Deindividuation in the online Social Networking context: What situations might encourage deindividuation on Facebook?

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Abstract

Deindividuation occurs when group members perceive they no longer stand out as individuals, and their perceived anonymity enables engagement in behavior they would normally refrain from performing. The study utilized a 2x2 between-subjects experimental design to assess the impact of visual anonymity (low versus high) and salient social identity (group versus individual) on willingness to admit to holding socially undesirable views on a purpose-built Facebook profile page. Participants were requested to (1) follow administrative instructions and view a within-Facebook Group Webpage, (2) anonymously respond to controversial statements, (3) complete the Balanced Inventory of Desirable Responding, and (4) reiterate their responses to the statements on a Facebook group page. Participants assigned to the high visual anonymity condition were asked to use the default Facebook profile image as their profile picture, while those in the low visual anonymity condition were requested to upload a portrait-style photograph. The salient social identity (individual or group) was manipulated by referring to participants as either "individuals" or "group members", assigning either a "participant number" or a "group member number", and explaining the purpose of the study as an investigation of the effect of social processes on either "individual" or "group members". As predicted by the Social Identity model of Deindividuation Effects (SIDE model), visual anonymity and salient social identity were found to elicit an interaction effect on the degree to which numerical responses to the statement "fat people are lazy" was influenced by deindividuation, when the statement was presented on a Facebook group page. This finding was validated by the lack of significant differences between numerical responses to the statements on the anonymous survey website, and consistent scores on the Balanced Inventory of Desirable Responding between experimental groups. However, the three of the other controversial statements did not result in significant differences on Facebook, and the remaining controversial statement did not elicit significant responses in the predicted direction. Possible explanations for this finding are discussed, and recommendations for future research are presented.

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This thesis is dedicated to all the innovative, courageous entrepreneurs, who seek to push the boundaries of what is possible with technology, and provide creative solutions to practical problems. I have such respect for all.

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Introduction

Overview

One of the key influences of recent technology on human behavior is the way in which it has affected communication. Computer-Mediated Communication (CMC) can be synchronous or asynchronous, and is characterized by limited visual cues, reduced feedback, and anonymity (Lea & Spears, 1991; Walther, Heide, Kim, Westerman, & Tong, 2008; Wang, Moon, Kwon, Evans, & Stefanone, 2010). A relatively recent evolution of the available CMC tools has been provided by Social Networking Websites (Pempek, Yermolayeva, & Calvert, 2009). Social Networking Websites (SNSs) are defined as "member-based Internet communities that allow users to post profile information, such as a username and photograph, and to communicate with others in innovative ways such as sending public or private online messages or sharing photos online" (p. 277, Pempek, et al., 2009). These SNSs have quickly become extremely popular – a recent New Zealand Herald article suggests that 43% of New Zealander's are active on a Social Networking Website (Davison, 2010). The most popular SNS worldwide is Facebook (www.facebook.com), which currently lays claim to over 500 million registered users (Zuckerberg, 2010), followed by Qzone (200 million users), Habbo (162 million users), Windows Live Spaces (120 million users) and Bebo (117 million users). MySpace, Tagged, Vkontakte and Orkut, which tend to cater for specific demographics, also claim to have over 100 million users each. Although tertiary students tend to be overrepresented among Facebook users, (initially Facebook membership was restricted to current Harvard University students, then to American college students, before eventually being opened up to the general population), the site tends to utilized by a wide range of internet users (Hargittai, 2008; Zywica & Danowki, 2008).

Despite Facebook's enormous popularity, the published research on Facebook use, or even SNS use, is still relatively limited (Pempek, et al., 2009). Previous studies have focused on privacy concerns regarding the Facebook website (Debatin, Horn, & Hughes, 2009; Lewis, Kaufman, & Christakis, 2008; Muise, Christofides, & Desmarais, 2009; Nosko, Wood, & Molema, 2010; Papacharissi, 2009), the value of Facebook profile pages in employee recruitment (Kluemper & Rosen, 2009; Walther, et al., 2008), the role of personality variables on Facebook use (Correa, Hinsley, & Zuniga, 2010;

Tosun & Lajunen, 2010), the opportunity for increasing social capital by networking on Facebook (Ellison, Steinfield, & Lampe, 2007; Kwon & Wen, 2010; Pempek, et al., 2009; Vergeer & Pelzer, 2009), and the way in which self-presentation is managed on such social networking websites (Kramer & Winter, 2008; Wang, et al., 2010; Zywica & Danowki, 2008). Yet there are many areas of Facebook use in which no or little research has been conducted. For example, no known studies have investigated the relationship between socio-economic status and types of Facebook use, or the role of conscientiousness or agreeableness in SNS membership.

Another area of interest in which there has been a remarkable lack of research is whether or not the social psychology phenomenon called deindividuation plays a role in the way people interact on the website. Deindividuation is the process in which submergence in a group increases the anonymity and lowers the self-awareness of the group members (Festinger, Pepitone, & Newcomb, 1952). Simply put, "individuals are not seen or paid attention to as individuals... members do not feel that they stand out as individuals" (p. 125, Festinger, et al., 1952). As a result of being anonymous, (or more importantly, feeling anonymous), group members become more likely to do things that they would like to do, but would usually restrain themselves from doing (Festinger, et al., 1952). In other words, the perceived anonymity created by group membership reduces normally strong inner restraints against performing individually desirable, but socially undesirable, behaviour (Festinger, et al., 1952). In this context, the term "Individuation" can be roughly defined as the decrease of anonymity and increase of self-awareness, which results in an increase of inner restraints (Festinger, et al., 1952). While some studies on this concept have utilized the group as the independent variable (e.g. Diener, Fraser, Beaman, & Kelem, 1976), other experiments focus more on anonymity as the direct antecedent for unrestrained behavior – see Zimbardo (2007) for a review.

Is it reasonable to assume that deindividuation has a role in the way in which Facebook users interact on their chosen SNS? Again, it is worth considering the antecedents to this social process. Anonymity, especially visual anonymity, has been recognized as an integral part of the deindividuation (Mann, 1981). For example, when Zimbardo (1969) investigated the effects of anonymity on his participants' willingness to deliver electric shocks to another participant, (actually a confederate), he dressed his experimental group up in white coats and hoods, so they could not be identified. It has

been said that "the internet offers similar anonymity" (p. 229, Myers, 2005). As providing a profile picture of oneself is not mandatory to Facebook membership, there is the potential to use the website without the restraint of being visual identifiable. However, Walther, et al. (2008) notes that by accepting other Facebook users as "friends", participants relinquish full control over the degree of visual anonymity they enjoy on the website (because other users may "tag" them in photos). In addition, in 2010, Nosko et al. (2010) found that approximately 74% of Facebook users choose to display a profile photo of their person. When these two factors are taken into consideration, it seems logical to argue that the majority of Facebook users engage in a relatively high degree of self-disclosure – at least where identifiable photographs are concerned.

Conversely, there are many opportunities for Facebook members to abstain from self-disclosure, and thus retain some level of anonymity, visual or otherwise. On average, Facebook members choose not to disclose about 75% of the information the application prompts new users to provide (Nosko, et al., 2010). In addition, as alluded to earlier, over one-fourth of users do not choose to provide an identifying photograph of themselves (Nosko, et al., 2010). Thus, although many Facebook users still engage in a relatively high level of voluntary disclosure, the finding that users opt not to provide three-fourths of the possible information may indicate either a desire to protect one's privacy, or a desire to remain partially anonymous when using the website.

Another relevant factor to consider when investigating the role of deindividuation is that of social identity (Lea & Spears, 1991). When considering the variety of ways in which Facebook users may interact online, the relevance of social identity becomes apparent. For example, Facebook members may communicate with other members by adapting their profile page, sharing an observation via updating their status, or by communicating via private messaging within Facebook. It seems likely that in any of these methods of within-Facebook communication, individual identity would be most salient in the website users' mind. Alternatively, a Facebook member may accept an invitation to attend an event such as a friend's birthday, or take part in a group discussion, or comment on a photograph that many friends have already commented on. When using these forms of communication, it could be predicted that social identity would be salient.

When the role of both social identity (group identity or individual identity), and anonymity are investigated, an interaction effect results (Cress, 2005; Postmes, Spears, & Lea, 1998). The consideration of both social identity and anonymity is referred to as the Social Identity model of Deindividuation Effects, or SIDE model (Lea & Spears, 1991). This model has found to be the best predictor of deindividuation regarding computer-mediated communication (CMC), and avoids many of the pitfalls of general deindividuation studies concerning CMC (Cress, 2005).

Deindividuation serves to increase the attractiveness of group membership by enabling group members to carry out behaviors that they want to act on, but normally would not (Festinger, et al., 1952). By enabling group members to perform behaviours they would normally restrain themselves from performing, deindividuation severs to increase the attractiveness of group membership (Festinger, et al., 1952). While groups cannot offer individuation and deindividuation at the same time, the most successful groups are able to offer both these two conditions on different occasions (Festinger, et al., 1952). Thus, it may be that both individuation and deindividuation influence the behavior of group members on Facebook. The current experiments tests the hypothesis that deindividuation affects the way group members interact on Facebook in the way predicted by the Social Identity model of Deindividuation Effects (SIDE). If this hypothesis is supported, it may provide a platform for future research on whether deindividuation and individuation contribute to the appeal of popular Social Networking applications such as Facebook.

Literature Review

Groups can be defined as "a collection of people whose actions affect the other group members" (p. 751, Burton, Westen, & Kowalski, 2009). Thus, by their very definition, groups affect the behavior of the people within them. Groups may consist of workmates, classmates, club members, or associates (Carr, 2003). In short, groups consist of people who are in some way acquainted. In contrast, crowds are defined as "a fleeting aggregation of strangers" (p. 51, Carr, 2003). This distinction is made by some, but not all, social psychologists - see Carr (2003) for an example of a text in which this distinction is made, and see Burton (2009) for an example of a text in which the terms "groups" and "crowds" are used interchangeably.

The effect of groups on the behavior of individuals has long been recognized by (Burton, et al., 2009). Of particular interest to psychologists is the way in which group norms and individual's different roles within the group affect behavior (Burton, et al., 2009). Norms are "standards for behavior" (p. 751), which can be explicit or implicit, and guide what is considered acceptable and appropriate for group members (Burton, et al., 2009). Then, within these group-wide norms, more specific norms are adopted as group members assume specific parts within the group, and play out the norms most relevant to their part (Meriton, 1957; Parsons, 1951; cited by Burton, et al., 2009). These parts are referred to as "roles" within a group (Burton, et al., 2009). In essence, individuals assume a role within the group, and behave according to the expectations of their group members regarding this role, as well as expectations regarding the behavior of the wider group. In this way, both norms and roles serve to influence the actions of group members (Burton, et al., 2009). Individuals may chose to respond in adherence to the group's norms, or to reject the group's norms, depending on their attitude towards a given group. In turn, this choice may influence a group member's behavior either pro-socially or anti-socially, depending on the nature of the group norms. In this situation, the group is referred to as a "reference group" (p. 751, Burton, et al., 2009).

Other ways in which the presence of group members may influence an individual's behavior include social facilitation, social loafing, and conformity. Social facilitation occurs when the presence of a group either assists an individual in performing a well-rehearsed behavior, or hinders the individual's performance of less familiar task (Burton, et al., 2009; Triplett, 1989; Zajonc & Sales, 1966). To test this

theory, Zajonc and Sales (1966) required thirty-nine male university students to learn ten fabricated words, then shown these words very briefly to assess their subliminal recognition of the words they had learned. Participants assigned to the social facilitation condition, (in which there were two observers present during their recognition task), were shown to be more likely to provide prevalent responses than participants assigned to the control condition (Zajonc & Sales, 1966).

In contrast, social loafing involves the diminished effort all individual group members place into a task for which the responsibility lies on the entire group (Williams, Harkins, & Latane, 1981; Burton, et al., 2009). Another way in which the presence of group members can affect the behavior of the individual occurs when individuals conform to the opinions of their group members. One example of this, known as the Asch effect, demonstrates that individuals will even conform to the group opinion when their senses provide clear information that differs from the majority opinion (Zimbardo, Johnson, & Weber, 2006). Thus, the wide range of social psychological processes involving people's reactions to the presence of group members has on individuals demonstrates the potential for the group to effect individuals in both positive and negative ways. For example, when social facilitation enhances an individual's performance of a task, or when positive peer pressure influences the individual to act on pro-social norms, the presence of group members may positively influence group member's behavior. However, negative (or antisocial) effects may also occur.

Gustave Le Bon was among the first to highlight the ways in which group membership may negatively influence individual behavior (Burton, et al., 2009; Le Bon, 1896). As wealthy Frenchmen, Le Bon's contemporaries enjoyed power and privilege, while fearing the action of the underprivileged masses (Carr, 2003). This viewpoint was birthed in the context of the revolutions and mob behavior demonstrated throughout the previous decade (Burton, et al., 2009; Le Bon, 1896). As a result, Le Bon described crowds as unpredictable, emotionally volatile and potentially dangerous in his book *The Crowd* (1896). Further to this description, Le Bon theorized that being submerged in a crowd would result in "the disappearance of conscious personality" (p. 13, Le Bon, 1896), and subsequently, a diminished ability to make informed moral judgements (Burton, et al., 2009). This theory was developed further, and termed *Deindividuation* by Festinger, Pepitone, and Newcomb (1952).

Deindividuation is the process by which submergence in a group increases the anonymity and lowers the self-awareness of group members (Festinger, et al., 1952). Simply put, "individuals are not seen or paid attention to as individuals… members do not feel that they stand out as individuals" (p. 125, Festinger, et al., 1952). As a result of being anonymous, (or perhaps more importantly, *feeling* anonymous), group members become more likely to do things that they would like to do, but would normally restrain themselves from doing (Festinger, et al., 1952). In this context, the term "individuation" may be loosely defined as the decrease of anonymity and the increase of self-awareness, which results in an increase of inner restraints (Festinger, et al., 1952). While some studies on this concept have utilized the group as the independent variable (e.g. Diener, et al., 1976), other experiments focus more on anonmiyt as the direct antecedent for unrestrained behavior – see Zimbardo (2007) for a review.

Festinger et al. (1952) tested his conceptualization of deindividuation by asking American university students to discuss their feelings towards their parents. This topic was chosen as it was thought that the students would be very reluctant to admit to having negative feelings about their parents, yet willing to share positive views regarding their parents. In fact, it was hypothesized that it would be necessary to exert strong pressure on participants to overcome their "inner restraints" (p. 128) against admitting to owning such negative feelings. In order to provide this external pressure, (and pressure participants to stay on topic), students were led to believe that a previous study had shown that participants who expressed the greatest feelings of hatred towards their parents were later found to be the least likely to have ill feelings towards their parents, while those who didn't admit to having negative feelings towards their parents were the most likely to have strong feelings of resentment and distrust towards their parents (Festinger, et al., 1952). Two observers then recorded each of the contributions made by participants in the following discussion. Admissions of negative feelings towards one's parents were coded "negative statements", while comments regarding positive feelings towards one's parents were coded "positive statements". After testing participants on their memory of what had been shared during the session, (as well as which of their group members had contributed each statement), participants were asked to complete a questionnaire regarding whether they enjoyed participating in the group discussion, and debriefed (Festinger, et al., 1952). The study found a strong positive

correlation (0.57) between the reduction of the participants inner restraints (operationalized as negative statements minus positive statements), and the ability of the participants to recall what comments were shared by which participants. Thus, Festinger and colleagues (1952) provided support for their assertion that placing individuals in groups will increase the degree to which they perceive themselves to be anonymous, simultaneously decreasing inner restraints against performing socially undesirable behaviors.

Festinger et al. (1952) also hypothesize that, since deindividuation reduces people's restraints against doing things they *want to do* (but would normally refrain from doing), group situations in which the state of deindividuation was created would be more attractive than other groups (in which the state of deindividuation is not produced. That is to say, the group situations which offer individuals the chance to engage in behaviors that they desire to perform (but would normally abstain from), are more desirable than group situations which do not. Festinger et al.'s (1952) study also tested this theory by correlating the participant's self-report ratings regarding how much they enjoyed participating in the experimental discussion with the degree to which the group member's inner restraints against sharing their negative feelings towards their parents were reduced. As predicted, the study found a positive correlation between these two factors, which suggested that the more deindividuated behavior the individual felt free to engage in, the more they would report enjoying the experience.

By redefining, and experimentally testing their reconceptualisation of deindividuation, Festinger et al.'s (1952) original study made a significant contribution to the academic literature from which many other social psychologists have drawn inspiration, and built upon the study's findings. However, the study was not without limitations. Moreover, Festinger and his colleagues (1952) did not correctly identify all of these limitations at the time of publication. Firstly, although Festinger et al.'s (1952) study provided support for the existence of a correlation between their participant's tendency to speak freely about their feelings towards their parents and their tendency to report enjoying participating in the group discussion, it is not clear whether the causal effect of this finding is in the direction of the research hypothesis. For example, it may be that their participants made more negative statements (and less positive statements) regarding their parents because they were enjoying the group discussion, (rather than obtaining a greater degree of enjoyment from the discussion because they had felt

enabled to share a greater number of negative statements). Alternatively, more extraverted participants may have shown a greater tendency both to share more honestly during the group discussion, and to report high levels of enjoyment of participating in the said discussion. Similarly, does contributing more negative statements than positive statements to the group discussion, while demonstrating a lessened ability to recall which participants contributed which statements, indicate that a university student experienced freedom from their normal restraints regarding criticizing one's parents? Perhaps a third, unmeasured, factor – low socioeconomic status, for example – may result in both an increased likelihood of making negative comments about one's parents, and a diminished ability to pay attention to, and therefore remember, who made each statement during an experimental discussion. Another potential limitation of the study is that of the operational definitions utilized in Festinger et al.'s (1952) study. For example, has been said that the study may have confused actual anonymity (inability of fellow group members to remember who said what) with perceived anonymity (how anonymous the participant's feel or perceive themselves to be). Nevertheless, Festinger et al.'s (1952) initial research on deindividuation provided a platform for social psychological researchers to build on, and the successful replication of the study in both experimental and quasi-experimental designs have provided support for the validity for the study's findings.

Zimbardo (1969), often credited for the modern conceptualization of the theory of deindividuation (for example, see Diener, 1977; Mann, 1981), provided further definition to Festinger et al.'s (1952) ideas by describing the variables involved in inducing a state of deindividuation. These variables included anonymity, arousal, group size, atypical circumstances, and diffusion of responsibility (Mann, 1981). Zimbardo (1970) is also credited with explaining the link between the environmental factors that produce a deindividuated state, the nature of this internal deindividuated state, and the resulting antinormative behavior. This many provide an explanation as to why so many researchers credit Zimbardo (1969, 1970) rather than Festinger et al. (1952), for the modern conceptualization of the theory of deindividuation (see Mann, 1981, for example). Another possible explanation for the discrepancy regarding who is credited for founding the theory of deindividuation can be found in the brief literature review offered by Prentice-Dunn and Rogers (1989). Prentice-Dunn and Rogers (1989) suggest that although Festinger et al. (1952) can be credited with coining the term

"deindividuation", this original use of the term deindividuation could, in effect, be used interchangeably with "anonymity", and thus, does not represent the full conceptulisation of the theory, which was first presented by Zimbardo (1970). However, like the earlier work of Festinger et al. (1952), Zimbardo's presentation of the theory emphasized the role of the anonymity as an antecedent to deindividuation, an approach has been upheld in more recent publications. Hence, the present discussion has opted to give Festinger and colleagues (1952) credit for the theory of deindividuation, and Zimbardo (1969, 1970) credit for first mentioning many of the external and internal factors involved in deindividuation.

Since Festinger et al.'s (1952) original publication, deindividuation as a theory has been applied to many different circumstances and situations (Myers, 2005). Applications of the theory have utilized both experimental (e.g. Page & Moss, 1976) and outside the laboratory, correlational (e.g. Mann, 1981; Mullen, 1986; Silke, 2003) research designs. Such applications include investigating the willingness of participants to deliver electric shocks to confederates (Page & Moss, 1976), crowd responses to suicide threats (Mann, 1981), the ratio of lynch mob members to victims (Mullen, 1986), and the use of disguises by violent offenders (Silke, 2003). A more detailed review of these varying applications follows.

Page and Moss (1976) investigated the relationship between low-level lighting, physical distance between participants, and hostile behavior. Using a 2x2 factorial experiment reminiscent of Milgram's alleged learning experiment (1965), forty-eight male participants were randomly assigned to either a "brightly or dimly lit" experimental rooms, and placed in either close proximity or in the next room as their 'student', (actually a confederate), to whom they were asked to deliver electric shocks. As expected, the participants chose to deliver longer and more intense electric shocks to the confederate under low-lighting conditions *when the participant and confederate were placed in the same room*. However, when the participant and confederate were placed in different rooms, the differences between the length and intensity of shocks participants delivered under different lighting conditions were minimal (Page & Moss, 1976). Page and Moss (1976) provided three possible explanations for their findings, one of which was deindividuation. Thus, it was not clear from their experimental design which explanation should be attributed to their results, and as the authors rightly acknowledged, further research is needed in this area (Page & Moss, 1976).

The theory of deindividuation has also been applied to studies conducted outside of laboratory situations. In 1981, Mann (1981) analyzed newspaper accounts of spectators' responses to a person threatening to commit suicide by jumping off a building, bridge, or tower. In each of the twenty-one cases analysed, crowds formed to watch events unfold. In ten cases, the crowds responded antisocially to the suicide threat by baiting or jeering at the person threatening to jump. Mann (1981) suggested that deindividuation, and conditions known to cause deindividuation, may have helped to encourage this behaviour. The study found that several factors known to be conducive to deindividuation – namely; large crowds, poor visibility, and spatial separation – correlated with the likelihood of crowd members jeering and teasing. In particular, Mann (1981) noted that if the newspaper article reported at least three-hundred spectators present in the crowd, or the episode occurred after 6pm, (under the cover of darkness), or if spectators were physically separated from the person threatening to commit suicide, jeering and taunting was more likely to occur. Mann (1981) cautioned that since his study sampled journalist's descriptions of threatened suicide attempts, no definitive conclusions could be made. However, there were several limitations of the Mann (1981) study. For example, he did not discuss the possibility that in some of the twenty-one cases analysed, taunts and jeers from the crowd may have occurred but not been reported. Additionally, a large number of threatened and completed suicide attempts may never have been published in local media. Finally, the information that was published was heavily dependent on the reliability of the reporter's descriptions, and the sources of information (such as eye-witness accounts) they used to obtain the information. Further research could improve on Mann's study by utilizing a secondary source of information such as police reports, or descriptions of the events by multiple newspaper articles, to check the accuracy and comprehensiveness of the information provided in the analysed newspaper articles. Nevertheless, Mann's (1981) analysis was one of the first studies to provide ecological validity for the theory of deindividuation, by applying Zimbardo's (1969) findings regarding possible antecedents of deindividuation to historical, real-life, events.

Inspired by Mann's (1981) work on the response of the crowd to suicide threats, Mullen (1986) investigated the role of the number of people in a lynch mob on the violent behavior of the crowd. To operationalise this definition, Mullen utilized an algorithm called the 'Other-Total Ratio' (p. 188, Mullen, 1986). The Other-Total Ratio

was calculated by dividing the number of victims present in each lynch mob scenario by the combined number of people present at the scenario (i.e. the number of people present in the lynch mob + the number of victims). While this ratio appears to have face validity, Mullen (1986) failed to mention that it also suffers from the same shortcomings of all ratios. For example, the use of a ratio in Mullen's analysis may conceal important information such as whether there were 10 vicitms and 10 lynchers present (Other-Total Ratio = 10/(10+10) = 0.5), or whether there was 1 victim and 1 lyncher present (Other-Total Ratio = 1/(1+1) = 0.5). In both of these scenarios, the Other-Total Ratio would be the same, but a group of ten people would be expected to be influenced by social psychological processes (such as social loafing or diffusion of responsibility) that one individual would not. Similarly, the differences between 10 victims and 5 mob members, or 2 victims and 1 lyncher, might also be overlooked by the use of the Other-Total Ratio. As Mullen's (1986) raw data was not published, we cannot be sure to what extent this shortcoming may have affected his analysis. Another potential shortcoming of the study is that it appears only one rater was used to code the findings. That being said, Mullen's (1986) use of the ratio the lynch mob's level of deindividuation, and his use of self-attention theory to explain this phenomenon, has provided an innovative contribution to the field of applied deindividuation research.

A similar study investigated the correlation between the use of disguises by violent offenders and the type of violence they commit (Silke, 2003). To establish the strength of this correlation, Silke (2003) accumulated five hundred media publications in which violent attacks were reported, and analysed the publications to see if the offender was reported to have worn a disguise, and what offences were committed. Silke (2003) considered a disguise to present if the newspaper article, press report, or victim support group file mentioned the use of a mask, balaclava, hood, or other material to cover the face. As predicted, offenders who utilized such disguises were found to be more likely to engage in a variety of antisocial behaviours (Silke, 2003). The study was rightly commended for providing much-needed further support for the ecological validity of deindividuation (Silke, 2003), as previous examples of "real world" applications for the theory are limited (for exceptions, see Diener, et al., 1976; Mullen, 1986). Silke (2003) also praised the study for providing evidence of the role of deindividuation on violent – not just aggressive – behavior. Although there is some evidence to support this claim, (as it was shown that violent offenders who utilized

disguises were more likely to inflict serious physical injuries), many of Silke's (2003) indicators of uninhibited behaviours are not necessarily 'violent', rather than aggressive. For example, the study found that attackers who wore masks were more likely to order the victim to leave their home. Nonetheless, the study provided sensible suggestions for further research on 'real world' applications of deindividuation, and improved on Mullen's (1986) findings by utilizing more than one rater. Inter-rater reliabilities were high, but the number of raters used to coding the study data was not mentioned.

A common element in all of these studies is the importance of the role of anonymity. When Diener (1977) reviewed the role of anonymity as an antecedent to deindividuation, he concluded that although heightened anonymity often correlates with uninhibited behaviour, several aspects of this anonymity may influence the strength of this effect. One such factor is the way in which participants view their anonymity as influencing the accountability, or consequences, of their actions (Diener, 1977). Another possible factor is the way in which anonymity affects participants' self-awareness (Baron, 1971). Diener (1977) suggested that the degree of anonymity and who this anonymity is from may also have an effect. Although Diener's (1977) review of the role of anonymity in deindividuation was comprehensive, he did not discuss the theoretical distinction between perceived, and actual anonymity. However, to Diener's (1977) credit, the publication offered a succinct review of the ways in which deindividuation has been defined by key studies, in which this distinction was alluded to, although not identified or emphasized.

Other studies have highlighted the distinction between perceived, and actual, anonymity. For example, when investigating the role of anonymity, (both perceived and authentic) on altruistic behavior, Burnham (2003) manipulated both perceived anonymity, and actual anonymity. Similarly, Piazza and Bering (2008) compared the effects of sharing only the private responses of participants taking part in an economic game with sharing both their private responses and identifying information. Page and Moss (1976) also acknowledged that further research would be needed to distinguish between the role of darkness in creating actual, versus perceived anonymity. In contrast, Festinger, et al. (1952) could be criticized for not making this distinction.

Reicher (1984, 1987) extended the theory of deindividuation by applying that the principles of Social Identity Theory (SIT) to classic deindividuation (Lea & Spears,

1991). Reicher proposed that when group identity is salient, deindividuating factors (such as visual anonymity) will result in a greater adherence to group norms. However, if individual identity is salient, then deindividuating factors will result in lessened effect of group norms. The explanation given for this effect is that is that while the group identity is salient, visual anonymity will serve to further heighten the salience of group norms by hiding obvious physical and demographic differences between group members. Conversely, if individual identity is salient, visual anonymity will serve to hide obvious appearance-related similarities between group members, and further reduce the perceived relevance of group norms (Reicher, 1984). This approach later came to be known as the "Social Identity of Deindividuation Effects", or "SIDE" model. This approach was later found to be particularly valuable when considering the effect of deindividuation on computers (Lea & Spears, 1991; Reicher, 1987).

It has already been noted that anonymity is an important antecedent in inducing the state of deindividuation. As with membership in a large crowd, physical distance, or low-lighting conditions, Myers (2005) notes that "the internet offers similar anonymity" (p. 299). Lea and Spears (1991) reviewed work of Carnegie-Mellon University's Committee of Social Science Research on Computer-Mediated Communication (CMC), who had contributed much to this field. As reported by Lea and Spears (1991), the Carnegie-Mellon Committee had concluded from their research that computer-mediated communication decreases the awareness of social norms, resulting in less inhibited, and therefore more extreme, behavior. Accordingly, group decision-making via computer-mediated communication tends to result in more polarized, and extreme decisions by groups, than group decision-making via other forms of communication (Lea & Spears, 1991). Lea and Spears' (1991) then examined five possible explanations the team had provided for this finding, including depersonalization (which occurs when the focus is on the content of the discussion rather than the people involved in the discussion), reduced feedback (resulting in equal participation in the discussion and polarization), the development and salience of a computer-mediated communication subculture (which rejects regular social norms in favour of more extreme norms, specific to the medium being used), the absence of social cues (resulting in reduced influence of group norms, equal participation, and the absence of leadership), and deindividuation. Although their review provided a rationale for the excluding of many of these potential explainations for polarized decision making within CMC, not all alternative

explanations can be excluded by their arguments. In addition, portions of the authours' arguments against the alternative explanations raised by the Carnegie-Mellon team were untested, or incomplete.

Lea and Spears (1991) recruited 48 university students, who were asked to discuss controversial issues using electronic mail in small groups of three. The anonymity of the participants was manipulated by either seating all three participants in the small group in the same room - keeping them physically separated (and thus, anonymous), or by seating the group members in the same room, facing one another, while involved in the computer-mediated discussion. Based on Turner's (1983, 1987; cited by Lea & Spears, 1991) method of manipulating salient social identity, Lea and Spears (1991) group identity was made salient by highlighting the similarities between group members, referring to participants as "group members", and informing participants that the aims of the study examined the efficiency of the group communication. Other groups were assigned to the salient individual identity condition, in which participants were referred to as "participants", not informed of similarities between group members, and the aims of the study were described as assessing the examining the efficiency of the individual participants' communication. Using a 9-point Likert scale, participants provided their opinions on the controversial issues, both before and after the experiment. A number of other of measures were also taken, including the number of messages sent, the number of words sent, and the perceived agreement of group members. When the pre-discussion and post-discussion Likert ratings were compared, a significant interaction effect was found between the anonymity and salient group identity. Interaction effects were also found for many other variables, including the polarization of opinions, perceived agreement, message length, and inequality of participation. As Lea and Spears (1991) reported, polarization of opinions was greatest in subjects assigned to the physically anonymous conditions, and was also associated with shorter messages, unequal participation levels, and fewer discussion-related comments.

Joinson's (2001) designed several experiments to investigate the role of self-awareness in CMC versus face-to-face discussions, the effect of visual anonymity in CMC on voluntary self-disclosure, and the interaction of varying levels of public and private self-disclosure on self-disclosure using CMC. Joinson (2001) asserted that the combined findings of all three studies should be interpreted as evidence that the

anonymity involved in using CMC results in lowered public self-awareness and increased private self-awareness, thereby increasing the level of voluntary self-disclosure exhibited over CMC (compared to that in face-to-face discussion). He then argues that this theoretical understanding of the role of self-awareness provides a more accurate theoretical explanation of the results than classic deindividuation, which is associated with lowered public self-awareness and lowered private self-awareness. However, as Joinson himself acknowledged, the experimental design of one of his study does not rule out the SIDE model explanation of his results.

Cress (2005) also conducted an experimental investigation of the SIDE model. Assuming that individuals would exhibit an inborn propensity towards demonstrating prosocial, competitive, or individualistic behavior, Cress (2005) hypothesized that that this would also define participants salient social identity. Thus, rather than manipulate this independent variable, participants were requested to complete a social value orientation test, which determined whether participants were deemed to have salient social identity (n = 40), salient individual identity (n = 23), salient competitive identity (n = 9), or no clear leaning towards one of these categories (n = 12). Approximately half of those in each social identity category were assigned to work with portraits of their fellow participants, and half without. As expected, results showed an interaction effect between salient social identity and the level of visual anonymity. Although this study provided an innovative method for assigning participants to their salient social identity, a limitation of this method was that this resulted in an uneven number of participants being assigned to each condition. Also, the degree to which participants results on the social value orientation test reflected a clear alignment with a particular type of social identity remained undisclosed; this is concerning, given the authour's admission that twelve participants were not able to be assigned to a social identity group. Similarly, the criteria for excluding these twelve participants was not declared. Conversely, as this method of assigning participants to their social identity was validated by the use of a five-items questionnaire scale, it seems probable that that decisions made regarding this assignment were also valid. However, this validity check does not exclude the possibility that scores on the social value orientation test may represent some systematic difference between participants that is not limited to their perceived social identity.

A wide variety of measures have been developed in order to measure social desirable responding (SDR), and selection of a measurement must be considered as many social desirability scales do not correlate highly with other measures (Robinson, Shaver, & Wrightsman, 1991). For the present study, the Balanced Inventory of Desirable Responding (BIDR) was chosen for its ability to measure both Impression Management (IM) and Self-Deceptive Enhancement (SDE). The Impression Management subscale measures the degree to which participants knowingly alter their answers to appear pleasing to others, whereas the Self-Deceptive Enhancement subscale indicates the participants' tendency to present in an honest, but overly optimistic, manner (Robinson, et al., 1991). The measure has also been shown to good psychometric properties (Andrew & Jessica, 2007; Richard & Adam, 2007; Robinson, et al., 1991), and appears to be fairly flexible in terms of cultural values (Andrew & Jochen, 2009).

Methodology

Participants

To be eligible to take part in the study, participants were informed they must be 18 years of age or older, currently living in New Zealand, and confident communicating in written English. Participants were also required to have an active Facebook account, or be willing to create one for the purpose of the study. Participants were recruited by paid advertisements on the Facebook (www.facebook.com) or the Get Participants website (www.getparticipants.com), which directed them to a Massey University website providing comprehensive information about the study. When n = 50, the F test shows a 0.86 (2dp) probability of rejecting the null hypothesis at the 0.05 level. Thus, the study aimed to recruit 50 participants for each of the four experimental groups; 200 participants in total (Cohen, 1988).

Equipment

All participants were required to have access to a computer with an internet connection. For the purpose of recruiting participants, an online information sheet, complete with submission form, was presented on a Massey University, School of Psychology webpage. In addition, a survey webpage was also created, also hosted by Massey University's School of Psychology online domain. Five new email accounts (one for administrative purposes, and one for each of the experimental groups) were also created, as well as five new Facebook accounts (one for advertising purposes, and one for each of the experimental groups).

Procedure

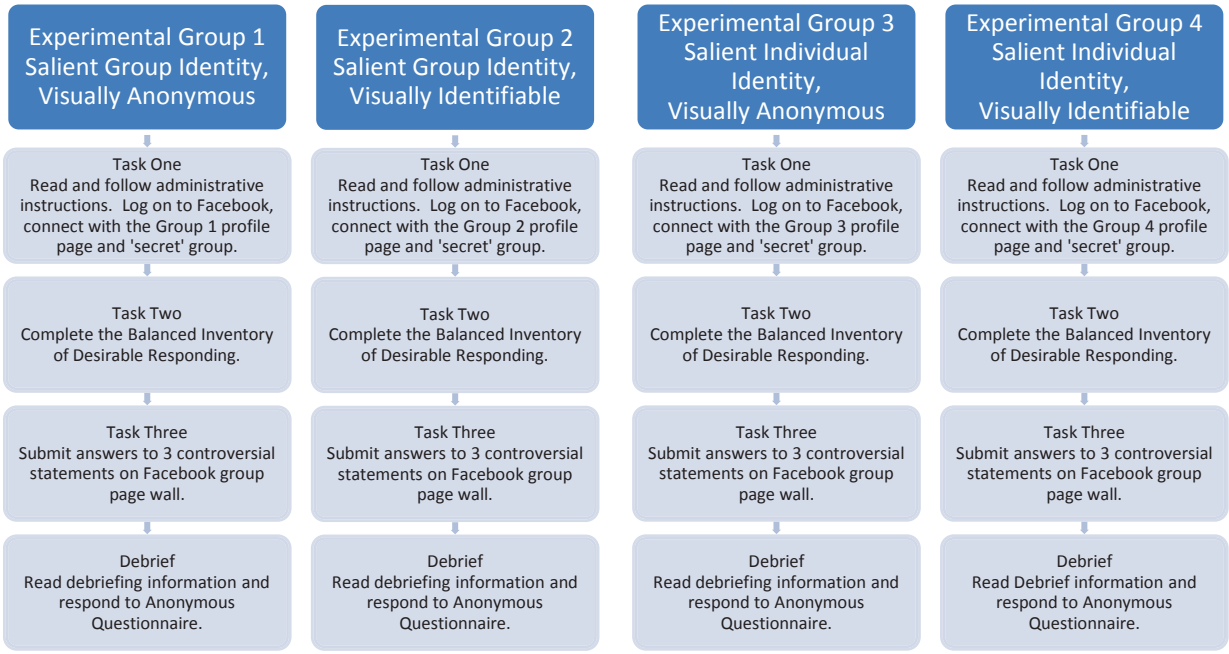

Figure 1. Experimental Procedure for each of the Experimental Groups

Based on the SIDE model, two independent variables were manipulated throughout the study, resulting in four experimental groups. Participants in each experimental group were required to complete three experimental tasks, which varied only according to the experimental conditions the group had been assigned (see Figure 1). Group 1 was assigned to the salient group identity, and visually anonymous conditions; Group 2 was assigned the salient group identity and visually identifiable conditions; Group 3 was assigned the salient individual identity and visually anonymous and Group 4 was assigned to the salient individual identity and visually identifiable conditions. Participants were also assigned a four-digit number. The first digit of this four-digit number reflected their group assignment, whereas the remaining three digits served to protect the identity of participants when submitting information via the Massey University server. The experimenter then recorded the participants' name, date of birth, gender, email address, and Facebook username, alongside the assigned four-digit number. This information was recorded using a Microsoft Excel spreadsheet file on the researcher's personal password-protected computer, and 'backed up' on a password-protected USB card.

Once these four-digit numbers had been assigned, the researcher sent an email to each participant containing administrative instructions. Each of the four experimental groups was emailed a slightly different version of these instructions in order to manipulate the experimental conditions. To manipulate visual anonymity, participants were instructed either to use a portrait-style profile photo (when assigned to the visually identifiable condition) or to use the Facebook default profile photo (when assigned to the visually anonymous condition). The manipulation of salient individual identity or salient group identity was facilitated by changing the wording used in the administrative instructions to describe the aim of the study, the assigned four-digit number, and other participants. Those assigned to a salient individual identity condition were informed that the purpose of the study was to "assess the effect of social processes on individuals in Facebook discussions", while those in the salient group identity condition were told it was to "assess the effect of social processes on group members in Facebook discussions". Those assigned to the salient individual identity condition were informed that their four-digit number was a "Participant Number", while those assigned to the salient group identity conditions were informed that their four-digit number was a "Group Member Number". Those assigned to the salient individual identity conditions were told that the other participants are of "various ages, ethnicities, and socioeconomic backgrounds", while those assigned to the salient group identity conditions were told that "other group members are also English-speaking New Zealanders who use Facebook". This method of manipulating of salient identity has been shown to be effective by Turner (1983, 1987; cited by Lea & Spears, 1991).

The administrative instructions also offered participants advice on how to protect their privacy when using Facebook and participating in the study (see Appendix B: Administrative Instructions). Step-by-step instructions were provided, and participants were advised to contact the researcher if they experienced any difficulty in following them. It should be noted that the pool of New Zealand Facebook users from whom the participants were drawn were those who had already opted for somewhat relaxed, (probably the default) Facebook privacy settings (see Appendix G, Figure G1). That is, if the potential participants had utilised stronger privacy settings, the researcher would not have been able to search for them using the Facebook database! Participants were asked to customize all their Privacy Settings regarding "Sharing on Facebook" to

"[share with] Friends Only" to increase this measure of privacy (see Appendix G, Figure G2).

For each of the four experimental groups, a research-specific email address, Facebook profile page, and Facebook group page was created. Privacy settings on these profile pages and group pages were also altered in order to protect the confidentiality of participant's submissions (See Appendix G, Figures 5). To achieve this, the privacy settings regarding "Sharing on Facebook" were set to "Friends Only", as well as the Privacy Settings regarding "Basic Directory Information" (with the exception of the "Send me friend requests" category). This ensured that only the Facebook users involved in the study, and added as a 'friend' of the profile page relevant to their experimental group, was able to search for, send messages, or see the 'friend list' (in this case, the participants) of the Facebook research profile. With these privacy settings in place, the researcher requested the participant add the relevant research profile page as a 'friend', and checked daily to see who had accepted this 'friendship' invitation. The researcher was then able to ensure that the participant had correctly followed the administrative instructions regarding visual anonymity before inviting the participant to join the relevant 'secret' Facebook group (see Appendix G, Figure G3).

Once participants had altered their settings in accordance with their experimental group instructions, and accepted the invitation to become a 'friend' of the relevant Facebook profile, they were invited to join a 'secret' Facebook group, and were able to access the relevant within-Facebook group page. In a practical sense, this means they were able to make posts, view the contributions of other participants, and view the information provided by the researcher on this group page. Each of the four group pages provided participants with instructions visit to the external research website. The link to this website was designed to automatically open in a new window, for ease of transitioning between the research website and Facebook group page. This external website presented five controversial statements and the Balanced Inventory of Desirable Responding (Version 6, Form 40). This resource was created with the help of Massey's IT Resources (see Appendix F: Request letter to Massey IT Resources).

In order to access task two of the experiment – the Balanced Inventory of Desirable Responding (BIDR) - participants were required to view an

introductory page, then 'log in' using the four-digit 'Participant Number' or 'Group Member Number' they were assigned at the beginning of the study. The label for this number, ('participant' or 'group member'), was arbitrary; the number was merely used to link the information provided within Facebook to the information provided on the external website in a confidential manner, as well as to filter out unauthorised respondents. Participants were presented with five controversial statements, on which they had to rate their opinion using a 7-point scale (see Appendix C: Task Two Instructions). Participants were then required to provide responses to the 40 items in the BIDR (Version 6, Form 40), and press 'submit my answers'. Upon successful submission to the Massey University database server, a new webpage thanked the participant for their responses and directed them back to the Facebook group page. Participants were then required to respond to the same five controversial statements on the Facebook group page wall (see Appendix D: Task Three Instructions).

The researcher checked daily to see when participants had completed the final task in the study by submitting responses to the controversial statements on one of the four experimental group pages. Once participants completed this third task, they were sent an email from the researcher to explain the purpose of the study (as outlined in Appendix D). This email also invited participants to contact the researcher with any feedback they had regarding their experience of participating in the study.

Selection of Sample for Data Analysis

345 prospective participants expressed interest in taking part in the study by completing the Massey University Psychology "Agreement to Participate" online form. All prospective participants who expressed interest in taking part in the study were randomly assigned to experimental groups, and sent administrative instructions via email. However, some of these prospective participants provided incorrect email addresses and were not able to be contacted, several requested to withdraw from the study after receiving the administrative instructions, and many prospective participants who were sent the administrative instructions failed to respond (despite follow-up attempts emailing the admin instructions via both traditional email and within-Facebook messaging, where possible). Two participants had submitted their external website

(BIDR and controversial statement) responses twice, and the latter submission from both these participants was deleted.

182 (148 female, 34 male) participants followed through by taking part in the study. All but four of these participants successfully completed all three study instructions (the parts of the study for which these participants had completed the instructions were included in the analysis). As participants were assigned to experimental groups and data was collected, stratified random assignment was used to aid in achieving approximately even gender ratios, and approximately even completion numbers, across the four experimental groups. Three participants did not correctly follow the instructions regarding submitting their responses on the Facebook group page (two participants emailed their responses in privately rather than making a submission to the Facebook Research Group webpage, one participant sent an email explaining that they wanted their within-Facebook responses to be the same as their external webpage responses to the five controversial statements, also without submitting a response on the relevant Facebook Research Group page), and were excluded from the data analysis.

Results

Description of Sample

179 participants (147 female, 32 male) were included in the data analysis. As seen in Table 1, 49 (41 female, 8 male) of these were assigned to Group 1, 44 (36 female, 8 male) assigned to Group 2, 41 (32 female, 9 male) assigned to Group 3, and 45 (38 female, 7 male) assigned to Group 4 (see Table 1). Participants were aged between 18 – 68 years old. While 168 participants used their real name as their Facebook Username, 11 participants used some form of fake/alternate/pen name. All participants had email addresses, but were invited to join Facebook for the purpose of the study (if they didn't already have an active Facebook account) on some advertisements. Participants were only invited to join the study if they agreed that they were aged 18 years or older, felt confident communicating in written English, and were currently living in New Zealand.

Table 1

Number of Participants Assigned to each Experimental Group

	Female	**Male**	**TOTAL**
Group 1	41	8	49
Group 2	36	8	44
Group 3	32	9	41
Group 4	38	7	45
TOTAL	147	32	179

Balanced Inventory of Desirable Responding Scores: Exploratory Data Analysis

Table 2

Experimental groups' Mean, Median, and Standard Deviation Scores on the Impression Management (IM), Self-deceptive Enhancement (SDE), and Balanced Inventory of Desirable Responding (BIDR)

Experimental Group		SDE[a] Total Score (out of 20)	IM[b] Total Score (out of 20)	BIDR[c] Total Score (out of 40)
1	Mean	1.96	2.16	4.12
	Std. Deviation	1.65	1.92	2.75
	Median	2.00	2.00	4.00
	N	49	49	49
2	Mean	2.50	2.41	4.91
	Std. Deviation	2.09	1.82	3.35
	Median	2.00	2.00	4.50
	N	44	44	44
3	Mean	1.78	2.20	3.98
	Std. Deviation	1.70	1.98	3.17
	Median	1.00	2.00	3.00
	N	41	41	41
4	Mean	1.73	2.44	4.18
	Std. Deviation	1.83	2.15	3.61
	Median	1.00	2.00	4.00
	N	45	45	45
Total	Mean	1.99	2.30	4.30
	Std. Deviation	1.83	1.96	3.22
	Median	2.00	2.00	4.00
	N	179	179	179

a Self-Deceptive Enhancement

b Impression Management

C Balanced Inventory of Desirable Responding

As shown in Table 2, modest differences were found between the experimental group means for the Self-Deceptive Enhancement (SDE) and Impression Management

(IM) subscores, as well as the Balanced Inventory of Desirable Responding (BIDR) total score. Standard Deviations for the SDE and IM subscales were reasonably consistent, and group means were reasonably close to the group medians for each of the three scores.

Further analysis of the nature of the distributions for the BIDR, IM, and SDE scores indicate that the data is roughly normally distributed, although positively skewed, with a floor effect. Once again, attempts to transform this data to following a more symmetrical normal curve using Ln, Log10, or Sqrt were unsuccessful. However, as previously mentioned, parametric statistical tools are reasonably adaptable to violations to their underlying assumptions, so it was determined appropriate to analyse the statistical significance of differences between group means presented in Table 6 using parametric tests.

When the amalgamated numerical responses given on the survey were correlated with the Balanced Inventory of Desirable Responding (BIDR) Total Scores, none of the resulting correlations were statistically significant (see Table 3). This indicated that, outside of the experimental manipulations, there were no statistically significant differences in the level of socially desirable behavior by participants who provided a certain kind of numerical response. For example, participants who tended to give numerical responses indicating their agreement with the statement "fat people are lazy" on the survey webpage were not shown to be those exhibiting the highest – or lowest – level of social desirable behavior on the survey webpage.

There were also no significant Pearsons correlations between the BIDR scores and the amalgamated numerical responses to statements given within Facebook (see Table 4). For example, participants who tended to give within-Facebook numerical responses indicating their agreement with the statement "fat people are lazy" were not shown to be those exhibiting the highest – or lowest – level of social desirable behavior on the external survey webpage.

Table 3

Pearson Correlation of Balanced Inventory of Desirable Responding Total Scores with the Numerical Responses to the Controversial Statements, when presented on the Survey Webpage

		Controversial Statement				
		"Fat people are lazy"	"There are too many disabled carparks"	"Old people are terrible drivers"	"Peadophiles should be hung"	"Benefit recipients …are bludgers"
BIDR	Pearson Correlation	-.016	-.001	.053	-.086	-.094
Total	Sig. (2-tailed)	.829	.988	.480	.253	.211
Score	N	179	179	179	179	178

Table 4

Pearson Correlation of Balanced Inventory of Desirable Responding (BIDR) Total Scores with the Numerical Responses to the Controversial Statements, presented on the Facebook Group Pages

		Controversial Statement				
		"Fat people are lazy"	"There are too many disabled carparks"	"Old people are terrible drivers"	"Peadophiles should be hung"	"Benefit recipients …are bludgers
BIDR	Pearson Correlation	-.038	.003	-.012	-.119	-.145
Total	Sig. (2-tailed)	.620	.965	.872	.117	.057
Score	N	174	174	172	174	174

Balanced Inventory of Desirable Responding Scores: Statistical Significance

Table 5

One-way ANOVA assessment of differences between the Experimental Groups' Mean Balanced Inventory of Desirable Responding, Impression Management, and Self-deceptive Enhancement Scores

		Sum of Squares	Df	Mean Square	F	Sig.
SDE[a] Total Score (out of 20)	Between Groups	16.25	3	5.42	1.64	.18
	Within Groups	578.74	175	3.31		
	Total	594.99	178			
IM[b] Total Score (out of 20)	Between Groups	2.83	3	.943	.24	.87
	Within Groups	678.88	175	3.88		
	Total	681.71	178			
BIDR[c] Total Score (out of 40)	Between Groups	22.852	3	7.62	.73	.53
	Within Groups	1820.46	175	10.40		
	Total	1843.31	178			

A	Self-Deceptive Enhancement
B	Impression Management
C	Balanced Inventory of Desirable Responding

The one-way ANOVA results presented in Table 5 suggest that no statistically significant differences were found between experimental groups in regard to the SDE, IM, or BIDR scores. Thus, it was not necessary to investigate these differences further using t tests for independent means.

Survey Webpage Numerical Responses to Statements: Exploratory Data Analysis

Table 6 presents a summary of the mean, standard deviation, and medians of the numerical responses given for the give controversial statements, for each of the experimental groups. No clear pattern of results is evident just by looking at the raw data. However, it should be noted that the means and median values appear reasonably close between experimental groups, as do the standard deviations. When a histogram was made for the total numerical responses given externally to Facebook (for each of the controversial statements), responses to "there are too many disabled carparks" were skewed, and the responses to "peadophiles should be hung" were bimodal. The distributions of other three statements also appeared either bimodal or skewed (but to a less visible extent).

Table 6

Means, Standard Deviations and Medians for the Numerical Responses to the Controversial Statements (external to Facebook)

Group Assignment		**Controversial Statement** (Presented on external, Massey University website)				
		"Fat people are lazy"	"There are too many disabled carparks"	"Old people are terrible drivers"	"Peadophiles should be hung"	"Benefit recipients… are bludgers"
Group 1 Salient Group Identity; Visually Anonymous	**Mean**	**2.78**	**1.90**	**3.12**	**3.59**	**2.73**
	Std. Dev	1.30	.96	1.35	1.81	1.38
	Median	*3.00*	*2.00*	*3.00*	*4.00*	*2.00*
	N	49	49	49	49	48
Group 2 Salient Group Identity; Visually Identifiable	**Mean**	**3.27**	**1.80**	**3.30**	**3.75**	**2.66**
	Std. Dev	1.44	.88	1.21	1.98	1.20
	Median	*3.00*	*2.00*	*3.00*	*4.00*	*2.00*
	N	44	44	44	44	44
Group 3 Salient Individual Identity; Visually Anonymous	**Mean**	**3.17**	**2.05**	**2.98**	**3.32**	**2.49**
	Std. Dev	1.14	1.40	1.17	1.81	1.14
	Median	*4.00*	*1.00*	*3.00*	*3.00*	*2.00*
	N	41	41	41	41	41
Group 4 Salient Individual Identity; Visually Identifiable	**Mean**	**2.96**	**1.87**	**3.42**	**4.16**	**2.96**
	Std. Dev	1.15	.94	1.10	1.89	1.43
	Median	*3.00*	*2.00*	*3.00*	*5.00*	*3.00*
	N	45	45	45	45	45
TOTAL	**Mean**	**3.03**	**1.90**	**3.21**	**3.71**	**2.71**
	Std. Dev	1.27	1.05	1.22	1.88	1.30
	Median	*3.00*	*2.00*	*3.00*	*4.00*	*2.00*
	N	179	179	179	179	178

Survey Webpage Numerical Responses to Statements: Statistical Significance

To establish whether there were any significant multivariate differences between the numerical responses to the controversial statements given by different experimental groups, a multivariance analysis of variance (MANOVA) was carried out (see Table 7). An investigation of the underlying assumptions of MANOVA revealed some problematic findings. In particular, box plots of the numerical responses for each of the five controversial statements suggest that not all controversial statements elicited normally distributed data, and attempts to normalise skewed or bimodal distributions proved unsuccessful. However, the number of responses from each experimental group was reasonably equal, and Box's M test suggests that the variance-covariances matrices were reasonably homogeneous (i.e. no statistically significant results were found at the $p < 0.05$ level). Thus, it was deemed suitable to use MANOVA for the present analysis, given its ability to accommodate modest violations of its underlying assumptions (Dancey & Reidy, 2002). As seen from the Wilks' Lamda value in Table 7, the combined numerical responses for all five controversial statements did not successfully distinguished between the experimental groups ($F(15,469) = 1.15$, $p = 0.31$; Wilks' = 0.91). Thus, it was deemed unnecessary to calculate any one-way ANOVAs or t tests for independent means (to determine where any specific differences may lie).

Table 7

MANOVA of differences between Mean Numerical Responses to Controversial Statements on the Survey Webpage

Effect		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**
Intercept	Pillai's Trace	.92	405.41[a]	5.00	170.00	.00
	Wilks' Lambda	.08	405.41[a]	5.00	170.00	.00
	Hotelling's Trace	11.92	405.41[a]	5.00	170.00	.00
	Roy's Largest Root	11.92	405.41[a]	5.00	170.00	.00
Group	Pillai's Trace	.10	1.15	15.00	516.00	.31
Assignment	Wilks' Lambda	.91	1.15	15.00	469.70	.31
	Hotelling's Trace	.10	1.15	15.00	506.00	.31
	Roy's Largest Root	.07	2.33[b]	5.00	172.00	.04

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept + Group_Assigned

Within-Facebook Numerical Responses to Statements: Exploratory Data Analysis

The raw means, medians, and standard deviations for the numerical responses provided within Facebook for each experimental group are presented in Table 8. As seen in this table, the raw experimental group means provide initial evidence of (modest) differences between the numerical responses to the five controversial statements, when these statements are presented within the Facebook group pages. The controversial statement "peadophiles should be hung" elicited the greatest range of responses, (as indicated by the standard deviation).

Table 8

Means, Standard Deviations, and Medians for the within-Facebook Numerical Responses to the Controversial Statements

Group Assignment		**Controversial Statement** (Presented within Facebook Group Page)				
		"Fat people are lazy"	"There are too many disabled carparks"	"Old people are terrible drivers"	"Peadophiles should be hung"	"Benefit recipients … are bludgers"
Group 1 Salient Group Identity; Visually Anonymous	**Mean**	**2.85**	**19.2**	**3.48**	**3.52**	**2.88**
	Std. Dev	1.24	1.01	1.30	1.89	1.35
	Median	3.00	2.00	4.00	4.00	3.00
	N	48	48	48	48	48
Group 2 Salient Group Identity; Visually Identifiable	**Mean**	**3.46**	**1.83**	**3.43**	**3.98**	**2.93**
	Std. Dev	1.45	0.97	1.04	1.89	1.25
	Median	4.00	2.00	4.00	4.00	3.00
	N	41	41	40	41	41
Group 3 Salient Individual Identity; Visually Anonymous	**Mean**	**3.27**	**2.07**	**3.08**	**3.32**	**2.53**
	Std. Dev	1.18	1.39	1.22	2.01	1.28
	Median	4.00	2.00	3.00	5.00	3.00
	N	40	40	39	40	40
Group 4 Salient Individual Identity; Visually Identifiable	**Mean**	**2.84**	**1.78**	**3.24**	**4.42**	**3.11**
	Std. Dev	1.07	0.85	1.09	1.84	1.30
	Median	3.00	2.00	3.00	5.00	3.00
	N	45	45	45	45	45
TOTAL	**Mean**	**3.09**	**1.90**	**3.31**	**3.82**	**2.87**
	Std. Dev	1.26	1.06	1.17	1.94	1.30
	Median	3.00	2.00	4.00	4.00	3.00
	N	174	174	172	174	174

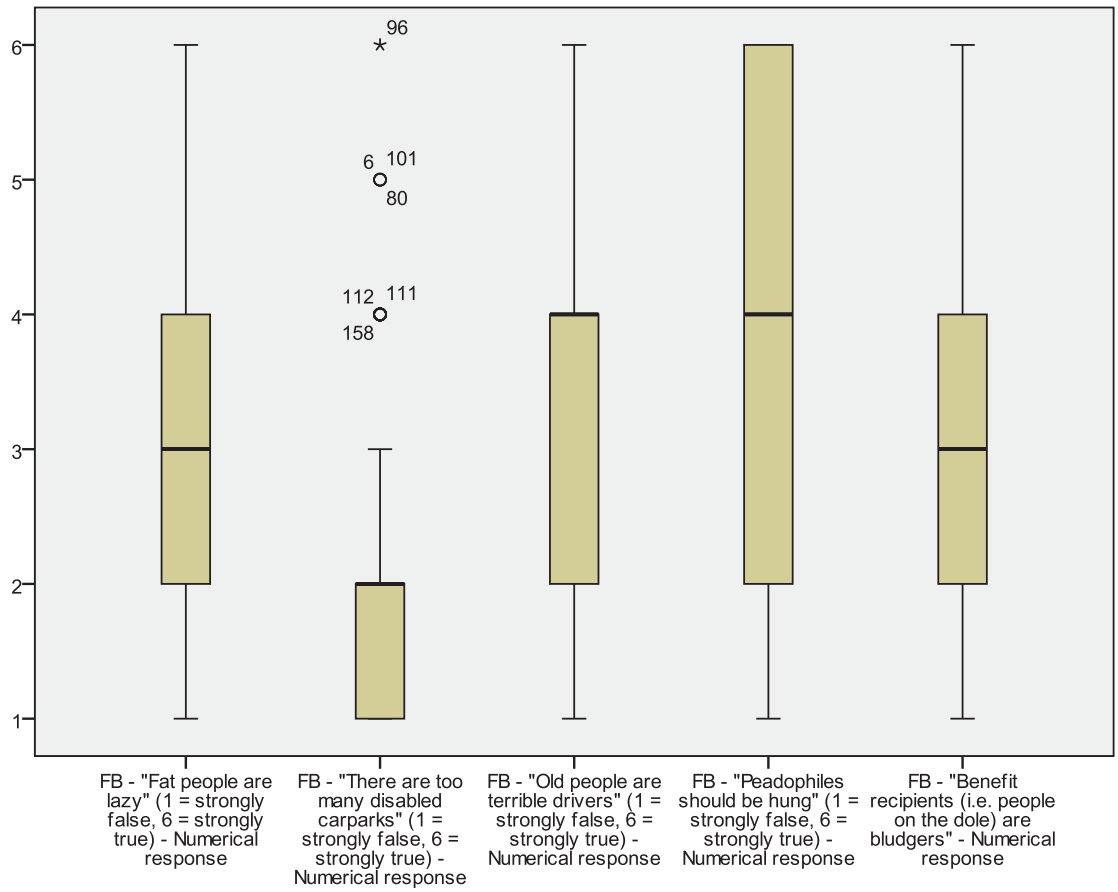

Figure 2. Experimental Procedure for each of the four Experimental Groups in the Study

Based on the information presented in Figure 2, it appears that the numerical responses to the controversial statements "fat people are lazy" and "benefit recipients are bludgers" are (approximately) normally distributed. However, the overall numerical responses to the other three controversial statements ("there are too many disabled carparks", "old people are terrible drivers", and "peadophiles should be hung") appear to be strongly skewed. However, it should be noted that the Stem and Leaf Plot data is an amalgamation of the participants' responses from all four experimental groups, and thus, may be hiding important differences in distribution shapes of the separate experimental group responses. Attempts to normalize the positively skewed and bimodal distributions using ln, log10, and sqrt, proved unsuccessful, although P-P Plots and Q-Q Plots provided some reassurance of the near-normality of the data.

Within-Facebook Numerical Responses to Statements: Statistical Significance

Although the distributions of the numerical responses for each of the five controversial statements were not ideally normally distributed, the sample sizes were reasonably equal, and Box's M test suggests that the variance-covariances matrices were reasonably homogeneous (i.e. no statistically significant results were found at the $p < 0.05$ level). Thus, as it is reasonably resilient to modest violations of its underlying assumptions, it was deemed suitable to carry out a MANOVA to investigate whether there were any significant multivariate differences between experimental groups (Dancey & Reidy, 2002). The Wilks' Lamda value in Table 9 shows that the combined numerical responses for all five controversial statements successfully distinguished between the experimental groups ($F(15,453) = 2.19$, $p = 0.01$; Wilks' = 0.82).

Table 9

MANOVA of differences between within-Facebook Mean Numerical Responses to Controversial Statements

Effect		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**
Intercept	Pillai's Trace	.93	432.92[a]	5.00	164.00	.00
	Wilks' Lambda	.07	432.92[a]	5.00	164.00	.00
	Hotelling's Trace	13.20	432.92[a]	5.00	164.00	.00
	Roy's Largest Root	13.20	432.92[a]	5.00	164.00	.00
Experimental	Pillai's Trace	.19	2.19	15.00	498.00	.01
Group	Wilks' Lambda	.82	2.19	15.00	453.13	.01
Assignment	Hotelling's Trace	.20	2.19	15.00	488.00	.01
	Roy's Largest Root	.11	3.80[b]	5.00	166.00	.00

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

c. Design: Intercept + Group_Assigned

Further analysis of these results (see Appendix H, Table H1) suggests that these multivariate differences between experimental groups were most significant for the statements "fat people are lazy" ($F = 3.21$, $DF = 3$, $p = 0.02$) and "peadophiles should be hung" ($F = 3.04$, $DF = 3$, $p = 0.03$).

To further investigate the nature of these significant differences, five one-way analysis of variance tests were carried out (see Table 10). As previously mentioned, these skewed distributions indicate that conditions may not be ideal for utilizing parametric statistical tests which rely on a normal distribution (such as the t test for independent means, or ANOVA). However, given the robustness of the assumptions behind ANOVA (Aron & Aron, 2002), it was deemed appropriate to utilize the parametric tests, despite these limitations. Table 10 shows that the ANOVA revealed that two of the five controversial statements – "fat people are lazy" and "peadophiles should be hung" - produced statistically significant differences ($p < 0.05$) between means, with an F-value of 2.72 ($p = .05$) and an F-value of 2.89 ($p = .04$), respectively.

Table 10

One-Way ANOVA of differences between within-Facebook Mean Numerical Responses to Controversial Statements

		Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
"Fat people are lazy"	Between Groups	12.47	3	4.16	2.72	.05
	Within Groups	260.06	170	1.53		
	Total	**272.53**	**173**			
"There are too many disabled carparks"	Between Groups	2.11	3	.71	.62	.60
	Within Groups	192.02	170	1.13		
	Total	**194.14**	**173**			
"Old people are terrible drivers"	Between Groups	4.21	3	1.40	1.02	.38
	Within Groups	230.84	168	1.37		
	Total	**235.05**	**171**			
"Peadophiles should be hung"	Between Groups	31.40	3	10.47	2.89	.04
	Within Groups	616.71	170	3.63		
	Total	**648.12**	**173**			
"Benefit recipients (i.e. people on the dole) are bludgers"	Between Groups	7.510	3	2.50	1.49	.22
	Within Groups	286.45	170	1.69		
	Total	**293.96**	**173**			

Within-Facebook Numerical Responses: T test for Independent Means

The t test results for the statement "Fat people are lazy" indicated that there was a significant difference between the mean responses of Populations of Group 1 and Group 2 ($t = 2.14$, $DF = 87$, $p = 0.35$). The mean difference between the Group 1 and Group 2 was 0.61, over twice the standard error of difference (0.29). For this statement, participants in Group 1 gave a lower mean numerical rating ($x = 2.85$, $SD = 1.24$) the participants assigned to Group 2 ($x = 3.46$, $SD = 1.45$). Thus, the results indicate that there was a difference of numerical opinion expressed within-Facebook in response to the statement "Fat people are lazy" depending on whether the participant was visually identifiable or not, if group identity was made salient (see Appendix H, Table 12).

The t-statistic for the mean difference between Group 2 and Group 4 was also significant for this controversial statement ($t = 2.24$, $DF = 72.94$, $p = 0.03$). For this statement, Group 2 gave a higher mean numerical response ($x = 3.46$, $SD = 1.45$) than Group 4 ($x = 2.84$, $SD = 1.07$). This finding suggests that there was a significant difference between the numerical opinion expressed in response to the statement "Fat people in lazy" between the individual identity and group identity conditions, if participants were visually identifiable.

When using a one-tailed test, the protected t tests revealed that there was also a significant difference between the numerical responses of Group 3 and Group 4 to the statement "fat people are lazy" ($t = 1.77$, $DF = 83$, $p = 0.04$). This indicates that there is a difference in numerical response to the statement between the visually identifiable, and visually anonymous, experimental conditions, if individual identity is salient.

The second controversial statement for which the results proved statistically significant was the statement "peadophiles should be hung". As the one-way ANOVA results were also significant, for this statement, protected t tests were conducted to assess where the significant differences may lie. The t test for independent means revealed significant differences between the numerical responses of Group 1 and Group 4 ($t = -2.33$, $DF = 91$, $p. = 0.02$), for this statement, with a mean difference of -0.90. The mean numerical response given by Group 1 ($x = 3.52$, $SD = 1.89$) was lower than the mean numerical response provided by Group 4 ($x = 4.42$, $SD = 1.84$).

There was also a significant difference between the mean numerical response of Group 3, and the mean numerical response of Group 4, in response to the statement "peadophiles should be hung" ($t = -2.62$, $DF = 83$, $p = 0.01$). More specifically, the mean numerical response given within Facebook by Group 3 for both "peadophiles should be hung" ($x = 3.32$, $SD = 2.02$) was higher than the mean numerical response given by Group 4 ($x = 4.42$, $SD = 1.84$).

Written Responses to Statements on Survey Webpage

In addition to the numerical response which participants were asked to provide for each of the five controversial statements, respondents were also given the opportunity to add written comments, both within and outside of Facebook, in response to each of the statements. The aim of providing the option for participant to provide explanatory comments was to add a qualitative element to the feedback given by participants, and to encourage participants to justify their numerical responses where they feel they may have violated social norms. Thus, the written comments provided voluntarily by participants were analyzed for each of the controversial statements. A summary of the findings is as follows.

Many participants who provided comments in regard to the statement "fat people are lazy" made reference to factors they believed to be associated with excessive weight gain, such as medical conditions, the side-effects of medication, genetic reasons, lack of motivation, psychological disorders, lifestyle factors, the ample availability of fattening foods in New Zealand, pervasive advertising for such fattening foods, and lack of education regarding maintain a healthy lifestyle. Several participants who argued against the statement criticized the statement for being stereotypical, over-generalizing, or over-simplifying a complex issue. However, arguments in favour of the statement did not necessarily correlate with numerical responses in agreement with the statement (that is, numerical responses between 4-6) – and arguments against the statement did not necessarily correlate with numerical responses against the statement (that is, numerical responses between 1-3). Conversely, many participants presented an argument for both side of the issue, or presented an argument in favor of the alternate side of the issue to their numerical opinion. It did not appear that the statements differed dramatically in content between the different experimental groups, although it appears that participants assigned to Groups 2 and 3 may have made a greater number of comments than participants assigned to Groups 1 and 4. It is also worth noting that this statement elicited perhaps the greatest number of voluntary comment responses of any of the controversial statements presented externally to Facebook.

Comments made in response to the statement "there are too many disabled carparks" appeared more dichotomous – that is, participants who chose to respond to this statement either asserted strong arguments in agreement, or strong arguments in

disagreement, without attempting to present both sides of the issue. Only a few comments provided non-commital answers such as "I don't have a vested interest in this issue…" or "…I don't really know". In contrast to the responses of the previous statement, the comments of participants seemed to correspond with their numerical responses fairly accurately. Group 2 provided the most written responses to this statement, followed by Group 3, with fewer comments from Groups 1 and 4.

In response to the statement "old people are terrible drivers", Group 2 and Group 3 participants were most likely to offer comments, but the comments did not vary greatly in content between experimental groups. Comments were often short and without strong argument or assertion (e.g. "stereotype", "not all old people", "too general a comment", "depends what you mean by 'old'", "generally just women", "on average", "too slow on the road"). Many comments made reference to age-related difficulties with driving, such as slowed reaction times, deterioration of eyesight, loss of hearing, physical illness/impairments, forgetfulness, diminished ability to sustain concentration, being over-cautious, lack of confidence, and changes in road conditions, vehicles, and the volume of traffic in the driver's lifetime. Conversely, other comments made reference to the poor driving ability / impatience of young drivers, the presence of age-appropriate retesting, and many participants made mention of the presence of good and bad drivers amongst those of all ages.

Most participants who argued against the statement "pedophiles should be hung" provided very assertive comments. Although the number of participants who volunteered comments in response to this statement appears more equal than it has with other statements, participants from Group 2 offered the most statements. The level of assertion made in regard to their agreement (or disagreement) to the statement was comparable across the experimental groups.

Participant's responses to the statement "benefit recipients (i.e. people on the dole) are bludgers" were generally less forceful as those regarding the previous statement. Unusually, many participants mentioned their own personally experiences – or those of friends or family- when responding to this particular statement. Most, but not all, comments offered by participants appeared to correspond closely with their numerical response. Participants assigned to Group 2 and Group 3 were the most likely to provide comment.

Written Responses to Statements within Facebook

As previously mentioned, participants were not only offered the opportunity to comment on the five controversial statements on the external survey webpage, but they were also offered the option of providing written responses when making a wall post to the Facebook group wall. Two participants from Group 1, twenty-eight participants from Group 2, five participants from Group 3, and five participants from Group 4 volunteered written responses to the statement "fat people are lazy". As with the external survey webpage responses to this statement, participant's comments often made reference to contributing factors in weight gain, but the numerical responses provided did not always correlate well with the written responses. Given the varying percentages of responses from each experimental group, it is difficult to assess whether there were significant differences in the content, or quality of comments, between groups.

There were also a limited number of written responses to the statement "there are too many disabled carparks" volunteered, with only thirty-five participants commenting on their response. Two participants from Group 1 commented on their response to the statement, while twenty-five participants from Group 2, and both Group 3 and 4 each had four participants comment on the statement. The statement elicited strong responses; many participants expressed strong disagreement with the statement, while others expressed strong agreement. Comments ranged from simplistic, short explanations, to more in-depth observations. Many participants commented on the experiences of disabled people they know or have worked with; other comments reflected observations regarding where people have noted a lack of, or over-provision of, disabled carparking. Since the number of people who commented from each experimental group was strongly biased, it is difficult to say whether there were differences between experimental groups in the content of the written responses.

Many participants' written reactions to the statement "old people are terrible drivers" commented that the statement was an over-generalization. As with the survey webpage responses, many participants who provided arguments in favour of the statement made reference to factors they believed might affect the driving capabilities of older drivers, such as illnesses, being "set in their ways", caution (and being overly-cautious), lack of confidence, diminished eyesight, deafness, and slower reaction times.

Conversely, several people commented that they felt younger drivers were more likely to be dangerous than older drivers. Two participants from Group 1 provided comments on this statement, twenty-seven provided comments from Group 2, six participants provided comments from Group 3, and five participants from Group 4 provided comments.

In response to the statement "peadophiles should be hung" (when posted on the survey research group webpages), four participants from Group 1 volunteered statements, compared with twenty-six participants from Group 2, nine participants from Group 3, and five participants from Group 4. Although comments provided by participants assigned to experimental Group 4 tended to be succinct, the majority of the written responses provided by Groups 1, 2, and 3, were lengthier. However, this observation may not be reliable, given the uneven numbers of participants who volunteered comments from the experimental groups. Many comments simply asserted a strong viewpoint, without providing any clear explanation or rationale. The statement seemed to achieve a reasonable dichotomy of opinions.

Finally, participants were offered the chance to provide written comments on the statement "benefit recipients (i.e. people on the dole) are bludgers" within Facebook. As with the survey webpage responses, many participants arguing against the statement mentioned the difficulty of gaining employment in the current economic climate, especially if the job searcher is a solo parent, suffering from ill health, under qualified, an older adult, or an ex-convict. Many people gave anecdotal evidence in response to this question. Two participants from Group 1 commented on the statement, twenty-nine participants from Group 2 gave comments, six participants from Group 3 gave comments, and eight participants from Group 4 gave comments. There did not appear to be any significant differences in the quality, nor the content of the statements, depending on the experimental group to which the respondent was assigned.

Participants were also given opportunity to comment on other participant's responses within Facebook. This was intended to encourage interaction within the experimental group pages on Facebook. Some participants utilized this option to make a general comment on all five of the statements. Only one participant from Group 1 opted to make an additional comment, ten participants from Group 2 gave additional comment(s) in response to the contributions of other participants, three participants

from Group 3 made additional comments, and none of the participants from Group 4 volunteered additional comments.

Discussion

The results of the study provide mixed support for the relevance of the SIDE model in predicting the level of deindividuation experienced by Facebook users. The lack of statistically significant differences between the experimental group mean Balanced Inventory of Desirable Responding (BIDR) scores, as well as the Self-Deceptive Enhancement (SDE) suggest that there was no difference in the tendency of participants to adhere to socially desirable norms as a function of personality between experimental groups. The absence of statistically significant differences between the experimental groups' scores on the Impression Management (IM) subscale also suggests that outside of the experimental manipulations, the experimental groups did not differ on their tendency to knowingly respond in a socially desirable manner. Thus, the statistically significant differences found as a result of the experimental manipulations cannot be attributed to variations in tendency to adhere to socially desirable norms between the experimental groups. Similarly, the absence of statistically significant differences between the experimental groups' mean numerical responses to the controversial statements on the survey webpage indicates that there was little difference in opinion across the experimental groups with regard to the controversial statements. Thus, the presence of different mean numerical responses within Facebook suggests that participants' responses were affected by the level of visual anonymity and social identity they experienced within their Facebook Research group webpage. The present discussion seeks to provide further interpretation of these results, identify the strengths and weaknesses of the study, and provide suggestions for further research. First, the statistically significant differences between the within-Facebook numerical responses to the controversial statements will be discussed in more depth.

Not every controversial statement elicited statistically differences between the mean numerical responses of experimental groups within Facebook, and responses were not always affected in the manner the SIDE model will predict. However, the numerical responses provided within Facebook to one of the five controversial statements, (namely; "fat people are lazy"), produced statistically significant results in the hypothesized direction. To review, it was predicted that the numerical ratings given in response to the statements would result in an interaction effect. More specifically, participants assigned to experimental Group 1 (visually anonymous, group identity salient) or experimental Group 4 (visually identifiable, individual identity salient) were

predicted to provide lower numerical responses to the statements than those assigned to Group 2 (visually identifiable, group identity salient) or Group 3 (visually anonymous, individual identity salient). For the within-Facebook responses to "fat people are lazy", this was indeed the case. In contrast, numerical responses given in response to the statement "peadophiles should be hung" elicited statistically significant differences, but these differences were not in the direction predicted by the SIDE model. That is, for this particular statement, Group 2 and Group 4 providing the highest mean numerical ratings, rather than Groups 2 and 3, as would be predicted by the SIDE model. As no statistically significant differences were found for the remaining three controversial statements, the results of the within-Facebook numerical responses for these statements did not support the research hypothesis.

A number of possible explanations should be considered for the differences in statistical significance between the within-Facebook numerical responses to the five controversial statements. For example, the results suggest that the controversial statement "fat people are lazy" was the most effective at eliciting differences in stated opinion as a result of deindividuation, and the other four statements failed to do so. However, it is also possible that the manipulation of visual anonymity and salient social identity had little effect on participants' numerical responses within Facebook, or that the effect cannot be adequately explained by the SIDE model. If this is the case, the question remains as to why one of the five statements did elicit responses in the predicted direction. Another possible explanation for the study findings derives from the degree to which participants have been exposed to the stereotyped groups in the controversial statements. For example, it is probable that most participants come into contact with "fat people" more often than peadophiles. Familiarity with stereotyped groups may help to alleviate the in-group versus out-group assumptions seen as a result of social psychology phenomena such as the fundamental attribution bias (Carr, 2003). Thirdly, there may be unknown factors which affect the degree to which controversial statements elicit, or fail to elicit, deindividuated responses. For instance, the statement which did elicit responses consistent with the SIDE model predictions made reference to appearance. It is therefore possible that the key factor in measuring the degree of deindividuation the participants were experiencing is not so much the polarizing nature of the statement, but whether the statement makes reference to personal appearance, thus heightening the salience of visual anonymity.

It should also be noted that although no statistically significant differences were noted between the mean numerical responses (to the five controversial statements) given on the survey webpage, the small differences between group means were in the same direction as those within Facebook. Consequently, it is possible that the manipulation of visual anonymity and salient social identity may have had a small effect on participants' responses to the controversial statements on the survey webpage, as well as the larger, statistically significant effect on the within-Facebook responses.

Several limitations regarding the methodology of the study should be taken into consideration when interpreting the results. Many of these limitations are potential confounding variables, which may have affected the results of the study. The first opportunity for potential confounds to arise from the experimental design comes from the variation in the response format to the controversial statements on the survey website, as opposed to the Facebook website. More specifically, participants were required to select a checkbox to indicate their numerical response to the controversial statements, (by clicking on a circle next to a number) on the survey webpage. The survey webpage numerical response checkboxes were situated to the right of each controversial statement, thus encouraging participants to respond to each statement before moving to the next. In contrast, the within-Facebook numerical response format required participants to read some text in which all five controversial statements were presented, then type the number that best represented their opinion. It is unknown whether this difference in response method, and presentation of the statements, would affect participants numerical responses. Secondly, it is also possible that the presence of advertisements, notifications from friends, and other such reminders of the participant's identifiability on Facebook may have also affected responses. That is, although participants were reassured that the Facebook Research Group Pages employed strict privacy settings, and that no Facebook members would be able to see their numerical responses except for those assigned to their experimental group, it is possible that the mere awareness of other Facebook users may have inhibited participants' responses. If either of these confounding variables were present in the experiment, their presence would diminish the validity of the study results.

Another limitation in the experimental design is the heavy reliance on five controversial statements to provide an accurate working measure of deindividuation. Deiner, Fraser, Beaman, and Kelem (1976) assert that operationally defining

deindividuated behavior has been an ongoing problem in previous research. Later, Deiner (1977) argued that "the more a behavior deviates from a person's typical behavior in the situation and from the normative expectations of others, generally the more unrestrained it may be considered" (p. 150). Thus, future research could improve on the present study by investigating whether the behavior – in this case, the socially undesirable opinion – is typical of the response they might give in another situation, such as in a group conversation. Given that it is also useful to identify the typical behavior of others, a between-subjects experimental method could be used to both elicit normative responses and avoid carry-over effects, and add further credibility to the findings of the present research. However, it should be noted that the present study did endeavor to include a measure of normative behavior by the use of the BIDR to measure the degree to which participants tended to adhere to social norms, either as a function of personality or intentional impression management, outside of the experimental manipulations.

It should also be noted that the phrasing of the controversial statements, and indeed, BIDR statements, may have affected participants' responses. That is, in order to provide a politically correct response, participants were, in effect, required to disagree with the controversial statements provided by the researcher. In addition, many of the BIDR responses also required disagreement with the statements provided by the test developers (e.g. "I have some pretty awful habits") in order to be considered honest in their self-presentation. In Diener's (1977) critique of early experimental research on deindividuation, he highlighted the potential for researchers to be viewed as an authority on the subject of research. If Diener's argument is correct, it is possible that the choice to agree with the controversial statement represented compliance with the researcher's statement, rather than uninhibited behavior. Fortunately, the BIDR measure should not have been affected in this way as half of the statements in the measure are keyed in the negative direction (Robinson, et al., 1991). However, further research would need to replicate the study using controversial statements keyed in the negative direction (e.g. "fat people are not lazy") in order to ensure the controversial statements used in the present study truly measured unrestrained responses.

If further research validates the role of deindividuation in group behavior on Facebook, this finding would have implications for both past and future research. For example, when recommending the use of Facebook profile pages in employee selection,

researchers should consider that the written information provide by potential employees on Facebook may be relatively unrestrained, compared with their workplace behavior. When considering the implications of privacy threats on Facebook, researchers may need to consider that Facebook members may have lowered inhibitions when presenting themselves on the website compared to their normal behavior. Researchers with an interest in the role of personality in utilizing SNSs might consider the way in which pertinent personality traits (e.g. agreeableness, conscientiousness) may be affected by the state of deindividuation induced by utilizing the medium. Obviously, research on self-disclosure and impression management on SNSs may be enhanced by further understanding the role of deindividuation on online social networking.

It is also worth considering the way in which SNS users such as Facebook members may be of added value in obtaining scientific knowledge due to the state of deindividuation they experience while using the website. For example, Facebook group discussions may provide a viable online alternative to face-to-face focus groups. If further research found that Facebook group discussions resulted in comparable levels of uninhibited conversation as focus groups, but were less expensive than the latter, Facebook group discussions could provide an invaluable tool to future researchers. Similarly, Facebook group discussions may provide a means of collecting information that is extremely difficult to research due to the potential risk of being affected by the social desirability bias. Although anonymous surveys are often used to encourage honest, uninhibited responses, they have no way of verifying the accuracy of the demographic information on their participants. Thus, the deindividuation participants experience when taking part in Facebook group discussions may allow researchers to collect unbiased information on sensitive subjects while still having means in which to confirm the demographic information provided by their Facebook profiles.

Conclusion

Deindividuation creates conditions in which group members feel free to express themselves most liberally (Festinger, et al., 1952). When a situation arises in which individuals feel that they can no longer be identified as individuals but instead are overlooked while the focus is on the larger group, they become free to lower the inhibitions against performing actions which may be appealing but would normally fall outside of the acceptable societal standards (Festinger, et al., 1952). A high degree of both anonymity and freedom to express oneself without consequence are associated with many popular websites, especially social networking websites. One natural conclusion of these observations is that it is likely deindividuation plays a vital role on these kind of web-based interactions.

The present study aimed to investigate the potential for deindividuation to affect the way in which Facebook members communicate using their chosen SNS. The results provide partial support for the relevance of the SIDE model on Facebook members behavior within Facebook, but further research is needed. The present study provides a good starting point for researching deindividuation on SNSs, and suggests that both anonymity (particularly visual anonymity) and salient social identity may be useful to consider in the design of further studies.

The extremely popular Facebook website provides ample opportunity for self-disclosure, yet the majority of users do not choose to utilize more than one-fourth of these (Nosko, et al., 2010). Thus, most active Facebook users maintain a certain degree of anonymity when utilizing the website, despite the finding that the information participants willingly provide about themselves tend to be consistent with their offline identities. Much of the interaction that occurs between Facebook members within the website can be loosely classified as group interaction. For example, each Facebook user must initiate or accept friendship invitations – once approved by both parties, the user added as a 'friend' then becomes part of another users group of friends. In addition, there is ample opportunity within Facebook to express preferences in books, movies, television programmes, political opinions, consumer goods, etc. Expressing one's interest in such matters often takes the form of joining a group of Facebook users who 'like' the relevant subject matter.

As previous research on the Facebook website is relatively limited (Pempek, et al., 2009), further studies are needed to distinguish the nuances of different forms of communication within Facebook. For example, it may be necessary to consider whether wall posts on Facebook groups differ significantly in their effect from wall posts on event invitations. However, it is probable that the influence of deindividuation on group wall posts would carry over to other forms of within-Facebook communication given the similarities between the various communication methods within Facebook. It may also be helpful to consider whether religious affiliation or response format would affect the study results. Certainly replication of the present experiment would be a useful place to start, with the addition of other controversial statements, preferably half of which would be keyed in the negative direction.

The principles underlying deindividuation can be applied to many settings, but are obviously relevant to the study of computer-mediated communication in general. When Zimbardo (1969) wished to investigate the effects of anonymity on his participants' willingness to deliver electric shocks to another participant, (actually a confederate), he dressed his experimental group up in white coats and hoods, so they could not be identified. It has been said that "the internet offers similar anonymity" (p. 229, Myers, 2005). In contrast, Zimbardo's (1969) control group were left in their normal clothes and issued large name tags. The current author suggests that online SNSs, in which users provide other website members with their name, a portrait photo, and additional information, may provide similar individuation.

How might Facebook members engage in such individuation? On average, Facebook members voluntarily self-disclose on 26 items (out of a possible 97) they are prompted to fill in (Nosko, et al., 2010). Users are also surprisingly honest in their self-presentations (Kramer & Winter, 2008). The rewards of individuation – such as praise, attention, and one-on-one help - can be seen in public dialogues on Facebook, as well as wall postings, comments on photographs, and disclosure of everything from IQ test results to game scores. Perhaps the low utilisation of privacy settings can also be viewed as a form of individuation, and the attempts of the network users to enjoy its benefits, regardless of the potential privacy risks they incur – see Debatin et al. (2009) for a review of these privacy risks. It is therefore valid to consider that the rising popularity of SNSs may suggest a trend towards individuation in internet use.

Although the majority of its users engage in a relatively high degree of self-disclosure, the present study provides empirical support for the relevance of deindividuation in SNS use. There are many ways in which the world's most popular SNS lends itself to this interpretation. Firstly, Facebook members may utilise the social networking application to add a member as a 'friend' whom they have not yet met, perhaps in response to the recommendation of the application (Donath & Boyd, 2004; Ellison, et al., 2007; Walther, et al., 2008). By initiating a new, online-only friendship, users become able to tweak their self-presentations or withhold information if they wish, thus creating potential for deindividuation. Secondly, Facebook members are able to arrange their network connections in groups, and choose how much access to give different groups to their profile and network interactions. Again, the user is presented with the opportunity to withhold information, and therefore, remain partially anonymous. Third, Facebook members who wish to market a business, product, or service, may utilise the website to advertise to other unknown website members. If this is achieved by the means of a company profile page, the page creator (administrator) can retain complete anonymity. Fourth, employers may utilise the website to search for personal information on a potential employee whom they have not yet met (Balakrishna, 2006). In this method of using Facebook, the actions of the employer remain undetected by the job applicant, and the employer enjoys a form of anonymity. Fifth, Facebook members commonly join geographical, political, institution-related, or "just for fun" online groups, and in these groups, (perhaps by way of sharing photos or contributing to the group page "wall"), users engage with a diverse group of people whom they have never met. The group members may or may not be given permission to see more than just the profile owner's user name and photo, thus, the user has potential to remain somewhat anonymous. A similar form of partially-anonymous interaction may occur when the Facebook member receives an invitation to an offline "Event" and the chance to RSPV publically, (with or without an additional comment), on the event wall – this RSPV note can also be read by other users whom they may not know, and who they may not give permission to view their profile. Finally, Facebook members may utilise Facebook-connected applications such as online games, and associate with other network users using these applications, with or without giving them access to further information on themselves. In summary, there are at least seven forms of interaction on Facebook in which some anonymity (within group situations), and thus deindividuation, may be achieved.

Nosko et al.'s (2010) study showed that over 25% of Facebook users do not display a portrait-style profile photo, and on average, Facebook members only disclose about 25% of the information the application prompts new users to provide. While this is still a relatively high level of personal information to freely disclose, the finding that users opt not to provide three-fourths of the possible information may indicate either a desire to protect one's privacy, or a desire to retain some anonymity when using the website. In addition, studies suggest that the majority of social networking website users expect that the information that they provide should only be accessible to other network users(Walther, et al., 2008). So it seems users also wish to remain somewhat anonymous to internet users as a whole (Walther, et al., 2008).

Deindividuation also serves to increase the attractiveness of group membership by enabling group members to carry out behaviours that they want to act on, but normally would not (Festinger, et al., 1952). However, it is also beneficial to group members to be singled out for one-on-one assistance, praise, constructive feedback, and attention, as occurs in group situations of individuation. Thus, both deindividuation and individuation contribute to the attraction of group membership (Festinger, et al., 1952). While groups cannot offer individuation and deindividuation at the same time, the most successful groups are able to offer both these two conditions on different occasions (Festinger, et al., 1952). Thus, it might be valuable to suggest that not only do individuation and deindividuation occur on the SNW "Facebook", but that they also contribute to the website's appeal, and have been a contributing factor in Facebook's enormous membership.

Computers are a prevalent, essential, and unavoidable part of our society (Gordo-López & Parker, 1999). They continue to influence every aspect of the behavior and psyche of most western nations (Gordo-López & Parker, 1999). As social researchers attempt to understand the diversity of human behavior, it will be essential to take into account the way in which the prevalence of computer technology influences the way people act and think. Given that Facebook has become one of the world's most popular websites, it is vital to consider the role of Facebook when researching the impact of technology on people. Deindividuation and individuation may prove useful frameworks when attempting to explain this impact.

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Appendix A: Information Sheet

Hi. My name is Emily Birch and I am a Master of Arts (Psychology) student at Massey University (New Zealand). As part of this qualification, I am working with my supervisor (Dr. Richard B. Fletcher) to investigate the effect of visual identification (i.e. profile photo) and group norms on within-Facebook communication. **You are invited to participate in this study if:**

- you are aged **18** years or older, AND
- you feel confident communicating in written **English**, AND
- you are **currently** living in New Zealand.

Approximately 200 participants will be recruited by sending the present invitation to the first twenty-five Facebook users that come up when utilising the Facebook search engine to search for Facebook users under each letter of the alphabet, once the search has been refined by "location: New Zealand".

Participating in the study will require approximately 20 minutes of your time. You will be required to accept an invitation to add the researcher as a 'friend' on Facebook, then join a 'secret' (private) within-Facebook group page. You may also be asked to make changes to your profile photo and privacy settings for the duration of the study. You will then be directed to an external website on which you will be asked to respond to five controversial statements, and another 40 statements that form part of a well-researched psychometric scale. You will then be asked to return to the Facebook group page and respond to the same five controversial statements by posting a comment to the group page 'wall'. While no-one outside of this purpose-built Facebook group will be able to see or search for the research profile page, or group page, other participants in the study will be able to view the responses you provide on this Facebook group page (and you will be able to view theirs). Please be aware that for some participants, such disclosure of information may result in frustration, embarrassment or annoyance. Participants for whom the study causes large amounts of (or ongoing) distress are advised to contact 'Lifelife' (a free counselling service), on (09) 5222999 (within Auckland) or 0800543354 (outside Auckland). Alternatively, participants may contact the researcher to express concerns or request more information at any stage on facebookresearch@hotmail.co.nz.

You will be fully debriefed on the purpose of the study once you have completed your participation. At this time, you will be invited to email the researcher with feedback on how you found participating in the study. The raw data gained from both this within-Facebook group discussion and anonymous survey will be printed and kept in a locked brief case until May 2011, at which point it will be destroyed. The results will be summarised and published as part of the researcher's thesis. You may also request a copy of these results by sending an email to facebookresearch@hotmail.co.nz, subject heading "send me results". No individual participants will be identified during the summary of or publication of data, or

during the publication of the findings, if the project becomes published in an academic journal.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study (anytime up until you have completed all questions in the study);
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

For further information, please contact the student researcher (Emily – facebookresearch@hotmail.co.nz) or her supervisor (Dr. Fletcher – R.B.Fletcher@massey.ac.nz) using the email addresses provided.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application __/__ (insert application number). If you have any concerns about the conduct of this research, please contact Dr Ralph Bathurst, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 9570, email humanethicsnorth@massey.ac.nz.

To accept the invitation to participate in this study, please click on the following link and complete the form at the bottom of the webpage: http://psych-research.massey.ac.nz/birch/

Appendix B: Administrative Instructions

Group 1: Participants in Visually Anonymous AND Salient Group Identity Condition

Thankyou for agreeing to take part in this research. **The aim of the study** is to assess the effect of social processes on **group members** in Facebook discussions. You will soon be invited to add the research Facebook account profile as a 'friend' (named "Facebook Research Profile 1"), then to join a private, within-Facebook group discussion page (named "Facebook Research Group 1"). Your other group members are also English-speaking New Zealanders who use Facebook. During this study, you will be known to the researcher as **Group Member Number XXXX.**

Before accepting this invitation, we ask you to **display the default Facebook profile photograph as** your Facebook profile picture for the duration of the study. Please ensure that, if you have uploaded a profile photograph in the past, you de-select this before beginning participation in the study. To revert back to the default profile outline if you have already selected a photograph as your profile picture, please log in to Facebook, select "profile" to go to your profile page, select the "Photos" tab (below your name and status update at the top of your profile page), select "Profile Pictures" (usually at the lower right hand corner, below other photographs you have been 'tagged' in), click on the photograph you are currently using as your profile picture, then select "Remove as Profile Picture" (in the lower right corner of the page). If you experience difficulty with these instructions, please contact the researcher on: facebookresearch@hotmail.co.nz.

You are also strongly advised to adjust your privacy settings prior to participating, to remain anonymous to other participants. To ensure your privacy is protected, select "account" (top right corner of the screen) -> "privacy settings" (on drop down menu) -> "customize settings" (on bottom half of page) -> then change all settings to "friends only" (using the drop-down arrows). Please contact the researcher if you wish to change your privacy settings but experience difficulty in doing so.

Once you have adjusted your profile photograph to display the default image provided by Facebook, and are happy with your privacy settings, accept the invitation to 'add as a friend' the "Facebook Research Profile 1" page. The researcher will check that your profile photograph is correct before inviting you to join the "Facebook Research Group 1".

Group 2: Participants in Visually Identifiable AND Salient Group Identity Condition

Thankyou for agreeing to take part in this research. **The aim of the study** is to assess the effect of social processes on **group members** in Facebook discussions. You will soon be invited to add the research Facebook account profile as a 'friend' (named "Facebook Research Profile 2"), then to join a private, within-Facebook group discussion page (named "Facebook Research Group 2"). Your other group members are also English-speaking New Zealanders who use Facebook. During this study, you will be known to the researcher as **Group Member Number XXXX**.

Before accepting this invitation, if you are not currently displaying a portrait-style photograph of yourself as your profile picture, **please change your profile picture settings to ensure a portrait-style photograph is displayed**. To upload a portrait-style profile photograph: (1) *If you have never uploaded a profile photograph before*, you need to log on to Facebook, select 'Profile', then click on 'Upload a Photo' below the default blue profile silhouette provided, in order to select a portrait-style photo on your computer. (2*) If you have previously uploaded profile photographs of yourself but do not currently have one selected*, log on to Facebook, select 'Profile', select 'Photos' under your name and status update on your profile page, then select a portrait-style photograph, before clicking on 'Make Profile Picture' (link located on bottom right of page, underneath photograph). Note that if a friend on Facebook has previously uploaded photographs of you, you may also use their photographs of you as your profile photograph by following the second method provided. If you do not have an electronic photograph of yourself, or are having trouble uploading this to your Facebook profile, please contact the researcher on facebookresearch@hotmail.co.nz.

You are also strongly advised to adjust your privacy settings prior to participating, to remain anonymous to other participants. To ensure your privacy is protected, select "account" (top right corner of the screen) -> "privacy settings" (on drop down menu) -> "customize settings" (on bottom half of page) -> then change all settings to "friends only" (using the drop-down arrows). Please contact the researcher if you wish to change your privacy settings but experience difficulty in doing so.

Once you have adjusted your profile photograph to display a portrait-style photograph, and are happy with your privacy settings, accept the invitation to 'add as a friend' the "Facebook Research Profile 2" page. The researcher will check that your profile photograph is correct before inviting you to join the "Facebook Research Group 2".

Group 3: Participants in Visually Anonymous AND Salient Individual Identity Condition

Thankyou for agreeing to take part in this research. **The aim of the study** is to assess the effect of social processes on **individuals** in Facebook discussions. You will soon be

invited to add the research Facebook account profile as a 'friend' (named "Facebook Research Profile 3"), then to join a private, within-Facebook group discussion page (named "Facebook Research 3"). Other participants are of various ages, ethnicities, and socioeconomic backgrounds. During this study, you will be known to the researcher as **Participant Number XXXX.**

Before accepting this invitation, we ask you to display **the default Facebook profile photograph** as your Facebook profile picture for the duration of the study. Please ensure that, if you have uploaded a profile photograph in the past, you de-select this before beginning participation in the study. To revert back to the default profile outline if you have already selected a photograph as your profile picture, please log in to Facebook, select "profile" to go to your profile page, select the "Photos" tab (below your name and status update at the top of your profile page), select "Profile Pictures" (usually at the lower right hand corner, below other photographs you have been 'tagged' in), click on the photograph you are currently using as your profile picture, then select "Remove as Profile Picture" (in the lower right corner of the page). If you experience difficulty with these instructions, please contact the researcher on: facebookresearch@hotmail.co.nz.

You are also strongly advised to adjust your privacy settings prior to participating, to remain anonymous to other participants. To ensure your privacy is protected, select "account" (top right corner of the screen) -> "privacy settings" (on drop down menu) -> "customize settings" (on bottom half of page) -> then change all settings to "friends only" (using the drop-down arrows). Please contact the researcher if you wish to change your privacy settings but experience difficulty in doing so.

Once you have adjusted your profile photograph to display the default image provided by Facebook, and are happy with your privacy settings, accept the invitation to 'add as a friend' the "Facebook Research Profile 3" page. The researcher will check that your profile photograph is correct before inviting you to join "Facebook Research 3" page.

Group 4: Participants in Visually Identifiable AND Salient Individual Identity Condition

Thankyou for agreeing to take part in this research. **The aim of the study** is to assess the effect of social processes on **individuals** in Facebook discussions. You will soon be invited to add the research Facebook account profile as a 'friend' (named "Facebook Research Profile 4"), then to join a private, within-Facebook group discussion page (named "Facebook Research 4"). Other participants are of various ages, ethnicities, and socioeconomic backgrounds. During this study, you will be known to the researcher as **Participant Number XXXX**.

Before accepting this invitation, if you are not currently displaying a portrait-style photograph of yourself as your profile picture, **please change your profile picture settings to ensure a portrait-style photograph is displayed**. To upload a portrait-style profile photograph: (1) *If you have never uploaded a profile photograph before*, you need to log on to Facebook, select 'Profile', then click on 'Upload a Photo' below the default blue profile silhouette provided, in order to select a portrait-style photo on your computer. (2) *If you have previously uploaded profile photographs of yourself but do not currently have one selected*, log on to Facebook, select 'Profile', select 'Photos' under your name and status update on your profile page, then select a portrait-style photograph, before clicking on 'Make Profile Picture' (link located on bottom right of page, underneath photograph). Note that if a friend on Facebook has previously uploaded photographs of you, you may also use their photographs of you as your profile photograph by following the second method provided. If you do not have an electronic photograph of yourself, or are having trouble uploading this to your Facebook profile, please contact the researcher on facebookresearch@hotmail.co.nz.

You are also strongly advised to adjust your privacy settings prior to participating, to remain anonymous to other participants. To ensure your privacy is protected, select "account" (top right corner of the screen) -> "privacy settings" (on drop down menu) -> "customize settings" (on bottom half of page) -> then change all settings to "friends only" (using the drop-down arrows). Please contact the researcher if you wish to change your privacy settings but experience difficulty in doing so.

Once you have adjusted your profile photograph to display a portrait-style profile photograph, and are happy with your privacy settings, accept the invitation to 'add as a friend' the "Facebook Research Profile 4" page. The researcher will check that your profile photograph is correct before inviting you to join "Facebook Research 4" page.

Appendix C: Survey Instructions

The following instructions were provided on the external, Massey University website:

"Thankyou for agreeing to take part in this research. If you have any concerns or questions regarding the study please contact the researcher on: facebookresearch@hotmail.co.nz. Your contribution is much appreciated.

This study aims to investigate the social processes involved in Facebook discussions. You are required to respond to the questions below using a 6-point scale. Please answer as honestly as you can.

Using the scale provided, please indicate the number between "1" and "6" that best represents your opinion towards the following statements:

A) Fat people are lazy.

B) There are too many disabled carparks.

C) Old people are terrible drivers.

D) Pedophiles should be hung.

E) Benefit recipients (i.e. people on 'the dole') are bludgers."

Scale:

1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, 6 = strongly agree

(Note: After providing a numerical rating for each statement, participants were also given the opportunity to also provide comments)

"Using the scale below as a guide, write the number beside each statement to indicate how much you agree with it.

1 2 3 4 5 6 7

NOT TRUE SOMEWHAT TRUE VERY TRUE

1. My first impressions of people usually turn out to be right.
2. It would be hard for me to break any of my bad habits.
3. I don't care to know what other people really think of me.
4. I have not always been honest with myself.
5. I always know why I like things.
6. When my emotions are aroused, it biases my thinking.

7. Once I've made up my mind, other people can seldom change my opinion.
8. I am not a safe driver when I exceed the speed limit.
9. I am fully in control of my own fate.
10. It's hard for me to shut off a disturbing thought.
11. I never regret my decisions.
12. I sometimes lose out on things because I can' make up my mind soon enough.
13. The reason I vote is because my vote can make a difference.
14. My parents were not always fair when they punished me.
15. I am a completely rational person.
16. I rarely appreciate criticism.
17. I am very confident of my judgments.
18. I have sometimes doubted my ability as a lover.
19. It's all right with me if some people happen to dislike me.
20. I don't always know the reasons why I do the things I do.
21. I sometimes tell lies if I have to.
22. I never cover up my mistakes.
23. There have been occasions when I have taken advantage of someone.
24. I never swear.
25. I sometimes try to get even rather than forgive and forget
26. I always obey laws, even if I'm unlikely to get caught.
27. I have said something bad about a friend behind his or her back.
28. When I hear people talking privately, I avoid listening.
29. I have received too much change from a salesperson without telling him or her.
30. I always declare everything at customs.
31. When I was young I sometimes stole things.
32. I have never dropped litter on the street.
33. I sometimes drive faster than the speed limit.
34. I never read sexy books or magazines.
35. I have done things that I don't tell other people about.
36. I never take things that don't belong to me.
37. I have taken sick-leave from work or school even though I wasn't really sick.
38. I have never damaged a library book or store merchandise without reporting it.
39. I have some pretty awful habits.
40. I don't gossip about other people's business."

(Note: There are two subscales included in this measure. The first subscale tests for honest but overly positive responses (items 1 – 20), while the second subscale tests for Impression Management (items 21-40). For every "6" or "7" response given to items keyed in the "True" (positive) direction, 1 point is added to the participants score, while every "1" or "2" response is added to the participants score for

items keyed in the “False” (negative) direction. Information on how these items will be scored was not be provided to participants.)

After each participant had responded to both the controversial statements and BIDR items, and submitted their data to the Massey University server by clicking “submit my answers”, they were be presented with the instruction below:

“Thankyou for your answers. You have almost completed the study. Close this website window to return to Facebook and the research profile page. Please now respond to the questions presented under the ‘Info’ tab of the Facebook research profile by submitting a wall post to the profile page wall. You will then be sent an email within 24 hours which will provide you with a full explaination of the purpose of the study.”

Appendix D: Within-Facebook Group Wall Post Instructions

The following instructions were presented to participants at the top of the four research-specific Facebook group pages. This is to provide participants with instructions regarding how to complete Task Three - provide answers to the controversial statements on the Facebook research page wall. Note that it will be the researcher's responsibility to check which participants have completed the task on a daily basis, so as to send an email debriefing participants on the purpose of the study and inviting them to participate in the anonymous questionnaire as soon as is practicable.

"Thank you for agreeing to take part in this research. If you have any concerns or questions regarding the study please contact the researcher on: facebookresearch@hotmail.co.nz. Your contribution is much appreciated.

Using the following scale, please post a contribution to the group wall with the number that best represents your opinion. Your answer can be as long or as short as you like, but must include a number between "1" and "6" to indicate your opinion. Try to answer as honestly as possible.

1 = strongly false,

2 = false,

3 = slightly false,

4 = slightly true,

5 = true,

6 = strongly true

You are required to provide a wall post with your numerical answers to the following 5 statements:

A) Fat people are lazy.

B) There are too many disabled carparks.

C) Old people are terrible drivers.

D) Pedophiles should be hung.

E) Benefit recipients (i.e. people on 'the dole') are bludgers.

Remember to label your answers "A.", "B.", "C.", etc. so it is clear which statement you are referring to in your answer. (e.g. A. "6", B. "1"). You may also provide a comment, or comment on the posts of others, if you wish.

You will receive an email within two days explaining the purposes of the study, and inviting you to provide feedback on how you found participating in the study. If you do not receive this email within 2 days of submitting your wall post contribution, please email the researcher on facebookresearch@hotmail.co.nz."

Appendix E: Debrief Information

This information was sent to each participant via email, once they had completed the study:

"Thank you for participating in the study. Your results have now been submitted and you need to email the **researcher immediately after reading the explanation below** if you would like your data to be withdrawn from the study.

I would now like to share with you a little more about the purpose of this study. **Please read the following information carefully** as it is part of my ethical duty to you to ensure you understand the data which you have kindly helped to provide.

In social psychology, there is a group process called **deindividuation**. This theory states that when people become part of a group, they lose self-awareness, and become more likely to do things they would enjoy doing but would normally refrain from doing. For example, imagine you are at a music concert. As part of a large audience, you may feel empowered to sing and dance along with your favourite act. However, most of us would normally be reluctant to sing and dance in a public place, especially when surrounded by strangers!

When people attend a music concert, the focus is on the whole audience (group), rather than on individuals. As a result, people feel anonymous. It is this perception of anonymity that makes concert-goers feel free to engage in behaviour such as singing or dancing that they would normally not allow themselves to do in public. The same thing can occur when people engage in an online group discussion. When people perceive themselves as fairly anonymous, such as in an internet chat room where personal identity is unknown, people generally feel free to state their opinion more freely than they would if they knew the other chat room users knew who they were. Sometimes this perceived anonymity (and resulting deindividuation) is blamed for behaviour such as rudeness or 'flaming' that you may see online.

The purpose of the study you have taken part of is to see if such deindividuation plays a role in group communication via Social Networking Websites. Facebook was chosen as the target online Social Network due to its enormous popularity, especially in western nations such as New Zealand.

Previously, you were told that the purpose of this study was to look at the social processes involved in Facebook group discussions. This was true – deindividuation is a social process. The questions you answered on the external website were from a measure called the "Balanced Inventory of Desirable Responding (BIDR)". In other words, your answers to these questions provided an estimate of the degree to which your answers were affected by the desire to appear to follow social norms, either as a result of personality factors or as a result of 'Impression Management' (that is, giving answers you believe will make you look good).

You were also told that the study investigated "the effect of visual identification (i.e. profile photo) and group norms on Facebook use". Based on a more recent conceptualisation of deindividuation theory, (known as "the Social Identity model of Deindividuation Effects") it was thought that being either visually identifiable or visually anonymous may influence the honesty of your responses. As a result, approximately half of participants were instructed to use a portrait-style profile photo, while the other half was instructed to use only the default Facebook profile picture. It was also thought that perceiving other participants as similar or dissimilar could influence the results of the study. For this reason, some participants were referred to as "group members", and told of the similarities between them and other group members, while other participants were referred to as "participants", and told that there were a wide variety of participants. You were randomly assigned to one of these conditions in order to see whether these factors affected how likely you were to give an honest response. Participants who were assigned different experimental conditions were kept separate so that these differences in instructions would not become obvious.

Of course, other factors could have affected the results of the experiment too. Such uncontrolled factors may include whether the instructions were clearly written, how familiar you are with the Facebook application, or whether you had completed a Social Desirability scale (such as the BIDR) before. If you believe that any of these factors may have affected your results, we would love to hear from you. Please email the researcher on facebookresearch@hotmail.co.nz with any comments/feedback you may have.

If you would like to receive a copy of the overall results of the study when they have been analysed, please send your email address to: facebookresearch@hotmail.co.nz with the subject "send me results". I will then retain a copy of your name and email address and send a summary of the results in several weeks time. Note that you need to let us know if your email address changes during this time.

Once again, thank you for your part in the study. Without volunteers such as yourself, it would be impossible to learn more about social processes Social Networking Websites.

Appendix F: Request Letter for Massey IT Department

The following letter is to be sent to Malcolm and Harvey Jones.

Dear Malcolm & Harvey Jones

(CC: Richard Fletcher)

I am one of Richard Fletcher's MA thesis students, and am hoping to conduct a study on Facebook. Specifically, I am looking at the role of Deindividuation (the loss of self-awareness due to submergence in a group; associated with perceived anonymity) in Facebook group discussions. As part of this study, I would like to have participants complete the Balanced Inventory of Desirable Responding. I write to request your help with creating this website.

I have attached a word document containing the 40 items (questions) included in this measure. The **scoring** involves simply adding a point for every "6" or "7" scored; or for the statements with reverse scoring (marked with "*"), adding a point for every "1" or "2" scored.

I am happy to give you a call about this to discuss the details of this scale, and provide further information if needed.

When would suit you to be contacted regarding this matter?

Yours Sincerely,

Emily Birch

Student ID: 02256665

ph: 0226590291

emilysbirch@hotmail.com

Appendix G: Screenshots

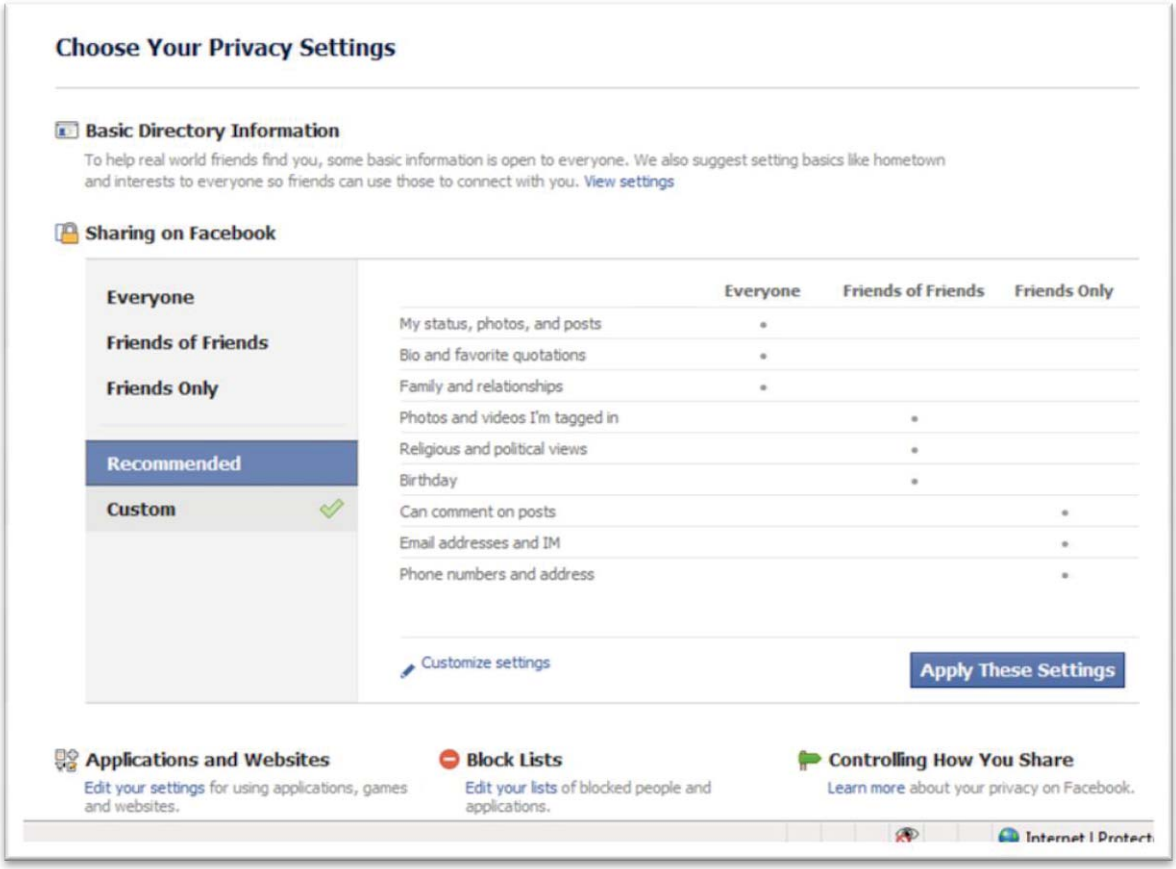

Figure G1. The privacy settings "Recommended" by Facebook. These are also the privacy settings set by default to each new Facebook user's profile. When these default settings are applied, "My status, photos, and posts", "Bio and favourite quotations", "Family and relationships" are viewable by "Everyone". However, "Only Friends" can "Comment on posts", view "Email addresses and IM", or view contact phone numbers and address.

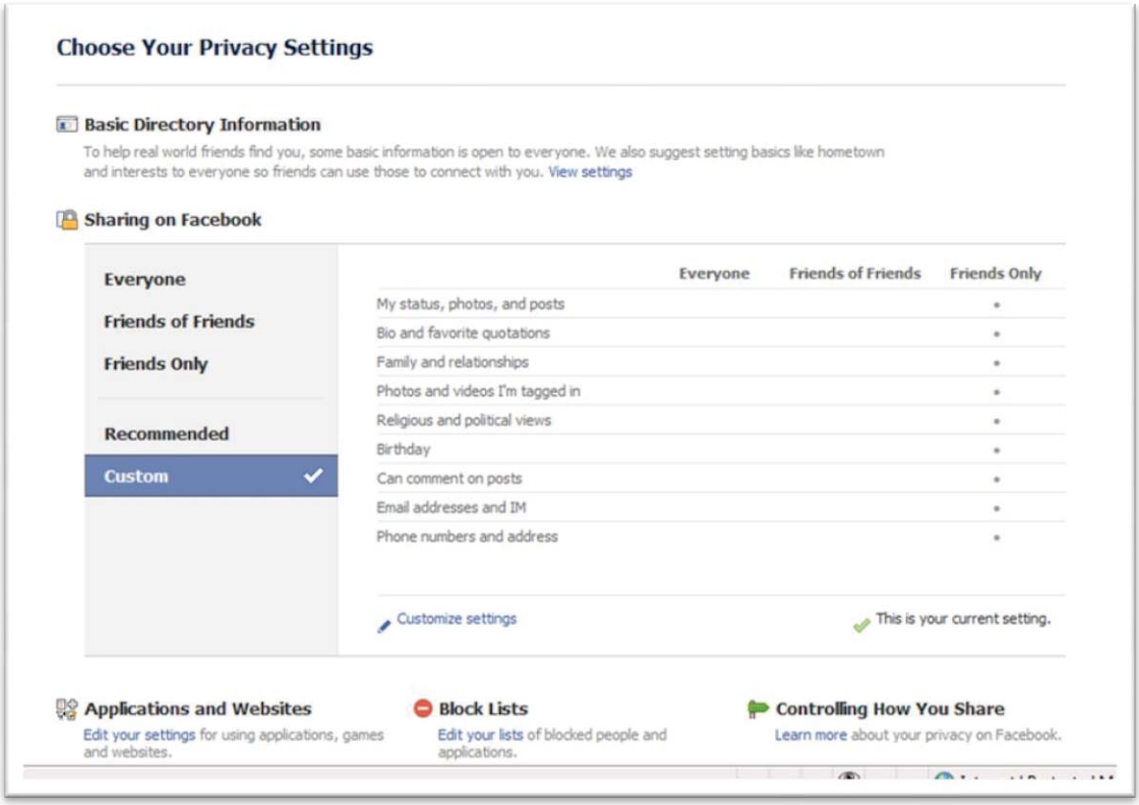

Figure G2. "Custom" Privacy Settings Recommended to Participants in the Study. When these settings have been applied, "Only Friends" can view the participants "photos", "posts", "comment on posts", etc.

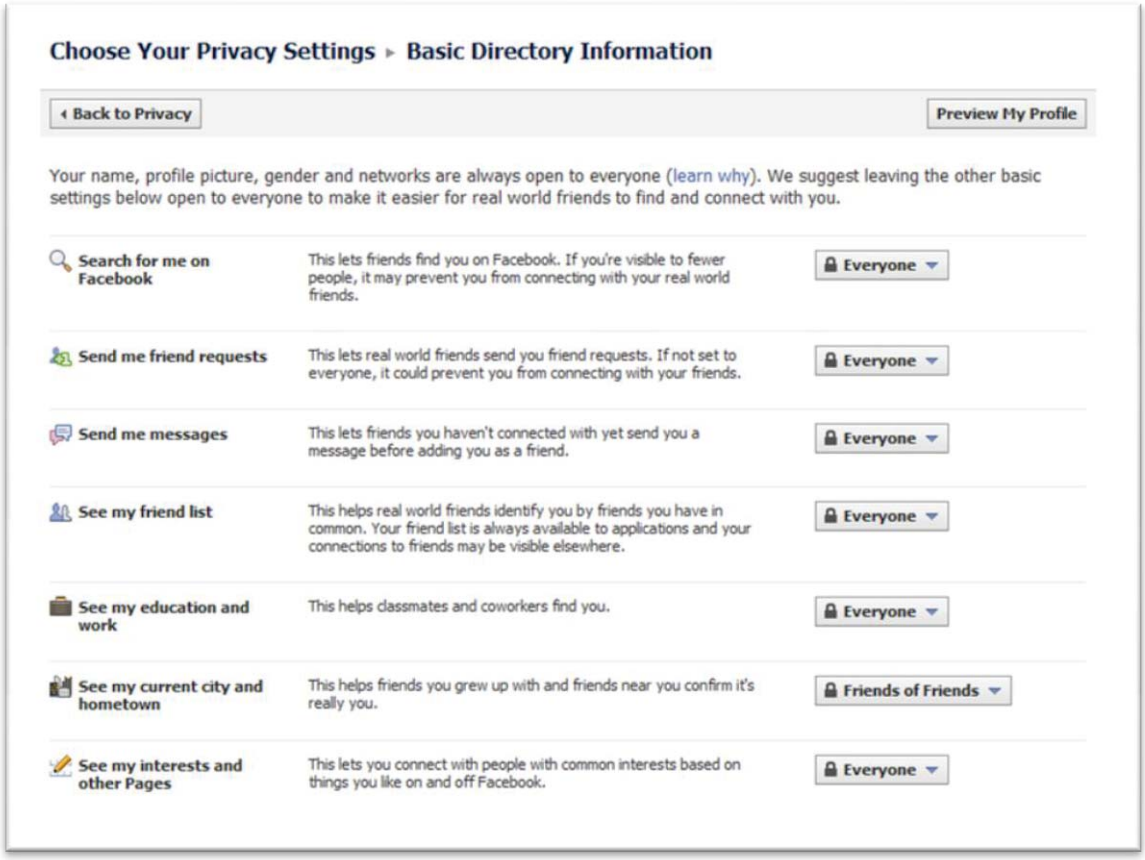

Figure G3. Default Facebook Privacy Settings regarding Information viewable to other Facebook Users when they utilize the Facebook Search Engine. Information visible to those who have not yet been added as a 'friend' includes username (usually the person's real name), 'friend list', 'education and work', 'interests and other Pages' (usually hobbies, favourite musicians, and products that advertise on Facebook such as 'Coca-cola'). Facebook considers this information necessary to locate other users (usually known offline) within the Facebook directory. Participants in the present study already have the 'Search for me on Facebook', and 'Send me messages' settings set to "Everyone", or they would not have been able to be recruited by the researcher. Participants won't be advised to change these settings, however, on the four purpose-built Facebook profiles all of the above settings (except "send me friend requests") will be altered (changed to "Friends Only") to ensure that Facebook users not involved in the study won't be able to see the research Facebook profile pages.

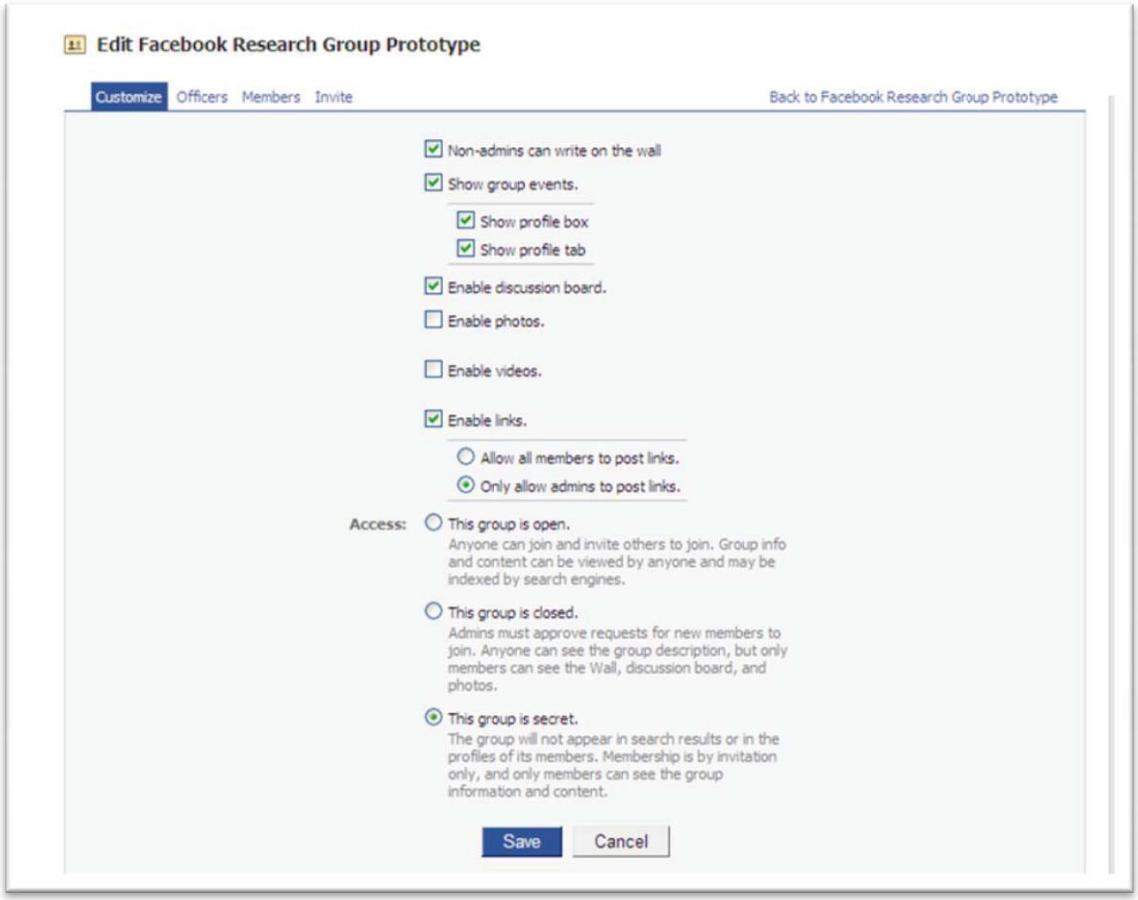

Figure G4. Example of Facebook Research Group Page Settings. This group page has been titled "Facebook Research Group Prototype". Using these settings, "The group will not appear in search results or in the profiles of its members. Membership is by invitation only, and only members can see the group information and content".

Appendix H: Other Tables

Table H1

MANOVA test of between-subjects effects of the within-Facebook Mean Numerical Responses to Controversial Statements

Source	**Dependent Variable**	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected	"Fat people are lazy"	15.142[a]	3	5.047	3.412	.019
Model	"There are too many disabled carparks"	1.217[b]	3	.406	.372	.773
	"Old people are terrible drivers"	4.212[c]	3	1.404	1.022	.384
	"Peadophiles should be hung"	32.946[d]	3	10.982	3.039	.031
	"Benefit recipients… are bludgers"	7.711[e]	3	2.570	1.509	.214
Intercept	"Fat people are lazy"	1682.845	1	1682.845	1137.552	.000
	"There are too many disabled carparks"	603.459	1	603.459	553.332	.000
	"Old people are terrible drivers"	1866.821	1	1866.821	1358.661	.000
	"Peadophiles should be hung"	2498.628	1	2498.628	691.360	.000
	"Benefit recipients… are bludgers"	1392.860	1	1392.860	817.574	.000
Group	"Fat people are lazy"	15.142	3	5.047	3.412	.019
Assignment	"There are too many disabled carparks"	1.217	3	.406	.372	.773
	"Old people are terrible drivers"	4.212	3	1.404	1.022	.384
	"Peadophiles should be hung"	32.946	3	10.982	3.039	.031
	"Benefit recipients… are bludgers"	7.711	3	2.570	1.509	.214
Error	"Fat people are lazy"	248.532	168	1.479		
	"There are too many disabled carparks"	183.219	168	1.091		
	"Old people are terrible drivers"	230.835	168	1.374		
	"Peadophiles should be hung"	607.165	168	3.614		
	"Benefit recipients… are bludgers"	286.213	168	1.704		
Total	"Fat people are lazy"	1934.000	172			
	"There are too many disabled carparks"	791.000	172			
	"Old people are terrible drivers"	2124.000	172			
	"Peadophiles should be hung"	3165.000	172			
	"Benefit recipients… are bludgers"	1707.000	172			
Corrected	"Fat people are lazy"	263.674	171			
Total	"There are too many disabled carparks"	184.436	171			
	"Old people are terrible drivers"	235.047	171			
	"Peadophiles should be hung"	640.110	171			
	"Benefit recipients… are bludgers"	293.924	171			

a. R Squared = .057 (Adjusted R Squared = .041)

b. R Squared = .007 (Adjusted R Squared = -.011)

c. R Squared = .018 (Adjusted R Squared = .000)

d. R Squared = .051 (Adjusted R Squared = .035)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	"Fat people are lazy"	15.142[a]	3	5.047	3.412	.019
	"There are too many disabled carparks"	1.217[b]	3	.406	.372	.773
	"Old people are terrible drivers"	4.212[c]	3	1.404	1.022	.384
	"Peadophiles should be hung"	32.946[d]	3	10.982	3.039	.031
	"Benefit recipients… are bludgers"	7.711[e]	3	2.570	1.509	.214
Intercept	"Fat people are lazy"	1682.845	1	1682.845	1137.552	.000
	"There are too many disabled carparks"	603.459	1	603.459	553.332	.000
	"Old people are terrible drivers"	1866.821	1	1866.821	1358.661	.000
	"Peadophiles should be hung"	2498.628	1	2498.628	691.360	.000
	"Benefit recipients… are bludgers"	1392.860	1	1392.860	817.574	.000
Group Assignment	"Fat people are lazy"	15.142	3	5.047	3.412	.019
	"There are too many disabled carparks"	1.217	3	.406	.372	.773
	"Old people are terrible drivers"	4.212	3	1.404	1.022	.384
	"Peadophiles should be hung"	32.946	3	10.982	3.039	.031
	"Benefit recipients… are bludgers"	7.711	3	2.570	1.509	.214
Error	"Fat people are lazy"	248.532	168	1.479		
	"There are too many disabled carparks"	183.219	168	1.091		
	"Old people are terrible drivers"	230.835	168	1.374		
	"Peadophiles should be hung"	607.165	168	3.614		
	"Benefit recipients… are bludgers"	286.213	168	1.704		
Total	"Fat people are lazy"	1934.000	172			
	"There are too many disabled carparks"	791.000	172			
	"Old people are terrible drivers"	2124.000	172			
	"Peadophiles should be hung"	3165.000	172			
	"Benefit recipients… are bludgers"	1707.000	172			
Corrected Total	"Fat people are lazy"	263.674	171			
	"There are too many disabled carparks"	184.436	171			
	"Old people are terrible drivers"	235.047	171			
	"Peadophiles should be hung"	640.110	171			
	"Benefit recipients… are bludgers"	293.924	171			

a. R Squared = .057 (Adjusted R Squared = .041)

b. R Squared = .007 (Adjusted R Squared = -.011)

c. R Squared = .018 (Adjusted R Squared = .000)

d. R Squared = .051 (Adjusted R Squared = .035)

e. R Squared = .026 (Adjusted R Squared = .009)

Table H2

T-test for Independent Means for Numerical Responses provided within-Facebook for each of the Experimental Groups

Controversial Statement	Equal Variances Assumed	Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Si.	T	DF	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Comparison of Group 1 and Group 2 Mean Numerical Responses										
"Fat people are lazy"	Equal variances assumed	1.32	.25	-2.14	87	.04	-.61	.29	-1.18	-0.04
	Equal variances not assumed			-2.11	79.15	.04	-.61	.29	1.18	-0.04
"There are too many disabled carparks"	Equal variances assumed	.00	.99	.42	87	.68	.09	.21	-.33	.51
	Equal variances not assumed			.42	85.67	.68	.09	.21	-.33	.51
"Old people are terrible drivers"	Equal variances assumed	3.73	.06	.21	86	.83	.05	.26	-.45	.56
	Equal variances not assumed			.22	85.81	.83	.05	.25	-.44	.55
"Peadophiles should be hung"	Equal variances assumed	.40	.53	-1.14	87	.26	-.46	.40	-1.25	.34
	Equal variances not assumed			-1.14	85.02	.26	-.46	.40	-1.25	.34
"Benefit recipients… are bludgers"	Equal variances assumed	.27	.60	-.19	87	.85	-.05	.28	-.60	.50
	Equal variances not assumed			-.19	86.34	.85	-.05	.28	-.60	.50
Comparison of Group 1 and Group 3 Mean Numerical Responses										
"Fat people are lazy"	Equal variances assumed	.11	.74	-1.62	86	.11	-.42	.26	-.94	.09
	Equal variances not assumed			-1.63	84.48	.11	-.42	.26	-.93	.09
"There are too many disabled carparks"	Equal variances assumed	5.59	.02	-.62	86	.54	-.16	.26	-.67	.35
	Equal variances			-.60	69.72	.55	-.16	.26	-.68	.37

	not assumed									
"Old people are terrible drivers"	Equal variances assumed	.73	.40	1.47	85	.15	.40	.27	-.14	.95
	Equal variances not assumed			1.48	83.24	.14	.40	.27	-.14	.94
"Peadophiles should be hung"	Equal variances assumed	.48	.49	.47	86	.64	.20	.42	-.63	1.03
	Equal variances not assumed			.47	80.98	.64	.20	.42	-.64	1.03
"Benefit recipients… are bludgers"	Equal variances assumed	.25	.62	1.24	86	.22	.35	.28	-.21	.91
	Equal variances not assumed			1.25	84.47	.22	.35	.28	-.21	.91
Comparison of Group 1 and Group 4 Mean Numerical Responses										
"Fat people are lazy"	Equal variances assumed	1.13	.29	.04	91	.97	.01	.24	-.47	.49
	Equal variances not assumed			.04	90.36	.97	.01	.24	-.47	.48
"There are too many disabled carparks"	Equal variances assumed	.08	.78	.72	91	.48	.14	.19	-.25	.52
	Equal variances not assumed			.72	90.03	.47	.14	.19	-.24	.52
"Old people are terrible drivers"	Equal variances assumed	2.66	.11	.94	91	.35	.24	.25	-.26	.73
	Equal variances not assumed			.94	89.85	.35	.24	.25	-.26	.73
"Peadophiles should be hung"	Equal variances assumed	.65	.42	-2.33	91	.02	-.90	.39	-1.67	-.13
	Equal variances not assumed			-2.33	90.87	.02	-.90	.39	-1.67	-.13
"Benefit recipients… are bludgers"	Equal variances assumed	.01	.94	-.86	91	.39	-.24	.28	-.78	.31
	Equal variances not assumed			-.86	90.92	.39	-.24	.28	-.78	.31
Comparison of Group 2 and Group 3 Mean Numerical Responses										
"Fat people are lazy"	Equal variances assumed	2.00	.16	.64	79	.52	.19	.29	-.40	.77
	Equal variances			.64	76.46	.52	.19	.29	-.40	.77

	not assumed									
"There are too many disabled carparks"	Equal variances assumed	5.41	.02	-.93	79	.36	-.25	.27	-.77	.28
	Equal variances not assumed			-.92	69.79	.36	-.25	.27	-.78	.29
"Old people are terrible drivers"	Equal variances assumed	.81	.37	1.37	77	.18	.35	.26	-.16	.86
	Equal variances not assumed			1.36	74.31	.18	.35	.26	-.16	.86
"Peadophiles should be hung"	Equal variances assumed	1.39	.24	1.50	79	.14	.65	.43	-.21	1.51
	Equal variances not assumed			1.50	78.27	.14	.65	.43	-.21	1.51
"Benefit recipients… are bludgers"	Equal variances assumed	.00	1.00	1.43	79	.16	.40	.28	-.16	.96
	Equal variances not assumed			1.43	78.83	.16	.40	.28	-.16	.96
Comparison of Group 2 and Group 4 Mean Numerical Responses										
"Fat people are lazy"	Equal variances assumed	4.60	.035	2.27	84	.03	.62	.27	.08	1.16
	Equal variances not assumed			2.24	72.94	.03	.62	.28	.07	1.17
"There are too many disabled carparks"	Equal variances assumed	.09	.76	.26	84	.79	.05	.20	-.34	.44
	Equal variances not assumed			.26	79.89	.80	.05	.20	-.34	.45
"Old people are terrible drivers"	Equal variances assumed	.10	.75	.78	83	.44	.18	.23	-.28	.64
	Equal variances not assumed			.78	82.63	.44	.18	.23	-.28	.64
"Peadophiles should be hung"	Equal variances assumed	.02	.89	-1.11	84	.27	-.45	.40	-1.24	.35
	Equal variances not assumed			-1.11	82.92	.27	-.45	.40	-1.25	.35
"Benefit recipients… are bludgers"	Equal variances assumed	.41	.53	-.67	84	.51	-.18	.28	-.73	.36
	Equal variances not assumed			-.67	83.73	.51	-.18	.28	-.73	.36

Comparison of Group 3 and Group 4 Mean Numerical Responses

"Fat people are lazy"	Equal variances assumed	.50	.48	1.77	83	.08	.43	.24	-.05	.91
	Equal variances not assumed			1.76	79.25	.08	.43	.25	-.06	.92
"There are too many disabled carparks"	Equal variances assumed	8.31	.01	1.21	83	.23	.30	.25	-.19	.79
	Equal variances not assumed			1.18	63.21	.24	.30	.25	-.21	.80
"Old people are terrible drivers"	Equal variances assumed	.38	.54	-.66	82	.51	-.17	.25	-.67	.33
	Equal variances not assumed			-.66	76.90	.51	-.17	.25	-.67	.34
"Peadophiles should be hung"	Equal variances assumed	1.86	.18	-2.62	83	.01	-1.10	.42	-1.93	-.27
	Equal variances not assumed			-2.61	79.48	.01	-1.10	.42	-1.94	-.26
"Benefit recipients… are bludgers"	Equal variances assumed	.38	.54	-2.09	83	.04	-.59	.28	-1.14	-.03
	Equal variances not assumed			-2.09	82.12	.04	-.59	.28	-1.14	-.03