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Perceived Self-anonymity and Willingness to Change Attitude In Computer-Mediated Communication

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by

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ABSTRACT

Perceived Self-anonymity and Willingness to Change Attitude

In Computer-Mediated Communication

by

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This study examines the impact that one's perceived degree of self-anonymity has on one's willingness to change their own attitude, specifically in a computer-mediated context. Participants (N = 717) completed a questionnaire assessing their perceived degree of self-anonymity while using Facebook or Reddit as well as measures for other personality factors. Participants were presented with a hypothetical scenario in which a discussion on universal health care takes place in a comment thread on either Facebook or Reddit. Participants indicated both how willing they would be to change their opinion on universal health care, and how willing they would be to express a genuine change of attitude within the comment thread. It was hypothesized that one's perceived degree of self-anonymity would positively predict one's willingness to change attitude. Contradictory results were found such that one's perceived degree of self-anonymity emerged as a significant negative predictor of willingness to change attitude. Contributions to extending the social identity model of deindividuating effects (SIDE) are discussed, as the researcher argues for continuous (rather than dichotomous) measures of anonymity.

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This study covers the general topics of self-anonymity (or identifiability) online and one's willingness to attitude change. As our lives are becoming increasingly embedded in the online world, interacting online is nearing the point of being ubiquitous. The proliferation of the Internet has made it easier than ever before for people to communicate with others outside of their respective local geographic bubbles. Via social media, one can communicate with family, friends, and even anonymous strangers almost anywhere on Earth at any given time. As four of the top ten most frequented websites in the U.S. are social media websites (Alexa, 2019), people are spending more time on social media than they are on any other type of website (Nielsen, 2012). Furthermore, the growing ability to choose to interact anonymously online is shaping the landscape of how we communicate with and influence each other.

Scant research has examined the varying degrees of self-anonymity, or lack of identifiability, afforded across popular social media sites in conjunction with how these perceived degrees of self-anonymity may contribute to our openness to be influenced by others with whom we interact on these sites. With regard to the most popular social media websites in the U.S., the current study suggests that individuals will be more willing to change their attitude and express their genuine change of attitude to others when they perceive that their identity is unidentifiable to others.

When discussing the subject of anonymous online communication, more often than not it seems that the gut reaction produced by people is to mention a variety of anti-social, negative behaviors that take place. Surely, as research supports, not all anonymous

communication results in anti-normative behavior. For example, when interacting with others anonymously, the absence of visual cues that may highlight interpersonal differences serves to foster a more relatable group dynamic (Walther, DeAndrea, Kim, & Anthony, 2010). Papacharissi (2004) glowingly describes the phenomenon of anonymity as a tool that "obliterates real-life identity boundaries and enhances free and open communication, thus promoting a more enlightened exchange of ideas" (p. 267). Indeed, there is an ample amount of research to support the notion that anonymity serves to facilitate greater degrees of participation and group identification during discussion (Scott, Rains, & Haseki, 2011).

The current study explores perceived self-anonymity as it relates to one's willingness to change attitude and also to express that attitude change to others when interacting online. An argument will be presented that self-anonymous online environments foster one's willingness to change attitude to a greater degree than identifiable online environments. A comparison of online versus offline identities will be discussed, as well as the varying types and degrees of anonymity and identifiability afforded online, followed by why continued research on anonymity and identifiability is important. Theoretical support for the argument presented will take in to consideration the Social Identity Model of Deindividuation Effects (SIDE), Maslow's hierarchy of human needs, and the concept of saving face. Lastly, the enduring characteristic of self-monitoring will be introduced as a control variable.

Online vs Offline Identities

Given the rapid increase in the degree to which we communicate online, research in computer-mediated communication (CMC) and online identities has greatly expanded since pioneering works such as Hiltz and Turoff's *The network nation* (1978). Hiltz and Turoff contended that communication online would inherently be "better thought out, better

organized, and richer than natural conversation" (Rice & Love, 1987, p. 88). It seems hard to imagine that decades before the proliferation of the internet and social media, researchers such as Cathart and Gumpert (1983) were able to predict that these technologies would fundamentally change what we define as a "friend".

While social media has greatly increased the number of friends one has, these "friends" are often considered weak ties. In this context, *tie* refers to a link, or relationship, between two people. A *weak* tie with another person is generally characterized by low intimacy, low emotional intensity, and infrequent interaction (Granovetter, 1973). A weak tie exists outside of your inner circle of immediate family and friends. These weak ties are not insignificant though. Granovetter posited that our weak ties with others are often our primary source of exposure to important, non-redundant information. In other words, *weak* ties offer *strong* benefits. Although communication with a weak tie might be infrequent, the communication can often contain important information that is unlikely to be presented when interacting with strong ties. In this sense, a weak tie serves as liaison between two homophilous groups with strong ties. In exploring the persuasive effects of strength of ties, Steffes and Burgee (2008) provide a contradiction to previous research regarding the influence of tie strength on decision-making. Prior research provided support for the notion that strong ties more easily persuade people than weak ties. In extending social ties theory to the CMC context, Steffes and Burgee found that the strength of a tie from which you received information was not an important factor in decision making online. Contrariwise, respondents rated information from weak ties (or no tie at all) as significantly more important in the decision-making process than information from strong ties. In addition, van Noort, Antheunis, and Reijimersdal (2012) suggest that weak ties are ideal for providing new, useful

information, whereas strong ties are ideal for social or emotional support. The researcher suggests that anonymous conditions online offer breeding grounds for building weak ties. Overall, this suggests that the weak ties that we develop online can provide an important source of persuasive information from which we can draw during decision making. Anonymous people online generally fall into weak tie or no-tie territory, ergo anonymous settings may provide an important source of persuasive information.

When interacting with weak ties, one has the luxury of expressing a more fluid identity (Ryberg & Larsen, 2008); it is easier to "try on" other identities in the presence of weak ties. Examining the differences between online and offline identities has been a rich area of study. Early work on identities in online environments examined how people can take on roles that are vastly different from their offline, in-person identities (Bruckman, 1992; Roberts & Parks, 1999), and can thus serve to enhance self-expression (Marcus, Machilek, & Schütz, 2006). If unidentifiable conditions facilitate a safe place to reinvent oneself, surely this suggests that these conditions facilitate a safe place for attitude change to occur. A lack of identifiability provides a distance that helps to protect "real life" identities from exposure, allowing one to explore trying on multiple other identities online. This exploration assists people in deeply reflecting on who they are and what their offline, real-life identity is and/or *could be*, with little to no threat to their offline identity. On the whole, self-anonymity online is more infamously known for its negative outcomes, which will be discussed in greater detail later; however, the author argues that the positive outcomes of self-anonymity outweigh the negative.

Self-Anonymity Online

A noteworthy aspect of many types of CMC is the ability to choose to communicate without revealing your identity. Consider the varying degrees of self-anonymity that we are afforded in online interactions. In some cases, our online identities are well known and can be considered relatively synonymous with our in-person, offline, legal identities (e.g., Facebook or LinkedIn). In other cases, a person's online identity might exist completely separate from their offline identity; in this situation, the person's online identity could potentially be labeled as self-anonymous. Keep in mind that a person may have numerous online identities, some of which are tied to the person's offline identity and some of which are not. Thus, one's online identity can fall anywhere on the spectrum of anonymity that can be experience online, ranging from fully identifiable to fully anonymous (Froomkin, 1995; Scott, 1999, Scott 2004).

Currently there is not a general consensus in literature regarding the nature and nomenclature of anonymity; however, this proposal will proceed forward using Spears and Lea's (1994) conceptualizations of anonymity, self-anonymity, and identifiability. In this sense, *anonymity* generally refers to one's perception of the degree to which *other peoples'* identities are unknown. Conversely, *identifiability*, or *self-anonymity*, refers to the degree to which one perceives that their *own* identity is unknown to others. As one's degree of identifiability and self-anonymity are conceptually synonymous, they will be used somewhat interchangeably throughout this study depending upon the context. An important point to emphasize here is that the current study is conceptually focusing on one's perception of the degree of their *own* self-anonymity (identifiability) and not one's perceived degree of the anonymity of *others*.

Seven Types of Identifiability Knowledge

The spectrum of identifiability refers to the degree to which we *perceive* that our own identity is unknown to others (Spears & Lea, 1994). "Perceive" is the operative word in this definition. When interacting online, it can be the case that while one thinks that their identity is relatively unknown, certain identifiable attributes may seep through and contribute to revealing parts of the identity of that person to other people (Hayne, Pollard, & Rice, 2003; Hayne & Rice, 1997). Marx (2001) identifies seven types of *identity knowledge* that can assist in understanding what contributes to compromising one's identity:

Legal name. This is self-explanatory.

Locatability. This primarily refers to attributes that will help locate a person such as a physical address, email address, IP address, or GPS location.

Pseudonyms that *can be linked* to a legal name or to other forms of identity knowledge. As an example, a person may have a pseudonym as their Twitter handle alongside their legal name listed in their profile information.

Pseudonyms that *cannot be linked* to other forms of identity knowledge. As an example, most users of Reddit.com (a social website for content aggregation) have pseudonyms that cannot be traced back to their legal name. As long as the pseudonym chosen does not contain hints that may reveal aspects of one's identity, this type of identity knowledge is essentially as close as most people get to achieving "*real* self-anonymity" online (p. 2).

Behavior pattern knowledge. This refers to the social signature that one may leave behind. An example of this would be frequently seeing someone who rides the same bus as you without ever speaking to that person. Or perhaps you have regularly seen a particular user commenting on a specific online forum without ever interacting with that person. With

bits of knowledge of someone's behavior patterns, one can piece together parts of another person's identity.

Social categorization. If cues are apparent enough, social categorization may include pieces of information such as gender, age, education, region, sexual orientation, ethnicity, organizational memberships, health status, leisure activities, and friendship patterns.

Symbols of eligibility/non-eligibility. A person's "possession of knowledge (secret passwords, codes), artifacts (tickets, badges, tattoos, uniforms), or skills (performances such as the ability to swim)" help reveal to others to which groups this person is either eligible or ineligible to belong (p. 3).

Finding fragments of these seven types of identity knowledge about someone else helps us to infer information about that person's identity. With fragments of information about a person, one can transform "bits of a person into a more complete, recognizable, possibly identifiable person" (Nissenbaum, 1999, p. 142); however, it is important to note that some of these ways in which an otherwise anonymous person can be identified might not always be accurate (Hayne & Rice, 1997). For example, another person may mistakenly interpret your gender based on your username or a comment that you wrote.

Different websites afford varying degrees of self-anonymity for users; one's perceived degree of self-anonymity can range anywhere from fully identifiable to fully self-anonymous depending largely upon the features and privacy settings of the website in which they are visiting. This study examines these seven types of identifiability as they pertain to Facebook.com and Reddit.com, as both websites represent relatively bipolar levels of self-anonymity (see Table 1). In order to obtain an ideal amount of variance of perceived self-anonymity in participants, all participants were required to be an active user of at least one of

these two websites. Based on Table 1, one can see that Facebook users should generally have a lower perception of self-anonymity and Reddit users should have a greater perception of self-anonymity.

Table 1

7 Types of Identifiability Knowledge Present on Facebook and Reddit

	Facebook	Reddit
Legal name	✓	
Locatability	✓	
Linked pseudonyms	✓	
Unlinked pseudonyms		✓
Behavior pattern knowledge	✓	✓
Social categorization	✓	✓
Eligibility/non-eligibility symbols	✓	✓
Overall Level of Anonymity	Relatively identifiable	Relatively self-anonymous

✓ indicates that this type of identifiability knowledge is present.

Why Self-Anonymity Matters

When it comes to feeling confident about what we say during CMC, anonymity of the other person is not as important of a factor as self-anonymity. Tanis and Postmes (2005) found that people feel more confident about their performances when they perceive themselves as unidentifiable to others, as compared to others being unidentifiable to them. The sense of confidence and boosted self-esteem provided by self-anonymity could potentially give rise to engaging in conversations that a person might otherwise be too intimidated to discuss in conditions with greater identifiability. With open discussion, comes

a greater degree of exposure to various opposing viewpoints; exposure to various opposing viewpoints is a crucial step in opening the door to evolving and changing as a person.

Walther (1996) asserts that anonymity is one of the most important facets of CMC as it can help to reduce power differences between people, creating more equality in the balance of messages being shared during interactions. Some researchers are hopeful about the positive impacts of anonymity such as increasing interaction, objectivity, and problem solving (Turoff, Hiltz, Bahgat, & Rana, 1993), promoting autonomy (Doyle and Veranas, 2014), decreasing inequality and discrimination (Walther, 1996), and generating original solutions in group problem solving settings (Connolly, Jessup, & Valacich, 1990). Admittedly, other research has been less optimistic, asserting that anonymity can lead to antinormative behavior such as trolling (Phillips, 2012), flaming (Reinig & Mejias, 2004), harassment (Gsell, 2009; Salter & Brydent, 2009), and a lack of accountability (Rice, Hayne, & Pollard, 1999).

When online, a self-anonymous person may feel free from experiencing the consequences of exhibiting ill will toward others; people can generally say what they want without the fear of repercussion. That being said, Friedman, Kahn, and Howe (2000) suggest that when we are the person who is anonymous online, we may also feel more protected from the potential ill will of others. When self-anonymous, we experience less fear of retaliation for saying something that may displease other people. On the other hand, Friedman et al. speculate that when *other* people are anonymous, this may possibly serve to erode trust online by rendering other people and their comments less verifiable. However, Graf, Erba, and Harn (2017) contradict this speculation with empirical research. When participants discussed news stories online, *others' anonymity* had no impact on the perceived

trustworthiness of others' comments. What did matter was *civility*. Information presented in a civil manner, whether from an anonymous person or not, was found to be more trustworthy. The takeaway is that the anonymity of another person does not necessarily influence the trustworthiness of that person's message, while self-anonymity helps us to feel safer while interacting. It is also worth noting that so long as the discussion remains civil, trustworthiness remains intact regardless of participants' anonymity.

Consider the following example: how might the discussion of an issue such as immigration legislation differ when conversing with your co-workers versus discussing with someone online who you believe will never know your true identity? There are certainly ways in which a lack of identifiability could hinder the conversation, such as one or more persons engaging in flaming or trolling behavior. However, there are also ways in which anonymity can enrich online conversations, such as by reducing biases (Lee, 1994). For example, when coworkers engage in an office discussion about immigration legislation, many identifiable cues are present that can cause potential biases towards other coworkers based on factors including age, gender, position in company, tenure, and ethnicity. In addition to potential biases, sharing differing opinions with co-workers can give rise to workplace tensions. On the other hand, unidentifiable strangers may find themselves interacting in a more equitable and open manner than if their identities were known. In fact, if you are concerned that others might deem that certain qualities about your identity render you less credible, you may choose to interact self-anonymously in order to enhance your persuasion by reducing the focus on these qualities of your identity (anonymous, 1998). Warren (2006) states that anonymity helps to reduce status inequalities during deliberation. When discussing sensitive or controversial topics in non-anonymous environments, the "*who*

of the speakers undermines the *what* of statements, such that the speech loses its forcefulness as a means of resolving conflicts" (p. 163). Although trustworthiness, credibility, and attractiveness of an identified message source are generally accepted as primary dimensions of persuasion, Warren suggests that under certain circumstances, the identifiability of a speaker can actually serve to obscure the message.

Research on the context of discussing controversial topics sheds a favorable light on online anonymity. In regard to electronic brainstorming (EBS), anonymous groups generate a greater number of controversial ideas than do non-anonymous groups (Cooper, Gallupe, Pollard, & Cadsby, 1998). While the word "controversial" has a somewhat negative connotation, *controversial ideas* in Cooper et al.'s research was operationalized as the extent to which one feels anxiety about sharing an idea due to the fear that the idea may be met with disapproval. Cooper et al. point out that many change-producing discoveries were once perceived to be "controversial". Thus, although self-anonymity online does give a platform to people who spew less-than-pleasant or anti-social ideas, it also provides a platform that is conducive to EBS, thus generating discoveries and progressive ideas. This research by Cooper et al. emphasizes the importance of anonymous communication in a productive, progressive society. Although anonymity may encourage many types of behaviors, Cooper et al. unequivocally state that "anonymity encourages productivity" (p. 169). When it comes to EBS, anonymous groups perceive less evaluation apprehension than identified EBS groups, which inspires more creative problem solving (Sosik, Avolio, & Kahai, 1998) and more unique, higher quality ideas (Shepherd, Briggs, Reinig, Yen, & Nunamaker, 1995). The acts of brainstorming and problem solving inherently require some degree of persuading others, being persuaded by others, or both. Ergo, if anonymous environments yield higher quality

discussions for problem solving than non-anonymous environments, then this suggests that anonymous environments yield a more persuasive atmosphere than non-anonymous environments.

Additionally, self-anonymity may enrich online discussions by allowing participants to be less concerned about their conversations being traced back to their offline identity. This can manifest itself in two directions. First, self-anonymity serves to prevent an online stranger's ability to discover someone else's offline identity. Second, self-anonymity serves to prevent members in your offline social circles (e.g., family, friends, and acquaintances) from gaining the ability to find knowledge of your private, online identity/ies. We generally do not want internet strangers knowing who we are, and we also might not want certain family, friends, and acquaintances being privy to some of the things we do and say online. Currently on Facebook, if a user comments on a post, the friends of that user may see that comment show up in their own newsfeeds, despite the fact that these friends may have been completely external to the conversation thread. Some Facebook users may feel acutely aware that if they post a critical or dissenting comment, their Facebook friends may see that comment show up in their newsfeeds. This sense of community surveillance can produce a chilling effect (Marder, Joinson, Shankar, & Houghton, 2016). On the other hand, someone who uses social websites that offer a greater degree of self-anonymity may feel less pressure to conform from social circles who are external to a conversation. In this context, this anonymous person may feel freer to interact with and possibly build a new shared identity with anonymous others. In this anonymous setting, one is free to discuss topics that may be off limits or difficult to discuss in some identifiable environments. The current study suggests that this ease of discussion of a topic afforded by self-anonymity contributes to one's

willingness to change attitude on that topic. If one feels confident that their posts and comments cannot be tied back to their other identities (both online and offline) that are linked to their other social circles, then that person is freer to interact with and be exposed to new ideas from weak ties with minimal social repercussions. The researcher argues that self-anonymity helps to provide this sense of confidence and safety. This confidence can then allow someone to feel safe enough to be willing to change their attitude and possibly even express their change of attitude to others.

A review of existing theoretical literature will demonstrate how self-anonymity (or a lack of identifiability) can help foster an environment in which both attitude change is fostered and expressing that attitude change is perceived as less threatening. This research regarding the relationship between one's perceived degree of self-anonymity, one's willingness to change attitude, and one's willingness to express attitude change offers an extension to current literature in the disciplines of persuasion and CMC. The following literature will identify the theoretical rationale for this research regarding the possible relationship between perceived self-anonymity, willingness to change attitude change, and the willingness to express attitude change during CMC.

Theoretical Support

First, the social identity model of deindividuation effects (SIDE) is explored. SIDE theory specifically addresses the impact of anonymity and group identity salience on individuals during group interactions. In the case of this research, group identity salience is conceptualized as the degree of identification that one feels towards a group. SIDE theory helps to address how one's degree of group identity salience, group norms, and the group's

position on the topic may all serve to moderate the relationship between perceived self-anonymity and willingness to change attitude.

Next, Maslow's hierarchy of needs is addressed as it pertains to self-anonymity online and the willingness to change attitude. This hierarchy of human needs is used as an underlying foundation for establishing a link between perceived self-anonymity and a willingness to change attitude. This hierarchy offers a framework that will demonstrate how self-anonymity helps to alleviate some of the threats outlined in Maslow's model of human needs, fostering an environment where one feels safe enough to consider attitude change.

Third, when one is interacting while unidentified, it may be the case that this person perceives a lower degree face threat as compared to when interacting in identifiable conditions. If this is the case, then self-anonymous conditions can cause one to feel less face threat for discussing polarizing, controversial, or inappropriate topics, being incorrect about a previously held position on a topic, changing one's mind, and ultimately expressing that attitude change to those with whom you are conversing. For this reason, one's perceived degree of face threat will be explored as it pertains to both one's perceived degree of self-anonymity and one's willingness to express a genuine change of attitude.

Lastly, the concept of self-monitoring will be introduced. Self-monitoring refers to the degree to which people actively monitor their behaviors and expressions based on the social desire to maintain a positive self-presentation to others. This may be an important variable for which to control, as literature supports the notion that high self-monitors may react differently in persuasive contexts than low self-monitors (Evans & Clark, 2012), and possibly even anonymous contexts (von Zagorski, 2011)

The Social Identity Model of Deindividuation Effect (SIDE). This research examines the Social Identity Model of Deindividuation Effects (SIDE) as one of the theoretical frameworks to help predict the effects of self-anonymity on willingness to change attitude during CMC. SIDE theory attempts to explain the effects of self-anonymity on interactions that occur within an online group, especially if a person feels a greater degree of salience toward the group identity than the degree of salience felt toward one's individual identity.

According to SIDE theory it is possible that self-anonymity during CMC can increase the salience that a person feels regarding their affinity towards a group, thus potentially decreasing the salience of their own personal identity. This process is referred to as deindividuation. When deindividuation occurs, one's personal identity becomes less important while the group identity becomes the focal point, so that one behaves more in accord with the group norms than with one's own individual tendencies. The concept of deindividuation posits that self-anonymity, especially in the context of a salient group identity, can lead to a decrease in overall self-evaluation and self-awareness. This is due to the fact that individuating features of each person become obscured in anonymous settings, causing one to prioritize the group-identity above the self-identity.

As an example, SIDE theory suggests that a cancer survivor who belongs to an online support group for cancer survivors will be more likely to feel a stronger salience towards the group identity and a weaker salience towards one's personal identity *if* the identities of members in the support group are kept anonymous. On the other hand, if members' identities are identifiable, SIDE theory suggests that group members may feel a stronger salience of individual identity and a weaker salience of group identity. Generally speaking, SIDE theory

proposes that self-anonymity increases one's degree of group identity salience (Postmes, Spears, & Lea, 2000) causing social influence to be stronger in anonymous groups than in groups in which members' identities are known (Postmes, Spears, Sakhel, & de Groot, 2001). This suggests that individual attitude change may be stronger in anonymous group conditions than in identifiable group conditions. Bae (2016) found support for this notion; using SIDE as a theoretical framework, Bae experimentally demonstrated that anonymity not only fostered greater group identification but also created greater attitude change among participants as compared to non-anonymous environments. In this sense, the stronger that one identifies with the group, the more likely that person will be to modify their opinions to match the group's opinions.

As previously mentioned, early research supported the notion that deindividuation was mostly an inherently negative occurrence. Kiesler and Sproull (1992) stated that the lack of social cues present in anonymous settings can cause us to feel distant from other people. In turn, this can cause us to be less concerned about keeping up a good impression with others as we give in to more "extreme, impulsive, and less socially differentiated" behavior (p. 103). Deindividuation at its worst has been found to contribute to flaming (Kiesler, Siegel, & McGuire, 1984; Kiesler & Sproull, 1992; Reinig & Mejias, 2004), trolling (Phillips, 2012), harassment (Gsell, 2009; Salter & Brydent, 2009), disinhibition and a lack of personal accountability (Kiesler et al., 1984; Rice, Hayne, & Pollard, 1999), self-centered behavior (Sproull & Kiesler, 1986), less polite behavior (Halpern & Gibbs, 2013), social loafing (Harkins & Petty, 1982), silencing (Fox & Warber, 2015), more frequent usage of critical comments towards others (Jessup, Connolly, & Galegher, 1990; Postmes & Lea, 2000), and other antinormative behaviors (Zimbardo, 1969; Diener, Fraser, Beaman, & Kalem, 1976);

indeed it would be remiss not to acknowledge the possibility that the self-anonymity afforded during CMC can also lead to expressing socially undesirable behavior (Kiesler & Sproull, 1986). In the same vein, however, Kiesler and Spoull (1986) and Evan and Miller (1969) maintain that impersonal, anonymous environments in CMC induce greater levels of interpersonal honesty. When it comes to fruitful discussion, honesty is generally regarded as a good policy.

Whether or not deindividuation leads to antisocial or prosocial behavior largely depends on one's identification with the group (Postmes et al., 2000) as well as whether or not the group has established prosocial, civil rules for behavior (Graf et al., 2017; Postmes et al., 2000). Both identity salience and group norms online can vary widely, depending upon factors such as personality differences, channel, context, and website (Nicholls & Rice, 2017). For example, members of an online hate group may have a strong sense of group identification. However, it can also be the case that the established rules and norms for this hate group explicitly do not value respectful dialogue from diverse perspectives. Clearly, there are exceptions as some groups will value uncivil, antinormative behavior.

While the dark side of anonymous CMC and deindividuation has been well documented, later research found considerable support for a more positive view of anonymous CMC. Reicher, Spears, and Postmes's (1995) outline of SIDE theory concludes that the "paradigm of anonymity within a social group, far from leading to uncontrolled behaviour, maximizes the opportunity of group members to give full voice to their collective identities" (p. 161) so long as group norms support open, civil discussion. This suggests that deindividuation in anonymous online interactions may actually encourage prosocial behavior and render group members more susceptible to group influences (Postmes, Spears & Lea,

1998), thus resulting attitude change to align with the group's norms.

As noted earlier, research demonstrates that deindividuation increases the frequency of using critical comments. This is worth further elaboration. While on the surface these findings may seem to support early research that viewed deindividuation as inherently negative, Anonymous (1998) notes that critical comments can essentially be a positive contribution to discussion. Given that the conceptualization of critical comments in Anonymous's research included comments that analyze the merits and faults of a given argument, one can see that deindividuation also has the capacity to produce constructive critical comments that can elevate discourse.

In the same vein, Postmes et al. (2001) demonstrated that anonymous groups were more oriented toward efficiency for task completion, while identifiable groups were more oriented towards being prosocial in their tasks. The efficiency orientation referred to rational problem solving of tasks in a business-like manner, while the prosocial orientation referred to being socially considerate of other members' feelings. At a glance, this finding could cause one to regard anonymity in a negative light. After all, people are more socially considerate when everyone is identified. However, consider that frequently the "best" solution for a task might ruffle some feathers. In this sense, identifiable groups might actually stifle progress by being overly considerate of social conventions and less practical as compared to anonymous groups with regard to solving issues. Additionally, the identifiable group may be more prone to conversational dominance by high-status members.

Fredheim and Moore (2015) examined three types of online comment forums that discuss politics: comment forums that offered either easy self-anonymity, stable pseudonyms, or real Facebook names. They found that conversations with people using stable pseudonyms

had greater levels of logical reasoning and quality discussion, followed by easy self-anonymity. Political discussions in which participants used their real names produced discussions of the lowest quality. This suggests that the group salience produced in anonymous environments serves to enhance online discussion to a greater degree than identifiable environments.

Overall, how does SIDE theory tie into attitude change? Many ancient philosophers argued that an open platform where all presented ideas can be safely scrutinized is a cornerstone of proper debate and discourse. Research using SIDE theory supports the notion that anonymous settings can foster greater degrees of open, equal communication for group members than would non-anonymous settings, especially in the case that one feels a salient group identity and the group has established rules for behavior (Lea & Spears, 1991). According to SIDE, anonymity is predictive of the degree to which group members feel a salient group identity, and the more that someone identifies with a group, the more receptive that person will be to persuasive messages from others in the group (Postmes et al., 2001). In sum, the current research suggests that the relationship between one's perceived degree of self-anonymity and one's willingness to change attitude will be moderated by the degree of salience that the person feels toward the group identity, by the group's established rules for behavior, and by group norms relative to the topic being discussed.

Maslow's hierarchy of needs. Abraham Maslow proposed a hierarchy of needs as they relate to human motivation (1943). This pyramid addresses the human needs that drive and determine our motivations. See Figure 1 for an illustration of this hierarchy. Maslow suggests that humans are less motivated to respond to persuasive appeals that address needs at the top of the pyramid if needs that are located lower on the pyramid have not yet been

satisfied. An exploration of Maslow's hierarchy of needs will be discussed as it pertains to one's perceived self-anonymity and willingness to change attitude. The purpose of this explication is in order to justify that self-anonymity may help to satisfy some of the basic needs on this hierarchy that may hinder one's receptivity to persuasive appeals if unmet. The overall premise is that in order to have the ability to respond to persuasive messages from others, certain needs on the hierarchy must be met first; this study argues that self-anonymity helps to alleviate threats to some of the more basic human needs.

Figure 1. Maslow's Hierarchy of Human Needs.

The bottom of the pyramid represents the most basic, highest priority needs that we are driven to satisfy. The top of the pyramid represents human needs of the lowest priority. A person must satisfy needs that are lower on the pyramid before they can be motivated to

satisfy needs that are higher on the pyramid. Ranked in order from the bottom (highest priority needs) to the top (lowest priority needs) are physiological needs, safety needs, the need to feel a sense of belonging, esteem needs, and self-actualization needs.

Physiological needs at the bottom of the pyramid refer to the basic, foundational physiological components that keep a human alive such as food, water, and shelter. If these basic components are not met for a person, then this person will be unmotivated to respond to persuasive attempts that can satisfy higher order needs (safety, belonging, self-esteem, and self-actualization). This person will not be motivated to expand their cognitive energy beyond efforts to satisfy their physiological deficits. On the other hand, if physiological needs are being met for a person, then this person is free to be motivated by the next highest priority order need, which is safety.

Safety needs refer to our motivation to avoid physical, emotional, and psychological threats. Safety needs include economic and financial safety, safety from violence and illness, and safety that protects one's psychological well-being. Delia (2008) posits that persuasive discourse should seek to address human needs, and that basic needs for psychological safety must be met before a person will be able to respond to persuasive messages targeting higher level needs. After the safety need is satisfied, one can focus on fulfilling the need for belonging. As social creatures, humans have a strong need to feel connected to the groups with which we identify. Groups that can help satisfy the need for belonging include but are not limited to familial groups, friendships, common interest groups, cultural groups, and intimate relationships.

Maslow suggests that all humans feel the need to be respected. Once the need for belonging has been satisfied, one can focus on the need to build esteem. This includes self-

esteem and receiving esteem and respect from others. One can build esteem through acquiring and demonstrating knowledge in professional fields or on hobbies. Once someone's need for esteem is met, this person can focus on the highest need on the pyramid: the need for self-actualization. This need simply refers to one's desire to live their best life, which varies from person to person. As an example, one might desire to be the best teacher or the best athlete that they can be. The current study specifically focuses on the basic needs for psychological safety and the need to belong.

According to this hierarchy, in order to effectively persuade someone, one ought to take into account the level of need on Maslow's hierarchy that the intended target of the persuasive message is capable of addressing (Mihai, unknown). Message strategies should be at least partially based on receivers' hierarchical needs. If a person's basic safety needs are not being met, then they will not be motivated to respond to a wide variety of persuasive appeals aimed at higher-order needs (Shelby, 1986). In other words, in order to be open to persuasive elements from another person's message, the target's lower level needs must first be satisfied.

Wang (2012) likens the hierarchy of needs to learning theory by taking into consideration what it takes for us to be open to learning new information based on which needs are currently satisfied. Lipman-Blumen (2005) claims that Maslow's hierarchy of needs help to explain why we long to be persuaded by those who lead us, whether they are good or bad. We look to others to be our authority figures, who will help to satisfy some of our psychological needs, our needs to belong, our esteem needs, and our need for self-actualization. In this way, Maslow's hierarchy is used as a persuasive framework that can be used to capitalize on our unmet needs. Maslow's pyramid of hierarchical needs has been used

as a persuasive framework to examine many topics including gamification and persuasion (Yuan, Qi, & Marcus, 2015), analyzing the persuasive appeals of phishing emails (Kim & Kim, 2013), persuading employees to increase productivity (Toledo & Unger, 1983), persuading stroke patients to partake in rehabilitation (Pickrell, Bongers, & van den Hoven, 2015), persuasive political messaging (Militaru, 2014), firearm advertisements and intent to purchase (Kobetz, 2014), and advertising (Makosky, 1985; Yunus, Kasim, Nimehchisalem, & Husin, 2016).

It should be acknowledged that there has been criticism of Maslow's hierarchy being used as a motivating and persuasive tool. Gambrel and Cianci (2003) and Hofstede (1984) point out that Maslow's hierarchy does not take cultural differences into consideration. For example, someone from a collectivistic culture might prioritize their needs differently than someone from an individualistic culture. Hofstede considers Maslow's hierarchy to be too Western-centric to be generalizable. Additionally, Tay and Diener (2011) lament that the hierarchy does not take age into consideration, as different age groups may prioritize needs differently. That being said, these criticisms should not completely detract from the notion that Maslow's hierarchy can be used as a persuasive framework. Additionally, future research could consider culture or age groups as controls or moderators when drawing upon Maslow's hierarchy.

To help clarify how Maslow's hierarchy can tie into persuasion, an example is offered. Suppose that your friend had an abortion and someone is suggesting to her that she visit a support group for women who have had abortions. The suggestion to visit the support group may be considered an attempt to appeal to her need for belonging; perhaps she could benefit from meeting others who have been through a similar experience. However, her

decision to join this support group largely depends on whether or not her need for safety is satisfied, as the safety need is directly below the need for belonging on the hierarchy of needs. In other words, does she feel safe enough to join this support group? If there is a concern that anti-abortion supporters might psychologically or even physically threaten her safety, she will not be persuaded to attend the support group; in this sense, her need to feel a sense of belonging may be overridden by her need for safety.

Bishop (2007) addresses how to persuade "lurkers" into participating in online communities. Lurkers are people in online communities who do not interact with others or post content; however, lurkers do read content and comments posted by other community members. Bishop asserts that one way to encourage participation in online communities is to offer perceived affordances when participating. Many researchers argue that the ability to engage in a self-anonymous fashion during computer-mediated interactions is indeed a perceived affordance (Evans, Pearce, Vitak, & Treem, 2017; Fox & Potocki, 2014; Halpern & Gibbs, 2013; Hopkins, 2015). Based on this notion, it seems reasonable to categorize self-anonymity as an affordance that at a bare minimum can help encourage people to participate in online discussions, possibly by fostering our need to maintain psychological safety.

As stated earlier, the current study specifically focuses on two of Maslow's needs: the need for psychological safety and the need to belong, respectively the second and third most important levels on the hierarchy of needs. Research supports the notion that the likelihood of being persuaded can be increased if the needs that are lower on the hierarchy than the need that the persuader is trying to address are met. This study asserts that perceived self-anonymity (a lack of personal identifiability) can help to satisfy both the need for

psychological safety and the need to belong, thus rendering one more open to attitude change and more willing to express that attitude change.

Safety needs. When engaged in an online discussion, self-anonymity helps to alleviate the threat to one's psychological safety. If someone is attempting to convince you to change your point of view, it can be argued that the threat to the safety of your psyche is lower if your identity is unknown. If it is unlikely that the conversation can be traced back to your identity, the psychological threat that you might feel is reduced by having a lack of known identity. Self-anonymity removes one's fear of being evaluated by others, which in turn encourages participation and open discussion (Connolly et al., 1990; Cooper et al., 1998). This may then allow you to be more receptive to other points of view during the interaction since the conversation is inherently less threatening in an unidentifiable condition. Additionally, when one's identity is unknown, they may feel less inhibited to ask questions or make statements, those of which may include statements of attitude change. Tanis and Postmes (2005) posit that people feel more satisfied about their performance when their identity is unknown than when their identity is known. Anonymity creates a safe place in which discussion can take place (Edin, 1992). In this sense, anonymous environments can reduce one's perceived threats of psychological safety thus opening the door to discussions that may end in openness to change attitude change; however, according to SIDE theory, this can depend upon salient group identity and group norms for behavior.

Belonging needs. Self-anonymity may help alleviate threats to our need to belong to social groups. Imagine once again that someone is attempting to sway your opinion during an online interaction. If your true identity is unknown during this interaction, then you may be less inclined to worry about any of your other social circles' (e.g., family, friends,

acquaintances and coworkers who are external to the conversation) opinions regarding the conversation in which you are involved. Self-anonymity creates a reduced need to be concerned about approval coming from members of your social circles who are external to the conversation. Thus, your need to feel a sense of belonging in these social circles that are external to the conversation is not threatened; conversating publicly can be inherently more threatening that conversating in a self-anonymous environment. Granted, if this person feels a strong sense of identity with the group in which they are interacting online, whether anonymous or not, it is entirely possible that the person may feel that going against the grain of the group's beliefs might be a threat to their need to belong to *that specific group*. In fact, SIDE theory would assert that if salient group identity were strong in said anonymous group, then those in this anonymous group would be *even more* susceptible to being swayed by the group.

Self-anonymity also reduces the need to be concerned about approval coming from *within* the group in which you are conversing. Research suggests that self-anonymity helps to give a voice to those in groups who hold minority opinions (Lim & Guo, 2008; McLeod, Baron, Marti, & Yoon, 1997). Dissenting against the group's opinion is easier in self-anonymous conditions than in identifiable conditions. An abundance of existing literature supports the notion that sharing a minority opinion may be met with disapproval and is considered to be socially threatening (e.g., Baron, Kerr, & Miller, 1992; Moscovici, 1980; Mugny, 1982). In sum, self-anonymity serves to reduce the threat to one's need to belong, both to social circles external to the conversation and the social group within which the conversation is taking place. At a minimum, this implies that self-anonymity serves to foster a more inclusive dialogue by giving a voice to all members, including those who might

otherwise feel socially threatened by engaging in the conversation if their identity was known.

This is not to suggest that in anonymous group settings it is not possible for someone to have their sense of belonging to that anonymous group be threatened. It is acknowledged that even in anonymous conditions, one's perception of belonging to a group may feel threatened; people have the capacity to feel affinity to their online groups, whether anonymous or not. The suggestion here is that self-anonymity reduces the *number of social circles* that can link your conversation with your actual identity, effectively reducing the threat to your need for belonging, but not necessarily eliminating the threat. Conversely, it could be argued that self-anonymity may also reduce one's sense of belonging with the group. While this notion directly contradicts the SIDE model, if one's identity cannot be recognized in a group, perhaps this person may struggle to feel a sense of belonging with that group. This may serve to produce some interesting counterhypotheses for future research.

On the other hand, if conditions are not self-anonymous during an online interaction, then words that you say and any points to which you concede can be linked to your identity. If your identity is known during this conversation, it is entirely possible that your family, friends, acquaintances, coworkers, and/or intimate partners may view the conversation in which you are engaged. You may find yourself acutely aware of the notion that everything that you say during this interaction might have some impact on other social circles to which you belong, thus producing a chilling effect on the conversations in which you are willing to engage in online. This is particularly relevant and likely to be of more concern to users on websites that offer low levels of anonymity such as Facebook, a highly interconnected social media environment.

Overall, there are two main points to draw from the role that Maslow's hierarchy of needs plays with regard to perception of self-anonymity and willingness to change attitude. First, self-anonymity during interactions helps to satisfy one's need for safety by reducing the level of psychological threat that one might feel if any of their other identities (both online and offline) could be tied to a conversation. Second, self-anonymity helps people compartmentalize which specific social groups can see their online conversations, thus reducing potential threats to one's need to belong. When these two needs are met for a person, this person is then in a more open state for discussion and potentially attitude change.

The concept of saving face. The concept of saving face (Goffman, 1955) helps to provide additional theoretical linkage between self-anonymity and the willingness to express to attitude change. *Saving face* is an idiomatic expression defined as an attempt to preserve one's reputation, credibility, or dignity, especially with respect to a valued other or group. An employee may refrain from fessing up about breaking the coffee machine in order to protect their own dignity. A relative may avoid agreeing with your point of view in front of other family members in order to protect their own reputation. These are examples of saving face.

Ancient Confucius philosopher Hsun Tzu developed a theory of persuasion that is relevant to the current study. According to Tzu, one of three most important factors that contribute to persuasion is fostering an environment that allows the person being persuaded to save face (Lu, 1993). In this sense, face saving serves to protect the psychological well-being of the person by "covering the shame of being persuaded" (p. 114). Although Tzu's ancient philosophical views on face saving and persuasion were obviously not taking into consideration anonymous online interactions when developed, the psychological mechanisms are still relevant in this modern context. Recall Maslow's hierarchy of needs addressing our

innate need for psychological safety and well-being. Face-saving offers a means of self-protection at the psychological level. Self-anonymity can decrease the need to save face, enabling individuals to freely express a change in their point of view when presented with new insight (Morain, Joffe, Campbell, & Mello, 2015) without losing face to others.

Individuals inherently want to avoid public exposure for our faults and shortcomings, as this would threaten one's face (Eriksson, Mao, & Villeval, 2017). Goffman (1956) theorized about the notion that we all have a front-stage self and a back-stage self. One's front-stage self refers to the version of the self that we present to the world; this is the identity that we want others to see. The back-stage self refers to the truer version of ourselves that operates behind the scenes. We do not present this version of ourselves to the public, as this version may not be considered an ideal representation of our identity. This suggests that when someone is conversing while self-anonymous, there is no (or less) face to be saved; their back-stage persona may feel safer about revealing themselves, representing their true opinions, and potentially conceding to other points of view. Our front stage persona works to maintain consistent identity, while backstage personas can be more fluid about attitudes. Consider this in terms of social media. When interacting self-anonymously, one can feel freer to be the back-stage, truer, more vulnerable version of themselves. An example of this might be communicating on Reddit, where users interact using unlinked pseudonyms. Here users are free to present their back-stage self. On the other hand, a LinkedIn profile or a public Facebook profile can be analogous to the front-and-center stage of one's public identity, where we attempt to perform the ideal version of ourselves that we desire to present to the world in order to maintain face. How might back-stage interactions and front-stage interactions differ in the CMC context?

Let us compare two hypothetical pubic online groups that both discuss the same controversial issue. In group one, all group members are identifiable, even to non-group members. In group two, all group members' identities are unidentifiable. In group one, where all members are identifiable, a group member may be acutely concerned with the possibility of losing face. Face can be lost in multiple ways. Inaccurate or incorrect statements can be made. A member of an external social circle may find the nature of a comment or topic to be inappropriate. In this climate, it seems less likely that members of group one would feel as free to discuss openly, challenge others' opinions, and most importantly to the current study, concede their own viewpoint, as would the unidentifiable members in group two.

The concept of face saving suggests that members of group two have less face to lose and therefore would have an easier time discussing the topic and potentially conceding to others' points of view. Edin (1992) provides support for this notion with research in group support systems (GSSs). According to Edin, anonymity in group decision-making reduces power imbalances by reducing existing coalitions, reducing the possibility of previously held biases against other group members, and fostering a more equitable amount of time for all members to participate. In this situation, self-anonymity provides multiple avenues for those involved in the conversation to save face. Someone who might be considered influential and powerful in identifiable settings will not lose face by asserting an incorrect position in an unidentifiable setting. Additionally, someone who lacks authority or credibility in identifiable settings has a better chance of having their voice heard without fear of ridicule or fear of losing face for speaking against authority in unidentifiable settings (Jessup, Connelly, & Tansik, 1990). Most importantly, all unidentified parties have significantly less face to lose when conceding to another's point of view than do those who are identifiable. GSSs

generally aim to facilitate group discussion and problem solving. Most GSSs offer self-anonymity sessions as a feature. Ergo, self-anonymity can facilitate participation and problem solving (Scott et al., 2011); surely problem solving inherently involves a degree of some members expressing attitude change.

The self-anonymity afforded in group two helps to foster an environment in which group members may be less concerned with losing face if they, for example, are proven wrong, change their opinion, or unsuccessfully challenge someone else's opinion. In theory, if Person A presents a compelling enough of an argument that should effectively sway Person B away from his or her original viewpoint, Person B will be less held back by a potential loss of face and more willing to express attitude change to Person A in an anonymous setting. Thus, overall it will be important to measure participants' perceived degree of face threat within the specific situation in which they are interacting.

Self-monitoring. Self-monitoring has emerged as a variable that may need to be controlled for. Self-monitoring refers to the degree to which one actively regulates their behavior across multiple social settings (Snyder, 1974). Snyder notes that similar to a high need to save face, a high need to self-monitor manifests as a heightened sensitivity to comply to social cues in order to maintain social desirability. On the other hand, a person with low levels of self-monitoring is less concerned with self-presentation and interpreting the expressions of others. On the whole, it is accepted that deindividuation decreases self-monitoring behavior (Hiltz, Turoff, & Johnson, 1989).

Drawing on Diener's (1979) reconceptualization of deindividuation, Reicher et al. (1995) liken the state of individuation to a state in which we actively self-regulate and self-monitor. They also point out that during deindividuation, "monitoring behavior comes to a

halt" and that people become "blocked… from monitoring their own behavior" (p. 166). In this sense, deindividuation seems to stifle our mechanism for self-monitoring. As deindividuation is generally greater in anonymous settings than in identified settings, this suggests that anonymous settings may encourage a decrease in self-monitoring. However, self-monitoring levels can be considered to be an enduring trait regardless of environments (Kauppinen-Raisanen, Bjork, Linnstrom, & Jauffret, 2018), which presents a need to consider participants' degrees of self-monitoring behavior as a control variable.

When examining the impact of face-to-face interviews versus self-administered questionnaires regarding reports on sexual behavior, Durant and Carey (2000) hypothesized that there would be a higher amount of inaccurate reports in face-to-face interviews due to potentially higher levels of self-monitoring. Their results suggest that our true behaviors and beliefs are reported more accurately in self-administered questionnaires than in face-to-face interviews; the more our identity is obscured, the more we feel comfortable disclosing sensitive, stigmatized, or counter-normative information about ourselves.

In an experimental setting, de Cremer, Snyder, and Dewitte (2001) presented subjects with the hypothetical dilemma of how to allocate public goods. In addition to measuring one's degree of self-monitoring, participants were placed in either a low accountability condition (their identity would be kept anonymous from other participants) or a high accountability condition (their identity would not be kept anonymous from other participants). De Cremer et al. found that high self-monitors contribute more than low self-monitors in both the anonymous condition and the non-anonymous condition. Although "contributions" in this study consisted of hypothetical currency, this could suggest that high self-monitors may generally be more willing to contribute meaningfully to interactions than

low self-monitors, regardless of conditions of self-anonymity. Therefore, one's degree of self-monitoring should be experimentally controlled for in the current study.

Overall, research regarding self-monitoring seems to point to the notion that the more that someone's identity is obscured, the less likely that person will be to engage in self-monitoring behavior. Therefore, it is important to include a measure for self-monitoring levels, not only to control self-monitoring, but also to see how those who are generally prone to higher levels of self-monitoring react to environments where the need to self-monitor is diminished.

Theoretical Summary

SIDE theory lays the foundation for the possibility of main effects between perceived self-anonymity and willingness to change attitude by taking into consideration the salience that one feels toward to group with which they are interacting and the relevant rules and norms of that group or website. Self-anonymous conditions can contribute to group members feeling a higher degree of salient group identity, rendering group members more open to attitude change that aligns them with group member ideology, especially if prosocial rules for behavior in the group have been established and the opposing position that is being presented to a person is consistent with group norms.

If the group has established prosocial rules for behavior, this can lead to a positive deindividuation for the individual which will then give rise to open, productive discussion. When in this position, one might be more willing to be persuaded in order to be in conformity with the group norm. The greater the degree to which someone identifies with a group, the more receptive that person may be to persuasive messages from members of that group, and the less that one is concerned about one's own separate position. This also implies

that the person would be more willing to express attitude change to the group. Thus, this research proposes that the degree of salience one feels toward the group identity, prosocial group rules for behavior, and the group's norms about the topic being discussed, will all serve moderate the relationship between one's perceived self-anonymity and willingness to change attitude as well as perceived self-anonymity and willingness to express attitude change. Therefore, based on literature for SIDE theory, two main effects hypotheses and three moderating effects hypotheses are proposed.

H1 - Perceived degree of self-anonymity is positively related to willingness to change attitude.

H2 - Perceived degree of self-anonymity is positively related to willingness to express attitude change.

H3 - The relationship between perceived self-anonymity and willingness to change attitude is moderated by prosocial group norms, with greater prosocial group norms increasing the relationship.

H4a - The degree of opinion congruence on the topic between the participant and a group (i.e., the extent to which one is presented with an opposing group position on the topic) will negatively moderate the relationship between perceived self-anonymity and willingness to change attitude.

H4b - Group identity salience will moderate the effect of the degree of opinion congruence (between and individual and a group) on the relationship between perceived self-anonymity and willingness to change attitude, with a higher degree of group identity salience increasing the effect.

Maslow's hierarchy of needs provides additional support for the proposed relationships between perceived self-anonymity and willingness to change attitude. Under these circumstances, one will be in a more receptive place for responding to persuasive messages. With regard to Maslow's hierarchy of needs, research suggests that self-anonymity helps to satisfy one's need for psychological safety and one's need for a sense of belonging; this suggests a mediating relationship in which one will be more open to change their attitude

when both of these needs are not being threatened. Therefore, the following hypotheses are proposed:

H5a - Perceived degree of self-anonymity is negatively related to perceived degree of psychological threat.

H5b - Perceived degree of psychological threat is negatively related to one's willingness to change attitude.

H6a - Perceived degree of self-anonymity is negatively related to perceived degree of threat to belonging.

H6b - Perceived degree of threat to belonging is negatively related to one's willingness to change attitude.

The concept of saving face provides additional support for the proposed relationship between perceived self-anonymity and one's willingness to express that attitude change to others in the conversation. No one enjoys admitting they were wrong, as admitting being wrong may come with a loss of face. Retaining one's reputation and credibility is important. For this reason, face saving is used as theoretical support for mediating the link between perceived self-anonymity and willingness to express a genuine change. Self-anonymity reduces the threat of losing face, rendering unidentifiable communicators more open to conceding their point of view to others. Based on research regarding face saving, the following hypotheses are proposed:

H7a - Perceived degree of self-anonymity is negatively related to perceived degree of face threat.

H7b - Perceived degree of face threat is negatively related to the degree of willingness to express attitude change.

Based on all of the above hypotheses, the researcher proposed the conceptual model outlined in Figure 2.

Method

This research examines the relationship between one's perceived degree of self-anonymity on Facebook and Reddit, one's willingness to change attitude, and one's willingness to express that attitude change to others during the conversation. It is hypothesized that the relationship between self-anonymity and willingness to change attitude will be moderated by one's group identity salience, group rules for behavior, and the group's opinion of the topic being discussed, as well as mediated by perceived threats to hierarchical needs (the need for psychological safety and the need to belong). It is also hypothesized that the relationship between one's perceived degree of self-anonymity and one's willingness to *express* that attitude change will be mediated by the perceived degree of face threat. In no case does the researcher expect a negative association for low moderator case.

Why Facebook and Reddit? (and why not other sites?)

In order to determine which websites would be relevant for the current study, the researcher consulted data from Alexa (2019) in order to gauge which social websites receive the most visits each month. Alexa is a company founded by Amazon that gauges online traffic to websites. At the time that this research began, according to Alexa, the top 10 most visited websites in the United States were (in order) Google, YouTube, Facebook, Reddit, Amazon, Yahoo, Wikipedia, Twitter, EBay, and Netflix. One can reasonably draw from this that Facebook and Reddit are the top social websites used in the US.

Additionally, Facebook and Reddit are ideal for the current study as they stand at relatively opposite ends of the spectrum of self-anonymity and identifiability. Bronco (2004) observed that communication online has simultaneously become more identifiable and anonymous. In other words, some social sites strive for greater degrees of user identifiability of their members, while other social sites are centered around a lack of user identifiability of

their members. Conveniently enough for this research, Facebook and Reddit are relatively representative of these opposite ends of the spectrum of user identifiability.

Based on Marx's (2001) seven types of identifiability knowledge, Table 1 shows a breakdown of the personally identifiable information required for being a member of Facebook and Reddit. At a glance, one can see that Facebook requires significantly more personally identifiable information from their users than does Reddit. In fact, Facebook actively encourages users to share a greater amount of personal information than is required for opening account. Overall, Facebook users relatively more identifiable than Reddit users.

On the other hand, Reddit only requires that its users (known as Redditors) provide an unlinked pseudonym. Recall from Marx that using a pseudonym that is not linked to any other forms of one's identity knowledge is in essence as close as the average person can get to achieving true anonymity online. In this sense, Reddit users are relatively self-anonymous. Websites such as Twitter or Instagram seem to fall somewhere in between Facebook and Reddit on the spectrum self-anonymity, largely depending on how much the user chooses to reveal of their own accord.

Another point to draw out is in regard to photo identification verification. Currently on Facebook, using a pseudonym is not allowed. Another user can report your account to Facebook officials for the violation of using a pseudonym instead of using your real name. Facebook may lock your account until you provide government issued photo identification that provides proof of your legal name. This policy has brought criticism upon Facebook from the ACLU, claiming that this identification policy reduces free speech (Drake, 2015). Reddit has no such policy regarding pseudonyms and essentially promotes self-anonymity.

It is worth mentioning the reason for the exclusion of YouTube from this research, considering that YouTube was higher on Alexa's list of the top ten most visited websites and offers some social features. First, Facebook and Reddit have more in common than YouTube concerning the types of content that can be shared. Facebook and Reddit are social sites that allow various types of information sharing such as posting news articles, videos, gifs, comics, original written posts, comments, and memes. Users on YouTube are limited to sharing videos and posting comments on those videos. Additionally, when users on Facebook and Reddit post videos, they often do so via a link that sends traffic to YouTube in order to view the video. In this sense, YouTube simply exists as a video player for Facebook and Reddit. In fact, based on the data for website visits from Alexa, it would not be farfetched to infer that a significant amount of the traffic received by YouTube is in fact referral traffic from Facebook and Reddit. Every time that someone on Facebook or Reddit views a video that was originally posted on YouTube, Alexa counts this as a visit for both YouTube and whichever website on which the link was posted. In sharp contrast, YouTube does not send referral traffic to Facebook or Reddit. For this reason, YouTube will not be examined in this proposed research.

Sample

Pilot survey participants. Before administering the survey to a nationally representative sample, the researcher first deployed a pre-test to university undergraduate students in the communication department of a West Coast (N = 100) university. Although admittedly a sample of convenience, drawing from undergraduate students helps to address criticism that as a persuasive tool, Maslow's hierarchy does not take age into consideration (Tay & Diener, 2011). By drawing a sample of undergraduate students with a relatively

constant age (late teens/early twenties), inconsistencies that age differences may have on the results can be somewhat controlled for. Although accessing this student population was convenient, there was also a limit to the number of surveys that could be obtained with this sampling method, as there was a limited pool of students. Students received course credit in exchange for their participation in the survey. The purpose of this pretest was to assess clarity of the survey items. Student were asked to complete the survey and provide feedback after each item. After each item, students were prompted with the following message: "Before continuing, is there any feedback that you would like to offer about the items above? Did you find anything confusing? Any typos or errors? Any suggestions?" Feedback from the pre-test was incorporated into the final version of the survey in order to improve survey clarity.

Full survey participants. Participants (N = 717) were recruited using Qualtrics. Qualtrics is a large online research company that allows researchers to build and distribute surveys to national samples. Qualtrics recruited participants by inviting its members to participate in this study. The questionnaire was completed online, and participants were compensated by Qualtrics with cash or rewards such as gift cards or airline miles. Participants' ages ranged from 18-80 (M = 36, SD = 13.77). Gender-wise, 233 participants reported identifying as male, 415 female, six non-binary, and one preferred not to say.

Procedure

Via an invitation from Qualtrics, participants in the survey completed a single online questionnaire consisting of 70 items. Most items revolved around social media use, and perceptions of others and oneself while using social media.

Conditions

Participants were divided into two conditions: Facebook users and Reddit users. Participants were asked to indicate if they have a Facebook account and if they have a Reddit account. They were then asked to indicate how often they log into each account. If a participant indicated being an active user of both Facebook and Reddit, then the participant was randomly assigned to either the Facebook or Reddit condition until a quota was reached for either condition. If a participant indicated being an active user of Facebook only, then the participant was assigned to the Facebook condition. If a participant indicated being an active user of Reddit only, then the participant was assigned to the Reddit condition.

This study sought to obtain participants who are active users of at least one of the two websites. However, there seems to be no general consensus as to what defines an "active user". Knoop (2009) defines a "monthly active user" as a unique user who has visited a website within the last thirty days. That being said, for the nature of this research it was important collect a sample of users who actively engage with others in addition to logging in, excluding those who lurk, do not engage, or who merely have an account but rarely log in. The current study considers participants who report visiting Facebook or Reddit at least twice per week while logged in to be considered sufficiently active users. Participants who were not active users of either website were excluded from the study.

Screening questions

1. Do you have a Facebook account?
2. How often do you visit Facebook each week while logged in to your account?
3. What Facebook page do you most frequently interact on?
4. Do you have a Reddit account?
5. How often do you visit Reddit each week while logged in to one of your accounts?
6. What subreddit do you most frequently interact on?

Topic of discussion: Universal health care

When measuring the potential for willingness to change attitude and willingness to express attitude change, the topic of universal health care was selected as the topic of conversation. The researcher wanted to select a topic that was current and controversial, a topic of which people are generally aware, and a topic in which people's attitudes can be generally flexible. In other words, a controversial topic was needed in which people can be attitudinally flexible. In order to determine an appropriately controversial topic on which people can be flexible, the researcher conducted a pilot survey of 40 undergraduate students. The students were asked to report how flexible they were about changing their attitude on a variety of topics using a 7-point Likert scale. Some of the topics included were abortion, gun control, the Israeli/Palestinian conflict, universal health care, and DACA. Universal health care was selected as the most appropriate topic for this research based on two findings. First, student responses indicated a high level of attitudinal flexibility as compared to other topics. Second, students were more aware of the concept of universal health care as compared to other topics. For example, very few students were aware of the Israeli/Palestinian conflict, making it not an ideal topic for this research.

Measures

Measures included a six-item, semantic differential pre- and post-measure for attitude on universal health care, a 13-item self-monitoring scale, an 8-item measure for perceived self-anonymity, a 4-item measure for the need to save face, a 15-item measure for group identity salience, four items addressing the degree of prosocial group rules and norms, a 7-item measure for perceived threat to psychological safety, a 4-item measure assessing one's need to belong, one item measuring the degree to which the participant and the group in which they are interacting agree on the topic of universal health care, one item assessing the

willingness to change attitude, and one item assessing the willingness to express attitude change.

Pre-measure of attitude on universal health care. In order to assess participants' initial attitudes on universal health care, six items on a 9-point semantic differential was administered. These sematic differentials for attitude assessment and change are modeled after Nabi, Moyer-Gusé, and Byrne (2007) and include bad/good, foolish/wise, unintelligent/intelligent, negative/positive, wrong/right, unacceptable/acceptable. Wong, Rindfleisch, and Burroughs (2003) recommended that some of these items should be reverse-coded in order to prevent acquiescence or straight-line responding to the items. At the end of the survey, participants were once again asked to respond to these items.

According to you, universal health care is:

Bad	1 2 3 4 5 6 7 8 9	Good
Foolish	1 2 3 4 5 6 7 8 9	Wise
Unintelligent	1 2 3 4 5 6 7 8 9	Intelligent
Positive	1 2 3 4 5 6 7 8 9	Negative
Wrong	1 2 3 4 5 6 7 8 9	Right
Acceptable	1 2 3 4 5 6 7 8 9	Unacceptable

Measure of perceived self-anonymity (H1 & H2). It should be noted that research applying the SIDE model has, up until the current study, operationalized anonymity as a *dichotomous* category. In other words, you are either in an anonymous condition, or an identifiable condition, without any middle ground. The current study conceptualizes anonymity as existing on a spectrum. More importantly, the current study takes into consideration the *perception* of anonymity felt by a participant. Rather than assigning the participant to either an anonymous or identifiable condition, the participant is instead asked to report on how anonymous they perceive themselves to be in a given situation. By incorporating a spectrum-based approach rather than a dichotomous approach to anonymity,

we can begin to capture more of the nuance of anonymity. One's degree of anonymity during an interaction varies widely on a case-by-case basis. This is especially true given the wide range of anonymity afforded in different types of online interactions.

Yun (2006) developed and validated a single-factor scale in order to assess perceived anonymity. The following 8 items ($\alpha = .89$) were found to reliably and validly measure one's perception of self-anonymity. Participants were asked to respond to each item for either Facebook or Reddit with a 7-point Likert (1-strongly disagree to 7-strongly agree). It was expected that there would be a significant amount of variance between Facebook and Reddit users with regard to perceived self-anonymity. An independent sample t-test confirmed a significant difference [$t(714) = -16.19$, $p < .001$] between the perceived self-anonymity for Facebook users ($M = 2.78$, $SD = 1.33$) and the perceived self-anonymity for Reddit users ($M = 4.50$, $SD = 1.42$).

1. Some members can recognize my name.
2. Some members can recognize my username.
3. Some members may find out my email address or homepage address.
4. Some members can recognize my IP address.
5. Some members can tell how old I am.
6. Some members can tell my profession.
7. Some members can tell how much education I have had.
8. Some members can tell our household income level.

Measure of group identity salience (H2a & H2b). Howard and Magee (2013) adapted a scale addressing in-group identification from Leach et al. (2008) in order for the scale to be more suitable for use in online environments. In order to measure the degree to which a participant feels a salient group identity, this 14-item Online Group Identity Scale (OGIS) ($\alpha = .94$) was administered. The sub-dimensions of this scale include one's sense of solidarity with the group, satisfaction with the group, centrality of the group to one's life, similarity to the group, and homogeneity of the group. The researcher did not measure these

sub-dimensions separately, but rather as one overall scale for group identity salience. This scale was administered on a 7-point Likert (1-strongly disagree to 7-strongly agree). Items were slightly modified in order to specifically address the Facebook group or subreddit that the participant indicated frequently using.

1. I feel a bond with (Facebook group/Subreddit).
2. I feel solidarity with (Facebook group/Subreddit).
3. I feel committed to (Facebook group/Subreddit).
4. I am glad to be a member of (Facebook group/Subreddit).
5. I think that (Facebook group/Subreddit) members have a lot to be proud of.
6. It is pleasant to be a member of (Facebook group/Subreddit).
7. Being a member of (Facebook group/Subreddit) gives me a good feeling.
8. I often think about the fact that I am a member of (Facebook group/Subreddit).
9. The fact that I am a member of (Facebook group/Subreddit) is an important part of my identity.
10. Being a member of (Facebook group/Subreddit) is an important part of how I see myself.
11. I have a lot in common with the average member of (Facebook group/Subreddit).
12. I am similar to the average member of (Facebook group/Subreddit).
13. Members of (Facebook group/Subreddit) have a lot in common with each other.
14. Members of (Facebook group/Subreddit) are very similar to each other.

Measure of prosocial group rules (H3a & H3b). In order to assess whether or not the group has established prosocial rules for expected behavior, participants were asked to respond to the following items on a 7-point Likert scale ranging from 1-strongly disagree to 7-strongly agree.

1. This Subreddit/Facebook page supports open dialogue from diverse perspectives.
2. This Subreddit/Facebook page expects those who leave comments to engage in civil discussion.
3. This Subreddit/Facebook page expects those who leave comments to avoid using hateful speech.
4. This Subreddit/ Facebook page expects those who leave comments to avoid using personal attacks on other users.

Measure of perceived threat to psychological safety (H5a, H5b & H5c).

Edmondson (1999) suggests that in order to foster the best group decision making outcomes,

one's perception of psychological safety during team communication is one of the critical elements for producing the best outcome. Edmondson's research concluded that psychological safety predicted learning behavior. Their 7-item *team psychological safety* measure can be used to assess one's perceived degree of psychological threat when interacting in a team or group.

In order to address H5a and H5b by measuring psychological threat, a modified version of Edmondson's 7-item measure for psychological safety ($\alpha = .82$) was administered on a 7-point Likert scale (1-strongly disagree to 7-strongly agree). The modified version addresses one's group-level psychological threat while interacting in their most frequented Facebook group or subreddit.

Original scale - Psychological Safety in Team Learning Climate

1. If you make a mistake on this team, it is often held against you.
2. Members of this team are able to bring up problems and tough issues.
3. People on this team sometimes reject others for being different.
4. It is safe to take a risk on this team.
5. It is difficult to ask other members of this team for help.
6. No one on this team would deliberately act in a way that undermines my efforts.
7. Working with members of this team, my unique skills and talents are valued and utilized.

Modified Scale for Psychological Safety:

1. If I make a mistake on (Facebook group/Subreddit), it is often held against me.
2. On (Facebook group/Subreddit), I am able to bring up problems and tough issues.
3. People on Facebook group/Subreddit) sometimes reject me for being different.
4. It is safe for me to take a risk on (Facebook group/Subreddit).
5. It is difficult for me to ask other members of (Facebook group/Subreddit) for help.
6. No one on (Facebook group/Subreddit) would deliberately act in a way that undermines my efforts.
7. When talking with members of Facebook group/Subreddit), my unique skills and talents are valued.

Measure of threat to belongingness (H6a & H6b). Many scales exist that address various aspects of one's sense of belonging. It is important to keep in mind that the current study is not interested in measuring the degree to which one *generally* feels the need to

belong. Rather, this proposal is interested in the perceived threat to belonging that one feels in a specific situation (namely while interacting on Facebook or Reddit). In other words, how threatening are conversations on Facebook or Reddit to one's sense of belonging?

For this reason, a modified and shortened version of Leary, Kelly, Cottrell, and Schreindorfer's (2013) 10-item, 5-point Likert Need to Belong Scale (NTBS) (median α = .81) was found to appropriately address the concerns of this proposal. The modified version was administered on a 7-point Likert scale (1-strongly disagree to 7-strongly agree) for consistency purposes. The modified version addresses one's perceived threat to their need to belong while interacting on their most frequented Facebook page or subreddit. This research centers around the *threat component* of one's need to belong while interacting on Facebook or Reddit. For this reason, items from the original measure were excluded if they did not provide insight into one's perceived degree of threat to belonging. For example, consider the item 'I do not like being alone'. Whether high or low, a person's score on this item does not give any insight into their perceived degree of threat to belonging *specific to* Facebook or Reddit. For this reason, items four through nine on the original measure were excluded.

Original Leary et al., (2013) - Need to Belong Scale

1. If other people don't seem to accept me, I don't let it bother me.
2. I try hard not to do things that will make other people avoid or reject me.
3. I seldom worry about whether other people care about me.
4. I need to feel that there are people I can turn to in times of need.
5. I want other people to accept me.
6. I do not like being alone.
7. Being apart from my friends for long periods of time does not bother me.
8. I have a strong need to belong.
9. It bothers me a great deal when I am not included in other people's plans.
10. My feelings are easily hurt when I feel that others do not accept me.

Modified Need to Belong Scale

1. When interacting on (Facebook group/Subreddit), if other people don't seem to accept me, I don't let it bother me.

2. When interacting on (Facebook group/Subreddit), I try hard not to do things that will make other people avoid or reject me.
3. When interacting on (Facebook group/Subreddit), I seldom worry about whether other people care about me.
4. When interacting on (Facebook group/Subreddit), my feelings are easily hurt when I feel that others do not accept me.

Measure of need to save face (H7a and H7b). Oetzel and Ting-Toomy's (2003) measure for perceived threat to self-face ($\alpha = .78$) was administered in order to gauge participants' need to save face. The purpose of this scale was to assess the perceived threat to self-face that participants experience when interacting on Facebook or Reddit. For clarification, self-face is referring to one's own face and not the face of others. This 4-item scale was administered on a 7-point Likert scale (1-strongly disagree to 7-strongly agree). A modified version was presented in order to tailor the items to the current study.

Original items:
1. I was concerned with not bringing shame to myself.
2. I was concerned with protecting my self-image.
3. I was concerned with not appearing weak in front of the other person.
4. I was concerned with protecting my personal pride.

Modified items:
1. On (Facebook/Reddit), I am concerned with not bringing shame to myself.
2. On (Facebook/Reddit) I am concerned with protecting my self-image.
3. On (Facebook/Reddit) I am concerned with not appearing weak in front of the others.
4. On (Facebook/Reddit) I am concerned with protecting my personal pride.

Measure of self-monitoring. Snyder (1974) developed a 25-item self-monitoring scale in order to measure the degree to which one engages in self-monitoring behavior. Lenox and Wolfe (1984) developed a revised 13-item, 2-factor version of this scale ($\alpha = .75$). Their two factors for self-monitoring are *ability to modify self-presentation* ($\alpha = .77$) and *sensitivity to expressive behavior of others* ($\alpha = .70$). This 13-item scale was administered to participants on a 7-point Likert scale (1-strongly disagree to 7-strongly agree).

1. In social situations, I have the ability to alter my behavior if I feel that something else is called for.
2. I have the ability to control the way that I come across to people, depending on the impression I wish to give them.
3. When I feel that the image I am portraying isn't working, I can readily change it to something else.
4. I have trouble changing my behavior to suit different people and different situations.
5. I have found that I can adjust my behavior to meet the requirements of any situation that I find myself in.
6. Even when it might be to my advantage, I have difficulty putting up a good front.
7. Once I know what the situation calls for, it's easy for me to regulate my social actions accordingly.
8. I am often able to read people's true emotions correctly through their eyes.
9. In conversation, I am sensitive to even that slightest change in the facial expression of the person I'm conversing with.
10. My powers of intuition are quite good when it comes to understanding others' emotions and motives.
11. I can usually tell when others consider a joke to be in bad taste, even though they may laugh convincingly.
12. I can usually tell when I've said something inappropriate by reading it in the listener's eyes.
13. If someone is lying to me, I usually know it at once from that person's manner of expression.

Hypothetical scenario. Participants were presented with the following scenario to consider.

> Imagine yourself in the following hypothetical scenario:
>
> You are engaged in a conversation on (Facebook page OR subreddit). Universal health care is being discussed. Another person in this (Facebook group or subreddit) is attempting to sway your opinion about universal health care.
>
> This person presents a very compelling, logical argument with facts from trustworthy sources that challenges your current point of view on the topic. Their argument seems persuasive, and it makes you possibly consider changing your original position on universal health care. The discussion continues.

The hypothetical situation above to which participants were exposed was intentionally vague. In order to avoid the issue of participants' social desirability, McLeod (2009) suggests using *projective tests* to measure attitude change. With a projective test, the stimulus is purposefully vague and requires interpretation on behalf of the participant.

Ambiguous stimulus can aide in revealing inner thoughts that participants may normally conceal. For this research, the scenario presented to participants is a projective test. It does not require that the participant state their position on the topic of universal; rather, participants simply need to infer that the hypothetical person with whom they are interacting holds an opposing viewpoint.

To be clear, there are three parties to consider in this study: the participant (the persuadee), the hypothetical person with whom the participant is interacting (the persuader), and the group at large (the context). The hypothetical person with whom the participant is interacting refers to the hypothetical person referenced in the hypothetical scenario above. The group at large refers to all members of either the Facebook page or subreddit.

Measure of group position on the topic. In order to assess the degree to which the participant perceives that the group agrees or disagrees with the participant's position on the topic, the following item was administered on a 7-point Likert scale (1-group strongly disagrees with you to 7-group strongly agrees with you, with 4-group neither agrees or disagrees)

1. In regard to (Facebook group/Subreddit), what is the degree to which you think (Facebook group/Subreddit) members as a whole agree with your current position on universal health care?

Measures of willingness to change attitude and willingness to express attitude change. After being exposed to the hypothetical scenario, participants' willingness to change attitude and participants' willingness to express attitude change were measured on a 9-point Likert scale (1-extremely unwilling to 9-extremely willing).

1. Based on the hypothetical conversation above, how willing would you be to change your opinion on universal health care?

2. If this hypothetical conversation on (Facebook group/Subreddit) could indeed cause you to genuinely change your opinion on universal health care, how willing would you be to express your change of opinion in the comment thread of this conversation?

Post-measure of attitude on universal health care. Participants' attitudes on universal health care were assessed a second time using Nabi et al.'s (2007) 6-item, 9-point semantic differential scale (bad/good, foolish/wise, unintelligent/intelligent, negative/positive, wrong/right, unacceptable/acceptable).

According to you, universal health care is:

Bad	1 2 3 4 5 6 7 8 9	Good
Foolish	1 2 3 4 5 6 7 8 9	Wise
Unintelligent	1 2 3 4 5 6 7 8 9	Intelligent
Positive	1 2 3 4 5 6 7 8 9	Negative
Wrong	1 2 3 4 5 6 7 8 9	Right
Acceptable	1 2 3 4 5 6 7 8 9	Unacceptable

Confirmatory Factor Analysis on Measures

Prior to testing hypothesized models, measures and their respective items were evaluated using confirmatory factor analyses to assess scale reliability using MPlus (Version 7.3) (Muthén & Muthén, 2014). See Table 2 for measurement-level fit statistics and Table 3 for item-level fit statistics. Maximum Likelihood estimation was used, as is appropriate when variables are not categorical.

The following fit statistics were examined for each measure in order to determine acceptable model fit: chi-square test of model fit, root mean square error of approximation (RMSEA), comparative fit index (CFI), standardized root mean square residual (SRMR), and average variance extracted (AVE). A non-significant chi-square ($\chi 2$) value strongly indicates good model fit (Field, 2016; Weber & Fuller, 2011); however, chi square values can be sensitive to sample size, therefore a significant chi-square value can be overlooked due to the large sample size of the dataset used in the current study's analysis (Kline, 2015). RMSEA

within the range of .03 to .05 indicates acceptable model fit, with values smaller than .03 indicating good model fit (Brown, 2006). SRMR within the range of .03 to .05 indicates acceptable model fit, with values smaller than .03 indicating good model fit (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Additionally, Brown (2006) suggests that a CFI value between .90-.95 would also be indicative of an acceptable model, with values larger than .95 indicating good model fit. A value of .50 for Average Variance Extracted (AVE) is a cutoff point, with values higher indicating strong fit (Fornell & Larcker, 1981). When evaluating all of these fit statistics (e.g., $\chi 2$, RMSEA, CFI, SRMR, AVE), a holistic approach is best when considering model fit. For the current study, the researcher considered a measure to be of good fit if at least three out of these five fit statistics indicated acceptable model fit.

The following measures of item-level fit were examined: standardized factor loading scores, standardized residual variances, unstandardized factor loadings with their respective standard errors, and R^2. Per Cabrera-Nguyen (2010), all factor loading values should exceed the minimum acceptable value of 0.6 in order to be considered strong. If a factor loading score falls below 0.6, this does not necessarily indicate that item removal is the next step. In the event that an unstandardized loading falls below 0.6, the researcher must then consider the theoretical importance or contribution of the item before removal. As a tradeoff, it is acceptable to keep a poorly loaded item in a measure if the researcher believes that the inclusion of the item is justified on theoretical grounds. According to Harrington (2009), a standardized residual value greater than 1.96 (at $p < .05$) on an item indicates that the item is straining the model. R^2 is a measure of variation that informs on the strength of the relationship by measuring how close each item is regressed on the factor. An R^2 value of .5 or

greater is considered moderate effects size, with values over .7 indicating strong effects size (Henseler, Ringle, & Sinkovics, 2009; Moore, Notz, & Flinger, 2013). One again, the researcher asserts that when evaluating all of these item-level fit statistics (e.g., factor loading scores) a holistic approach is best when considering item fit.

In an attempt to improve model fit for the 2-factor scale of self-monitoring, the researcher removed the two items with standardized factor loading cores below .6. This modification is further justified by the notion that these two items (*item 4* and *item 6* from the first factor) are reverse coded. Although prior research provided support for the inclusion of both positively and negatively keyed items in a measure (Wong et al., 2003), more recent research contradicts this notion and suggests to proceed with extreme caution when choosing to negatively key items on a self-report measure (DiStefano & Motl, 2009; Lindwall et al., 2012). The removal of these two items caused an overall improvement in fit for this scale for chi-square, RMSEA, SRMR, and CFI; therefore, the modified version was used in subsequent analyses. The modified version of self-monitoring includes the two sub-dimensions, *ability to modify self-presentation* and *sensitivity to expressive behavior of others*, both of which will be modeled as control variables.

In an attempt to improve model fit for the scale of perceived self-anonymity, the researcher removed items with standardized factor loading cores below .6 (*item 2, item 3, item 4, item* and *item 8*). Item 4 contained the phrase "IP address". It is entirely possible that some participants did not know the meaning of this phrase, giving the researcher further justification to remove this item. The removal of these items caused sufficient model improvement for chi-square, RMSEA, SRMR, and CFI.

In an attempt to improve model fit for the scale assessing prosocial group norms, the researcher removed items with standardized factors loading scores below .6 (item 1). This removal did not result in improved model fit, therefore the researcher kept all four items in analyses.

In an attempt to improve model fit for the scale assessing perceived psychological threat, the researcher removed items with standardized factor loading cores below 0.5 (*item 1, item 3,* and *item 5*). This modification is further justified by the notion that these three items are reverse coded, which can sometimes cause issues with scale reliability. The removal of these three items caused an overall improvement in fit for this scale for chi-square, RMSEA, SRMR, and CFI; therefore, the modified 4-item version was used in further analyses.

A scale was created for the variable of perceived threat to belonging ($\alpha = .28$) based on mean scores from the four items of this measure; however, the CFA for this measure did not converge. This could be due to the fact that two of the four items were reverse coded. This causes an issue with the reliability for this particular scale; however, the researcher chose to still include data from this measure rather than throw it out. Limitation for this scale will be addressed later. For the variables of perceived degree of face threat and group identity salience, the researcher was satisfied with the overall fit, and therefore did not attempt to improve model fit.

Analysis

Direct effects (hypotheses 1, 2, 5a, 5b, 6a, 6b, 7a, and 7b) were analyzed by computing both compute bivariate linear regressions and multiple hierarchical regressions with control variables and covariates. The Hayes Process model for mediation was used to

test for indirect effects (hypotheses 5a, 5b, 6a, 6b, 7a, and 7b). The Hayes Process model for moderation analysis was used to test interaction effects (hypotheses H3, H4a, and H4b).

Results

The following analyses, based on 717 participants, were conducted using SPSS version 24.0, in conjunction with Hayes's (2013) add-on Process module. Table 4 includes means, standard deviations, and correlations for all items and scales/constructs. Table 5 summarizes the results for each hypothesis.

Linear regression analysis in SPSS version 24.0 was used for all main effects hypotheses. For each test, the first analysis was a simple bivariate linear regression, regressing the dependent variable on the hypothesized predictor. The second analysis was a hierarchical regression that included controls and covariates in a first block (stepwise entry) and the hypothesized predictor in the second block. Control variables for *all* hypotheses included age as well as the two separate dimensions of self-monitoring (*ability to modify self-presentation* and *sensitivity to expressive behavior of others*).

Hypothesis 1 states that perceived self-anonymity is positively related to willingness to change attitude. Results from a bivariate linear regression show that perceived self-anonymity did not significantly predict willingness to change attitude [$\beta = -.05$, $t(1) = -1.25$, $p = .21$]. When controlling for all other variables in a multiple hierarchical regression, results show that perceived self-anonymity significantly predicted willingness to change attitude [$\beta = -.09$, $t(9) = -2.26$, $p < .05$]. Perceived self-anonymity also explained a significant proportion of the variance in willingness to change attitude [$R^2 = .04$, $F(9, 645) = 3.04$, $p < .001$]. It is interesting to note that when adding the control variables and covariates, results were significant; generally speaking, when adding controls, hypothesized effects become

smaller rather than greater. Of even greater interest is the negative beta coefficient; recall that the researcher predicted as significant positive beta coefficient. Covariates for hypothesis 1 include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, and perceived threat to need to belong. See Table 7 for stepwise hierarchical regression results with their respective beta coefficients.

Hypothesis 2 states that perceived self-anonymity is positively related to willingness to express a genuine change of attitude. Results from a bivariate linear regression show that perceived self-anonymity did not significantly predict willingness to express attitude change [$\beta = -.04$, $t(1) = -.95$, $p = .34$]. When controlling for all other variables in a multiple hierarchical regression, results still show that that perceived self-anonymity did not significantly predict willingness to express attitude change [$\beta = -.04$, $t(11) = -.32$, $p = .75$]. While the hypothesis proposed a direct, positive relationship between perceived self-anonymity and willingness to express attitude, hypothesis 2 does technically necessitate that willingness to change attitude is a necessary precursor to willingness to express attitude change. In Figure 2, the model logically suggests that the relationship between perceived self-anonymity and willingness to express attitude change is *mediated* by willingness to change attitude. This mediating relationship was analyzed using Process template 4 for mediation analysis in SPSS. Results showed no significant indirect effect {Indirect effects = -.03, *SE* = .02, 95% CI [-.07, -.02]}. The researcher reran the mediation process again with controls or covariates and results for indirect effect were not significant {indirect effects = -.04, SE = .02, 95% CI [-.09, .01]}. Covariates for hypothesis 2 include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, perceived threat to need to belong, and perceived degree of face threat.

Hypothesis 5a states that perceived self-anonymity will negatively predict one's perceived degree of psychological threat from others. Results from a bivariate linear regression show a significant relationship [$\beta = .12$, $t(1) = 3.33$, $p < .001$]. Perceived self-anonymity also explained a significant proportion of the variances in perceived degree of psychological threat from others [$R^2 = .02$, $F(1, 715) = 11.06$, $p < .001$]. When controlling for all other variables, the results become insignificant [$\beta = .01$, $t(8) = .20$, $p = .84$]. Covariates for hypothesis 5a include group identity salience, prosocial group norms, group position on topic, and perceived threat to need to belong.

Hypothesis 5b states that one's perceived degree of psychological threat will negatively predict one's willingness to change attitude. Results from a bivariate linear regression show that showed a marginally non-significant relationship [$\beta = -.07$, $t(1) = -1.86$, $p = .06$]. When controlling for all other variables, the results are still not significant [$\beta = -.04$, $t(9) = -.82$, $p = .42$]. Covariates for hypothesis 5b include group identity salience, prosocial group norms, group position on topic, perceived threat to need to belong, and perceived self-anonymity.

Hypothesis 6a states that perceived self-anonymity will negatively predict one's perceived degree of threat to belonging. Results from a bivariate linear regression show a non-significant relationship [$\beta = .04$, $t(1) = 1.17$, $p = .24$]. When controlling for all other variables, the results are still not significant [$\beta = .02$, $t(8) = .48$, $p = .63$]. Covariates for hypothesis 6a include group identity salience, prosocial group norms, group position on topic, and perceived psychological threat.

Hypothesis 6b states that one's perceived degree of threat to belonging will negatively predict one's willingness to change attitude. Results from a bivariate linear

regression show a non-significant relationship [β = .01, $t(1) = .37$, $p = .71$]. When controlling for all other variables, the results are still not significant [β = .02, $t(9) = .51$, $p = .61$]. Covariates for hypothesis 6b include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, and perceived self-anonymity.

Hypothesis 7a predicts that perceived self-anonymity will negatively predict one's perceived degree of face threat. Results from a bivariate linear regression show a significant relationship [β = -.23, $t(1) = -6.30$, $p < .001$]. Perceived self-anonymity also explained a significant proportion of variance in perceived degree of face threat, [$R^2 = .05$, $F(1, 715) = 39.74$, $p < .001$]. When controlling for all other variables, the results are still significant [β = -.21, $t(9) = -5.30$, $p < .001$]; $R^2 = .11$, $F(9, 645) = 8.94$, $p < .001$]. Covariates for hypothesis 7a include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, and perceived threat to need to belong.

Hypothesis 7b states that one's perceived degree of face threat will negatively predict one's willingness to express attitude change. Results from a bivariate linear regression show a non-significant relationship [β = -.06, $t(1) = -1.487$, $p = .14$]. When controlling for all other variables, the results are still not significant [β = -.05, $t(11) = -1.30$, $p = .20$]. Covariates for hypothesis 7b include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, perceived threat to need to belong, perceived self-anonymity, and willingness to change attitude.

Analyses for Mediation (Indirect Effects)

Hayes's (2013) Process template #4 was used in SPSS version 24.0 to analyze all proposed indirect, mediating effects. Hypotheses 5a and 5b imply that the relationship between perceived self-anonymity and willingness to change attitude is mediated by one's

perceived degree of psychological threat. When examining the mediating role of perceived degree of psychological threat, results did not provide support for significant indirect effects {indirect effects = -.01, *SE* = .01, 95% CI [-.03, .00]}. When controlling for all other variables, results still did not provide support for significant indirect effects {indirect effects = -.00, *SE* = .00, 95% CI [-.01, .01]}.

Hypotheses 6a and 6b imply that the relationship between perceived self-anonymity and willingness to change attitude is mediated by perceived degree of threat to belonging. When examining the mediating role of perceived degree of threat to belonging, results did not provide support for significant indirect effects {indirect effects = .00, *SE* = .00, 95% CI [-.00, .01]}. When controlling for all other variables, results still did not provide support for significant indirect effects {indirect effects = -.00, *SE* = .00, 95% CI [-.01, .01]}. Covariates for this mediation analysis include group identity salience, prosocial group norms, group position on topic, perceived threat to need to belong.

Hypotheses 7a and 7b imply that the relationship between perceived self-anonymity and willingness to express attitude change is mediated by perceived degree of face threat. When examining the mediating role of perceived degree of face threat, results did not provide support for significant indirect effects {indirect effects = .02, *SE* = .02, 95% CI [-.00, .06]}. When controlling for all other variables, results still did not provide support for significant indirect effects {indirect effects = .02, *SE* = .01, 95% CI [-.01, .04]}. Covariates for this mediation analysis include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, perceived threat to need to belong, and willingness to change attitude.

Interaction Effects Analyses for Moderation

Hypotheses 3 posits that the effects between perceived self-anonymity and willingness to change attitude are moderated by prosocial group norms. In order to test for moderation effects, the researcher followed the Process method for moderation analysis in SPSS using template 1, as recommended by Hayes (2013). Results for this model [$F(3, 713) = 6.35$, $p < .001$, $R^2 = .03$] show a significant interaction effect [$b = -.10$, $t(713) = -2.32$, $p < .05$]. When controlling for all other variables, results for this model $F(10, 644) = 3.17$, $p < .001$, $R^2 = .05$] still show a significant interaction effect [$b = -.09$, $t(644) = -2.05$, $p < .05$]. Covariates for this mediation analysis include group identity salience, group position on topic, perceived psychological threat, and perceived threat to need to belong.

Hypothesis 4a posits that the effects between perceived self-anonymity and willingness to change attitude are moderated by group position on topic, such that the more the group disagrees with you, the more willing you are to change your attitude. Results for this model [$F(3, 713) = .61$, $p = .61$, $R^2 = .00$] do not show a significant interaction effect [$b = .01$, $t(713) = .32$, $p = .75$]. When controlling for all other variables, results for this model [$F(10, 644) = 2.73$, $p < .01$, $R^2 = .04$] still do not show a significant interaction effect [$b = -.00$, $t(644) = -.11$, $p = .91$]. Covariates for this mediation analysis include group identity salience, prosocial group norms, perceived psychological threat, and perceived threat to need to belong.

Hypothesis 4b posits a double moderating effect, such that the effect of the group's position on the topic is moderated by one's degree of group identity salience; the more the group disagrees with you, the more willing you are to change your attitude, *especially* in the case that you have a high degree of group identity salience. In order to analyze the effects of a moderator on a moderator, Process model 3 for moderation effects in SPSS was utilized.

Results for this model [$F(7, 709) = 1.52$, $p = .16$, $R^2 = .01$] do not show a significant interaction effect [$b = .06$, $t(713) = .52$, $p = .60$]. When controlling for all other variables, results for this model [$F(13, 641) = 2.62$, $p < .01$, $R^2 = .05$] still do not show a significant interaction effect [$b = -.00$, $t(641) = -.11$, $p = .92$]. Covariates for this mediation analysis include prosocial group norms, perceived psychological threat, and perceived threat to need to belong. See Table 5 for a list of hypotheses and with their respective findings.

Although not originally presented as a hypothesis, the researcher conducted a post hoc analysis with self-monitoring as a moderator on the effect of self-anonymity on willingness to change attitude. This variable was originally proposed as a control variable. After further meditation, examining this variable as a possible moderator seemed prudent. Both sub-dimensions of self-monitoring were considered. First, the self-monitoring subdimension of *ability to modify self-presentation* was analyzed. Results for this model [$F(3, 713) = .78$, $p = .50$, $R^2 = .00$] did not show a significant interaction effect [$b = -.04$, $t(713) = -.87$, $p = .38$]. When controlling for all other variables, results for this model $F(10, 644) = 2.82$, $p < .001$, $R^2 = .05$] still do not show a significant interaction effect [$b = -.04$, $t(644) = -.95$, $p = .34$]. Covariates for this mediation analysis include group identity salience, group position on topic, prosocial group rules, perceived psychological threat, and perceived threat to need to belong. Second, the self-monitoring subdimension of *sensitivity to expressive behavior of others* was analyzed. Results for this model [$F(3, 713) = 2.11$, $p = .10$, $R^2 = .01$] showed a significant interaction effect [$b = -.09$, $t(713) = -1.98$, $p < .05$]. When controlling for all other variables, results for this model $F(10, 644) = 3.03$, $p < .001$, $R^2 = .05$] did not show a significant interaction effect [$b = -.08$, $t(644) = -1.69$, $p = .09$].

Platform Differences in Facebook Versus Reddit

Although the researcher did not make any specific hypotheses regarding the social media platforms used as conditions, a post-hoc analysis was conducted in order to isolate results for both platforms (Facebook or Reddit). When considering only the participants in the Facebook condition, results from a bivariate linear regression show that perceived self-anonymity did not significantly predict willingness to change attitude [$\beta = -.01$, $t(1) = -.12$, $p = .91$]. When controlling for all other variables in a multiple hierarchical regression, results still do not show that perceived self-anonymity significantly predicts willingness to change attitude [$\beta = -.00$, $t(9) = -.03$, $p = .98$]. When considering only the participants in the Reddit condition, results from a bivariate linear regression show that perceived self-anonymity significantly predicted willingness to change attitude [$\beta = -.18$, $t(1) = -2.59$, $p = .01$]. Perceived self-anonymity also explained a significant proportion of the variance in willingness to change attitude [$R^2 = .02$, $F(1, 443) = 6.69$, $p = .01$]. When controlling for all other variables in a multiple hierarchical regression, results show that perceived self-anonymity significantly predicted willingness to change attitude [$\beta = -.22$, $t(9) = -3.01$, $p < .01$]. Perceived self-anonymity also explained a significant proportion of the variance in willingness to change attitude [$R^2 = .05$, $F(9, 428) = 2.64$, $p < .001$]. Covariates in this analysis include group identity salience, prosocial group norms, group position on topic, perceived psychological threat, and perceived threat to need to belong.

Sensitivity Analysis for Extreme Viewpoints

The researcher conducted as sensitivity analysis in order to determine the influence of extreme attitudes about universal health care on willingness to change attitude. Recall that participants filled out a pre-measure to determine their attitude towards universal health care. A mean score for each participant was calculated. These mean scores fell between 1 (positive

attitude toward universal health care) and 9 (negative attitude about universal health care). Scores were median-centered and converted to absolute values. This new variable (median-centered, absolute value for attitude toward universal healthcare) was not significantly correlated with willingness to change attitude (r = .01, p = .44). This new variable was also analyzed as a moderator between perceived self-anonymity and willingness to change attitude. Results for this model [$F(3, 713) = 1.06$, p = .36, R^2 = .00] do not indicate a significant interaction effect [b = -.03, $t(713) = -1.27$, p = .21]. When controlling for all other variables, results for this model $F(11, 643) = 2.83$ $p < .01$, R^2 = .05] do not indicate a significant interaction effect [b = -.04, $t(643) = -1.49$, p = .14]. Covariates for this mediation analysis include group identity salience, group position on topic, prosocial group rules, perceived psychological threat, and perceived threat to need to belong. Surprisingly and ideally, the results from this sensitivity analysis indicate that holding an extreme viewpoint about universal health care had little impact on the outcome of one's willingness to change attitude.

Discussion

Based on 717 survey respondents, the researcher examined the extent to which one's perceived degree of self-anonymity predicts one's willingness to change their own attitude, and one's willingness to express a genuine change of attitude. Although the results are limited, they help to illuminate important hindrances that someone faces when being exposed to persuasive attempts. These findings are noteworthy because they extend the application of the SIDE model. Identifying how propositions of the SIDE model can applied to a persuasive context is a theoretical contribution of this research. Additionally, this research contributes by measuring anonymity on a spectrum rather than as a dichotomous variable. Future

research applying the SIDE model should take this into consideration. This discussion covers the implications of this research in further detail.

Perceived Self-Anonymity as a Negative Predictor of Willingness to Change Attitude

The first and second hypotheses proposed that one's perceived degree of self-anonymity would significantly predict one's willingness to change attitude and willingness to express a genuine attitude change in the comment section of a hypothetical discussion. While partial support was found for perceived self-anonymity as a significant predictor of willingness to change attitude, that support did not extend to one's willingness to express that attitude change in the conversation. Of important note was the finding that the significant relationship between perceived self-anonymity and willingness to change attitude was negative, rather than positive as hypothesized. Surprisingly, a person's perceived degree of self-anonymity negatively predicted their own willingness to change their attitude about universal health care. This suggests that when someone interacting online in an identifiable condition such as Facebook, they are more likely to be open to changing their attitude than they would be if they were interacting in a more anonymous environment such as Reddit. It seems that although self-anonymity facilitates greater degrees of participation and group identification during discussion (Scott et al., 2011), these outcomes do not extend into one's willingness to change their attitude. From a strength-of-ties perspective, although weak, anonymous ties serve to provide us with new, useful information on a topic (van Noort et al., 2012), this exposure to new information does not necessarily contribute to changing our existing attitude about that topic. In other words, exposure to something does not necessarily equate with being persuaded by it.

It seems rather curious that this unexpected finding only emerges when adding the previously specified control variables and covariates to the analysis. This is an interesting occurrence due to the fact that, typically, as more controls and covariates are added to an analysis, the more statistically difficult it becomes to achieve significance. This finding for hypothesis 1 suggests that one or more of the covariates or control variables play an important intervening or moderating role in the relationship between one's perceived degree of self-anonymity and one's willingness to change attitude.

Conformity versus Openness

Conformity may be an issue at play here. The need to conform is greater when our identity is known to others, which is a reason behind the appeal of being self-anonymous. Self-anonymity affords someone to ability to try on multiple identities, throwing conformity to the wind. The researcher perceived this idea as support for the notion that self-anonymous conditions would allow a person to be less conforming, more open, and therefore open to attitude change; however, upon further reflection, the opposite argument can be made as well. As the need to conform is more present in groups in which we know each other's identities, perhaps one becomes more willing to change their attitude in the presence of others out of sheer conformity.

Facebook versus Reddit

A post-hoc analysis examined each platform independent of the other platform, with respect to perceived self-anonymity's effect on willingness to change attitude. When excluding participants from the Reddit condition in the analysis, Facebook users' perceived self-anonymity did not significantly predict their willingness to change attitude. On the other hand, when excluding participants from the Facebook condition in the analysis, Reddit users'

perceived degree of self-anonymity emerged as a significant, negative predictor of willingness to change attitude. In other words, Reddit users who perceived a greater degree of self-anonymity were less likely be open to attitude change. On the other hand, Reddit users who perceived a low degree of self-anonymity were more likely to be open to attitude change. This helps add to the explanation that conformity might be a factor at play here; when your reputation in on the line due to being identifiable to others, you are more susceptible to group influences.

The Role of the Group

Drawn from SIDE theory, three hypotheses focused on the role that the presence of a group plays in moderating the effects between perceived self-anonymity and willingness to change attitude; results provide support for one of these three hypotheses. Prosocial group norms consistently emerged as a significant variable, both with respect to this variable's own moderating hypothesis and as a control variable when testing other hypotheses. However, the effect suggested a negative relationship rather than the proposed positive effect, which was surprising. Items in the measure for prosocial group norms asked participants to endorse whether or not the group supports open dialogue and civil comments, and frowns upon personal attacks and hate speech. Thus, it seems strange that as the reported degree of prosocial group norms decreases, the effect between perceived self-anonymity and willingness to change attitude increases.

One possible explanation for this occurrence could be that anonymous groups are more oriented towards task *efficiency* when problem solving, whereas identifiable groups are more oriented towards being *prosocial* during problem solving (Postmes et al., 2001). In other words, nice, prosocial groups are more likely to be slower at solving issues because

everyone tries to avoid stepping on everyone else's toes. Efficient groups solve issues with minimum wasted effort; anonymous groups tend to orient towards efficiency. This explains how a high degree of prosocial group norms might have a negative effect on the relationship between perceived self-anonymity and willingness to change attitude.

The remaining two group-related variables are group identity salience and congruence of opinion on the topic between the participant and the group. The lack of significance for these variables provides contradictory support for SIDE theory. SIDE theory would posit that if the group generally disagrees with you on a certain topic, and you feel a high degree of group identity salience towards that group, then you are more likely to be willing to realign your beliefs so that they are in accordance with the group's beliefs.

In order to attempt to explain this lack of significance for the effects of the group, first we should recall that the participant is engaged in a hypothetical conversation with a hypothetical person who is attempting to change the point of view of the participant. A possible explanation for this outcome could be due to the ambiguity of how the measurement of the *group's* position on the topic relates to the *hypothetical person's* position on the topic. To explain further, the participant is aware that they (the participant) disagree with the hypothetical person on the topic of universal health care. The participant was also asked to indicate the degree to which they think the group as a whole agrees with their personal attitude toward to topic. This means that there are three parties, capable of having three different opinions on the same topic (the participant, the hypothetical other person, and the group). Herein lies a problem; an assumption made in this study was that if the participant reported that the group disagreed with the participant on the topic, this would inherently mean that the group and the hypothetical person are *in agreement* about the topic. As would

be supported by the SIDE model, if the group and the hypothetical person share the same opinion, and the participant feels a high degree of group identity salience, then the participant is expected to realign their opinion so as to be in agreement with the group.

Instead, it is entirely possible that all three parties (participant, group, and hypothetical person) can all be in disagreement at the same time; universal health care is a multifaceted topic with opinions that might not all exist on a linear for/against spectrum. It is possible that all three parties can have three different positions. Without fully understanding the position that *all three parties* hold on the topic, interpretation of analyses that include the moderating variable of *group position on topic* are ineffective. If the participant indicates that the group agrees with the participant's opinion on universal health care, then the participant should be less likely to be swayed by the hypothetical person; this does not cause the researcher concern. The researcher's concern occurs when the participant indicates that the group disagrees with the participant. Here the waters become murky, as the measures used did not appropriately tease out what *exactly* are all three parties' opinions are and how they compare to each other. This research could have benefited by ensuring that all parties' positions on the topic were made clear to the participant so as to achieve interpretability of this measure; however, this will greatly increase the number of conditions for which to test. Additionally, the measure for the group position on the topic was comprised of a single item. Adding 2-3 more items to this measure would allow for using more powerful statistical analyses to determine measure fit and alpha reliabilities.

Threats to the Hierarchy of Needs

Drawing from Maslow's hierarchy of human needs, the fifth and sixth hypotheses are centered around the notion that when our human needs are being met, we are more open to

persuasive attempts from others. When our more basic human needs are not being met, we are more likely to lack the fortitude to attend to persuasive attempts. Perceived degree of psychological threat and perceived threat to belonging were modeled in this research as mediators between a participant's perceived degree of self-anonymity and their willingness to change attitude.

When testing for both direct and indirect effects of one's perceived threat to belonging, all results were non-significant. This was likely due to the fact that the scale for this variable was poorly fit, consisting of too few items, half of which were negatively worded. Although published research previously provided support for the inclusion of negatively keyed items in order to prevent participants from responding to items in a straight line (Wong et al., 2003), it has come to light that measures that contain items that are both negatively and positively oriented can become problematic, both at the item-level and person-level (Lindwall et al., 2012). The four items that measured one's perceived threat to belonging did not converge on to one factor and were not significantly correlated with each other. The researcher believes that the poor fit of this variable not only contributed to a lack of support for hypotheses 6a and 6b, but also became problematic as a covariate when addressing hypotheses for other variables. This measure was removed from further post hoc analyses for the revised model

The analyses for hypotheses 5a and 5b measured the direct effects related to participants' perceived degree of psychological threat. Perceived self-anonymity was found to significantly predict one's perceived degree of psychological threat, but only when excluding the previously specified controls and covariates. The effect of perceived degree of psychological threat on willingness to change attitude was marginally non-significant, once

again only when excluding the previously specified controls and covariates. These results suggest two things. First, self-anonymity predicts a decrease in the psychological threat that someone perceives, thus satisfying a highly prioritized human need. Second, as a standalone variable, a low degree of perceived psychological threat is not enough to positively predict a willingness to change attitude; other important covariates are significantly contributing.

While there was partial support for some of the direct effects related to perceived degree of psychological threat, these results became insignificant in a mediation analysis, both with and without controls and covariates. When considered with controls and covariates, it could be the case that the presence of unsatisfactory measures in the analysis (e.g., congruence of opinion on topic, and perceived threat to belonging) obscure the interpretation of the mediation. When considered without controls and covariates, perhaps perceived psychological threat is not strong enough to act as a standalone mediator between perceived self-anonymity and willingness to change attitude. In short, as one's perceived degree of self-anonymity increases, one's perceived degree of psychological threat decreases; however, one's perceived degree of psychological threat has no significant bearing on one's willingness to change attitude. Additionally, the results open the door for the possibility that perceived psychological threat could potentially have emerged as a significant mediating factor, had it not been paired alongside the poorly fit covariate of perceived threat to belonging.

Face and Expressing Attitude Change

This research measured participants' perceived degree of face threat when using either Facebook or Reddit. Items from this variable focused on gauging participants' perceived concerns with bringing shame, protecting image and personal pride, and appearing

weak on either of these two platforms. Would participants who feel a greater degree of perceived face threat be less willing to express attitude change in an effort to preserve face?

Hypotheses 7a and 7b measured direct effects related to perceived face threat. Results showed that higher perceived self-anonymity significantly predicts lower perceived face threat; however, perceived face threat was not a significant predictor of willingness to express a change of attitude. This suggests that, quite obviously, many other factors go into predicting someone's willingness to express a genuine change of attitude. Additionally, this study is dependent upon the contexts of Facebook and Reddit; therefore, the scope of these findings is limited to the context of these two platforms.

Sensitivity to the Expressive Behavior of Others

Recall that all analyses controlled for both the participant's age and degree of self-monitoring behavior. Of the two sub-dimensions of self-monitoring behavior, *ability to modify self-presentation* and *sensitivity to expressive behavior of others*, only the latter consistently emerged as a significant control variable. Sensitivity to others was a significant control variable for all analyses except those related to face threat. On the other hand, the ability to modify one's self-presentation was surprisingly only a significant control variable in analyses specifically related to perceived face threat.

The self-monitoring sub-dimension of *sensitivity to expressive behavior of others* emerged as a negative control variable in all 11 of its significant outcomes. Generally speaking, someone who scored high in sensitivity to expressive behavior is someone who is likely to believe, whether accurately or not, that they are highly skilled in reading other people's expressions. Results showed that this variable negatively controls for group identity salience, congruence of opinion on topic, prosocial group norms, perceived psychological

threat, perceived threat to belonging, willingness to change attitude, and willingness to express attitude change. Although it seems odd that this variable would emerge as a significant negative control for such a wide variety of variables, perhaps an explanation for this significance lies in the nature of high self-monitors. It could be the case that high scorers for this sub-dimension of self-monitoring interpreted the administered questionnaire differently that those who scored lower. In other words, if you believe yourself to be keenly aware of others' expressions and behaviors around you, you might answer questionnaires in an inherently different manner than others.

To provide support for this notion, in their study comparing ego identity types to self-monitoring, Kumru and Thompson (2003) found that participants who were designated as having a *diffuser* ego type were more likely than other ego types to have higher scores in self-monitoring. In their research they define someone who is a diffuser as being in a state in which one is "confused or disorganized in their identity, and they experience no exploration that is likely to change their status" (p. 482). Protectively speaking, someone who is not open to exploration and unlikely to change their status is probably *not very willing* to change their attitude. Perhaps this helps to explain the negative effects of this self-monitoring control variable. Incorporating group comparisons between ego-identity types into research on self-monitoring and attitude change might prove to be an interesting avenue of future research.

As for the lack of significance for the sub-dimension of *ability to modify self-presentation*, perhaps an explanation lies in the nature of attitude change in this study. This study is only concerned about a *genuine* change of attitude and a *genuine* expression of that attitude change. However, it is entirely possible that someone can express a change of attitude and not mean it. One who scores high on this sub-dimension is likely to see

themselves as someone capable of altering their expressive behavior based on situational needs. While it could be the case that someone high in this trait is more willing to express a *disingenuous* change of attitude in order to match what a situation calls for, this particular study was not focused on expressive behavior of disingenuous attitude change.

Age Differences

The third control variable, age differences, did not emerge as a meaningful control. For some analyses, age was found to be a significant control variable; however, the size of the effect was consistently negligible. The largest standardized beta coefficient was .09 for hypothesis 7a.

This comes as a surprise, as this lack of significance is contradictory to research mentioned earlier which provided the reasoning behind the inclusion of age as a control variable. Tay and Diener's (2011) research on Maslow's hierarchy of human needs provides criticism of the model, stating that the hierarchical prioritization of needs does not take age into consideration. With a wide range of 18-80 years old (M = 36.05, SD = 13.77), the researcher expected age differences in respondents with varying hierarchical-related variables (perceived psychological threat and perceived threat to belonging) to be an important factor in willingness to change attitude. Overall, the results from the present study provide support for part of Maslow's hierarchy, suggesting that age does not play a role in predicting one's perceived psychological threat when using Facebook or Reddit. Due to previously mentioned issues with the variable for perceived threat to belonging, a meaningful analysis was not possible.

A Revised Model

Based on these results, the current study proposes a post-hoc, revised model involving the following modifications to the originally proposed model. First, the variable for perceived *threat to belonging* was formed based on a composite mean score for a four-item factor that was unable to converge onto one factor, or even to provide two reliable sub-dimensions. Thus, this measure became problematic. Additionally, upon further meditation and review of literature, perhaps the variable of *threat to belonging* simply does not seem to be an important variable to consider with regard to willingness to change attitude. Therefore, this variable was removed from the revised model.

While perceived degree of *face threat* emerged as a significant outcome variable for perceived self-anonymity, this variable failed to significantly predict willingness to express attitude change. Upon further reflection, it seems sensible to conclude that a myriad of *other* factors also contributes to one's willingness to express a change of attitude to others. Based on this, the researcher no longer considers the variable of *face threat* to be of importance. Therefore, in an effort to improve the model, this item was removed. Also, the self-monitoring control variable *ability to modify self-presentation* consistently displayed a lack of significant relationships to other variables. For this reason, this measure was removed.

These three variables, some more problematic than others, have been removed in the revised version of the proposed model (see Figure 3). The remaining moderators and mediator (group identity salience, prosocial group norms, group position on topic, and perceived degree of psychological threat) remain. Although the variable for group position on topic consistently displayed a lack of significant relationships to other variables, this variable should still be kept in the model. It is entirely possible that these issues were caused by the ambiguity behind whose opinion sis whose. In

accordance with the SIDE model, it seems theoretically justifiable for the researcher to maintain the position that this variable belongs in the model in a double moderation effect with group identity salience. However, the different positions of the three actors (self, hypothesized other, group) would have to be distinguished in this revised model.

Based on these revisions to the model, hypothesis 1 was retested using a bivariate linear regression. Results show that perceived self-anonymity significantly, negatively predicts willingness to change attitude [$\beta = -.12$, $t(7) = -2.28$, $p < .05$]. Perceived self-anonymity also explained a significant proportion of the variance in willingness to change attitude [$R^2 = .04$, $F(7, 647) = 3.83$, $p < .001$]. Covariates for this analysis include group identity salience, prosocial group norms, group position on topic, and perceived psychological threat. Control variables include age and one remaining dimension of self-monitoring (*sensitivity to expressive behavior of others)*.

Figure 3 suggests that willingness to change attitude is a mediator between perceived degree of self-anonymity and willingness to express attitude change, along with the reduced set of control variables and covariates. This mediating relationship was analyzed using Process template 4 for mediation analysis in SPSS. Results for the indirect effect were significant {indirect effects = -.05, SE = .02, 95% CI [-.09, -.01]}. Covariates for this analysis include group identity salience, prosocial group norms, group position on topic, and perceived psychological threat. Control variables include age and single remaining dimension of self-monitoring (*sensitivity to expressive behavior of others)*. Overall, these post hoc results from the revised model are consistent with the finding that emerged for hypothesis 1 prior to post hoc revisions.

Contributions, Limitations, and Future Directions

Although this study provides insight into what drives us to consider changing our attitude about something, these findings should be interpreted cautiously due to measurement issues, survey limitations, and limited significance. It is obligatory to recognize the limitations of self-report data, as participants introduce many forms of possible bias into the results (e.g., memory bias, self-presentation bias). Additionally, although Qualtrics likely makes an effort to provide quality participants, the very nature of people who sign up to become members of online survey panels could influence the results in unpredictable ways. While one must take survey results with caution, survey research is generally feasible, with the possibility of making larger generalizations about populations.

A limitation lies in the current the wording of the hypothetical scenario with which the participant was presented. Consider the following excerpt from the hypothetical scenario: "Their argument seems persuasive, and it makes you possibly consider changing your original position". It could be the case that the wording of this statement may have been misinterpreted by some participants. This wording of this statement may have erroneously influenced participants' response to the item addressing one's willingness to change attitude. In other words, if a researcher tells you that you "possibly consider changing your original position", you may simply be following instructions when indicating your willingness to change your attitude. You were told that you are hypothetically open to changing your attitude; therefore, you indicate that you are hypothetically open to changing your attitude. The presence of this confound suggests that participants may have been reporting a higher degree of willingness to change attitude out of sheer compliance.

Of important note is the notion that this research focused solely on self-anonymity and not on other-anonymity. As the participant's perceived anonymity of others (i.e., other

members in the group) was not measured, it cannot be ruled out that other-anonymity might also be an influencing factor in willingness to change attitude and willingness to express attitude change. An assumption of this study was that when a participant perceives a low degree of self-anonymity, that there also exists low degree of other-anonymity for group members. In the same vein, when a participant perceives a high degree of self-anonymity, a high degree of other-anonymity was assumed. Future research could consider parsing out the effects of self-anonymity and other-anonymity in persuasive contexts.

An additional limitation lies in the removal of poorly loaded items from previously validated measures. In a perfect world, all items in an established scale should have acceptable factor loading scores when administered in subsequent research; this was not the case for the current study. In the current study, two established factors contained items with factor loading scores that warranted item removal. Specifically, two items were removed from the self-monitoring scale and three items were removed from the scale for perceived psychological threat. All five of these items were negatively keyed items that had been mixed in with positively keyed items. This raises the broader issue of how researchers should treat established measures that contain both positively and negatively keyed items going forward. As researchers, how should we treat scales that were validated prior to the new wave of research that concluded that administering a combination of positively keyed and negatively keyed items is no longer considered a best practice? Future methodological research could consider developing ways for modifying and revalidating old, established measures based on new methodological guidelines.

Resolving the issue that surfaced with the ambiguity between all three parties' positions (the participant, the hypothetical person with whom the participant is interacting,

and the larger group in which this conversation is taking place) on the topic may prove to be an interesting subject of future research. It is entirely possible that the hypothetical person and the group may or may not hold the same position. If the item assessing the group's position on topic had been developed in a more interpretable manner, the researcher still asserts that group identity salience and group opinion on topic should emerge as significant double moderators. Improving the measurement for establishing the relationship between these two variables may help extend research on the application of the SIDE model to persuasive contexts. If someone is presented with an opposing opinion, and the group generally agrees with the person who is presenting the opposing opinion, it seems reasonable to assume that this would result in a greater likelihood of attitude change, as compared to a scenario where no one agrees with the person presenting the opposing opinion. To clarify, having a greater number of people agree with you likely adds a sense of legitimacy to your claim. Conversely, if there is no public support for your claim, your views are more easily written off by others; additionally, you may be less likely to declare your position. Adding to this, if the participant feels a high degree of identity salience toward the group, this should moderate the effect of the group's opinion on one's willingness to change attitude. The proposed double moderation effect may help to extend the theoretical understanding of the SIDE model's application to persuasive contexts.

Surely many contextual factors play a role in whether or not someone shares a change of attitude with others; a myriad of other contexts could be considered in additional to perceived face threat. Future research into the role that face plays in the relationship between perceived self-anonymity and willingness to express attitude change on Instagram or Twitter might prove interesting. Whereas Facebook and Reddit were chosen for this study because

they represent both ends of the anonymity spectrum, Instagram and Twitter each respectively represent a mixed bag of people who are both identifiable and anonymous. People on Instagram and Twitter have greater agency over where their profile will fall on the spectrum of self-anonymity; this agency might produce an interesting interaction.

Theoretically speaking, this research should give pause to the role that prosocial group rules play with regard to deindividuation. The SIDE model suggests that the presence of prosocial group rules in a group is an important factor in predicting whether a person's deindividuation takes a positive or negative form; prosocial group norms produce prosocial deindividuation. This study examined the effects of prosocial group norms, extending those norms to persuasive group contexts. While it has been established that prosocial group norms predict positive deindividuation, positive deindividuation seems to not be a driving force behind one's willingness to change attitude. Perhaps conditions that perpetuate negative deindividuation are also conditions in which attitude change is more likely to occur.

Anonymity as a Continuous Measure

Research that draws from the SIDE model has historically measured anonymity as a dichotomous variable (e.g., *anonymous condition* versus *not anonymous condition*). An important contribution of the current study is the framing and operationalization of anonymity as a *continuous* variable, existing on a spectrum. Recall that there are multiple types of identity knowledge, each of which contribute to compromising someone's identity incrementally, not categorically (Marx, 2001). As someone gleans fragments of identity knowledge about you, they can piece together your identity bit by bit. A nominal operationalization of anonymity seems outdated, especially given the wide range of contexts in which we can interact online. Even within a single platform such as Facebook, there is a

significant amount of variance with respect to the degree to which users perceives themselves to be identified by others. Therefore, the researcher argues that future measures for anonymity should exist at least of the interval level of measurement. One's anonymity is not a switch that can be turned on and off, thus it should not be treated as such.

That being said, while the measure that was used in the current study to assess perceived self-anonymity (PANON) is the only of its kind, it has not completed the peer review process. This presents an opportunity to for future research to develop and validate measures that assess both one's perceived degree of self-anonymity as well as one's perceived degree of the anonymity of others on a continuous scale.

The most important finding to emerge from this research stems from hypothesis 1. To place this into perspective, despite a lack of support for most other hypotheses, and despite the presence of three control variables and five covariates, significance (albeit negative) for hypothesis 1 emerged. Therefore, although the model in Figure 2 was not holistically supported, these findings suggest that something significant is going on between perceived self-anonymity and willingness to change attitude. Future research might consider retesting the entire revised model (or parts) with an improved measure for assessing how the group's opinion on the topic relates to both the participant and the hypothetical person. In addition to testing elements of the revised model (see Figure 3), perhaps future research could consider additional control variables such as ego involvement on the topic and general open-mindedness, as there is a considerable amount of research in these areas (e.g., Nisbet, Hart, Myers, & Ellithorpe, 2013; Teng, Khong, & Goh, 2015). Lastly, the issues with the measure for perceived threat to one's need to belong likely tainted the results for all analyses in which

this variable was included. The researcher wonders what might have been had this measure been operationalized with a greater number of items and without reverse-keyed items.

Concluding Remarks

In order to illuminate the role that self-anonymity plays in providing an environment that is conducive to persuasive attempts, this study examined the various group-related and threat-related variables as they apply to anonymous and identifiable contexts online. To date, there has been a plethora of research that focuses on how self-anonymous contexts can provide people with a safe place to explore various identities. To extend this further, the exploration of different identities in self-anonymous conditions inherently infers some degree of attitude change; however, this study found no such support for this notion. Instead, this research concluded that rather than self-anonymity providing a safe place where one can feel freer to engage and change opinion, perhaps identifiability provides a more persuasive environment that is more conducive to attitude change as a product of conformity.

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Appendix A
Tables

Table 1

Seven Types of Identifiability Knowledge Present on Facebook and Reddit

	Facebook	Reddit
Legal name	✓	
Locatability	✓	
Linked pseudonyms	✓	
Unlinked pseudonyms		✓
Behavior pattern knowledge	✓	✓
Social categorization	✓	✓
Eligibility/non-eligibility symbols	✓	✓
Overall Level of Anonymity	Relatively identifiable	Relatively self-anonymous

✓ indicates that this type of identifiability knowledge is present.

Table 2

Fit Indices for Scales

	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*	RMSEA	SRMR	CFI
Self-Monitoring Index								
2-factor 13-item	469.03 ($p < .001$)	64	-	-	-	.09	.05	.90
2-factor 11-item	259.72 ($p < .001$)	43	209.31	21	< .001	.05	.04	.94
Perceived Self-Anonymity Index								
1-factor 8-item	67.58 ($p < .001$)	20	-	-	-	.21	.09	.74
1-factor 4-item	21.77 ($p < .001$)	2	45.81	18	< .001	.12	.02	.98
Perceived Face Threat								
1-factor 4-item	133.41 ($p < .001$)	2	-	-	-	.30	.05	.91
Group Identity Salience								
5-factor 14-item	311.37 ($p < .001$)	67	-	-	-	.07	.04	.97
Prosocial Group Norms								
1-factor 4-item	52.34 ($p < .001$)	2	-	-	-	.19	.04	.96
Perceived Psychological Threat								
1-factor 7-item	378.33 ($p < .001$)	14	-	-	-	.19	.10	.67
1-factor 4-item	42.88 ($p < .001$)	2	335.45	12	< .001	.17	.94	.04

Note. χ^2 = chi-square test of model fit; *df* = degrees of freedom; RMSEA = root-mean-square error of approximation; CI = confidence interval; RMSR = root-mean-square residual; CFI = Comparative Fit Index; SRMR = standardized root mean square residual.

Table 3

Constructs, Items, and Factor Loadings

Construct and Items		St. Loading	St. Resid Variance	Unst. Loading	SE	AVE /R^2	C alpha			St. Loading	St. Resid Variance	Unst. Loading	SE	AVE / R^2	C alpha
Self-Monitoring						**.83**	.88							**.73**	.88
Factor 1	1	.68	.53	1.00	.00	.47	.86	Factor 1	1	.69	.53	1.00	.00	.47	.86
	2	.77	.40	1.19	.06	.60			2	.78	.39	1.21	.07	.61	
	3	.70	.50	1.24	.07	.50			3	.71	.50	1.24	.07	.50	
	4	.56	.69	1.03	.08	.31			5	.78	.39	1.22	.07	.61	
	5	.79	.38	1.23	.07	.62			7	.77	.40	1.09	.06	.60	
	6	.52	.73	1.06	.08	.27									
	7	.78	.40	1.10	.06	.60									
Factor 2	1	.77	.41	1.12	.00	.59	.86	Factor 2	1	.77	.41	1.00	.00	.59	.86
	2	.67	.56	.86	.05	.44			2	.66	.56	.86	.05	.44	
	3	.78	.39	.90	.04	.61			3	.78	.39	.90	.04	.61	
	4	.67	.55	.75	.04	.45			4	.67	.55	.75	.04	.45	
	5	.75	.45	.83	.04	.56			5	.75	.45	.83	.04	.55	
	6	.65	.58	.83	.05	.42			6	.65	.58	.83	.05	.42	
Perceived Anonymity						**.57**	.85							**.74**	.82
Factor 1	1	.60	.64	1.00	.00	.36		Factor 1	1	.51	.74	1.00	.00	.26	
	2	.55	.70	.85	.07	.30			5	.75	.44	1.26	.10	.56	
	3	.57	.67	.84	.07	.33			6	.87	.21	1.62	.12	.79	
	4	.49	.76	.63	.06	.24			7	.81	.35	1.41	.11	.65	
	5	.77	.40	1.10	.07	.60									
	6	.80	.36	1.23	.08	.64									
	7	.77	.40	1.14	.08	.60									
	8	.50	.75	.63	.06	.25									
Perceived Face Threat						**.78**	.86								
Factor 1	1	.75	.44	1.00	.00	.56									
	2	.85	.29	1.05	.05	.71									
	3	.74	.46	.94	.06	.54									
	4	.80	.36	.97	.05	.64									
Group Identity Salience						**.88**	.94								
Factor 1	1	.90	.20	1.00	.00	.80	.91								
	2	.89	.21	.97	.03	.79									

	3	.86	.26	1.00	.03	.74	
Factor 2	4	.85	.28	1.00	.00	.72	.92
	5	.85	.28	1.08	.04	.73	
	6	.88	.23	1.03	.03	.77	
	7	.89	.21	1.04	.03	.79	
Factor 3	8	.80	.37	1.00	.00	.64	.92
	9	.95	.10	1.24	.04	.91	
	10	.94	.12	1.22	.04	.88	
Factor 4	11	.89	.20	1.00	.00	.80	.87
	12	.87	.25	.93	.03	.75	
Factor 5	13	.95	.10	1.00	.00	.90	.87
	14	.81	.33	.90	.04	.67	
Prosocial Group Norms						**.72**	.81
Factor 1	1	.44	.81	1.00	.00	.19	
	2	.69	.53	1.54	.14	.47	
	3	.88	.23	1.95	.17	.77	
	4	.87	.24	1.90	.16	.76	
Perceived Psychological Threat						**.51**	.72
Factor 1	1	.32	.90	1.00	.00	.10	
	2	.55	.70	1.57	.25	.30	
	3	.39	.85	1.22	.19	.15	
	4	.65	.58	1.71	.25	.42	
	5	.37	.86	1.22	.20	.14	
	6	.62	.62	1.87	.28	.38	
	7	.70	.51	1.86	.28	.49	

						.65	.73
Factor 1	2	.57	.68	1.00	.00	.32	
	4	.62	.62	.99	.08	.38	
	6	.62	.62	1.15	.11	.39	
	7	.77	.40	1.23	.11	.60	

[a] All standardized loadings and standardized residual variances are significant at $p < .001$.

[b] AVE is reported in **bold**.

Table 4

Means, Standard Deviations, and Correlations

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Perceived Anonymity	3.85	1.62	--											
2. Willingness to Change Attitude	4.43	2.16	-.05	--										
3. Willingness to Express Attitude Change	5.39	2.46	-.04	.36**	--									
4. Group Identity Salience	4.77	1.19	-.22**	.04	.03	--								
5. Prosocial Group Norms	5.81	1.09	-.08*	.13**	.18**	.37**	--							
6. Group Position on Topic	5.22	1.24	-.10*	.02	.07*	.38**	.32**	--						
7. Perceived Threat to Psych Safety	3.17	1.10	.12**	-.07	-.14**	-.58**	.49**	.38**	--					
8. Perceived Threat to Need to Belong	3.47	1.38	.04	.01	-.04	.05	-.05	-.04	-.09*	--				
9. Perceived Face Threat	4.49	1.53	-.23**	.03	-.06	.12**	.04	.06	.00	.15**	--			
10. Self-Monitoring (Self)	5.50	1.06	-.15	.02	-.01	.18**	.08**	.15**	-.14**	-.05	.16**	--		
11. Self-Monitoring (Other)	5.54	1.01	-.16**	-.03	.03	.18**	.18**	.16**	-.22**	-.08*	.11**	.49**	--	
12. Age	36.05	13.77	-.20**	-.06	.06	.03	.03	-.06**	.05	.04	-.03	-.01	-.02	--

* = p < .05, ** = p < .01, *** p < .001 (1-tailed)

Table 5

List of Hypotheses and Results

Hypothesis	Results	Effect Type
H1 - Perceived degree of self-anonymity is positively related to willingness to change attitude.	Not supported	Direct
H2 - Perceived degree of self-anonymity is positively related to willingness to express attitude change.	Not supported	Direct
H3 - The relationship between perceived self-anonymity and willingness to change attitude is moderated by prosocial group norms, with greater prosocial group norms increasing the relationship.	Supported	Interaction
H4a - The degree of congruence of opinion on the topic (between an individual and a group) will negatively moderate the relationship between perceived self-anonymity and willingness to change attitude when presented with an opposing position by a group member.	Not supported	Interaction
H4b –Group identity salience will moderate the effect of the degree of congruence of opinion, with a higher degree of group identity salience increasing the effect.	Not supported	Interaction
H5a - Perceived degree of self-anonymity is negatively related to perceived degree of psychological threat.	Partial support	Direct and indirect with H5b
H5b - Perceived degree of psychological threat is negatively related to one's willingness to change attitude.	Not supported	Direct and indirect with H5a
H6a - Perceived degree of self-anonymity is negatively related to perceived degree of threat to belonging.	Not supported	Direct and indirect with H6b
H6b - Perceived degree of threat to belonging is negatively related to one's willingness to change attitude.	Not supported	Direct and indirect with H6a
H7a - Perceived degree of self-anonymity is negatively related to perceived degree of face threat.	Supported	Direct and indirect with H7b
H7b - Perceived degree of face threat is negatively related to the degree of willingness to express attitude change.	Not supported	Direct and indirect with H7a

Table 6

Complete List of Survey Items

A. Self-Monitoring
    1. In social situations, I have the ability to alter my behavior if I feel that something else is called for.
    2. I have the ability to control the way that I come across to people, depending on the impression I wish to give them.
    3. When I feel that the image I am portraying isn't working, I can readily change it to something else.
    4. I have trouble changing my behavior to suit different people and different situations.
    5. I have found that I can adjust my behavior to meet the requirements of any situation that I find myself in.
    6. Even when it might be to my advantage, I have difficulty putting up a good front.
    7. Once I know what the situation calls for, it's easy for me to regulate my social actions accordingly.
    8. I am often able to read people's true emotions correctly through their eyes.
    9. In conversation, I am sensitive to even that slightest change in the facial expression of the person I'm conversing with.
    10. My powers of intuition are quite good when it comes to understanding others' emotions and motives.
    11. I can usually tell when others consider a joke to be in bad taste, even though they may laugh convincingly.
    12. I can usually tell when I've said something inappropriate by reading it in the listener's eyes.
    13. If someone is lying to me, I usually know it at once from that person's manner of expression.
B. Perceived Self-Anonymity
    1. Some members can recognize my name.
    2. Some members can recognize my username.
    3. Some members may find out my email address or homepage address.
    4. Some members can recognize my IP address.
    5. Some members can tell how old I am.
    6. Some members can tell my profession.
    7. Some members can tell how much education I have had.
    8. Some members can tell our household income level.
C. Perceived Degree of Face Threat
    1. On (Facebook/Reddit), I am concerned with not bringing shame to myself.
    2. On (Facebook/Reddit) I am concerned with protecting my self-image.
    3. On (Facebook/Reddit) I am concerned with not appearing weak in front of the others.
    4. On (Facebook/Reddit) I am concerned with protecting my personal pride.
D. Group Identity Salience
    1. I feel a bond with (Facebook group/Subreddit).
    2. I feel solidarity with (Facebook group/Subreddit).
    3. I feel committed to (Facebook group/Subreddit).
    4. I am glad to be a member of (Facebook group/Subreddit).
    5. I think that (Facebook group/Subreddit) members have a lot to be proud of.
    6. It is pleasant to be a member of (Facebook group/Subreddit).
    7. Being a member of (Facebook group/Subreddit) gives me a good feeling.
    8. I often think about the fact that I am a member of (Facebook group/Subreddit).
    9. The fact that I am a member of (Facebook group/Subreddit) is an important part of my identity.

10. Being a member of (Facebook group/Subreddit) is an important part of how I see myself.
11. I have a lot in common with the average member of (Facebook group/Subreddit).
12. I am similar to the average member of (Facebook group/Subreddit).
13. Members of (Facebook group/Subreddit) have a lot in common with each other.
14. Members of (Facebook group/Subreddit) are very similar to each other.

E. Prosocial Group Norms
    1. This Subreddit/Facebook page supports open dialogue from diverse perspectives
    2. This Subreddit/Facebook page expects those who leave comments to engage in civil discussion
    3. This Subreddit/Facebook page expects those who leave comments to avoid using hateful speech
    4. This Subreddit/ Facebook page expects those who leave comments to avoid using personal attacks on other users

F. Perceived Psychological Threat
    1. If I make a mistake on (Facebook group/Subreddit), it is often held against me.
    2. On (Facebook group/Subreddit), I am able to bring up problems and tough issues.
    3. People on Facebook group/Subreddit) sometimes reject me for being different.
    4. It is safe for me to take a risk on (Facebook group/Subreddit).
    5. It is difficult for me to ask other members of (Facebook group/Subreddit) for help.
    6. No one on (Facebook group/Subreddit) would deliberately act in a way that undermines my efforts.
    7. When talking with members of Facebook group/Subreddit), my unique skills and talents are valued.

G. Perceived Threat to Need to Belong
    1. When interacting on (Facebook group/Subreddit), if other people don't seem to accept me, I don't let it bother me.
    2. When interacting on (Facebook group/Subreddit), I try hard not to do things that will make other people avoid or reject me.
    3. When interacting on (Facebook group/Subreddit), I seldom worry about whether other people care about me.
    4. When interacting on (Facebook group/Subreddit), my feelings are easily hurt when I feel that others do not accept me.

H. Group Position on Topic
    1. To what extent do you think that most members of the [subject's stated] subreddit/Facebook page as a whole agree with your current opinion on universal health care?

I. Willingness to Change Attitude
    1. Based on the hypothetical conversation above in the [subject's states] subreddit/Facebook page, how willing would you be to change your opinion on universal health care?

J. Willingness to Express Attitude Change
    1. If this hypothetical conversation on the [subject's stated] subreddit/Facebook page could indeed cause you to genuinely change your opinion on universal health care, how willing would you be to express your change of opinion in the comment thread of this conversation?

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting Willingness to Change Attitude (N = 655)

	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Self-Monitoring 1	.06	.10	.03	.06	.10	.03	.05	.09	.03
Self-Monitoring 2	-.12	.10	-.05	-.19*	.10	-.09*	-.21*	.10	-.10*
Age	-.01	.01	-.06	-.01	.01	-.06	-.01*	.01	-.08*
Group Identity Salience				-.01	.09	-.01	-.05	.09	-.02
Prosocial Group Rules				.30**	.09	.15**	.31**	.09	.16**
Group Position on Topic				-.02	.08	-.01	-.02	.08	-.01
Perceived Psychological Threat				-.08	.10	-.04	-.08	.10	-.04
Perceived Threat to Belonging				.04	.08	.01	.04	.08	.02
Perceived Self-Anonymity							-.12*	.06	-.09*
R^2		.01			.03			.04	
F for change in R^2		1.17			3.70			5.10	

*$p < .05$. **$p < .01$.

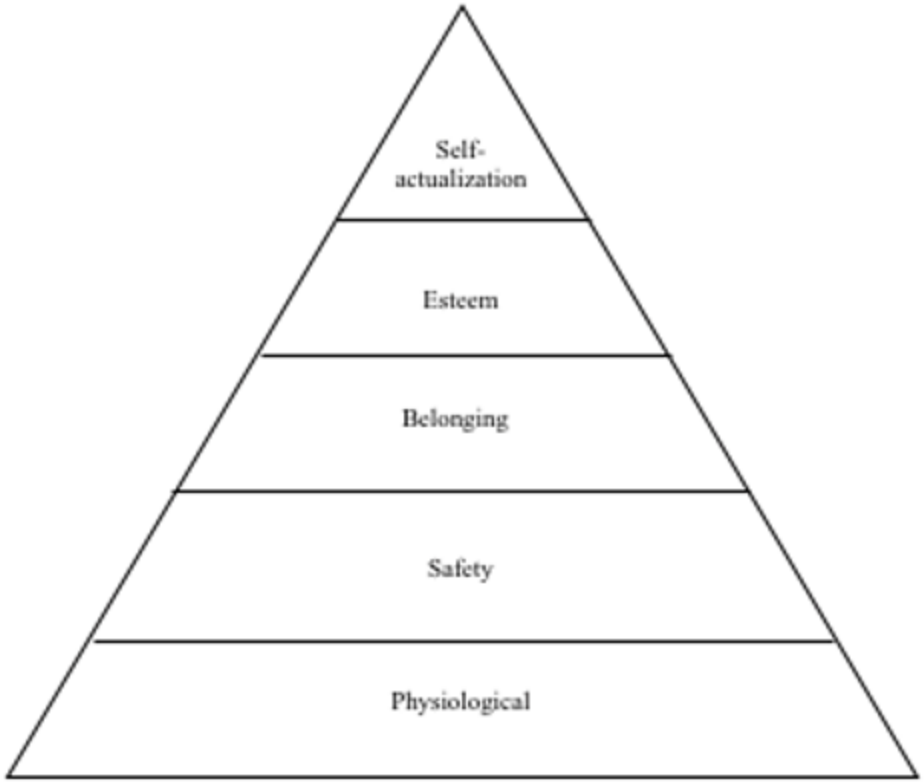

Figure 1. Maslow's Hierarchy of Human Needs.

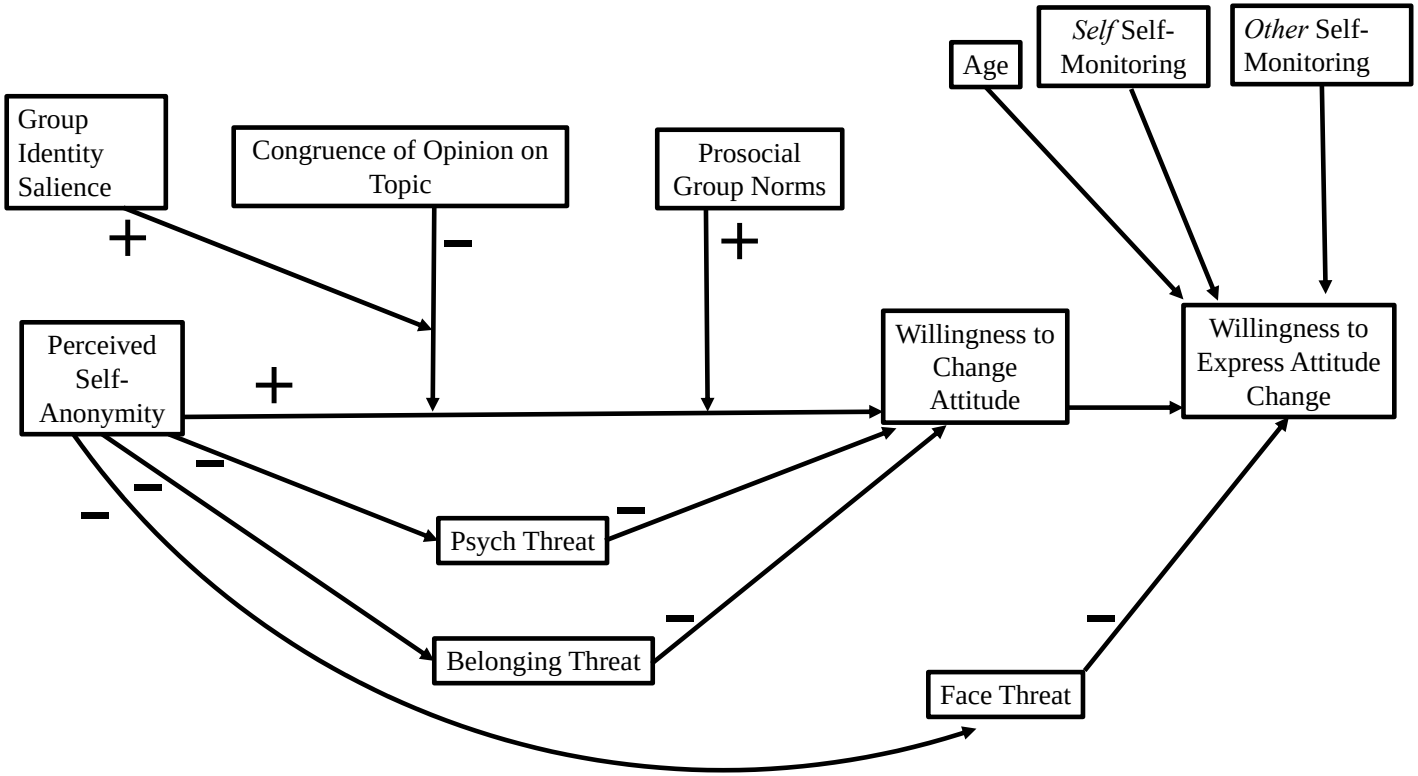

Figure 2. Proposed model of perceived self-anonymity and willingness to express attitude change.

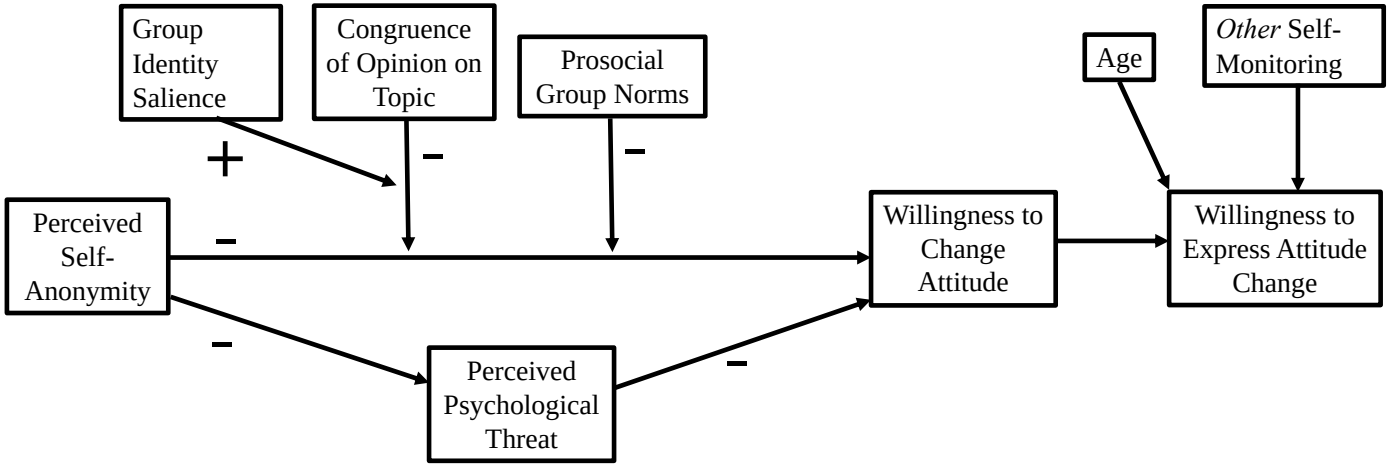

Figure 3. Revised proposed model of perceived self-anonymity and willingness to express attitude change.