Examining how anonymity, group identity, and secondary goals influence online verbal aggression

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2020

Sng, J. R. H. (2020). Examining how anonymity, group identity, and secondary goals influence online verbal aggression. Doctoral thesis, Nanyang Technological University, Singapore. <https://hdl.handle.net/10356/147854>

<https://hdl.handle.net/10356/147854>

<https://doi.org/10.32657/10356/147854>

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**EXAMINING HOW ANONYMITY, GROUP IDENTITY, AND SECONDARY GOALS
INFLUENCE ONLINE VERBAL AGGRESSION**

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WEE KIM WEE SCHOOL OF COMMUNICATION AND INFORMATION

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GOALS INFLUENCE ONLINE VERBAL AGGRESSION**

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A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirements for the degree of
Doctor of Philosophy

2020

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ACKNOWLEDGEMENTS

To my parents, who have no idea about what I do in grad school but still supported me in any way they can. Especially my mother, who insisted on prioritizing my education above all else, even when putting food on the table was a struggle.

To my supervisor, Associate Professor Jung Younbo, who has always believed in me and guided me patiently since my time as a fledgling undergraduate. You have shown me what a responsible, ethical, knowledgeable yet humble (and also family-loving) researcher is like, and have inspired me to be a better academic. I am no longer an undergraduate (still fledgling though) but will always bear in mind your words to “pay it forward”.

To all the talented and nurturing faculty at WKWSCI who have helped me and guided me in so many ways during my time there. I have learned so much from you and benefited from the teaching and research opportunities you have given me. And to my student assistants, for all your help in data collection. This dissertation would not have been possible without you.

To my friends, for countless lunch sessions, board game nights, online noob-stomping sessions (mostly getting stomped ourselves), gushing about BL, seriously lit gym classes, and keeping me sane in general. I probably don’t say it enough, but you have supported me in more ways than you think.

To my future self – a reminder to always be grateful for what I have, and to never lose sight of what truly matters.

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ABSTRACT

Verbal aggression is increasingly prevalent online, especially so in social media and online gaming environments. These trends are worrying because despite occurring virtually, verbal aggression can cause psychological distress to victims in reality. It can also influence others to exhibit similar behavior, subsequently harming the general climate of discussion and perceptions of socially appropriate behavior. In the long run, this can reduce the quality of online interactions and mar the enjoyment of online experiences. The aim of this set of two studies is to untangle the complexities surrounding verbal aggression online, in the contexts of online commenting and online gaming. Currently, there is ample attention on research into external factors such as technological affordances (e.g., level of anonymity offered) and social norms, but there is less insight on intrapsychic factors explaining why verbal aggression occurs online. Study 1 and Two thus aim to fill this gap by integrating the notion of secondary goals by Dillard et al. (1989) with the Social Identity model of Deindividuation Effects (Reicher et al., 1995), to examine how varying conditions of anonymity and group identification with others can affect individuals' internal concerns and motivations during the message crafting process to determine whether they send aggressive messages or not. Specifically, Study 1 (N = 90) demonstrated through an online experiment on online commenting behavior that verbal aggression was higher when group identification with other verbally aggressive individuals was high. Concern about identity goals and concern about communication management goals also

moderated the effects of group identification on verbal aggression such that aggression was even greater when concern was low. This showed that in the context of online commenting, aggressive behavior is highly dependent on perceived norms and the behavior of others as well as the internal state of the person. Study 2 (N = 121) built upon this finding and sought to understand whether similar effects held up in a different context of sustained interaction over time: an online cooperative gaming context where participants shared a common fate with their assigned group of three players (one participant and two verbally aggressive confederates). It was found that contrary to Study 1, verbal aggression was higher when group identification with other verbally aggressive individuals was low. Concern about identity goals, concern about communication management goals, and concern about relational resource goals also moderated the effect of anonymity on verbal aggression such that aggression was even greater when concern was low. This further showed that concern about secondary goals is an important moderator to consider when examining online aggression. Overall, this dissertation has contributed theoretically to the literature on mediated communication by elucidating the psychological factors involved in and conditions leading to online aggressive behavior.

INTRODUCTION

“Nearly 100 frank opinions every day. I couldn’t deny that I was hurt. I’m dead...I’m weak, I’m sorry. I don’t want to be a human anymore. It was a life I wanted to be loved. Thank you everyone, I love you. Bye.”

These were some of the last words tweeted by 22-year-old Hana Kimura, a Japanese pro wrestler who was also a participant on the Netflix reality TV show *Terrace House*. In the wrestling ring, she faced toxic sexist remarks from the online wrestling community which is predominantly old and male (Konuwa, 2020). From the international fans of reality TV, she suffered a barrage of hostile comments after the airing of an episode depicting her tense confrontation with a housemate. This onslaught of verbal aggression from various domains culminated in the tragic taking of her own life (South China Morning Post, 2020).

In “A Declaration of the Independence of Cyberspace”, Barlow (1996) envisioned a utopic cyberspace that espoused liberty and democratic public debate. He believed that the Internet would be “a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity.” Cyberoptimists of that time predicted that the internet and online media will increase the accessibility of information, giving everyone an equal voice and exposing us to a diversity of viewpoints. This, they said, will encourage reflection about more social issues

and improve the quality of public debates, thereby creating an ideal digital public sphere (Schäfer, 2015).

Unfortunately, reality has turned out quite different. While the Internet has certainly fostered digital discussions and improved the ease of communication (e.g., Ruiz et al., 2011), incivility in public discourse online has become a major problem (Kenski et al., 2017). Other problems such as cyberbullying (Aboujaoude et al., 2015), online misogyny (Jane, 2016), and flaming (O'sullivan & Flanagin, 2003) have also emerged. These behaviors manifest most commonly in the form of offensive comments such as vulgarities, racist, sexist, or hate language (e.g., Pascoe & Diefendorf, 2019). According to Pew Research Centre (2017), four in ten Americans have personally experienced online harassment, and more than 60% consider it as a major problem. This is observed across many platforms, including social media, discussion forums, blogs, and online games. The problem is expected to be even more serious in online gaming environments which are notorious for widespread hostile behavior (Maher, 2016).

These trends are worrying because despite occurring virtually, the ramifications of such verbal aggression are very much felt in the real world: Victims have reported mental and emotional distress, reputational damage, and threats to personal safety (Pew Research Center, 2017). The tragedy of Kimura and many other celebrities (e.g., D. Kim, 2020) also show us what could happen in extreme cases. Beyond victims, it may also influence non-victims to exhibit

similar behavior, subsequently impacting the perceived climate and perceptions of what is deemed as socially appropriate (Zimmerman & Ybarra, 2016). In the long run, this can reduce the quality of online debates and discussion on forums and social media and reduce enjoyment of online interactions.

Many existing approaches to understanding online aggression have focused on the anonymity offered by the Internet. This originated from research on deindividuation (Festinger et al., 1952), which sought to explain the aggressive behaviors of individuals in a crowd. Studies on deindividuation and anonymity have been used to examine historical events involving conformity to group aggression on a large scale, including the emergence of hate groups (Craig, 2002), anti-immigrant movements, and even the rise of Nazism in Germany in the past (Vilanova et al., 2017). However, online aggression occurs across a diverse range of online communication contexts, even in less anonymous platforms like social media (Rösner et al., 2016). Anti-anonymity laws have also found little effectiveness in stamping out online malice, which was why such a law was eventually overturned in South Korea in 2012 (Choe, 2012). This shows that restricting affordances offered by the platform (such as the option to stay anonymous) does little to address the root of the problem, that is, what motivates people send rude and aggressive messages online.

Beyond focusing on technological affordances like anonymity, we should also consider the role of the context that the behavior is situated in, such as the salience of social group norms. At the individual level, the role of

psychological factors in influencing online aggression has also not yet been sufficiently considered, such as concern about secondary goals. These can include concerns about the social appropriateness of their behavior, or whether their behavior is aligned with their moral standards.

The overall aim of my dissertation is thus to develop a theoretical model that considers both contextual-level factors (anonymity and group identification) and individual-level factors (concern about secondary goals) in explaining how online disinhibition behaviors occur. The scope of my proposed model is limited to the explanation of online verbal aggression. Specifically, the objectives of the two experimental studies in this dissertation are as follows:

1. To compare the effects of anonymity and group identification on verbal aggression across two contexts: an online commenting context with one-shot interactions and limited interactivity, and an online gaming context with extended interaction over time and greater interactivity
2. To examine if secondary goals can moderate the relationship between anonymity, group identification, verbal aggression
3. To identify effective ways to reduce sender motivations for posting aggressive messages online

Achieving the above aims of my dissertation can help to address existing knowledge gaps in a few ways. First, an empirical test of a model incorporating anonymity will shed more light into the role of anonymity in

online aggression. A deeper understanding of the impact of anonymity in this area is timely and relevant as debate on the costs and benefits associated with allowing anonymity online intensifies (Rainie et al., 2017), and policymakers are once again considering anti-anonymity laws to reduce online malice (e.g., Buchan, 2018; Rogowska, 2019).

Second, examining the role of group identification in the proposed model will enhance our understanding of how group-level processes work in tandem with individual-level factors. Online aggression is often described as part and parcel of online cultures (e.g., Cote, 2020; Fujioka, 2020), almost as if it is a behavioral norm in online media environments. This suggests that social influence may play a part in cultivating online aggression, such as the influence of others' behaviors contributing to perceived social norms surrounding online interactions. By gaining insight into the role of the group in online interactions, we can better understand how to change this undesirable aspect of online culture.

Third, incorporating individual-level psychological variables such as secondary goals in the proposed model can help elucidate the psychological mechanisms behind online verbal aggression. Currently, there exists many approaches focused on reactive measures to curb online aggression, such as using machine learning to pick out instances of aggression and penalize users accordingly (e.g., Märten et al., 2015). However, in such cases, the messages have been sent and others' online experiences may have already been marred by

the aggression. Understanding the psychological mechanisms behind why people send aggressive messages would give greater insight into how to prevent such behavior, which allows for a more proactive approach in curbing such behavior.

To begin, I will first review the literature on anonymity and deindividuation, and how the social identity model of deindividuation effects (SIDE) theory can provide a conceptual framework for understanding the influence of anonymity and group identity on online aggressive behavior.

LITERATURE REVIEW

Anonymity and Deindividuation

Anonymity is defined as “the degree to which a communicator perceives the message source as unknown and unspecified” (Anonymous, 1998, p. 387). The anonymity of online interactions has often been thought to be a reason for aggressive behavior online, and this can be traced back to research on deindividuation and how people behave in crowds. The idea that people would act differently in a group as compared to being alone was first proposed by Le Bon (1897) in his seminal work “The Crowd: A Study of the Popular Mind”. According to him, when individuals are immersed in a crowd, their individual personality fades into the background while the personality of the group surfaces. Individuals would thus think, feel, and behave differently than they normally would on their own, as they become guided by the consciousness of the group. Le Bon thus concludes that this automated behavior increases aggressive tendencies.

Leon Festinger and his colleagues later then brought this idea to psychology, coining the term deindividuation, which refers to a state where individuals in anonymous large crowds lose their sense of identity and self-awareness (Festinger et al., 1952). In this state, they are temporarily freed from internal restraints (such as internalized ethical standards and behavioral norms), leading to less concerns about appropriate behavior (Festinger et al., 1952). Festinger provided empirical support for this proposition through his experiments, and in doing so also demonstrated that deindividuation did not

only occur among large crowds but could also be observed in small group settings such as in a laboratory experiment. This paved the way for later scholars in psychology to use experiments to study deindividuation, which was previously mostly studied by scholars in other fields such as sociology (Vilanova et al., 2017).

Zimbardo (1969) further pursued this line of research, arguing that deindividuation could arise from both internal and external factors, but the underlying mechanisms were intraindividual psychological processes. He first established the relationship between anonymity and aggressive behavior through an experiment, where he found that participants who were hooded and therefore anonymous were more aggressive than those who were not hooded, in terms of administering longer electric shocks to a stranger during an interview (Zimbardo, 1969). He also found that manipulating participant perceptions towards the stranger (who either behaved kindly or expressed racist sentiments during the interview) did not affect participant behavior in the anonymous condition. This showed that anonymity was associated with aggression, and that discriminative stimuli such as perceptions of the stranger would not affect this relationship. He then replicated this study with a group of Belgian soldiers, where half was assigned to anonymous conditions and the other half experienced identifiable conditions. Contrary to his previous finding where anonymity should lead to longer shocks, he found the opposite: subjects in the identifiable condition issued longer shocks instead. He explained that this was because soldiers were usually used to wearing uniforms and being called by

name, so those in the anonymous condition (who were asked to wear large hoods and not called by names) felt anxious and self-conscious instead. This psychological state made them feel isolated and conscious about themselves, which resulted in less aggression instead. This demonstrated that deindividuation did not always automatically lead to disinhibited behavior – it depended on the internal psychological state of the person. Through this, Zimbardo showed the importance of investigating psychological factors within the individual.

In line with this focus on investigating internal psychological factors of deindividuation, Diener and Wallbom (1976) argued that a reduction in self-awareness was the key mechanism at work during deindividuation, rather than anonymity. They believed that regardless of anonymity conditions, when conscious attention on oneself (self-awareness) is reduced, this would undermine decision-making capacities on one's behavior, consequently lessening inner restraints and allows antisocial behavior. They operationalized self-awareness as seeing oneself in a mirror and hearing one's own voice from a recording. They administered a simple anagram task to participants, leaving them in an unsupervised room where they could spend more than the stipulated time limit to complete the task. They found there was less cheating among those in the self-aware condition (with a mirror and a tape recording of their own voice) than those in the control condition (without facing the mirror and with a tape recording of a stranger's voice).

Prentice-Dunn and Rogers (1982) integrated the work of Zimbardo (1969) and Diener and Wallbom (1976), developing another deindividuation model based on their differential self-awareness theory. According to them, an individual's self-awareness consists of a public and a private component. They also identified accountability cues and attentional cues as the antecedents of deindividuation: accountability cues are factors indicating that one will be held accountable for his actions, while attentional cues guide the focus of one's attention, such as directing them to focus on their own feelings or those of others. Accountability cues are related to public self-awareness, while attentional cues are related to private self-awareness. They believed that while both reductions in public and private self-awareness will lead to aggressive behavior, the mechanisms involved were different. When private self-awareness is reduced (due to less internal attentional cues), aggressive behavior occurs because one becomes less aware of their internal psychological state, and cognitive capacity to self-regulate is reduced. This is what they believe is the deindividuation process. However, when public self-awareness is reduced (due to less accountability cues), aggressive behavior occurs because one weighs concerns about consequences of those actions and decides that enacting those behaviors are more advantageous than disadvantageous. Therefore, they conclude, reductions in public self-awareness involve other processes besides deindividuation.

Johnson and Downing (1979) shed light on another important mechanism through which deindividuation operated. Besides manipulating

identifiability conditions, they also manipulated clothing conditions: participants were randomly assigned to wear either nursing clothes or robes resembling those worn by Ku Klux Klan. Perceptions of normative behavior associated with the costumes these two groups represented differed, because the Ku Klux Klan is a white supremacist hate group that engaged in murder while nurses care for people and save lives. The researchers then asked participants to administer shocks to a supposed test subject and found that participants in the deindividuated condition administered greater shock levels while those in the identifiable condition administered lower shock levels. They concluded that while anonymity did indeed lead to deindividuation, the resultant behavior also depended on the perceived social norms in the context that participants were situated in. In doing so, their work illustrated the mediating role of perceived social norms.

Reicher (1984) went on to emphasize the need to distinguish between group norms and social norms. According to him, the supposed antinormative behavior that previous scholars interpreted as the outcome of deindividuation was in fact normative behavior characteristic of the specific group and context that people were situated in. Essentially, he believed that deindividuation did not cause people to lose their sense of self. Rather, it fostered a switch from the self to the group (Reicher, 1987). He differentiated between social norms, which are generalized expectations about appropriate behavior in everyday life, and group norms, which are unique to each group. In this sense, the antinormative behaviors observed by previous scholars (which were believed to

be due to reduced self-restraint) were group-normative behaviors instead: behaviors aligned with norms of the group in that particular situation, but not general societal norms.

Given the above research reviewed, it is apparent that the relationship between anonymity and aggression is not as straightforward as initially thought, and other factors must be considered. Certainly, one critique of classical deindividuation theory is its dichotomous conceptualization: one is either in a rational state exerting control over the individual self, or a deindividuated collective self entirely immersed in the group and subject to group influences, unable to regulate their own behavior (Reicher et al., 1995). However, the social identity theory (SIT) (Tajfel, 1974) challenges such a conceptualization. SIT posits that people derive their self-concept not only from their personal identity, but also from their membership in social groups. The two are also not mutually exclusive, in the sense that group membership does not necessarily compromise one's personal identity and can in fact affirm one's personal identity. An individual can also hold various group identities at once (i.e. identify with more than one group simultaneously), rather than being entirely immersed in one particular group (Tajfel & Turner, 1986). Also, identification with a certain group can also nudge people to behave in ways consistent with that group's norms, so as to affirm group membership (Brewer, 1979).

Similarly, the self-categorization theory (SCT) (Turner et al., 1987) posits that we can look at ourselves at different levels of abstraction: from the

personal to the social self. Depending on the situational context, some situations may highlight our personal self and encourage us to see ourselves as idiosyncratic individuals, while other situations, such as when certain social group identities are made salient, may cause us to perceive ourselves as interchangeable exemplars of those particular social groups (Turner, 1985). When the latter happens, this may cause us to alter our behavior and beliefs in line with the norms of the salient group.

As such, we see both SIT and SCT pose a fundamental challenge to the underlying assumption of classical deindividuation theory that one is either a conscious rational individual or a passive part of a group and unable to self-regulate. Rather, depending on the available salient group identity cues, one can identify with the group to various degrees, implying that group identification exists on a continuum. In this sense, the SIDE theory (Spears & Lea, 1992), which draws its roots from both SIT and SCT, provides a more nuanced examination of deindividuation behavior. It provides a useful framework for understand how the various concepts of anonymity, group identification, and aggression work together.

Depersonalization, Group Identification, and Anonymity

Contrary to deindividuation theory, SIDE conceptualizes deindividuation as a state of perceiving everyone as belonging to a group as opposed to idiosyncratic individuals. According to SIDE, deindividuation does not necessarily constitute a loss of individual self-awareness, but instead entails

a shift in awareness from one's personal self towards one's social self via increased group salience and identification. This encourages adoption of attitudes, behaviors, and other social norms in line with the group (Postmes et al., 1998). According to SIDE theory, this process is known as depersonalization, not to be confused with deindividuation (Spears, 2017).

Deindividuation refers to a process involving reduced regulation of the self, while depersonalization implies a process of increased self-regulation on the group level (Spears, 2017). From the SIDE perspective, anonymity increases group salience and encourages depersonalization: when personal identities and individual differences are concealed, we tend to view others not as unique individuals but as indistinguishable members of the same group. Given that we have no other information about these group members, the only thing we can then do is to rely on the group's associated norms and stereotypes to understand them. Thus, to the degree that we experience group identification with this salient group, our behaviors will likely be influenced by its norms and standards. In this sense, SIDE argues that anonymity does not directly lead to negative behavioral change, but it is conformity to the group's norms that does so.

Research on computer-mediated communication (CMC) has generally supported the predictions of the SIDE model that anonymity encourages conformity to social norms of a salient group. In the first empirical study based on SIDE, Spears, Lea, and Lee (1990) conducted a 2 x 2 experiment to test the

effects of anonymity and group identity salience. They invited psychology students to take part in a 10-minute group discussion over email, and manipulated anonymity by having them in separate rooms, and manipulated group identity salience by either telling participants that researchers were interested in them as psychology students or as individuals. Results confirmed that in the anonymous condition, participants conformed to group opinion more when group identity was salient and asserted their own opinions more when personal identity was salient.

Postmes and colleagues (2001) tested the effects of anonymity on group conformity in the context of a discussion on hospital priorities. Before the discussion, they used a scrambled sentence procedure to prime participants with either an economic efficiency norm (that hospitals should prioritize economic considerations) or a patient care norm. They found in Study 2 that in line with SIDE predictions, the primed group norm had greater influence under anonymous conditions, and this effect was mediated by group identification. They concluded that group identification was the mechanism through which anonymity encouraged conformity (Postmes et al., 2001).

Zimmerman and Ybarra (2016) examined the effects of anonymity and social modeling by collecting player comments after a collaborative group word-unscrambling game. They put participants in either anonymous or non-anonymous conditions and exposed them to either neutral or aggressive comments. They found that participants were most aggressive when anonymous

and exposed to aggressive comments, supporting SIDE's predictions that anonymity encourages conformity to group norms. In this case, group norms are represented by the level of aggression of comments left by other players.

But while SIDE has been empirically supported in a variety of contexts, other scholars have pointed out the limitations of the theory. One key limitation is that SIDE is designed for and best applied to interactions in small groups where users may be aware of what others think or do but do not interact directly with them (Wang et al., 2009). To date, research on SIDE has mainly been limited to examining communication phenomena characterized by visual anonymity between users, limited or no interactivity between users, and asynchronous one-time interactions (Walther, 2009). As such, while the theory may be suitable for examining media contexts like discussion board postings and social media comments, its applicability to highly spontaneous and interactive environments remain questionable. Given the myriad of media experiences available in today's context, whether the predictions of SIDE still hold in more interactive media contexts is worth exploring.

This point was raised by Walther and colleagues (2010), who conducted a test of effects of comment valence and group identification on resulting attitudes towards marijuana use and antimarijuana public service announcements (PSA) on YouTube. Their findings supported SIDE predictions that group identification with anonymous others increased conformity with regard to attitudes towards marijuana and perceived effectiveness of the PSAs.

However, they also found variations in group identification effects that were beyond the predictions of SIDE. Given that the PSA was antimarijuana, one would expect recent marijuana users to identify more with commenters who disagreed with the PSA than those who agreed with the PSA. But analyses showed that recent marijuana users identified more with commenters who were pro-PSA than those who were anti-PSA. According to the authors, this poses a question regarding the robustness of SIDE, because SIDE does not account for variations in group identification. SIDE views group identification as a more direct process, in that when conditions of visual anonymity and salient group identity are present, identification with the salient group is expected to occur, which then leads to outcomes such as attitudinal and behavioral conformity. In this case, the predicted outcomes of group conformity still happened even though group identification occurred in an unexpected direction. Therefore, it appears that there may be other factors influencing the role of group identification in this process.

Other studies have found, at times, that predicted effects of SIDE on conformity could still occur even though group identification did not have significant mediating effects. Postmes and colleagues (2001) did not find significant mediating effects of group identification on anonymity and group conformity in Study 1, although they did eventually do so in Study 2 and attributed the discrepancy to a possible lack of power and inadequate operationalization in Study 1. Rösner & Krämer (2016) found ambiguous results regarding group identification. They tested effects of anonymity and

group norm (operationalized as aggressive or nonaggressive comments) on participants' aggressive language use in a blog setting and could not find a significant mediating effect of group identification. They concluded that group identification might not be a necessary condition for adopting a behavioral social norm (in this case the norm of language use).

Walther et al. (2015) tested using a longitudinal experiment to see whether a yearlong interaction from taking an online course together could reduce prejudice between Jews and Arab Muslims, and whether operated via increased group identification (as predicted by SIDE) or through increased interpersonal communication and attraction developed over time (as predicted by Social Information Processing Theory (Walther, 1992)). Results revealed that final attitudes towards the outgroup was associated with interpersonal attraction but not group identification, indicating support for SIP but not SIDE.

Lee (2007) examined the role of group identification and public self-awareness in influencing the effects of deindividuation on group conformity (in the form of greater opinion polarization). Participants interacted with three other confederates via CMC, in either individuated or deindividuated conditions. They expressed their opinion for various scenarios and then engaged in group discussion, after which they reported their opinion again post-discussion. Opinion polarization was operationalized as a more extreme opinion in the direction of the group norms. To ensure that group norms were always in the direction of participants' initial opinion, confederates were instructed to

agree with participants' initial opinion. Results supported SIDE's predictions that deindividuation fostered group conformity via group identification, but also showed that public self-awareness mediated the effect of group identification on opinion polarization. This also contradicts the predictions of Prentice-Dunn and Rogers (1982), who contended that only reductions in private self-awareness was related to the deindividuation process.

Cho and Kwon (2015) analyzed a large real-world dataset of newspaper website comments when the Internet Identity Verification Law was implemented in South Korea, and compared two types of identifiability in place at that time: mandatory policy-driven identifiability imposed by the regulatory authorities where users had to verify their real identities with the website operator, or voluntary identifiability towards peer users which enhances one's positive image on the site, achieved by linking one's social networking site, or SNS, profile along with their comments. They found that instead of reducing hostile comments, policy-driven identifiability was associated with an increment in such behavior. Meanwhile, the voluntary approach led to a reduction in aggressive comments. The authors suggested that this could be because the policy-driven approach only required users to verify their real identity with operators but did not require them to display their real names with their comments. In contrast, for the voluntary approach, commenters were aware that their SNS account was visible to others, which prompted them to consider their social image and language choices more.

These studies above indicate that under certain contexts, variations in the construct of group identification may occur, which may threaten the validity of SIDE predictions regarding the process of deindividuation. They also suggest that users' internal motivations and considerations should be taken into account, such as public self-image considerations and selection of socially appropriate language. As Densley and Peterson (2018) have pointed out, one key limitation of SIDE theory, and SIT which it was based upon, is their focus on group factors at the expense of individual factors. Earlier scholars like Zimbardo (1969) have stressed the need for examining psychological states of the individual, but the dominance of SIDE theory with its emphasis on group norms and group identification means that other deindividuation models with a greater emphasis on self-awareness (e.g., Diener & Wallbom, 1976; Prentice-Dunn & Rogers, 1982) have fallen out of favor (Vilanova et al., 2017).

Essentially, SIDE postulates that deindividuation constitutes a shift in awareness from the personal identities to social identities. It also notes that one still retains their individual characteristics during the deindividuated state. Despite this, there has been little attention on how this attentional shift from personal to social identity influences internal psychological factors, and how those factors can impact behavior (Lee, 2007). Coupled with the increasingly interactive and diversified nature of virtual media environments, it is clear that there is room for further refinement of SIDE theory, and that our understanding of deindividuation remains incomplete. I propose that the concept of secondary goals by Dillard and colleagues (1989) can fill this gap in our understanding

and add greater explanatory power. The following section will review the current literature on secondary goals.

Concerns about Secondary Goals in Communication

The concept of secondary goals come from the goals-plans-action (GPA) theory by Dillard (1990). The theory aims to explain the process in which people craft messages to achieve their goals in interpersonal situations, messages that are targeted at changing or reinforcing the attitudes and behavior of others (Dillard, 2008).

The GPA theory was developed as an explanation of the process in which people craft interpersonal messages, focusing on how their situational goals and motivations influences the message crafting process. The theory is built upon three core assumptions: The first assumption is that human behavior is based on at least some degree of agency and awareness such that intentions can be linked with behavior. This does not mean that human beings are aware of all their behavioral choices all the time, but that they are conscious of these choices most of the time. GPA is therefore a theory of purposeful behavior, and the scope of the theory is limited as such. The second assumption is that all communication behavior is strategic, that is, they seek to achieve some purpose, and are instrumental to achieving goals. However, these goals in question are not necessarily always self-serving. They can be for the benefit of others (such as when giving advice to a friend), or for the group (such as encouraging a team

player to do better). The third assumption is that such strategic behavior is the result of a process of planning guided by multiple goal objectives. Therefore, it not only involves conscious behavior but also effort on the message sender's part.

The GPA theory defines goals as "future states of affairs which an individual is committed to achieving or maintaining", plans as "cognitive representations of the behaviors that are intended to enable goal attainment", and actions as "behaviors enacted in an effort to realize a goal" (Dillard, 2008, pp. 65–66). Goals and plans are internal mental states, while actions are external behaviors.

The theory differentiates between primary goals and secondary goals. Primary goals are directly associated with the intended outcome of the interaction and serves a motivation function in initiating the interaction. They also bracket the interaction, by giving meaning to that specific interaction episode, defining the start and end of an interaction situation (therefore serving the social meaning function) (Dillard, 2008).

From the lens of the GPA theory, primary goals are also influence goals because primary goals are related to attempts by an individual to cause change in another (Dillard et al., 1989). Scholars have identified a few main types of primary goals, including: (1) gaining compliance, for example getting receivers to perform an action or accede to the sender's opinion, and (2) altering the

relationship between the sender and receiver, for example making new friends or breaking up (see Cody et al., 1994 for a review).

On the other hand, secondary goals are other concerns and motivations that arise when thinking about the primary goal. They play an important role in shaping the planning and crafting of messages, and serve as constraints in deciding what kinds of messages one would send to achieve their primary goal (Dillard, 1990). For instance, in the above scenario, a secondary goal of the requester is to maintain the existing relationship with their friend. Thus, they would try not to sound exploitative when raising the request. Research on the GPA theory has demonstrated existence of the following main types of secondary goals (Dillard, 2008): identity goals, interaction goals, relational resource goals, and arousal management goals.

Identity goals (IDG) are related to an individual's self-concept and serve as internal standards of behavior that the individual adheres to. They are formed based on an individual's principles and values as well as their self-concept. For example, someone may wish to get back a sum of money that they loaned out to their best friend. He could either request politely for his friend to return the money or demand rudely for the money. The secondary goal of being a gracious friend would nudge him towards the first method.

Conversation management goals (CMG) involve concerns about maintaining a positive self-image and the social appropriateness of an individual's behavior. For instance, it may be considered socially inappropriate

to demand rudely for repayment from a friend without first raising the request politely. The friend may also feel a loss of face when confronted with such a request. With such concerns about this secondary goal, one may choose to bring up the topic in a roundabout manner first instead of demanding it rudely and making the conversation awkward.

Relational resource goals (RRG) involve concerns about managing an existing relationship or forming a new relationship with the other person. People tend to value social relationships with other people, so the maintenance or improvement of relationships often surfaces as a secondary goal during interpersonal interactions. For instance, one may wish to ask for repayment from a friend but also to remain friends with them, so they would raise the request in a way that does not hurt the existing friendship.

Lastly, affect management goals (AMG) involve concerns about self-regulation of one's (can be positive or negative) emotional states from interpersonal interactions. For instance, one may adopt more roundabout ways of requesting repayment to avoid fear or anxiety. In another scenario, people may make inflammatory comments online simply to experience the enjoyment of infuriating others.

According to GPA theory, the message production process is fundamentally a balancing act between primary and secondary goals: messages senders must evaluate the absolute and relative importance of each goal, and consider whether they should engage the other person, how far they should go

to achieve their primary goal, and in what manner or tone they should adopt when sending the message (Dillard, 2008). The communication process is therefore not just an endeavor to achieve goals, but to manage goals effectively. Most interaction situations present goals that are incompatible with one another. If concerns about secondary goals outweigh the importance of the primary goal, then people may not pursue the primary goal at all (i.e. not initiate interaction).

Dillard (2008) explains that the relationship between primary and secondary goals boils down to three possibilities: goal compatibility, goal incompatibility, and goal irrelevance. First, both primary and secondary goals could be compatible. This is an ideal situation, although also the rarest. For instance, in making a personal request for a huge favor from a friend, one achieves their primary goal but also achieves the RRG of improving the friendship, because they are signaling to their friend that there is enough faith in the relationship to make such a huge request. The relationship may thus be strengthened as a result. Second, both primary and secondary goals may be incompatible. For instance, someone who wants to report his friend for cheating in an examination but does not want to hurt the friendship would find it quite impossible to achieve both goals simultaneously. Third, the secondary goal could be irrelevant to the primary goal. For instance, when turning down a stranger's request for help, RRG is not a concern because there is no existing relationship nor the desire to establish one. Dillard (2008) points out that not every secondary goal will be relevant in every interaction context. People may

also have multiple secondary goals at any one time that may complement or compete with one another.

Plans are the strategies through which goals are achieved and contain guidelines for production of verbal and nonverbal messages. While it is easy to select a plan that will fulfill the primary goal, simultaneous concerns about multiple secondary goals makes plan selection even more challenging. The GPA theory proposes that people will attempt to search for a plan that adheres to a satisfactory balance of primary and secondary goal attainment. This is made challenging by both time and situational constraints. Although plan-making can be a slow and contemplative process, people often do not have the luxury of time as they need to adapt and select plans at each sentence or juncture of conversation. Therefore, depending on the speed of progress of the conversation, they may need to decide on an appropriate plan quickly. This is complicated by the fact that decisions need to be evaluated based on the response of the other interacting party. The more unpredictable the other party is, the more one needs to change their plans along the way (Dillard, 2008).

Based on the above review, we see that GPA theory seeks to explain the process of message production in communication, particularly messages that are intended to influence, alter, or maintain the attitudes and behaviors of other people (Dillard, 1990). It is also a theory of purposeful behavior, assuming that people make conscious choices about the way they exert interpersonal influence.

Although GPA theory is built upon interpersonal influence and persuasion, it lends itself well to examining online communication phenomena in conjunction with SIDE theory for a few reasons.

First, although online communication differs from face-to-face communication in many different ways (such as the lack of nonverbal cues and the importance of time), the nature of primary goals across both settings remain relatively unchanged – influence remains the primary goal as people also try to persuade others or maintain relationships online (Wilson & Lu, 2008). In this dissertation, the two studies outlined in the following sections will explore contexts of commenting and online gaming, both of which arguably have influence as the primary goal. In both contexts, people send messages largely to sway others to behave in a certain way (e.g., take action or cooperate with the team) or simply to get them to comply with their opinion (e.g., “This is bad” or “You should quit the game”).

Second, the distinction between primary and secondary goals outlined by the GPA theory makes it well-suited for developing explanations of behavior online, without neglecting the influence of contextual factors. In conceptualizing goals within this bi-level structure, GPA also argues that goal structures are more important than standalone goals themselves. This is because individuals often juggle several goals at once during communication, so they have to prioritize certain goals over others. Therefore, compared to the goals themselves, understanding under what circumstances do certain goals take

priority over others and why would lend more insight into goal-based behaviors.

This is important because online communication is situated in a diverse range of contextual factors which have been shown to influence user behavior. For instance, the anticipation of future interactions with the sender can lead people to craft messages differently than when they do not foresee any future interactions (Rosenberg & Egbert, 2011). The presence of contextual affordances such as public chat history and a persistent nickname in an online community was also found to be negatively associated with the incidence of verbal aggression (Suh & Wagner, 2013). These behavioral differences can be attributed to the differences in levels of concern about secondary goals. For example, users in both the above examples would have higher concerns about relational resource goals after knowing what they say could affect their future relationships with other people in the community.

Existing research has indeed provided empirical support for using secondary goals to explain individuals' motivations and concerns when crafting messages in online settings. Wilson (2001) found that concern about identity goals and arousal management goals predicted senders' message style and language use in email sending. Rosenberg and Egbert (2011) found that concern about secondary goals predicted the use of self-presentation tactics used on Facebook.

Third, the assumptions of GPA theory align well with those of SIDE theory. GPA assumes that human behavior is agentic and strategic: behaviors are agentic because they are performed with at least some degree of agency and awareness, and they are strategic because they are performed to achieve goals of the sender. But while goals are conceived at the individual level, they are not necessarily always self-serving. Depending on the situation, people may craft their messages based on the goals of the group (such as encouraging a team player to do better) or to maintain existing relationships with the group (such as when concerned about behavior deemed socially appropriate by the group)(Dillard, 2015). In this regard, SIDE is similar because it is also concerned with conscious and strategic human behavior: rather than assuming that people will engage in unrestrained behavior when deindividuated (as posited by deindividuation theory), it explains how a shift in conscious awareness from self identity to group identity can influence behavior. Such behavior is strategic because it also seeks to achieve primary goals of influence – for instance, people align their behaviors with group norms so as to maintain group membership and gaining approval by others in the group (Brewer, 1979).

However, SIDE is limited to a relatively rigid account of group identification, without granting sufficient consideration for variations in outcomes due to individual differences in situational motivations and purpose. The theory proposes that if the preconditions of anonymity and group salience are met, then group identification will occur, and a corresponding behavioral change will be observed. This is where secondary goals can be integrated to

address the weaknesses of SIDE theory in explaining online aggressive behavior by accounting for individuals' motivations and concerns when crafting messages online.

In the following chapters, I will report the findings of two experimental studies where I test whether secondary goal concerns can moderate the relationships between anonymity, group identification, and verbal aggression online.

STUDY 1

Background

Despite the idealistic notions of online debate that cyberoptimists entertained in the past, verbal aggression has become a defining feature of online comments (Chen, 2017). This occurs across various types of online commenting platforms, including YouTube (Murthy & Sharma, 2018), social media pages (Su et al., 2018), and online news forums (Santana, 2016). For instance, an analysis of comments on the Facebook pages of American news outlets found that 40% of all comments posted were rude or extremely uncivil (Su et al., 2018).

In examining why people post verbally aggressive messages online, scholars have turned to SIDE as a theoretical explanation. A meta-analysis by Huang and Li (2016) found that research in this area has generally supported predictions of SIDE, that anonymity leads to more aggressive behavior, but this was contingent on a salient social group. However, none have tested the potential moderating effects of concern about secondary goals alongside SIDE variables.

Furthermore, one critique of GPA theory is that it seeks to explain individual behavior without considering potential social influences. In this regard, testing the construct of secondary goals within the theoretical framework of SIDE provides a good complement, since SIDE accounts for the influence of the social group but gives less attention to individual motivations.

Therefore, in addition to validating predictions of the SIDE theory in an online commenting context, this study seeks to examine whether secondary goal concerns can moderate the effects of anonymity and group identification on verbal aggression online.

Both Lapidot-Lefler and Barak (2012) and Zimmerman and Ybarra (2016) have found that anonymity conditions led to more verbal aggression online. But based on the SIDE perspective, anonymity alone does not necessarily lead to aggressive behaviors. Rather, under influence of a salient social group, attention is redirected from one's personal identity to one's identity as a group member in that salient group. This encourages the adoption of perceived attitudes and behavior norms aligned with that group (Lee, 2007). Self-categorization theory informs us that this is because when individuals experience group identification, they tend to self-stereotype themselves as similar to prototypical members of that group (Turner et al., 1994). This can subsequently lead to changes in behavior. Goldstein, Cialdini, and Griskevicius (2008) found that we are most likely to follow norms when we identify with or perceive similarity with a social group. They found that in designing messages to motivate environmental-friendly behavior among hotel guests, messages invoking descriptive social norms among previous hotel guests worked best compared to other types of identity groups.

Therefore, there should be an interaction effect between anonymity and group identification such that those in the anonymous condition will show

greater verbal aggression, but only among those who experience high group identification.

H1: Participants in the anonymous condition will exhibit greater self-reported verbal aggression compared to those in the non-anonymous condition.

H2: Participants in the high group identification condition will exhibit greater self-reported verbal aggression compared to those in the low group identification condition.

H3: There will be an interaction effect between anonymity and group identification such that participants in the high group identification condition will report greater verbal aggression than those in the low group identification condition, but this effect will only be observed in the anonymous condition.

Concerns about secondary goals act as constraints on the range of message crafting options available to the sender (Dillard, 2015). Given this, it is likely that effects of both anonymity and group identification will be more pronounced only when secondary goal concerns are low.

For IDG, low IDG coupled with anonymity should lead to greater verbal aggression as their identity is concealed and they worry less (than high IDG group) about whether their online behavior is consistent with internal standards that they would uphold in the offline world. Likewise, for the group

identification IV, low IDG coupled with high group identification implies greater verbal aggression, as they are more inclined to conform to normative aggressive behavior of the group even more, and less concerned about whether such behavior aligns with their self-identity.

For CMG, low CMG coupled with anonymity should lead to greater verbal aggression as their identity is concealed and they worry less (than high CMG group) about maintaining a positive self-image and social appropriateness of their behaviors. Likewise, for the group identification IV, low CMG coupled with high group identification implies greater verbal aggression, as they are more inclined to follow group norms of being verbally aggressive, yet less concerned about the social appropriateness of verbally aggressive comments.

For RRG, low RRG coupled with anonymity should lead to greater verbal aggression as they would worry less (than high RRG group) about their potential relationships with other commenters. Likewise, for the group identification IV, low RRG coupled with high group identification implies greater verbal aggression, as they are more inclined to follow group norms of being verbally aggressive yet less concerned about whether this harms any potential relationship with other commenters.

For AMG, low AMG coupled with anonymity should lead to greater verbal aggression as they would worry less (than high AMG group) about avoiding potential fear and anxiety caused by their comments. Likewise, for the group identification IV, low AMG coupled with high group identification

implies greater verbal aggression, as they are more inclined to follow group norms of being verbally aggressive yet less concerned about whether making aggressive comments could make them feel nervous or apprehensive.

H4_{a,b,c,d}: Concern about (a) identity goals, (b) conversation management goals, (c) relational resource goals, and (d) affect management goals will moderate the effect of anonymity on verbal aggression such that participants in the anonymous condition will report greater verbal aggression than those in the non-anonymous condition, and this effect will only be observed in the low concern group.

H5_{a,b,c,d}: Concern about (a) identity goals, (b) conversation management goals, (c) relational resource goals, and (d) affect management goals will moderate the effect of group identification on verbal aggression such that participants in the high group identification condition will report greater verbal aggression than those in the low group identification condition, and this effect will only be observed in the low concern group.

Method

To test the model, an online experiment with a 2 (anonymous vs. non-anonymous) x 2 (high vs. low group identification) between-subjects design was conducted. Participants were asked to read a Wordpress blog post citing an online forum letter from a local newspaper, and six other fake comments in response to the letter.

Manipulation of Independent Variables

Anonymity was manipulated through visual anonymity and availability of personal information. In the anonymous condition, participants viewed comments from fictional others without any author information such as name and profile picture. They were then asked to leave their own comment, without any identifiable information as well. In the non-anonymous condition, participants viewed comments from fictional others who were identified by names and profile photos, and the commenting function in Wordpress was adjusted to require participants to log in to their personal Facebook or Twitter account before they could leave their comment.

Group identification was manipulated by consulting procedures from previous studies that also engaged in manipulation of group identification in the lab (De Cremer & Van Vugt, 1999; Kramer & Brewer, 1984; Spears et al., 1990). The cover story and instructions to participants were altered to make group identities salient or not depending on condition. In the high group identification condition, the cover story read: “The purpose of this study is to

compare online communication experiences of **NTU students** with those of students from other universities”, and participants were told that the fake comments were from “**your fellow NTU students** who have participated in this study earlier on and completed the same task as you”. This would create a sense of collective identification with other purported participants as they are members of the same group (Kramer & Brewer, 1984). In the low group identification condition, the cover story read: “The purpose of this study is to examine **individual differences** in online communication experiences **among different people**”, and participants were told that the fake comments were “from other people in response to the letter”. This emphasizes differentiation between individuals, making group identities less salient (De Cremer & Van Vugt, 1999; Spears et al., 1990).

Sample

The experiment was held online over one week. Participants were undergraduates recruited from a public university in Singapore. 149 participants took part in the experiment. Of these, 10 were eliminated because they failed the anonymity manipulation check. 19 spent less than 30 seconds on the blog post, which was deemed to be an inadequate amount of time for them to carefully read the post and comments, as well as respond with their own comments before returning to the post-test survey. 11 did not complete the study. This gave a final sample of $N = 90$ participants (59 female), aged 21 to 25, ($M = 22.3$, $SD = 1.18$). The distribution of participants across conditions can be seen in Table 1 below.

Table 1*Experimental Design for Study 1 (N = 90)*

	Anonymous	Non-anonymous
Low group identification	Condition 1 (N = 23)	Condition 3 (N = 24)
High group identification	Condition 2 (N = 21)	Condition 4 (N = 22)

Procedure

The experiment was conducted using the Qualtrics platform, and the blog post was created using a free Wordpress account. At the start of the experiment, participants read the informed consent form and indicated their consent to take part in the study. Then, participants were randomly assigned to one of the four experimental conditions by using the Qualtrics platform to randomly present one of four sets of instructions which varied between conditions. The general procedure is as follows:

First, participants clicked on a link which opened the blog post in a new window. They were reminded to keep the original Qualtrics window open to complete the post-test survey later. Second, they were asked to read the forum letter and the six comments underneath. Next, they were asked to leave their own comments in the comment box, expressing themselves as they typically would online. The commenting function in Wordpress was adjusted to ensure that they either had to log in to their personal Facebook or Twitter account or could remain anonymous while doing so, depending on the anonymity

condition they were assigned to. Last, they returned to the Qualtrics window to complete the post-test survey. The duration lasted no longer than 20 minutes. After verifying completion of the online survey via a unique code revealed at the end of the survey, participants collected their \$5 monetary incentive from the experimenter either in person or via bank transfer. They were debriefed over email at the conclusion of the data collection period.

Stimuli and Pretesting

Blog Post

A fictitious blog post (see Appendix B) was created on Wordpress and manipulated in two versions according to anonymity conditions. The first part of the blog post was same in both versions: an entry citing an actual newspaper forum letter from a reader (Ong, 2019), published both online and in print in a local newspaper shortly before the study was conducted. The letter discussed the use of Singlish, a colloquial form of English commonly spoken in Singapore (Wee, 2005). This is a controversial topic that has been the subject of debate in local media and online forums over the years, with some seeing it as substandard English that should be phased out while others viewing it as a marker of solidarity and national identity that should be preserved (Farias, 2010). As such, this is a topic that undergraduates studying in Singapore can relate to and likely have opinions on, even for foreign students who are bound to have encountered Singlish. The blog entry was followed by six fictitious comments presented differently according to anonymity conditions, and a space for entry of new comments.

Comments and Commenter Profiles

A total of 10 fictional commenter profiles (five male) consisting of fake photos and names were created (see Appendix B). Photos were taken from <https://thispersondoesnotexist.com>, a free-to-use website which uses artificial intelligence to generate fake photos of people based on publicly available image databases. Names were taken from <http://www.stickyrice.net/apps/faker/index.php>, a free-to-use website which generates dummy data for testing computer systems. The names generated are Singaporean-based, which would sound convincing and realistic to university students in Singapore, the study population from which the study sample was drawn from.

A total of 10 comments in response to the specific forum letter were sourced from various platforms where the letter was posted, including the reddit forum r/Singapore, The Straits Times online comments section, and The Straits Times' Facebook page. Given the purpose of this study, these comments were all aggressive in nature, involving the use of offensive or vulgar words, inflammatory insults, sarcasm, or punctuation marks like capital letters and exclamation marks.

Pretest

A convenience sample of 10 participants was recruited to evaluate the stimuli. Pretest participants read the blog post and comments, then evaluated the comments and commenter profiles on various dimensions. Comments were rated on a scale from 1 to 5, where higher scores indicated greater agreement.

Based on pretest procedures from Rösner and Krämer (2016), three items assessed a composite measure of hostility (This comment used insults, offensive language, and hostility) and one item assessed persuasiveness (This comment was persuasive). Mean hostility scores ranged from $M = 2.67$ - 4.46 ($SD = 0.47$ - 1.19) and persuasive scores ranged from $M = 1.81$ - 3.19 ($SD = 0.74$ - 1.36). Two comments which scored lowest on hostility were dropped, and two other comments which scored lowest on persuasiveness were dropped. This gave a total of six comments for use in the study.

Pretest participants were also asked to identify four commenter profiles (two male, two female) which seemed least likely to be students from their own university. Two profiles that were most often named for each gender were dropped. This gave a total of six commenter profiles for use in the study (three male, three female). Equal numbers of each gender were used to minimize possible confounding effects of gender.

Measures

A full list of survey measures can be found in Appendix A.

Concern about identity goals (IDG) was measured using five items from Dillard et al. (1989). Participants responded to statements such as “When leaving my comments on the online article just now... I was concerned about maintaining my own ethical standards/I was concerned about being true to my values” on a 7-point Likert scale. Higher scores indicated greater IDG.

Concern about conversation management goals (CMG) was measured using five items from Dillard et al. (1989). Participants responded to statements such as “When leaving my comments on the online article just now... I was careful to avoid saying things which were socially inappropriate/I was concerned with making a good impression” on a 7-point Likert scale. Higher scores indicated greater CMG.

Concern about relational resource goals (RRG) was measured using three items from Dillard et al. (1989). Participants responded to statements such as “When leaving my comments on the online article just now... I was not willing to damage the relationship with other commenters in order to get my point across/I didn’t really care if I made the other commenters mad or not” on a 7-point Likert scale. Two items were recoded before analysis such that higher scores indicated greater RRG.

Concern about affect management goals (AMG) was measured using four items from Dillard et al. (1989). Participants responded to statements such as “When leaving my comments on the online article just now... I avoided saying things which might have made me apprehensive or nervous/I was afraid of being uncomfortable or nervous in this situation” on a 7-point Likert scale. One item was recoded before analysis such that higher scores indicated greater AMG.

Self-reported verbal aggression (VA) was measured using four items from Wu, Lin, and Shih (2017). Participants responded to the statements “When

leaving my comments on the online article just now... I used aggressive language/I used rude language/I used harsh language/I expressed my anger” on a 7-point Likert scale. Higher scores indicated greater VA.

The manipulation check for anonymity consisted of one item from Rains (2007). Participants responded to the statement “When leaving my comments on the online article just now, I was anonymous” on a 7-point Likert scale.

The manipulation check for group identification comprised of three items from Lee (2007). Participants responded to the statements “I think the other commenters are similar to me/think like me/share my beliefs” on a 7-point Likert scale.

Table 2*Mean, Standard Deviation, and Correlation Matrix of Measured Variables in Study 1*

Measured Variables	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7
1. VA	1.52	0.81	.91	-	-.20	-.08	.00	.13	.08	.35**
2. IDG	5.90	0.88	.80		-	.12	-.02	-.01	.10	.04
3. CMG	5.12	1.32	.85			-	.50***	.57***	-.09	.20
4. RRG	3.70	1.31	.69				-	.66***	.11	.30**
5. AMG	3.53	1.31	.77					-	.01	.35**
6. Anonymity	4.00	2.72	-						-	.15
7. Group Identification	3.19	1.40	.91							-

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Analytical Approach

Analyses were performed using SPSS 21. Descriptive and correlation analyses were run among the variables, as well as alpha coefficients of reliability for the scales. Table 2 summarizes the means, standard deviations, reliability statistic and bivariate correlations for the variables measured in Study 1. To test the main and interaction hypotheses of the study, two-way ANOVAs were conducted in SPSS. To test the moderation hypotheses, the PROCESS macro in SPSS was utilized to (1) run moderation analyses based on multiple regression, and (2) further probe moderation effects with simple slopes analyses when interaction terms were statistically significant. Then, significant interaction effects were plotted to visually examine the moderation effects identified.

Results

Manipulation Check

Manipulation checks were conducted to assess the effectiveness of IV manipulations. An independent-samples t-test was conducted to compare perceived anonymity scores between anonymous and non-anonymous conditions. Participants in the anonymous condition reported significantly higher perceived anonymity ($M = 6.68$, $SD = 0.52$) than those in the non-anonymous condition ($M = 1.43$, $SD = 0.78$); $t(78.65) = -37.78$, $p < .001$, showing that the manipulation of anonymity was effective.

An independent-samples t-test was conducted to compare perceived group identification scores between high and low group identification conditions. Participants in the high group identification condition reported significantly higher group identification ($M = 3.67$, $SD = 1.50$) than those in the low group identification condition ($M = 2.74$, $SD = 1.13$); $t(77.78) = -3.32$, $p = .001$, showing that the manipulation of group identification was effective.

Anonymity and Group ID

Table 3

ANOVA Results of Anonymity and Group Identification on VA

	Means and standard		<i>F</i>	<i>p</i>	η_p^2
	deviations				
	Anon/High	Non-anon/Low			
Anonymity	1.61 (0.12)	1.46 (0.12)	0.74	.392	.01
GroupID	1.73 (0.12)	1.34 (0.12)	5.27*	.024	.06
Anonymity*GroupID			1.64	.204	.02

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

To test H1, H2, and H3, a two-way ANOVA, with anonymity and group identification as between-subject factors, was conducted to examine their effects on VA. The results of the analysis are presented in Table 3.

H1 posited that participants in the anonymous condition will exhibit greater VA compared to those in the non-anonymous condition. As seen in

Table 3, there was no significant main effect of anonymity, hence H1 was not supported. However, there was a significant main effect of group identification. VA scores were higher among participants in the high group identification condition than those in the low group identification condition, therefore supporting H2. The interaction between anonymity and group identification was not significant as well, thus H3 was not supported.

ID Goals

H4a posited that IDG will moderate the effect of anonymity on verbal aggression. To test H4a, anonymity, IDG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity ($b = .19$, $SE = .17$, $t(86) = 1.09$, $p = .279$) and IDG ($b = -.13$, $SE = .10$, $t(86) = -1.32$, $p = .189$) were not significantly associated with verbal aggression. The interaction between anonymity and IDG was also not significant ($b = -.15$, $SE = .19$, $t(86) = -.80$, $p = .425$). Hence, H4a was not supported.

H5a posited that IDG will moderate the effect of group identification on verbal aggression. To test H5a, group identification, IDG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification ($b = .35$, $SE = .17$, $t(86) = 2.14$, $p = .036$) was significantly associated with verbal aggression, but IDG was not ($b = .07$, $SE = .14$, $t(86) = .53$, $p = .597$). The interaction between group identification and IDG was significant ($b = -.34$, $SE = .17$, $t(86) = -1.99$, p

= .050), suggesting that the effect of group identification depended on the level of IDG. Together, the variables accounted for approximately 12.5% of the variance in satisfaction, $R^2 = .125$, $F(3, 86) = 4.09$, $p = .009$. Simple slopes for the association between group identification and verbal aggression were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of IDG. Simple slope tests revealed a significant positive association between group identification and verbal aggression at low levels of IDG ($b = .69$, $SE = .24$, $t(86) = 2.87$, $p = .005$) and moderate levels of IDG ($b = .35$, $SE = .17$, $t(86) = 2.14$, $p = .036$), but there was no significant association between group identification and verbal aggression at high levels of IDG ($b = .01$, $SE = .24$, $t(86) = .05$, $p = .960$) (see Figure 1). Thus, H5a was supported.

Figure 1.

Simple Slopes of Group Identification Predicting Verbal Aggression for Low, Moderate, and High Levels of IDG

CM Goals

H4b posited that CMG will moderate the effect of anonymity on verbal aggression. To test H4b, anonymity, CMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity ($b = .12$, $SE = .18$, $t(86) = .70$, $p = .485$) and CMG ($b = -.03$, $SE = .11$, $t(86) = -.29$, $p = .773$) were not significantly associated with

verbal aggression. The interaction between anonymity and CMG was also not significant ($b = -.018$, $SE = .14$, $t(86) = -.13$, $p = .897$). H4b was not supported.

H5b posited that CMG will moderate the effect of group identification on verbal aggression. To test H5b, group identification, CMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification was significantly associated with verbal aggression ($b = .38$, $SE = .17$, $t(86) = 2.30$, $p = .024$), but CMG was not ($b = .06$, $SE = .09$, $t(86) = .70$, $p = .484$). The interaction between group identification and CMG was also not significant ($b = -.22$, $SE = .13$, $t(86) = -1.77$, $p = .081$). H5b was not supported.

RR Goals

H4c posited that RRG will moderate the effect of anonymity on verbal aggression. To test H4c, anonymity, RRG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity ($b = .14$, $SE = .17$, $t(86) = .78$, $p = .436$) and RRG ($b = .03$, $SE = .09$, $t(86) = .32$, $p = .750$) were not significantly associated with verbal aggression. The interaction between anonymity and RRG was also not significant ($b = -.08$, $SE = .14$, $t(86) = -.57$, $p = .570$). H4c was not supported.

H5c posited that RRG will moderate the effect of group identification on verbal aggression. To test H5c, group identification, RRG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification was significantly

associated with verbal aggression ($b = .39, SE = .17, t(86) = 2.30, p = .026$), but RRG was not ($b = -.004, SE = .09, t(86) = -.04, p = .967$). The interaction between group identification and RRG was also not significant ($b = -.04, SE = .13, t(86) = -.29, p = .774$). H5c was not supported.

AM Goals

H4d posited that AMG will moderate the effect of anonymity on verbal aggression. To test H4d, anonymity, AMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity ($b = .14, SE = .17, t(86) = .81, p = .423$) and AMG ($b = .09, SE = .09, t(86) = 1.04, p = .303$) were not significantly associated with verbal aggression. The interaction between anonymity and AMG was also not significant ($b = -.02, SE = .13, t(86) = -.17, p = .868$). H4d was not supported.

H5d posited that AMG will moderate the effect of group identification on verbal aggression. To test H5d, group identification, AMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification was significantly associated with verbal aggression ($b = .36, SE = .17, t(86) = 2.14, p = .035$), but AMG was not ($b = .10, SE = .09, t(86) = 1.13, p = .261$). The interaction between group identification and AMG was also not significant ($b = -.08, SE = .13, t(86) = -.59, p = .556$). H5d was not supported.

Figure 2 presents the theoretical model examined in Study 1.

Figure 2.

Direct and Moderation Effects of Anonymity, Group Identification, and Secondary Goal Concerns on Verbal Aggression (Study 1).

Note: Solid lines indicate significant direct or indirect effects. Dotted lines indicate non-significant effects.

** $p < .05$, ** $p < .01$, *** $p < .001$*

Discussion

In line with the SIDE perspective, verbal aggression was significantly influenced by group identification, which was successfully manipulated. People reported greater verbal aggression when group identification was high, implying behavioral conformity towards the perceived group of fellow participants who left aggressive comments as well.

However, there were no main effects of anonymity found. This was similar to the results by Rösner and Krämer (2016), where they also did not find main effects of anonymity on verbal aggression. Given that this was an online experiment, participants had to contact the researcher after completion to claim their monetary incentive, and this may have reduced perceived anonymity. Furthermore, due to the nature of this experiment where interaction among participants was limited, participants probably knew they would not have to respond to further responses on their comments regardless of their anonymity condition. This lack of accountability could also have resulted in the non-significant effect of anonymity on verbal aggression, as well as the lack of interaction effects between anonymity and group identification. Nevertheless, these non-significant results also reflect existing inconsistencies of anonymity in the literature as described by Lapidot-Lefler and Barak (2015), where observed effects varied across various studies and depended other situational factors.

IDG was found to moderate the effect of group identification on verbal aggression, such that group identification only made a difference on verbal aggression when concern for IDG was low. This is in line with hypothesized effects, because when participants worry less about their personal identity and standards of behavior (low IDG), they will conform more to aggressive norms of the group. When participants were highly concerned about IDG, whether they were felt identified with their group or not did not make a difference to their behavior.

However, there was not any significant moderating effects of CMG, RRG, and AMG. As Dillard (2008) mentioned, some secondary goals may be irrelevant to the primary goal, depending on the interaction context. In this case, the experiment was situated in a one-off communication context with no synchronous interaction with other commenters. As such, it is plausible that CMG and RRG may become irrelevant as there is unlikely to be any anticipated future interaction with other comments. The interaction may also have been too fleeting for participants to be concerned about their emotions if they could simply post a comment and leave, which may also explain the lack of moderating effects of AMG.

One area of this study that needs to be revisited is its design with minimal interaction: participants only left a single comment, with no interaction with nor feedback from other participants. To address this alternative explanation of interaction for non-significant results, Study 2 is designed to

offer the opportunity to interact with other participants over an extended period of interaction, and also allow the examination of a different dimension of group identification.

STUDY 2

Background

Video games are becoming an increasingly popular recreational activity. There are an estimated 2.7 billion people who play video games across the world (Statista, 2020), around a third of the world's entire population. Often thought to be a solitary activity played by socially awkward loners, gaming is in fact a highly social activity, with over 60% of adult gamers playing video games with other people (Entertainment Software Association, 2019). Although playing digital games is meant to be a relaxing and enjoyable activity, online gaming environments are unfortunately plagued with rampant verbal aggression, including racist, sexist, and homophobic language (Maher, 2016). Furthermore, the problem is not only apparent in competitive games with emotionally-charged players, but even observed in cooperative and social games as well (e.g., Adams, 2019).

Players are likely to encounter other strangers when playing multiplayer online gamers: The game server will matchmaking players randomly together into groups to play together or against each other. Within the game, players can communicate via text messages or voice chat, but text remains the dominant channel of communication (Adinolf & Turkay, 2018). Text chat is mainly used for enabling task-based communication like discussing strategies, but it is also the main method for displaying verbal aggression, like raging at teammates or taunting opponents (de Mesquita Neto & Becker, 2018). In most if not all online games, players are anonymous, and are only identifiable via a

screenname (or in-game nick) of their choice. Coupled with the group-based format of gameplay, online gaming presents a natural setting to test the effects of anonymity and group identification.

Building upon the findings of Study 1, the aim of Study 2 is to test the effects of hypothesized variables in an online multiplayer game setting using a lab experiment. Compared to an online experiment, a lab experiment allows stronger control over manipulations of both independent variables. Furthermore, the context of online multiplayer gaming differs from the blogging context explored in Study 1 in several interesting ways, all of which offer room for exploration of my proposed theoretical framework.

First, where the blogging context did not have a clear goal for the group, the online multiplayer gaming context assigns players to groups and gives them clear group goals to achieve. While the group formation is often transient and can change every game, the introduction of shared goals and specific game mechanics will motivate players to work together for that duration of time. Shared goals such as overcoming a challenge or mission together give players a clear reason to play together cooperatively (Morschheuser et al., 2017). Specific game mechanics can include limited resources (such as time, which means players have no choice but to cooperatively optimize their efforts so as to complete the task in the given time), or complementary abilities (where players control characters with different skillsets) (El-Nasr et al., 2010). Together, these features create a context which demands a high level of cooperation from

groupmates who are interdependent on one another. This means that players are forced to work together with their groupmates for the duration of the game, because there is a clear goal for the group which can only be achieved when they work together.

Second, interpersonal interaction in the blogging context is limited to asynchronous, one-off communication, while online gaming offers more interactive communication in real time where people can respond to one another immediately, over the course of the game. As Walther (2009) pointed out, SIDE theory has mostly been used to examine one-off communication settings with minimal interactivity between participants (such as leaving a single comment in YouTube), with little empirical evidence on whether the theory remains robust in a context of sustained continuous interaction. Applying the SIDE theory to a cooperative online game setting where interdependent groupmates must interact and work together over the course of their task would provide a more nuanced look at the theory, offering more insight about the boundary conditions of the theory and its suitability in examining contexts beyond a one-off interaction.

Previous research has shown that when interacting virtually with others in online games, people tend to observe norms and social rules from the offline world. For instance, nonverbal social norms are observed even in the virtual game environment of Second Life (Yee et al., 2007), and politeness norms are observed in the virtual world of The Sims Online (Martey & Stromer-Galley,

2007). Furthermore, group identification was also found to influence behavior in online games, where gamers who reported greater group identification were more likely to adopt group norms of prejudiced behavior (Cary et al., 2020). Considering that participants will be interacting directly with their groupmates during the game and sharing the same virtual space, it should be even more likely that social norms will be upheld, and the theoretical predictions of SIDE will hold in the online gaming context. This means that people will refrain from being aggressive when their identities are known to others, and only show greater aggression under anonymous conditions. Likewise, those who experience greater group identification will also be more likely to conform to aggressive group norms. It is also expected that anonymity and group identification will interact such that those in the anonymous condition will show greater verbal aggression, but only among those who experience high group identification.

H1: Participants in the anonymous condition will exhibit greater self-reported verbal aggression compared to those in the non-anonymous condition.

H2: Participants in the high group identification condition will exhibit greater self-reported verbal aggression compared to those in the low group identification condition.

H3: There will be an interaction effect between anonymity and group identification such that participants in the high group identification

condition will report greater verbal aggression than those in the low group identification condition, but this effect will only be observed in the anonymous condition.

The GPA theory has also been critiqued for conceiving of goal formation as occurring before execution of behaviors in a one-shot-and-done process. This presents a linear view of the communication process and does not accurately account for the dynamic nature of actual interpersonal communication (Dillard, 2015). By using an online multiplayer gaming context, the results from this study will take into account how participants' goals may change in response to others' reactions over the course of the entire interaction. Similar to Study 1, it is expected that concern about secondary goals will moderate the effects of anonymity and group identification on verbal aggression.

H4_{a,b,c,d}: Concern about (a) identity goals, (b) conversation management goals, (c) relational resource goals, and (d) affect management goals will moderate the effect of anonymity on verbal aggression such that participants in the anonymous condition will report greater verbal aggression than those in the non-anonymous condition, and this effect will only be observed in the low concern group.

H5_{a,b,c,d}: Concern about (a) identity goals, (b) conversation management goals, (c) relational resource goals, and (d) affect management goals will moderate the effect of group identification on verbal aggression

such that participants in the high group identification condition will report greater verbal aggression than those in the low group identification condition, and this effect will only be observed in the low concern group.

To test the model, an experiment with a 2 (anonymous vs. non-anonymous) x2 (high vs. low group identification) between-subjects design was conducted. Each participant was invited to the lab to play an online cooperative game for about 30 minutes with two other confederates (henceforth known as Confederate A and B), simulating real-world conditions of gameplay.

Method

Manipulation of Independent Variables

Anonymity was manipulated through availability of personal information, adapting manipulation procedures used in previous studies (Lapidot-Lefler & Barak, 2012; Zimmerman & Ybarra, 2016). In the non-anonymous condition, a personal information sheet was created for each participant detailing identifying personal information: the participant's full name, email address, and mobile number, which were obtained when they signed up for the study. The sheet also listed the username they were assigned for use during the gameplay, which was their own first name: e.g., a participant named Peter Parker would be assigned the username "peter". In addition, the corresponding information about the two confederates were listed alongside the participant's. Participants were shown this sheet at the start of the experiment

and were told that this would be shown to their groupmates as well. The purpose of this procedure was to induce a sense of identifiability and accountability in participants, as suggested by Zimmerman and Ybarra (2016).

The two confederates' information were randomly generated from the dummy data generator used in Study 1. Although participants would not physically meet the confederates, it was possible that they would form assumptions about the gender of their "groupmates" from the names shown. To reduce the chances of gender becoming a possible confound, a pretest was conducted with a convenience sample of 10 participants to select the two most gender-neutral names from a list of 10 randomly generated names. The final two names used were "Robin Teo" and "Ashley Lim", and their corresponding usernames were "ashley" and "robin".

In the anonymous condition, participants were shown a modified version of the information sheet, where only the usernames assigned for use during gameplay were listed, i.e. "user1", "user2", and "user3". There was no identifying personal information listed. Participants were assigned to "user3" while the other two confederates were "user1" and "user2". Further details on the anonymity manipulation are detailed in the Procedure section.

Group identification was manipulated in two ways, adapting minimal group paradigm measures from Spears et al. (1990). First, the cover story was manipulated between conditions. In the high group identification condition, participants were told that the purpose of the study was "to examine how **group**

members cooperate on an assigned task. It is part of an ongoing research project to understand the influence of **group-level factors** on cooperation efforts in different settings. This study will focus on the **comparison between groups** to see if there are any differences in cooperation outcomes”. In the low group identity condition, participants were told that the purpose of the study was “to examine how **individuals** cooperate with other strangers on an assigned task. It is part of an ongoing research project to understand the influence of **personality types** on cooperation efforts in different settings. This study will focus on the **comparison between different personality types** to see if there are any differences in cooperation outcomes”. The variation in cover story was similar to that employed in Study 1, to emphasize either individuals or groups depending on the experimental condition. Studies based on the minimal group paradigm have repeatedly shown that such manipulation in experimental settings are sufficient to induce group identification (Reynolds et al., 2007).

Next, the usernames assigned to participants were manipulated between conditions. In the high group identification condition, participants were told that they were assigned to Group number 34, and this was added as a prefix in the usernames of all 3 group members (e.g., Group34_robin, Group34_ashley, and Group34_peter). Previous experiments have shown that merely assigning participants to an arbitrarily labeled group can induce some degree of group identification, and they tend to change their behavior in corresponding ways that affirm group membership (Jackson, 2011). In the low group identification condition, usernames did not carry this prefix (e.g., robin, ashley, and peter).

Sample

Participants were undergraduates recruited from a public university in Singapore. All had at least some experience playing the game *Overcooked!* 2. An initial sample of $N = 129$ participants took part in the experiment. Of these, two were eliminated for failing the anonymity manipulation check. Another two were dropped from analysis because they suspected that their two groupmates were confederates. This gave a final sample of $N = 125$ participants (56 female) for analysis, aged 21 to 28 ($M = 22.4$, $SD = 1.37$). The distribution of participants across conditions can be seen in Table 3 below.

Table 3

Experimental Design for Study 2 ($N = 125$)

	Anonymous	Non-anonymous
Low group identification	Condition 1 ($N = 36$)	Condition 3 ($N = 28$)
High group identification	Condition 2 ($N = 30$)	Condition 4 ($N = 31$)

Procedure

Participants signed up for the experiment through a Qualtrics survey, where they filled out their personal information for creating the personal information sheet. They then came to the lab for the experiment at an appointed time and date. Participants were randomly assigned to one of four experimental conditions. Each experimental session lasted about 45 minutes, consisting of a briefing, pre-test survey, gameplay session, and a post-test survey.

At the start of the experiment, participants read the informed consent form (which varied between conditions)) and indicated their consent to take part in the study. The experimenter then briefed participants, which differed based on the condition they were in. In the low group identification condition, the instructions were: “You will be playing a cooperative video game online for about 30 minutes with two other participants who are also taking part in this study simultaneously but at another area on campus. Your aim today is to achieve 4 stars (the highest rating) for the assigned stage that you will be playing, and you have a maximum of four attempts to do so. Before starting each attempt, you can go to the chat window to chat and discuss with the other two participants where necessary. Before we begin, please check that your information on this sheet is correct and take note of the username that you will use during the session. (Points out the two confederate names) These are some information about the other two participants who will be playing with you, and they will also be shown this same information sheet.”

In the high group identification condition, the instructions were: “You have been grouped up with two other participants who are also taking part in this study simultaneously but at another area on campus. Your group will be playing a cooperative video game online for about 30 minutes. Your group’s aim today is to achieve 4 stars (the highest rating) for the assigned stage that you will be playing, and you have a maximum of four attempts to do so. Before starting each attempt, you can go to the chat window to chat and discuss with your groupmates where necessary. Before we begin, please check that your

information on this sheet is correct and take note of the username that you will use during the session. (Points out the two confederate names) These are some information about your groupmates who will be playing with you, and they will also be shown this same information sheet.” Similar to the manipulation of cover story, the variation in instructions was written to either emphasize the individual or group depending on the experimental condition.

They then either received an information sheet listing anonymous usernames or listing their real names, email address, contact number, and username (depending on anonymity condition). This was followed by a pretest survey where they were asked to record their assigned username, to strengthen the username manipulation. The pretest survey contained some filler measures to enhance the credibility of the cover story. They then proceeded with playing the game.

To promote immersion during the gameplay session, participants were seated alone in a room with the doors closed, without facing the room entrance. The gameplay music was also playing audibly. To make participants more comfortable instead of feeling supervised, the researcher left the room ostensibly to check on other players, but only after hearing the commencement of the first round. This was to show participants that the researcher was not one of the other supposed players. The researcher only came back towards the end of the final round, again to demonstrate that he was not one of the other players.

Participants played a total of four rounds of the game. Between each round, they were given about 2 minutes to chat and discuss among themselves. Confederate B was instructed to keep track of time and direct the group back to the game in a natural manner when 2 minutes were up. The voice and text chat platform Discord was used for communication between players during the experiment (See Appendix C for screenshot of chat interface). *Overcooked! 2* has no chat function in the game, so Discord is commonly used as an external communication platform while playing with others online. A new channel for each experimental session, so that each conversation could be recorded and saved by Discord as an individual transcript. At the end of the gameplay session, participants were asked to fill out the post-test survey on the same computer, during which the Discord window was left open and they were still free to continue chatting with the two confederates. After completing the post-test survey, participants received \$10 monetary incentive. A debrief email was sent out after all data collection concluded.

Stimuli and Pilot testing

Game

The game *Overcooked! 2* was selected for this experiment (refer to Appendix C). It is a cooking simulation game developed by Team17 alongside Ghost Town Games and was released in August 2018 on most major gaming platforms including Nintendo Switch, Playstation 4, and Xbox One. The computer version, which runs on the platform Steam, was used for this experiment. On Steam alone, roughly one million copies of the game have been

sold worldwide (Steam Spy, 2019). The premise of the game revolves around groups of up to four players cooperatively preparing and cooking food orders in each stage. This is a cooperative player-versus-environment (PvE) game: Players must collect, chop, and cook ingredients, put cooked food on plates, serve plated food, and wash dirty dishes within a tight time limit. They must do so while avoiding various obstacles present in the kitchen (such as fires and moving floors), as well as avoid bumping into each other or blocking each other's way. Points are awarded based on the number of dishes correctly served, and bonus points are awarded if dishes are served in the requested order. The game can be played in offline multiplayer mode with other players locally, or online multiplayer mode with either with friends or with strangers through online matchmaking by the game servers.

This game was selected based on a few considerations. First, the gameplay setting should maximize external validity without excessively compromising on internal validity. This meant that participants should be situated in a setting that resembled real-world conditions of play as much as possible, while still maintaining high levels of experimental control over extraneous variables as afforded by a laboratory experiment. As mentioned, *Overcooked! 2* is typically played in one of the following modes: offline multiplayer, online multiplayer with friends, or online multiplayer with strangers. Among the three modes, online multiplayer with friends was used for this experiment. The offline multiplayer mode was not ideal because physically placing players in the same room could lead to potential confounds such as

physical appearance, voice, and nonverbal behaviors. Online multiplayer with strangers through matchmaking lobbies was also not ideal, as control over the behavior of groupmates assigned to each participant would not be possible. The online multiplayer with friends mode was chosen as it allows for the use of confederates as groupmates under the guise of a cover story that participants are playing with other participants. This grants the researcher a greater degree of control over the two “groupmates” in terms of game outcomes, behavior, and language use.

Next, using a PvE game allows for a higher degree of control over the experiment compared to a player-versus-player (PvP) game. Most online multiplayer competitive games are set in PvP situations where one team of players compete against another, which would mean that the resulting number of players in each session would be more than that of a PvE game. With more players involved, the difficulty of ensuring consistency in confederates’ behavior throughout the entire data collection period increases. By using a cooperative PvE game like *Overcooked! 2*, players are not fighting against other players, but instead fighting against challenges presented by the game environment (although it may at times feel like they are fighting with their groupmates). This means that the number of confederates can be reduced. This game thus allowed an experimental design of one participant paired with two confederates.

Third, *Overcooked! 2* is suitable for studying aggressive behavior despite being a PvE game. PvE games are often seen as less frustrating than PvP games as there is less at stake, such as personal pride or dominance over another player (Sherry et al., 2006). However, a study by Eastin (2007) found that while state hostility was not influenced by the type of game played (competitive or cooperative), but it was influenced by the amount of verbal aggression exhibited by teammates. He suggested that even though players of cooperative games were not competing against each other, they could still be frustrated by teammates who jeopardized the group's success. This is very likely to occur in *Overcooked! 2*, which imposes tight time and space limits on each stage. Because of this, players are highly interdependent on one another and successful completion of the stage requires a high amount of coordination. Indeed, reviews from existing *Overcooked! 2* players reveal that tension between players is commonly experienced, so much so that Chinese players have even nicknamed it "Divorce Kitchen" (McKeand, 2020). The game thus offers enough stress level to create tension and possibly elicit aggression within the short duration of the experiment. In this way, frustration or verbal aggression expressed by confederates would seem believable to participants and not be overly suspicious.

Pretest

A pretest was carried out with a convenience sample of 12 participants with three key aims. First, to build a suitable verbal and action script for confederates during the experiment, to maintain some degree of consistency

across all experimental sessions. Second, to select an ideal stage for use in the experiment. Third, to confirm that the overall schedule of the experiment was suitable, in terms of number of attempts, length of discussion time, and the procedural flow. Pretest participants were randomly assigned to act as either Confederate A, Confederate B, or a naïve participant. They were blind to the roles that their groupmates played. Confederate A was instructed to play poorly without being too obvious, while Confederate B was instructed to call out anyone who seemed to be playing badly. No additional instruction was given to the naïve participant except to behave as they would normally do online. Qualitative feedback was obtained from each pretest participant afterwards. The initial schedule of the experiment was as follows:

- Signing of informed consent form and experimenter briefing – 5 mins
- Warm-up round: 5 mins (+3 mins discussion)
- Round 1: 5 mins (+3 mins discussion)
- Round 2: 5 mins (+3 mins discussion)
- Round 3: 5 mins
- Posttest survey: 10 mins

The warm-up round was included on the pretext of allowing participants to familiarize themselves with the controls, but it was intended to let participants ease into the experimental setting in order to elicit a more natural response.

A few key insights were gleaned from the pretest. First, including the warm-up round was not ideal. This was because participants usually successfully completed the warm-up round, which was played on an easier stage. This simple accomplishment of clearing the round often resulted in positive feelings for the group, which made it more difficult for confederates to show verbal aggression without arousing too much suspicion. This reflects actual player trends as Kwak et al. (2015) found from an analysis of 11 million player reports on toxic behavior in League of Legends (one of the most popular online games worldwide) and found that player reports occurred more frequently among teams who lost than teams who won. They explained that people tended to credit the entire team in times of success, but are more likely to look for other individuals to blame when faced with failure (Kwak et al., 2015). Based on this, the warm-up round was changed to a regular round instead, giving participants a total of four attempts instead of three. The repeated failures made it easier to build up tension within the group and for Confederate B to be verbally aggressive in an unsuspecting manner.

Second, the stage selected (Stage 2-2) was too easy at first, and the groups cleared it successfully which made it impossible for Confederate B to be verbally aggressive without being suspicious. This was then changed to Stage 5-1, which turned out to be too challenging (two players were stranded on separate islands and success depended solely on the third player who piloted a raft back and forth between the islands). Confederates said that it was difficult to play poorly without giving it away, and pretest participants often gave up

ahead of time because it seemed impossible. According to Sweetser and Wyeth (2005), the level of challenge presented in games is a key factor in player engagement: players may lack motivation to engage if the challenge is either too easy or too difficult. An ideal stage for this experiment thus needed to present an optimal level of difficulty: tough enough to build up some challenge and frustration, but not too much as to make it seem impossible and make participants give up altogether. Stage 5-2 was eventually selected for the experiment, as it presented a good blend of difficulty in environmental navigation (there were fires appearing on their own throughout the course of the stage) as well as player coordination (the kitchen space was narrow such that players had to constantly avoid blocking each other's way).

Third, qualitative feedback from pretest participants revealed that the initial length of discussion time between each attempt (3 minutes) felt too long. From the perspective of social information processing theory (Walther & Burgoon, 1992), the rate of information exchange is slower in computer-mediated communication compared to face-to-face communication. When time is limited, people may focus on exchanging task-based information rather than social information pertaining to impression management. However, given enough time for communication, people can start exchanging social information as well, aiding the development of relationships through computer-mediated communication. In the context of the present study, when participants are given ample time for discussion, they could resolve their disagreements amicably and develop friendly relationships with their teammates, making it difficult to

sustain the intended conflict across multiple attempts. The discussion time was thus reduced to 2 minutes, which was a realistic time given that multiplayer online games often force players to cooperate under tight time constraints and do not allow for excessive time in-between matches for players to chat among themselves (Herring et al., 2009; Leavitt et al., 2016).

Last, a script for confederate behavior was written based on observations from the pretest, as well as the model of conflict contagion put forth by Jehn et al. (2013). According to this model, conflict is contagious in teams. Dyadic conflict can lead to remaining team members becoming involved as well, through processes such as emotional contagion (negative emotions affecting others), coalition formation (uninvolved members taking sides), and threat to team outcomes (stepping in due to team interdependence). With the aim of drawing the participant into the conflict between Confederate A and B, the script was structured as such: An initial conflict was set up between Confederate A and B, by getting Confederate A to make a few slight mistakes at first, for Confederate B to pick on during discussion. This gradually continued into the subsequent rounds, where the tension escalated, and Confederate B eventually displayed verbal aggression. Confederate A reacted similarly as well. At this point, if participants did not involve themselves in the conflict, Confederate A would attempt coalition formation by appealing to the participant to take a side. The script also included instructions on ways to play poorly without appearing to be too intentional. The stage selected allowed confederates to play poorly without arousing too much suspicion: they could

capitalize on a mix of naturally occurring environmental obstacles (such as the fires which could trap players) and player coordination (players could obstruct the way of their teammates along the narrow lanes, or fall off the platform and waste precious time in waiting to respawn). Confederates were instructed to follow the script as closely as possible, but as it was difficult to predict how participants will respond to the conflict, they were allowed to deviate minimally from the script where necessary to avoid arousing suspicion that it was scripted behavior. For instance, Confederate B was instructed to be bossy and allocate roles to Confederate A and the participant. However, if the participant took initiative and started allocating roles instead, both confederates would agree to the roles.

Confederates

A total of 10 confederates were recruited for this study. Each confederate received at least 2 hours of training in performing their roles, where they worked with naïve participants during the pilot test and received feedback on their verbal and in-game behaviors from the experimenter as well as the partner confederate and participant they were assigned to.

Pilot Test

A convenience sample of 24 participants was obtained to conduct a pilot test before the actual experiment. The aim of the pilot test was to train confederates and assess the feasibility of the entire experimental procedure as well as the effectiveness of IV manipulations. Preliminary analyses showed that

the manipulations were effective. The finalized schedule of the experiment is as follows:

- Signing of informed consent form and experimenter briefing – 5 mins
- Round 1: 5 mins (+2 mins discussion)
- Round 2: 5 mins (+2 mins discussion)
- Round 3: 5 mins (+2 mins discussion)
- Round 4: 5 mins
- Posttest survey: 10 mins

Measures

Measures used were identical to those used in Study 1, with some changes in wording to fit the context of Study 2 (refer to Appendix D). Table 4 summarizes the means, standard deviations, reliability statistic and bivariate correlations for the variables measured in Study 2.

Table 4*Mean, Standard Deviation, and Correlation Matrix of Measured Variables in Study 2*

Measured Variables	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7
1. VA	2.02	1.48	.94	-	-.19*	-.33***	-.51***	.00	-.22*	-.13
2. IDG	5.18	1.30	.84		-	.40***	.19*	.14	.12	.01
3. CMG	4.75	1.45	.88			-	.52***	.43***	.05	.16
4. RRG	4.79	1.32	.63				-	.22*	.13	.28**
5. AMG	3.74	1.23	.70					-	.00	.09
6. Anonymity	5.62	1.64	-						-	.05
7. Group Identification	4.15	0.87	.68							-

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Analytical Approach

Analyses were performed using SPSS 21. Descriptive and correlation analyses were run among the variables, as well as alpha coefficients of reliability for the scales. Table 15 summarizes the means, standard deviations, reliability statistic and bivariate correlations for the variables measured in Study 2. To test the main and interaction hypotheses of the study, two-way ANOVAs were conducted in SPSS. To test the moderation hypotheses, the PROCESS macro in SPSS was utilized to (1) run moderation analyses based on multiple regression, and (2) further probe moderation effects with simple slopes analyses when interaction terms were statistically significant. Then, significant interaction effects were plotted to visually examine the significant moderation effects identified. Continuous predictors were centred to avoid multicollinearity.

Results

Manipulation Check

Manipulation checks were conducted to assess the effectiveness of IV manipulations. An independent-samples t-test was conducted to compare perceived anonymity scores between anonymous and non-anonymous conditions. Participants in the anonymous condition reported significantly higher perceived anonymity ($M = 5.94$, $SD = 1.58$) than those in the non-anonymous condition ($M = 5.22$, $SD = 1.71$); $t(123) = -2.44$, $p = .016$, showing that the manipulation of anonymity was effective.

An independent-samples t-test was conducted to compare perceived group identification scores between high and low group identification conditions. Participants in the high group identification condition reported significantly higher group identification ($M = 4.73$, $SD = 0.63$) than those in the low group identification condition ($M = 3.60$, $SD = 0.68$); $t(123) = -9.56$, $p < .001$, showing that the manipulation of group identification was effective.

Anonymity and Group ID

Table 5

ANOVA Results of Anonymity and Group Identification on VA (Study 2)

	Means and standard		<i>F</i>	<i>p</i>	η_p^2
	deviations				
	Anon/High	Non-anon/Low			
Anonymity	2.55 (0.16)	1.37 (0.17)	24.91* **	<.001	.17
GroupID	1.70 (0.17)	2.22 (0.17)	4.98*	.028	.04
Anonymity*GroupID			4.59*	.034	.04

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Pairwise Comparisons Between High and Low GroupID Groups Split by Anonymity (Study 2)

Anonymity	Group identification	Means and standard deviations	<i>p</i>
Anonymous	High GroupID	2.03 (0.24)	.002
	Low GroupID	3.06 (0.22)	.002
Non-anonymous	High GroupID	1.36 (0.24)	.951
	Low GroupID	1.38 (0.25)	.951

To test H1, H2, and H3, a two-way ANOVA, with anonymity and group identification as between-subject factors, was conducted to examine their effects on VA. The results of the analysis are presented in Table 5. There was a significant main effect of anonymity. VA scores were higher among participants in the anonymous condition than those in the non-anonymous condition, supporting H1. There was also a significant effect of group identification, but results were in the opposite direction of H2. VA scores were higher among participants in the low group identification condition than those in the high group identification condition. H2 was thus not supported. However, these main effects were qualified by a significant interaction effect between anonymity and group identification. Simple effects analyses showed that while

there was no significant difference between the two experimental groups in the non-anonymous condition, $F(1, 121) = 0.004, p = .951$, there was a significant difference between the two experimental groups in the anonymous condition, $F(1, 121) = 10.10, p = .002$. Follow-up pairwise comparisons between these two groups revealed that participants in the low group identification condition reported greater verbal aggression scores than those in the high group identification condition (see Table 6). However, this interaction effect was in the direction opposite of that hypothesized by H3. Therefore, H3 was not supported.

ID Goals

H4a posited that IDG will moderate the effect of anonymity on verbal aggression. To test H4a, anonymity, IDG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity was significantly associated with verbal aggression ($b = 1.16, SE = .25, t(121) = 4.73, p < .00$), but IDG was not ($b = -.01, SE = .12, t(121) = -.11, p = .912$). The interaction between anonymity and IDG was also not significant ($b = -.22, SE = .17, t(121) = -1.34, p = .183$). Therefore, H4a was not supported.

H5a posited that IDG will moderate the effect of group identification on verbal aggression. To test H5a, group identification, IDG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification ($b = -.70, SE = .18, t(121) = 13.65, p$

= .006) and IDG ($b = -.46$, $SE = .13$, $t(121) = -3.55$, $p = .001$) were both associated with verbal aggression. The interaction between group identification and IDG was also significant ($b = .43$, $SE = .17$, $t(121) = 2.50$, $p = .014$), suggesting that the effect of group identification depended on the level of IDG. Together, the variables accounted for approximately 13.7% of the variance in satisfaction, $R^2 = .137$, $F(3, 121) = 6.38$, $p < .001$. Simple slopes for the association between group identification and verbal aggression were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of IDG. Simple slope tests revealed a significant negative association between group identification and verbal aggression at low levels of IDG ($b = -1.33$, $SE = .36$, $t(121) = -3.72$, $p < .000$) and moderate levels of IDG ($b = -.70$, $SE = .25$, $t(121) = -2.78$, $p = .006$), but there was no significant association between group identification and verbal aggression at high levels of IDG ($b = -.06$, $SE = .35$, $t(121) = -.18$, $p = .860$) (see Figure 3). However, the effect of group identification on verbal aggression was in the direction opposite of that hypothesized by H5a. Therefore, H5a was not supported.

Figure 3.

Simple Slopes of Group Identification Predicting Verbal Aggression for Low, Moderate, and High Levels of IDG

CM Goals

H4b posited that CMG will moderate the effect of anonymity on verbal aggression. To test H4b, anonymity, CMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity was significantly associated with verbal aggression ($b = 1.10$, $SE = .23$, $t(121) = 4.73$, $p < .00$), but CMG was not ($b = -.02$, $SE = .12$, $t(121) = -.19$, $p = .852$). However, the interaction between anonymity and CMG was significant ($b = -.44$, $SE = .16$, $t(121) = -2.70$, $p = .008$), suggesting that the

effect of anonymity depended on the level of CMG. Together, the variables accounted for approximately 27.9% of the variance in satisfaction, $R^2 = .279$, $F(3, 121) = 15.6$, $p < .000$. Simple slopes for the association between anonymity and verbal aggression were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of CMG. Simple slope tests revealed a significant positive association between anonymity and verbal aggression at low levels of CMG ($b = 1.73$, $SE = .33$, $t(121) = 5.17$, $p < .000$) and moderate levels of CMG ($b = 1.10$, $SE = .23$, $t(121) = 4.74$, $p < .000$), but there was no significant association between anonymity and verbal aggression at high levels of CMG ($b = .47$, $SE = .32$, $t(121) = 1.44$, $p = .152$) (see Figure 4). Therefore, H4b was supported.

Figure 4.

Simple Slopes of Anonymity Predicting Verbal Aggression for Low, Moderate, and High Levels of CMG

H5b posited that CMG will moderate the effect of group identification on verbal aggression. To test H5b, group identification, CMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that CMG was significantly associated with verbal aggression ($b = -.34$, $SE = .11$, $t(121) = -3.02$, $p = .003$), but group identification was not ($b = -.45$, $SE = .26$, $t(121) = -1.77$, $p = .080$). The interaction between

group identification and CMG was also not significant ($b = .11$, $SE = .18$, $t(121) = .61$, $p = .542$). H5b was not supported.

RR Goals

H4c posited that RRG will moderate the effect of anonymity on verbal aggression. To test H4c, anonymity, RRG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity was significantly associated with verbal aggression ($b = 1.06$, $SE = .20$, $t(121) = 5.21$, $p < .00$), but RRG was not ($b = -.18$, $SE = .12$, $t(121) = -1.49$, $p = .139$). However, the interaction between anonymity and RRG was significant ($b = -.55$, $SE = .16$, $t(121) = -3.48$, $p = .001$), suggesting that the effect of anonymity depended on the level of RRG. Together, the variables accounted for approximately 43.4% of the variance in satisfaction, $R^2 = .434$, $F(3, 121) = 30.9$, $p < .000$. Simple slopes for the association between anonymity and verbal aggression were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of RRG. Simple slope tests revealed a significant positive association between anonymity and verbal aggression at low levels of RRG ($b = 1.79$, $SE = .30$, $t(121) = 6.02$, $p < .000$) and moderate levels of RRG ($b = 1.06$, $SE = .20$, $t(121) = 5.21$, $p < .000$), but there was no significant association between anonymity and verbal aggression at high levels of RRG ($b = .34$, $SE = .29$, $t(121) = 1.17$, $p = .243$) (see Figure 5). Therefore, H4c was supported.

Figure 5.

Simple Slopes of Anonymity Predicting Verbal Aggression for Low, Moderate, and High Levels of RRG

H5c posited that RRG will moderate the effect of group identification on verbal aggression. To test H5c, group identification, RRG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that RRG was significantly associated with verbal aggression ($b = -.64$, $SE = .12$, $t(121) = -5.37$, $p < .00$), but group identification was not ($b = -.37$, $SE = .23$, $t(121) = -1.58$, $p = .118$). The interaction between

group identification and RRG was also not significant ($b = .22$, $SE = .18$, $t(121) = 1.27$, $p = .208$). H5c was not supported.

AM Goals

H4d posited that AMG will moderate the effect of anonymity on verbal aggression. To test H4d, anonymity, AMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that anonymity was significantly associated with verbal aggression ($b = 1.22$, $SE = .24$, $t(121) = 5.01$, $p < .00$), but AMG was not ($b = .08$, $SE = .15$, $t(121) = .56$, $p = .578$). The interaction between anonymity and AMG was also not significant ($b = -.16$, $SE = .20$, $t(121) = -.80$, $p = .425$). H4d was not supported.

H5d posited that AMG will moderate the effect of group identification on verbal aggression. To test H5d, group identification, AMG, and their interaction terms were included in a multiple regression model to predict verbal aggression. Results indicated that group identification was significantly associated with verbal aggression ($b = -.64$, $SE = .26$, $t(121) = -2.44$, $p = .016$), but AMG was not ($b = .08$, $SE = .15$, $t(121) = .57$, $p = .571$). The interaction between group identification and AMG was also not significant ($b = -.12$, $SE = .21$, $t(121) = -.54$, $p = .587$). H5d was not supported.

Figure 6 presents the theoretical model examined in Study 2.

Figure 6.

Direct and Moderation Effects of Anonymity, Group Identification, and Secondary Goal Concerns on Verbal Aggression (Study 2).

Note: Solid lines indicate significant direct or indirect effects. Dotted lines indicate non-significant effects.

** $p < .05$, ** $p < .01$, *** $p < .001$*

Discussion

Results of Study 2 presented an interesting account of hypothesized variables different from the SIDE perspective. While anonymity generally led to greater verbal aggression, group identification functioned in the opposite of the hypothesized direction. SIDE predicts that group identification will lead to greater conformity to normative group behavior. In this case, participants in the high group identification condition should report greater verbal aggression (in line with the other group members' behavior). Instead, the interaction effect between anonymity and group identification was such that it was participants in the low group identification condition who reported greater verbal aggression, and this only worked under anonymous conditions. When participants were under non-anonymous conditions, group identification did not make a difference to their behavior.

IDG was also found to moderate the effect of group identification on verbal aggression in a similar way, where contrary to hypothesized effects, participants in the low group identification condition reported greater verbal aggression than those in the high group identification condition, and this only worked when concerns about IDG were low. When participants were highly concerned about these secondary goals, group identification did not make a difference to their behavior.

Furthermore, CMG and RRG were found to moderate the effect of anonymity on verbal aggression, such that those with low secondary goal

concerns reported greater verbal aggression. This meant that anonymity only made a difference when participants were less concerned about the social appropriateness of their behavior (low CMG) and the potential relationships with the other participants (low RRG). When participants were highly concerned about these secondary goals, whether they were anonymous or not did not make a difference to their behavior.

OVERALL DISCUSSION

From the SIDE perspective, group identification is the key mechanism in which anonymity will lead to aggressive behavior online, by shifting one's attention to focus more on the salient social identity rather than the personal identity, thereby causing behavioral conformity to group norms.

In this study, I tested the predictions of SIDE theory in two different contexts: online commenting and online gaming, and also examined secondary goals as a potential moderator in this process. Anonymity and group identification were directly manipulated, while secondary goal concerns were measured using self-report measures. It was hypothesized that anonymity and group identification will interact such that anonymity will encourage greater conformity to group behavior (in the form of verbal aggression) when participants experience high group identification. Furthermore, secondary goals were expected to moderate the relationship between anonymity, group identification, and aggression such that the effects of anonymity and group identification were only observed when secondary goal concerns were low.

These predictions were tested by two experiments – an online experiment where participants responded to other aggressive comments on a blog post, and a lab experiment where participants interacted with aggressive confederates during an online game session.

The results supported hypothesized main effects of group identification but not anonymity: group identification exerted a positive effect on verbal

aggression in Study 1, and a negative effect in Study 2. As for hypothesized moderating effects of secondary goals, these were supported in both studies: secondary goals moderated effects of group identification on verbal aggression in Study 1, and moderated effects of both anonymity and group identification on verbal aggression in Study 2.

Together, these studies provide good evidence that the anonymity offered online does not in itself lead to aggressive behavior. Instead, the outcome is dependent on other situational factors present. This is in line with existing studies which found that anonymity alone was insufficient to induce aggressive behavior (e.g., Cho & Kwon, 2015; Rösner & Krämer, 2016).

More importantly, the difference in direction of effects for group identification showed the need to reexamine our existing conceptualizations of group identification. Previous studies have mostly treated group identification as a unidimensional construct without delineating underlying assumptions inherent in the different conceptualizations. This has led to much conceptual and empirical confusion surrounding group identification (such as variations in findings of group identification effects outlined in the literature review section), a problem which Ashmore et al. (2004) argue can be remedied by a multidimensional examination of the construct.

Comparing Study 1 and Study 2, we can see how contextual differences between the two studies contributed to differing effects of group identification in different contexts: In Study 1, participants conformed more to normative

group behaviors when group identification was high. In Study 2, participants conformed more to normative group behaviors when group identification was low. These two studies provide support for the bidimensional conceptualization of in-group identification proposed by Leach and colleagues (2008). They argue that in-group identification consists of two general dimensions of group-level *self-definition* and *self-investment*. They also identified five underlying components associated with these two dimensions: individual self-stereotyping and in-group homogeneity (associated with self-definition), and solidarity, satisfaction, and centrality (associated with self-investment).

The aspect of group identification manipulated in Study 1 closely resembles the self-definition dimension, involving the constructs of individual self-stereotyping and in-group homogeneity. As mentioned before, the self-categorization theory posits that when individuals identify with a group, they tend to self-stereotype themselves as similar to prototypical members of that group (Turner et al., 1994), which has subsequent behavioral implications. In-group homogeneity is defined by the extent to which individuals perceive their entire group as sharing common traits that make the group homogenous (Oakes et al., 1994). Perceived in-group homogeneity fosters the desire to maintain in-group distinctiveness, and one way to achieve this is through aligning one's behavior with group norms.

In Study 1, participants in the high group identification condition likely engaged in more individual self-stereotyping and viewed themselves as more

similar to other group members, compared to Study 2. They also likely perceived in-group homogeneity, viewing the other group members (other commenters) as similar to each other. Together, self-stereotyping and in-group homogeneity may have motivated individuals to reinforce their group membership and preserve group homogeneity by altering their behaviors in line with normative group behavior (i.e. greater verbal aggression).

On the other hand, the aspect of group identification manipulated in Study 2 resembles the self-investment dimension more closely, specifically the construct of solidarity. Solidarity refers to feelings of commitment to and coordination with fellow group members, often arising during coordinated activity. This differs from self-stereotyping, which has less to do with the investment of the self in the group and more to do with perceiving oneself as similar to the group (Leach et al., 2008). Previous studies in this area suggest that solidarity in group contexts can have behavioral implications. Lewin (1948) proposed that greater in-group identification was associated with a stronger psychological bond with other group members. The social identity literature also indicates that people's responses to group threats differed based on their degree of commitment felt to the group (Branscombe et al., 1999).

In Study 2, the online gaming context presented a clear goal for the group which was only achievable if everyone worked together (compared to Study 1 which lacked a clear group goal). Participants in Study 2 could also interact with group members in real time, offering a more dynamic

communication context, while participants in Study 1 could only read previous comments left behind by other group members.

Given the above, participants in the high group identification condition likely experienced greater solidarity with their group, causing them to feel more invested in the group. Coupled with the knowledge of being interdependent with their groupmates, this is likely to induce greater motivation to preserve group solidarity when a threat is present (in the form of verbal aggression by other members or impending group failure). They may have tried to counteract this threat by being less verbally aggressive instead. In contrast, participants in the low group identification likely experienced lower solidarity, and therefore are less motivated to engage in efforts to preserve group solidarity.

The concept of group entitativity can also help to shed light on the unexpected results here. Entitativity is defined as the extent of group cohesiveness (Campbell, 1958), and can be understood as the perceived unity of groups (Hamilton 2007). Perceptions of high group entitativity can result from both static traits and dynamic traits. Static traits include factors that are unlikely to change, such as physical appearance or personality, and dynamic traits include situationally variable factors such as common goals and common fate.

Entitativity has been shown to influence perceptions and behaviors in group contexts. High group entitativity can increase group identification (Castano et al., 2003), subsequently increasing members' willingness to conform to group norms (Hogg & Reid, 2006). It can also promote behavior

that aligns with group goals (Insko et al., 2013). Research has also shown that group entitativity can exert differing effects depending on context. In competitive intergroup contexts, group entitativity can amplify aggression and competition (Insko et al., 2013). In the absence of competition, group entitativity can encourage positive behaviors such as increased willingness to interact with others (Fraune et al., 2019) or making donations to victims (Smith et al., 2012). Given that increased group identification was observed to result in increased willingness to conform to group norms in Study 1 and increased behaviors to align with group goals in Study 2, future studies could examine the construct of group entitativity to see if it can better disambiguate the differential effects of group identification in different contexts.

Taken together, these two studies illustrate the need for studies examining group identification to take a more nuanced look at the concept and consider which underlying dimensions have greater relevance to the interaction contexts being examined. Group identification could have differential effects depending on whether the self-definition or self-investment dimension is more relevant. Future research can further ascertain the association between anonymity and the different dimensions of group identification.

These studies also link the SIDE literature with the GPA literature on secondary goals, showing that secondary goals can moderate the relationship between anonymity, group identification, and verbal aggression. In terms of IDG, Study 2 showed how group identification only mattered for verbal

aggression when concern for IDG was low. Considering that SIDE entails a shift in focus from the personal to social identity, it makes sense that when participants are less concerned about their own internal behavioral standards, they are more prone to the effects of group identification.

The moderating effects of CMG was also shown. Study 2 showed how anonymity only led to greater verbal aggression when concern for CMG was low. This is in line with hypothesized effects – when people are less concerned about how socially appropriate their behavior is, verbal aggression is more likely to occur. Study 1 showed how greater group identification only led to greater verbal aggression when concern for CMG was low. When CMG was high, whether participants identified with the other commenters did not influence their behavior. This extends the findings by Lee (2007) who found that group identification may be susceptible to other influences like public self-awareness. Combined with the theoretical interest in public and private self-awareness as antecedents of deindividuation in early research (Diener & Wallbom, 1976; Prentice-Dunn & Rogers, 1982), it is worth exploring in further studies whether these concepts are associated with the moderating effects of CMG.

The moderating effects of RRG were found in Study 2, where anonymity only led to greater verbal aggression when concern for RRG was low. RRG was relevant in Study 2 but not Study 1, possibly due to the difference in anticipated future interactions with interaction targets. RRG

involve concerns about sustaining or forging new relationships with other interactants. Since Study 1 was set in a context without any anticipated future interaction between participants, RRG would naturally not have much relevance. On the other hand, Study 2 was set in a context where participants had to work together with their groupmates in order to achieve the goal, with multiple interactions within the stipulated time. RRG would thus be highly relevant in this case: RRG is closely related to the desire to establish relationships with their groupmates. Thus we see that anonymity only led to greater verbal aggression among only those who experienced low RRG, because these participants are less motivated (compared to those with high RRG) to maintain a good relationship with their teammates, therefore more likely to be verbally aggressive themselves when they are anonymous.

In addition, future studies can explore the influence of identity perpetuation (H. Kim & Chang, 2017) on RRG. Kim and Chang (2017) found that design elements such as identity perpetuation can influence aggression in online games. According to them, identity perpetuation involves deep profiling (ability to view one's gameplay activity history) and persistent labelling (the use of a permanent nickname to represent oneself). For example, although screen names can be used in forums which are not associated with our real-world identity, there may still be a virtual identity you have to maintain in the forum. Since others can see your post history, you may get a bad reputation if you are persistently rude or aggressive. This also explains why people use "throwaway" reddit accounts even though they can remain fully anonymous

(Leavitt, 2015). Permanent usernames in massively multiplayer online role-playing games (MMORPGs) are another example of persistent labeling. Sustaining good relationships with guildmates is necessary for game progress, so this anticipation of future interaction with others can influence the secondary goal of RRG as well.

There were no significant moderating effects of AMG found. This could be because both contexts did not involve scenarios that would require high amounts of emotional self-regulation, as shown by the relatively lower mean scores of AMG across all conditions compared to other types of secondary goals (Study 1: $M = 3.53$, $SD = 1.31$, Study 2: $M = 3.74$, $SD = 1.23$). Future studies may further examine the influence of AMG on online aggression, such as looking at situations involving trolling behavior. Trolling refers to “behaving in a deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose” (Buckels et al., 2014, p. 97). Trolling behavior most often manifests in the form of posting verbally aggressive comments (such as inflammatory taunts and provocative jibes) online to deliberately upset others or stir negative emotions (Craker & March, 2016). Given that motivations for trolling involves the increment or reduction of one’s emotional states, such as relieving boredom or seeking enjoyment (Shachaf & Hara, 2010), it will be interesting if future research can investigate the impact of AMG on trolling.

THEORETICAL IMPLICATIONS

These two studies have shown that both external technological affordances (anonymity) and social psychological factors (group identification and secondary goals) can impact verbal aggression in online environments. Past studies based on the SIDE perspective have shown that anonymity can lead to conformity to group behaviors through group identification (e.g., Postmes et al., 2001; Zimmerman & Ybarra, 2016). Together, Study 1 and Study 2 have shown that predictions of the SIDE theory may hold up in a short one-time interaction context such as online commenting, but not in a context with anticipated future interactions such as in online gaming.

In assessing differences between various theoretical approaches available in the field of CMC research, Walther (2009) has pointed out that one challenge is to identify boundary conditions in which each approach fits. These two studies illustrate the boundary conditions of the SIDE approach: its theoretical predictions may not translate directly to communication contexts that are more dynamic and interactive in nature. Future research in this area can examine how the SIDE theoretical framework can be extended to better explain behavior in such contexts.

These two studies have also shown that group identification should not be conceptualized and operationalized as a unidimensional construct. It is necessary for research examining group identification to elucidate the precise

dimension or underlying component of the construct they are concerned with, as the direction of effects can vary.

It was also shown that concerns about secondary goals can moderate the relationships between anonymity, group identification, and online verbal aggression. Findings from these two studies illustrate the utility of the GPA framework in understanding the underlying psychological mechanisms behind why message senders decide to send aggressive messages online. In addition, cursory observations during the experiments of Study 2 suggest that hostility usually occurs near the end of the session when it is clear to participants that they are not going to achieve the objective within the time limit. Based on Keck and Samp's (2007) analysis of conflict behavior over time, we see how secondary goals can change over the course of an interaction, and that interactants can alter their behavior in accordance with their goals. This suggests that towards the end of the interaction session, their goals may change as they realize that there is no need to be civil and polite anymore. While this was beyond the scope of this study and therefore not empirically tested, future studies can examine how changes in secondary goals over the course of the interaction can influence communication behaviors, such as using content analysis to assess the development of conversation against time.

These two studies have also demonstrated the importance of context in influencing online verbal aggression. Study 1 and Study 2 have examined the context of online commenting and online gaming, but as pointed out earlier,

celebrities have also become popular targets of online aggression. Given the additional public scrutiny they tend to come under due to the nature of their job, the impact of such aggression on celebrities themselves can be magnified. Yet, the impact of this phenomena is often underestimated or seen as part and parcel of being celebrities (Ouvrein et al., 2018). Evidently, there is a pressing need for more research in this area to stop the normalizing of celebrity aggression.

Existing work on fandoms and fan behavior highlight the central role of affect and emotion (Claessens & Van den Bulck, 2014). For example, Sandvoss (2005) defines fandom as “the regular, emotionally involved consumption of a given popular narrative of text” (p. 8). On the other end of the spectrum, studies on anti-fans also reveal the importance of emotion: celebrity aggression comprises a range of emotions, including irritation, anger, and hatred (Click, 2007). Claessens and Van den Bulck (2014) also suggest that one of the reasons why people show verbal aggression towards celebrities is because they do not know celebrities personally and will likely never meet them, so this offers an outlet for venting negative emotions without actual repercussions to themselves. This implies that concern about affect management goals (AMG) may play an important moderating role in this context, although it was not found to be a moderator in the two contexts explored in this dissertation. Future work can pursue this line of inquiry to understand more about online verbal aggression in the context of celebrity aggression, for instance to see how participants would respond when exposed to verbally aggressive comments and conversations about celebrities under different conditions.

In terms of methodology, Study 2 presents an advance on previous studies in this area. Study 2 placed participants in an online game setting that simulated real-world playing conditions using an immersive commercial game, as opposed to arbitrary tasks that could feel artificial such as word unscrambling tasks (Zimmerman & Ybarra, 2016) or discussion of hypothetical scenarios (Lee, 2007; Postmes et al., 2001). Confederates were also used in the experiment to induce perceptions about normative group behavior, as opposed to previous methods which used priming tasks (Postmes et al., 2001) or text stimuli (Spears et al., 1990; Zimmerman & Ybarra, 2016). Participants also interacted with others over an extended amount of time in real time, as opposed to using single comment posts in one-shot scenarios (Rösner & Krämer, 2016; Zimmerman & Ybarra, 2016) or asynchronous communication (Spears et al., 1990).

Finally, as pointed out by McCreery and Krach (2018), existing research efforts to understand online aggression tend to focus on technological aspects (such as anonymity affordances and other design issues) rather than psychological factors. These two studies have shown that individual-level factors are just as important as contextual-level factors in explaining online verbal aggression, and that future research should consider both in the process of understanding such behaviors.

PRACTICAL IMPLICATIONS

With each new death of cyberbullying victims comes escalating concerns about online malice and urgent calls for legislation (e.g., Konuwa, 2020; Nam, 2019). As we increasingly interact with others online, the need to curb online malice is more pertinent as ever. Multiple countries are considering introducing anti-anonymity laws online but given that such laws have proved to be limited in effectiveness previously (Choe, 2012), we need to look beyond simply regulating anonymity online.

These two studies have shown that one area of consideration in technology design is to target user goals and motivations during the message crafting process. For example, cues that invoke identity perpetuation (e.g., deep profiling and persistent labeling) can appeal to users' IDG and RRG and encourage them to behave in manners that are consistent with their ideal image. Different goals may take precedence in different contexts, so designers should consider which goals are relevant in what kind of interaction situations and target them accordingly.

Designing cues that increase the solidarity of the group in online games can also establish rapport between online players who do not know each other. As Study 2 has demonstrated, group identification stemming from a sense of solidarity can help significantly reduce aggressive behaviors.

Relieving the time pressure when players communicate via text chat during the game can also serve to reduce the amount of aggression online.

Herring and colleagues found that text chat in online multiplayer games is characterized by short curt messages, as players are often constrained by time limits in-game and try to communicate with minimal keystrokes. Typically, players can only send messages during short pockets of time during the game, for example in-between rounds, or while waiting for their character to respawn after a death. In Study 2, participants only had 2 minutes to review and strategize, simulating actual gameplay conditions with time constraints. Given that thinking about goals and selecting a plan is a time-consuming process (Dillard, 2015), it is likely that concern for goals will be low when time is restricted. Game designers can look at how to allow more time for communication without compromising on the game experience, so that players can have time to consider their goals during the message crafting process.

In designing campaign messages, policymakers can appeal to the goals and motivations of online users, such as encouraging them to think about the consistency between their identity and behaviors, as well as the relationships they want to build with other online users. Instead of blanket anonymity laws requiring disclosure of identity to authorities, regulations that create identifiability at the site of use itself such as that highlighted by Cho and Kwon (2015) may also be more effective, as this will appeal to users' CMG and RRG.

LIMITATIONS AND FUTURE RESEARCH

The findings from these two studies should be interpreted with some limitations in mind. One limitation is the use of perceived verbal aggression in a self-report measure as a proxy for actual verbal aggression. This decision was made after considering the possibility that participants' actual behavior may be tempered. Since these two studies involved payment to participants for their participation, the threshold to get them to perform actual aggressive acts may be higher than normal. The mere knowledge that they were taking part in an lab experiment could also have led to a reduced sense of anonymity between experimenter and participants. Levitt and List (2007) explain that this will increase moral cost of performing antisocial behaviors, therefore leading to less antisocial behaviors observed than usual. Given the above, a self-report measure of perceived aggression may be better than actual verbal aggression measures. Future studies done in more naturalistic settings where behavioral tempering is less of a concern may consider using actual aggression measures to capture aggressive behavior.

Another limitation is that the experimental design did not allow for the tracking of changes in goals over the course of the interaction but relied on retrospective self-report measures on goal concerns at the end of the gameplay session. However, this is a necessary tradeoff, because asking participants to complete self-report measures on goal concerns during play would disrupt the flow experience, which is essential for optimal enjoyment (Csikszentmihalyi, 1990). But given that significant moderating effects of goal concerns were still

obtained, it is safe to say that this limitation did not compromise results too much.

A second limitation is the unidimensional conceptualization and operationalization of group identification, in terms of the measures used. However, the group identification measures were used as a manipulation check in these two studies, so they were still useful in meeting the aims of these two studies.

Next, Study 1 examines a one-shot asynchronous interaction context of online commenting. Although Study 2 attempts to address this limitation to a certain extent by situating the experiment in an online gaming context with extended interactions over 30 minutes, it should be noted that the participants do not anticipate future interactions with their groupmates beyond the experiment. Anticipation of future interactions can influence people's communication behavior (Rosenberg & Egbert, 2011; Walther, 1996), so future studies can examine communication contexts that take place over an even longer period of time where people foresee building future relationships with their interaction targets.

Another limitation lies in the experimental design of Study 2. Although two out of three members of the group were confederates instructed to be verbally aggressive, constituting a majority in the group, the total group size remains small, and may have limited the ability of the two confederates to reinforce an aggressive group norm. Coupled with Confederate A's appeal to

the participant to take sides, this could have instead reinforced a cooperative group norm, possibly explaining why group identification worked in the opposite direction in Study 2. Due to limitations in resources, it was not possible to hire additional confederates for Study 2. Future studies with more extensive resources can consider using a larger group size with more confederates to strengthen the aggressive group norm reinforcement, to see if results will differ from the present study.

Also, group identification in Study 1 was manipulated by informing participants that the other comments on the blog were from their “fellow NTU students”, without giving additional information on the nature of the blog to avoid introducing potential confounds. While it is a reasonable cover story for participants taking part in an experiment, such a setting may be uncommon outside of the current context. Future studies can consider altering the manipulation to increase ecological isomorphism, for instance situating the comments as part of a forum on a university discussion board or university publication.

CONCLUSION

In conclusion, the objectives of the two studies were met. First, the studies have identified how differences across both contexts led to variations in effects of group identification and SIDE predictions. Second, secondary goals were found to moderate effects of anonymity and group identification on verbal aggression. Last, the findings provide an insight into how individual motivations and goals can be targeted to reduce verbal aggression online. The

key takeaway here is that there is no easy blanket solution to the online aggression problem – we need to consider (1) contextual factors surrounding the interaction, like perceived normative group behavior associated with it, and the range of affordances offered by the technology, and (2) individual motivations of users. Hana Kimura is not the first celebrity to be driven over the edge by online aggression, but we can and should make sure it does not happen again. Understanding how online verbal aggression occurs is an important step in this direction.

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APPENDIX A

SURVEY ITEMS (STUDY 1)

Please respond to the following statements based on the online task you just completed.

Concern about Identity Goals (IDG)

When leaving my comments on the online article just now...

1. I was concerned with not violating my own ethical standards.
2. I was concerned about maintaining my own ethical standards.
3. I was concerned about being true to myself.
4. I was concerned about being true to my values.
5. I wanted to behave in a mature, responsible way.

Concern about Conversation Management Goals (CMG)

When leaving my comments on the online article just now...

1. I was concerned with making a good impression.
2. I was careful to avoid saying things which were socially inappropriate.
3. I was very conscious of what was appropriate and inappropriate.
4. I was concerned about putting myself in a bad light.
5. I didn't want to look stupid.

Concern about Relational Resource Goals (RRG)

When leaving my comments on the online article just now...

1. I was not willing to damage the relationship with other commenters in order to get my point across.
2. *Getting what I wanted was more important to me than getting along with other commenters.*
3. *I didn't really care if I made the other commenters mad or not.*

Concern about Affect Management Goals (AMG)

When leaving my comments on the online article just now...

1. I avoided saying things which might have made me apprehensive or nervous.
2. *This situation did not seem to be the type to make me nervous.*
3. This situation's potential for making me nervous and uncomfortable worried me.
4. I was afraid of being uncomfortable or nervous in this situation.

Group identification Manipulation Check

Please answer the following based on your feelings when reading the comments just now.

1. The other commenters are similar to me.
2. The other commenters think like me.
3. The other commenters share my beliefs.

Strongly
Disagree

1

2

3

4

5

6

7

Strongly Agree

Anonymity Manipulation Check

When leaving my comments on the online article just now, I was anonymous.

Self-Reported Verbal Aggression (VA)

When leaving my comments on the online article just now...

1. I used aggressive language
2. I used rude language
3. I used harsh language
4. I expressed my anger

Strongly
Disagree

1

2

3

4

5

6

7

Strongly Agree

Please indicate your school (e.g., WKWSCI/EEE/SPMS): _____

Please indicate your age: _____

Please indicate your gender: _____

APPENDIX B

Blog Post (Study 1)

ST Forum: It may be time for a Speak Proper English campaign

Singapore is one of the wealthiest sovereign countries in the world. We have a diversity of races, religions, languages and cultures. We are respected by the majority of the world, if not all.

In Singapore, English is the chosen language of communication for commerce, international relations and social media.

Most Singaporeans have been educated in English, either as the primary language or as a second language.

However, when it comes to having the English language spoken by an average Singaporean, the nightmare starts.

Yes, many have put our Singlish on a pedestal and called it the language of Singapore.

But does rapid-fire Singlish fit into the future?

I believe the root of the problem lies in a child's emulation of English diction used by his peers, parents and teachers.

This creates a cycle which I cannot see being broken unless some kind of miracle occurs.

Sit in any of our trains or buses, or simply walk down the street, and listen to our younger, and some not so young, Singaporeans talk to each other.

The words spoken may be English-based but the true communication effect of these exchanges is completely lost, at least to me, a Singaporean, and almost all foreigners.

Is it possible for these Singaporeans to speak more slowly and enunciate their spoken words more clearly?

Rather than allow every syllable to trip over the next just to get a sentence out as quickly as possible?

And those are only the issues of speed-talking and bad grammar. Have I mentioned proper pronunciation? Can anybody offer a solution or care to comment?

Our late founding prime minister Lee Kuan Yew started a "Speak Mandarin" campaign many years ago, which arguably worked.

How about a "Speak Proper English" campaign? Not that we are so enamoured of the English language but, let's face it, that is just how the world communicates.

Master the language and speak it properly.

Ken Ong

(Letter published in The Straits Times Forum, 2 July 2019)

Share this:

Anonymous Comments (Study 1)

Anonymous

July 19, 2019 at 11:22 am

People who diss Singlish are fucking elitists.

[★ Like](#)[↩ Reply](#) **Anonymous**

July 22, 2019 at 4:36 pm

ST once again publishes inane, controversial opinion by inconsequential person to stir shit. That's the bullshit modus operandi of ST Forum section.

[★ Like](#)[↩ Reply](#) **Anonymous**

July 23, 2019 at 9:48 pm

Your angmoh also sucks mai make me laugh la!!!

[★ Like](#)[↩ Reply](#) **Anonymous**

July 24, 2019 at 11:48 am

Most of the parents and teachers speak like sai, of course the children follow.

[★ Like](#)[↩ Reply](#) **Anonymous**

July 25, 2019 at 10:05 am

in singapore i confirm say singlish, it's your daiji to understand me. i home ground, not my fking problem if you catch no ball

[★ Like](#)[↩ Reply](#) **Anonymous**

July 27, 2019 at 3:49 pm

ang mohs themselves also suck at english accent.. try talking to a farking aussie redneck, irish or scottish and you will know what i mean...

[★ Like](#)[↩ Reply](#)

Non-Anonymous Comments (Study 1)

Yasmin Ishak26th Jul 2019 at 9:06 pm | [Edit](#)

People who diss Singlish are fucking elitists.

[★ Like](#)[↩ Reply](#) **Doris Low**27th Jul 2019 at 9:09 pm | [Edit](#)

ST once again publishes inane, controversial opinion by inconsequential person to stir shit.
That's the bullshit modus operandi of ST Forum section.

[★ Like](#)[↩ Reply](#) **Darrell Leow**28th Jul 2019 at 9:09 pm | [Edit](#)

Your angmoh also sucks mai make me laugh la!!!

[★ Like](#)[↩ Reply](#) **Natalie Choo**29th Jul 2019 at 9:11 pm | [Edit](#)

Most of the parents and teachers speak like sai, of course the children follow.

[★ Like](#)[↩ Reply](#) **Lewis Toh**30th Jul 2019 at 9:11 pm | [Edit](#)

in singapore i confirm say singlish, it's your daiji to understand me. i home ground, not my
fking problem if you catch no ball

[★ Like](#)[↩ Reply](#) **Ahmed Ibrahim**2nd Aug 2019 at 9:12 pm | [Edit](#)

ang mohs themselves also suck at english accent.. try talking to a farking aussie redneck, irish
or scottish and you will know what i mean...

APPENDIX C

Chat Interface (Study 2)

Game Interface (Study 2)

APPENDIX D

Survey Items (Study 2)

Pre-test

Group identification Manipulation Check

Make some predictions before you begin the game, based on how you feel right now.

1. The other players are similar to me.
2. The other players think like me.
3. The other players share my beliefs.

Anonymity Manipulation Check

1. I am anonymous to the other players.

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
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Post-test

Please respond to the following statements based on your gaming experience just now.

Concern about Identity Goals (IDG)

When chatting with other players just now...

6. I was concerned with not violating my own ethical standards.
7. I was concerned about maintaining my own ethical standards.
8. I was concerned about being true to myself.
9. I was concerned about being true to my values.
10. I wanted to behave in a mature, responsible way.

Concern about Conversation Management Goals (CMG)

When chatting with other players just now...

6. I was concerned with making a good impression.
7. I was careful to avoid saying things which were socially inappropriate.
8. I was very conscious of what was appropriate and inappropriate.
9. I was concerned about putting myself in a bad light.
10. I didn't want to look stupid.

Concern about Relational Resource Goals (RRG)

When chatting with other players just now...

4. I was not willing to damage the relationship with other commenters in order to get my point across.

5. *Getting what I wanted was more important to me than getting along with other commenters.*
6. *I didn't really care if I made the other commenters mad or not.*

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
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Concern about Affect Management Goals (AMG)

When chatting with other players just now...

5. I avoided saying things which might have made me apprehensive or nervous.
6. *This situation did not seem to be the type to make me nervous.*
7. This situation's potential for making me nervous and uncomfortable worried me.
8. I was afraid of being uncomfortable or nervous in this situation.

Self-Reported Verbal Aggression (VA)

When chatting with other players just now...

5. I used aggressive language
6. I used rude language
7. I used harsh language
8. I expressed my anger

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
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Please indicate your school (e.g., WKWSCI/EEE/SPMS): _____

Please indicate your age: _____

Please indicate your gender: _____