefficients suggest that self-efficacy is by far the most significant predictor (see Table II). Whilst perceived control has also made a significant contribution, the strength of the association is clearly not as great, thereby providing some evidence for the distinction of self-efficacy and perceived control [for a review, see (Armitage and Conner, 2001b)]. Further support is also apparent for the addition of self-identity, although the normative component also makes a significant contribution to the prediction of the intention variable.

A note on the distinction between self-efficacy and perceived control

In line with previous research [e.g. (Armitage and Conner, 2001a)], further analyses were conducted in order to explore the discriminant validity of

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**Table I. Means, SD and zero-order correlations between selected variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention</td>
<td>3.53</td>
<td>2.09</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>5.49</td>
<td>1.07</td>
<td>0.25(^a)</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjective norm</td>
<td>4.18</td>
<td>1.57</td>
<td>0.18(^a)</td>
<td>0.20</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>3.99</td>
<td>1.89</td>
<td>0.83(^c)</td>
<td>0.34(^c)</td>
<td>0.04</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived control</td>
<td>2.87</td>
<td>1.59</td>
<td>-0.37(^c)</td>
<td>0.14</td>
<td>-0.04</td>
<td>-0.30(^b)</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-identity</td>
<td>4.47</td>
<td>1.59</td>
<td>0.59(^c)</td>
<td>0.48(^c)</td>
<td>0.11</td>
<td>0.63(^c)</td>
<td>0.02</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Past behaviour</td>
<td>1.72</td>
<td>1.29</td>
<td>0.40(^c)</td>
<td>0.24(^b)</td>
<td>0.11</td>
<td>-0.06</td>
<td>0.49(^c)</td>
<td>0.49(^c)</td>
<td>–</td>
</tr>
</tbody>
</table>

\(^a\)P < 0.05; \(^b\)P < 0.01; \(^c\)P < 0.001.

**Table II. Hierarchical multiple regression of intention on attitude, subjective norm, self-efficacy, perceived control and self-identity**

<table>
<thead>
<tr>
<th>Step/predictor</th>
<th>R</th>
<th>R</th>
<th>R</th>
<th>F for change</th>
<th>(\beta)</th>
<th>Final (\beta) change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attitude</td>
<td>0.286</td>
<td>0.082</td>
<td>0.062</td>
<td>4.26(^a)</td>
<td>0.22(^a)</td>
<td>–0.08</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
<td>0.14(^a)</td>
<td>0.14(^a)</td>
</tr>
<tr>
<td>2. Self-efficacy</td>
<td>0.848</td>
<td>0.719</td>
<td>0.707</td>
<td>106.419(^c)</td>
<td>0.79(^c)</td>
<td>0.71(^c)</td>
</tr>
<tr>
<td>Perceived control</td>
<td>-0.11</td>
<td></td>
<td></td>
<td></td>
<td>-0.11(^a)</td>
<td>-0.14(^a)</td>
</tr>
<tr>
<td>3. Self-identity</td>
<td>0.857</td>
<td>0.734</td>
<td>0.015</td>
<td>5.415(^a)</td>
<td>0.18(^a)</td>
<td>0.19(^a)</td>
</tr>
<tr>
<td>4. Past behaviour</td>
<td>0.858</td>
<td>0.736</td>
<td>0.002</td>
<td>0.687</td>
<td>-0.05</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

\(^a\)P < 0.05; \(^b\)P < 0.01; \(^c\)P < 0.001.
self-efficacy and perceived control. Specifically, an exploratory factor analysis was conducted on the perceived control and self-efficacy items, the results of which are summarized in Table III. Kaiser’s criterion of eigenvalues >1 suggested that two factors should be retained, which together accounted for some 65% of the variance. These two factors clearly indexed perceived control and self-efficacy with items loading as predicted.

Correlations were also performed on the nine control/self-efficacious beliefs with self-efficacy and perceived control (see Table IV). ‘A fear of fainting’ (−0.34, n = 100, P < 0.001) and ‘a fear of being sick’ (−0.32, n = 100, P < 0.001) correlated significantly with self-efficacy, and ‘a fear of catching some infection or blood disease’ (−0.23, n = 100, P < 0.05) and ‘a fear of discovering an illness’ (−0.22, n = 100, P < 0.05) correlated significantly with perceived control. Meanwhile, ‘a fear of needles’ (−0.22, n = 100, P < 0.05; −0.32, n = 100, P < 0.001), ‘a payment or incentive’ (0.28, n = 100, P < 0.01; −0.22, n = 100, P < 0.05) and ‘an efficient operation’ (0.41, n = 100, P < 0.001; −0.25, n = 100, P < 0.05) correlated with both self-efficacy and perceived control (respectively).

**Table III.** Principal components analysis of self-efficacy and perceived control

<table>
<thead>
<tr>
<th>Measures</th>
<th>Rotated factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
</tr>
<tr>
<td>1. How much control do you feel you have over giving blood?</td>
<td>0.82</td>
</tr>
<tr>
<td>2. Giving blood is likely to be influenced by factors beyond your control</td>
<td>0.76</td>
</tr>
<tr>
<td>3. How much do you feel that giving blood is beyond your control?</td>
<td>0.68</td>
</tr>
<tr>
<td>4. It is mostly up to me if I give blood</td>
<td>0.66</td>
</tr>
<tr>
<td>5. How confident are you that you will be able to give blood</td>
<td>−0.34</td>
</tr>
<tr>
<td>6. To what extent are you capable of giving blood?</td>
<td>−0.35</td>
</tr>
<tr>
<td>7. If it were entirely up to me, I am capable of giving blood</td>
<td>0.27</td>
</tr>
<tr>
<td>8. I believe I have the ability to give blood</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Eigenvalues

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of variance</td>
<td>42.11</td>
</tr>
<tr>
<td>Cronbach’s α</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Loadings in bold type indicate the items contributing to each factor.

**Table IV.** Zero-order correlations of self-efficacy and perceived control with underlying beliefs

<table>
<thead>
<tr>
<th>Control Beliefs</th>
<th>Self-efficacy</th>
<th>Perceived control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Previous experience</td>
<td>−0.09</td>
<td>−0.10</td>
</tr>
<tr>
<td>2. Fear of needles</td>
<td>−0.22</td>
<td>−0.32</td>
</tr>
<tr>
<td>3. Fear of fainting</td>
<td>−0.34</td>
<td>−0.14</td>
</tr>
<tr>
<td>4. Fear of being sick</td>
<td>−0.32</td>
<td>−0.15</td>
</tr>
<tr>
<td>5. Fear of catching some infection or blood disease</td>
<td>−0.08</td>
<td>−0.23</td>
</tr>
<tr>
<td>6. Fear of discovering an illness</td>
<td>−0.13</td>
<td>−0.22</td>
</tr>
<tr>
<td>7. Losing time from study or work</td>
<td>−0.01</td>
<td>−0.07</td>
</tr>
<tr>
<td>8. A payment or incentive</td>
<td>0.28</td>
<td>−0.22</td>
</tr>
<tr>
<td>9. An efficient operation</td>
<td>0.41</td>
<td>−0.25</td>
</tr>
</tbody>
</table>

*a P < 0.05; b P < 0.01.

Understanding intentions

As self-efficacy was the most dominant predictor of behavioural intention in the regression analysis and in order to explore more fully the reasons why some people are more likely to give blood than others, further analyses of the underlying self-efficacious/control beliefs were conducted. Those who expressed an intention (i.e. reported it was extremely, quite or slightly likely) to give blood were classified as ‘intenders’ and compared with those who indicated that they did not intend to give blood (i.e. reported it was extremely, quite or slightly unlikely), referred to here as ‘non-intenders’, using ANOVA. The undecided group was excluded from this analysis. ‘An efficient operation would encourage you to give blood’, ‘a fear of fainting’ and
‘a fear of being sick’ were the only beliefs that discriminated between ‘intenders’ and ‘non-intenders’ (see Table V).

**Prediction of actual behaviour**

According to the TPB, intention is assumed to be the immediate antecedent of behaviour and, thus, people are expected to carry out their intentions when the opportunity arises. However, since successful performance is also considered to be dependent on adequate control over the behaviour in question, there remains the possibility that perceived control may also exert a direct influence on behaviour, not mediated by intention, to the extent that it serves as a measure of actual control. The possibility was explored in this study. However, given that the achieved sample at Time 2 ($n = 55$) was not really sufficient to justify the use of multiple regression analysis, correlations were calculated between intention, self-efficacy, perceived control and actual behaviour. The results are summarized in Table VI.

Perhaps not surprisingly, the intention variable has produced the strongest correlation with actual behaviour. However, both perceived control and self-efficacy have correlated significantly with behaviour, although the former is slightly higher than the latter. Interestingly, regression analysis did support the role of perceived control in the prediction of actual behaviour; the $\beta$ weight for self-efficacy was not significant [$F(3, 51) = 13.61, P < 0.01$].

**Factors differentiating donors from non-donors**

So far, it has been established that self-efficacy is a significant predictor of blood-donating intentions. Moreover, correlational analyses showed it to be an important variable for donors and non-donors alike ($0.75, n = 28, P < 0.001; 0.81, n = 72, P < 0.001$). However, in order to determine whether these two groups could be differentiated with respect to the nature of self-efficacy, further analyses of the underlying self-efficacious/control beliefs were conducted using ANOVA. Specifically, those who had donated blood in the past were compared with those who had never previously donated. Four of the control beliefs, ‘a fear of needles’, ‘a fear of fainting’, ‘a fear of catching some infection’ and ‘a fear of being sick’, significantly discriminated between these two groups (Table VII).

Although the number of people reporting to be regular blood donors was relatively small, further analyses were conducted to determine why some of these donors were less likely to intend donating blood on this occasion than others. Specifically, an ANOVA was conducted to compare intenders and non-intenders on each of the nine control/self-efficacious beliefs. Interestingly, ‘an efficient operation would encourage you to give blood’ was the only belief that discriminated between intenders ($n = 9, M = 5.28, SD = 1.53$) and non-intenders ($n = 18, M = 3.56, SD = 2.01$) in this group of people [$F(1, 25) = 6.194, P < 0.05$]. No such difference was evident between intenders and non-intenders.
Discussion

Although the sample size employed in the present context was relatively small, the present findings support the view that the TPB is a useful predictor of blood donation behaviour (Giles and Cairns, 1995; Armitage and Conner, 2001a). Furthermore, the present study extends on the outcomes of Giles and Cairns’ (Giles and Cairns, 1995) study and supports Armitage and Conner’s (Armitage and Conner, 2001a) findings by providing evidence for a distinction between self-efficacy and perceived behavioural control within the model as well as providing some support for the inclusion of self-identity.

The results of this study have several important consequences for both theory and practice. From a theoretical perspective, they highlight the importance of self-efficacy within the TPB. Self-efficacy not only explained somewhat more of the variance in intention than did perceived control, but made a greater contribution to the prediction of intention than did the other independent variables of the model. Whilst it is acknowledged that the relative importance of attitude, subjective norm and perceived behavioural control in the prediction of intention is expected to vary across behaviours and situations (Ajzen, 1991), evidence is accumulating to suggest that a clearly defined measure of self-efficacy may be a more powerful predictor in the context of Planned Behaviour than was at first realized [for a review, see (Armitage and Conner, 2001b)].

The finding that self-efficacy is an important and necessary addition to the TPB is perhaps not surprising given that self-efficacy has become a key variable in numerous applied settings (Schwarzer and Fuchs, 1995). Demonstrating its predictive superiority in the present context, however, both supports the findings of Armitage and Conner (Armitage and Conner, 2001a,b) and suggests a number of practical recommendations. For example:

...increasing non-donors’ and donors’ perceived abilities to cope with the stresses of donation prior to blood donation may, as with occupational career self-efficacy, motivate individuals to respond to future recruitment drives. [(Ferguson, 1996), p. 305].

Unfortunately, the number of donors achieved in the present sample was small. Thus, it is difficult to determine whether the predictive power of self-efficacy varies for those at different stages of the donor career path (Ferguson, 1996), although it would seem to be important for donors and non-donors alike. Further, the finding that the inhibitory beliefs such as ‘a fear of fainting’ and ‘a fear of being sick’ not only discriminated between respondents on the intention variable, but also between those who had donated blood in the past and those who had never given blood previously (Pomazal and Jaccard, 1976; Giles and Cairns, 1995), together with the importance attached to ‘an efficient operation’ for those donors intending to donate, does suggest that the meaning attached to self-efficacy may vary for those at different stages of the blood donation cycle. Thus, it is anticipated that different interventions may be required.

For regular blood donors, self-efficacy levels may be enhanced if the focus of promotional
activities were on the quality of service provided (e.g., cleanliness of surroundings, efficiency of process, experience of staff, etc.), whereas it may be more appropriate in the case of first-time donors to focus on the act of blood donating itself. This might involve a video observing someone successfully donating. Observation can be especially fruitful if observers perceive the role model as similar to themselves in ability, attitudes and group membership, such as age, gender and ethnic group (Abraham et al., 2002). On the other hand, observing people not coping with donation, e.g., observing donors passing out after donation, may act to deter future donation (Ferguson, 1996).

Verbal persuasion, especially in the form of positive feedback (Hardeman et al., 2002) received subsequent to successfully donating blood, may also enhance self-efficacy. The experience of successfully giving blood, and any concomitant positive physiological and affective responses may also increase one’s self-efficacy (Bandura, 1997). Other activities, such as guided mastery experiences, the use of imagery and relaxation techniques, or attention diversion and dissociation may also potentially enhance self-efficacy (Abraham et al., 2002).

Clearly, more work is needed to more fully explore the role played by self-efficacy in predicting blood donor behaviour, but also to further explore the meaning attached to this variable for those at different stages of the donor career path. It may also be of interest to explore the impact of the venue on deterring blood donors. Whilst the present findings attach some importance to the ‘efficiency of the process’ (which was taken to include issues like ‘the experience of staff’, ‘the cleanliness of surroundings’ and ‘the time taken to give blood’), particularly for those with previous experience, Boulware et al. (Boulware et al., 2002) suggest that removing blood donation practices from healthcare settings may represent a way of minimizing anxiety, thereby encouraging donation. Of course, the term ‘an efficient operation’ may not have been entirely clear to all respondents in the present context. Nevertheless, there does exist the possibility that different venues may be favoured for those at different stages of the donor career path.

Consistent with previous research (Terry and O’Leary, 1995; Sparks et al., 1997; Manstead and van Eekelen, 1998; Armitage and Conner, 1999), some evidence was obtained to support the discriminant validity of perceived control and self-efficacy. This was evidenced by exploratory factor analysis, various correlational analyses, and the differential prediction of the two components of both intention and behaviour. As such, these findings together with those of Terry and O’Leary (Terry and O’Leary, 1995) suggest that self-efficacy may be a more important predictor of intention than behaviour, whereas perceived control may be more directly related to actual behaviour. However, others have found perceived control to be consistently less predictive of both intention and behaviour than self-efficacy [e.g. (Manstead and van Eekelen, 1998; Armitage and Conner, 1999)].

This has led to the suggestion that the predictive utility of the theory may be enhanced by replacing the perceived behavioural control component with that of self-efficacy. Of course, it is difficult to be conclusive given that perceived control has typically been less clearly defined and operationalized than self-efficacy, and as such is more likely to consist of mixed measures (Armitage and Conner, 2001b).

Clearly, more research is needed to not only determine whether self-efficacy and perceived control do influence behaviour in different ways, but also to further explore the relationships between the underlying control beliefs and the global perceptions of such measures. Contrary to previous suggestion [e.g. (Povey et al., 2000; Armitage and Conner, 1999b)], there was little evidence to support the view that self-efficacy and perceived controllability reflect an internal/external dichotomy since some ‘internal’ control beliefs (e.g. a fear of needles) correlated significantly with both these variables (Ajzen, 2002). However, to clearly disaggregate the influence of these factors, future research should employ more powerful statistical analysis such as structural equation modelling. So far, such modelling techniques have not been used to any great extent to explore issues surrounding the TRA/TPB and not in the context of blood donation (Ferguson, 1996).
The present findings do suggest, however, that interventions should be based only on beliefs that are important to the target population (Sutton, 2002). In the present context, only three control beliefs—‘an efficient operation’, ‘a fear of fainting’ and ‘a fear of being sick’—differentiated ‘intenders’ from ‘non-intenders’, which is broadly consistent with Giles and Cairns (Giles and Cairns, 1995). Both these studies were conducted in Northern Ireland. In contrast, Armitage and Conner (Armitage and Conner, 2001a) found that seven out of a total of eight control beliefs differed between these two groups in their analyses. It is important to note, however, that participants in all these studies were drawn from student populations, most of who were not regular blood donors. Clearly, a representative sample of those at all stages of the donor career path is needed to verify the validity of these findings.

Some support was also obtained for the addition of self-identity, suggesting that in some contexts it may be useful to reconceptualize norms in the TRA/TPB in terms of self-identity/self-categorization theories [e.g. (Terry and Hogg, 1996; Terry et al., 1999, 2000)]. Certainly, there is a growing body of literature that emphasizes identification with the blood-donating group.

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To conclude, this study has provided evidence for the effect of self-efficacy in the context of blood donation suggesting several practical recommendations. To recruit non-donors, agencies would be well advised to employ techniques designed to increase self-efficacy levels perhaps via direct training or modelling. Moreover, given the act of blood donating could itself influence self-efficacy levels and donors do appear to attach some importance to ‘an efficient operation’, agencies should be mindful of the quality of service provided. Clearly, more work is needed not only to determine whether these findings can be replicated in a larger sample of the general population, but also to acknowledge the importance of donor career path and the relative influence of these predictors for those with varying degrees of experience. More importantly, however, research is needed to explore whether the interventions implied can effectively recruit and retain more blood donors.

### References


An application of the Theory of Planned Behaviour to blood donation


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