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# *Internet aggression in online communities: a contemporary deterrence perspective*

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**Abstract.** *Internet users' activities are critical to the development and success of Web 2.0 systems, such as online communities. Within the community's participation, knowledge sharing, and communications, users may conduct aggressive behaviors that would have a negative impact on that online community. This study investigates factors that affect Chinese users' aggression intention in online communities. Research findings show that online aggression can be inhibited by internal deterrents of face saving and moral beliefs, which may be enhanced through implementation of consequences from an effective community policy and peer pressure among community members. Differences in the effects of the deterrence measures exist between younger and older users. This paper contributes theoretically and empirically to Web 2.0 research and has practical implications for virtual community management.*

*Keywords:* aggression, virtual community, deterrence, morals

## INTRODUCTION

As a major type of internet technology, Web 2.0 has undergone rapid development in past years resulting in many kinds of Web 2.0 applications, such as online communities, forums, blogs, and wikis, which attract millions of internet users. With Web 2.0, people seek and read information, talk, post, and publish on the internet. Thus, modern internet users are not passive in their activities; instead, their behaviors may actively impact other users, including the online virtual society.

Previously, research on internet users' behaviors on Web 2.0 mainly focused on users' participation, contribution, knowledge sharing, or interactions in various kinds of Web 2.0 applications. For example, Butler (2001) examined virtual community participation based on cost–benefit analysis and indicated that participation was determined by the benefit and cost of being a member in the community. Wasko and Faraj (2005) examined why people share knowledge in electronic communities of practice and found that the motivations included expectations for building their reputation, enjoyment in helping others, reciprocity to others' help, and commitment to community. Nov *et al*. (2010) indicated that extrinsic motivations, including reputation building and self-development; and intrinsic motivations, including enjoyment and

commitment to community, were the major factors for determining a persons' knowledge contribution in a virtual community. Bateman *et al*. (2011) also indicated that a member's continuance, affective, and normative commitment towards a virtual community significantly influenced that member's participation. In addition, Blanchard and Markus (2004) developed the concepts of sense of virtual community and explored the origin of such a concept and its impacts on community activities. Ray *et al*. (2014) proposed the concept of community engagement and demonstrated its impact on community participation and contribution.

In addition to the participation or interaction behaviors, previous research indicates that internet users may also conduct some deviant behaviors online, such as network addiction, privacy violation, and security contravention (D'Arcy *et al*., 2008; Xu *et al*., 2012). These deviant behaviors have been demonstrated to incur negative impact on, or cause losses to, institutions, other people, and/or the users themselves. Among the online deviant behaviors, internet aggression, which is defined as 'overt, intentional acts of aggression toward others online,' (Ybarra & Mitchell, 2004) has been of interest to professionals and researchers in diverse fields in recent years.

Internet aggression includes online behaviors such as teasing, abusing, embarrassing, and harassing (Raskauskas & Stoltz, 2007). Research indicates that a significant minority of internet users is involved in internet aggression and many users reported to have experienced online aggression (Li, 2006; Patchin & Hinduja, 2006). Internet aggression is regarded as a serious problem in online communities, and it has caused negative consequences in cyberspace (Alonzo & Aiken, 2004; Chesney *et al*., 2009; Reinig *et al*., 1998). However, only a few empirical studies on this phenomenon currently exist. These studies confirmed that individuals' online aggressive behaviors are often an extension of their offline aggressive behaviors. Similar to traditional offline aggression, online aggression has familial and academic correlations, such as poor familial relationships and/or a deficient school climate (e.g., Raskauskas & Stoltz, 2007; Williams & Guerra, 2007). These studies explored the reasons that cause online aggressive behaviors, including anger, anxiety, assertiveness, hostility, and so on (Alonzo & Aiken, 2004; Chesney *et al*., 2009).

To control internet aggression, it is necessary to investigate users' online aggressive behaviors in more depth, particularly how to deter and prevent users from conducting aggressive behaviors online. Deterrence theory has been a prominent theoretical perspective in the study of criminal or deviant behaviors. Based on the contemporary deterrence theory, formal (legal) sanctions and informal sanctions, such as social disapproval, self-disapproval, and moral inhibition, have been found to be effective in deterring various IT-related deviant behaviors, such as digital piracy, computer abuse, and security policy violations (e.g., D'Arcy & Hovav, 2009; D'Arcy & Devaraj, 2012; Hu *et al*., 2011). However, there has been no empirical testing of deterrence theory in the internet aggression context. It is not clear whether and how the formal and informal sanctions may have deterring impacts on users' aggressive behaviors online. In addition, the previous deterrence studies were mostly based on samples from Western countries, particularly the USA. Their generalizability beyond Western cultures is still open to debate. Currently, as a global community, the internet contains users from different countries with different cultural backgrounds. Research indicates that national cultures have an influence and

cross-cultural differences exist in the deterrence of deviant behaviors (Hovav & D'Arcy, 2012). To understand how to control online aggressive behaviors globally, it is required to study the deterrence model beyond Western cultures.

Today, as the most populous country in the world, China has the largest number of internet users. The Chinese culture is different from Western cultures (e.g., USA) in that it is a typical collectivist culture in terms of Hofstede's national cultural dimensions (Hofstede, 1993) and it is characterized by the cultural concept of face and influence of Confucianism (Leung & Chan, 2003), which have implications for the deterrence theory. To have a better understanding of deterrence in the Chinese context, it is important to consider the role and effect of Chinese cultural values in the process. In this paper, we use Chinese online community participants as the research target and develop a deterrence model for internet aggression in the Chinese context by extending the contemporary deterrence theory with the construct and effect of Chinese cultural values. The model posits formal sanction (community anti-aggression policy) and informal sanctions (peer pressure against aggression, moral beliefs, and face saving) as influencers on the intention to engage in online aggression behaviors. To provide further understanding, we also investigate the difference in the deterring effects between the formal and informal sanctions and the moderating effect of age in the process. The results of the study have implications for controlling and reducing aggressive acts via the internet.

The rest of the paper is organized as follows: First, we review the literature of internet aggression and deterrence theory. Second, the research model and hypotheses are developed, followed by an explanation of the survey method we used to empirically test the relationships. We then present the results of our data analyses. Finally, we conclude with a discussion of the findings and their theoretical and practical implications.

## LITERATURE REVIEW AND THEORETICAL BACKGROUND

### Internet aggression research

The definitions of internet aggression vary across studies. Typically, it is defined as 'overt, intentional acts of aggression toward others online' (Ybarra & Mitchell, 2004). Cyberbullying is another name for internet aggression, which includes specific behaviors such as rude, embarrassing, threatening, or harassing comments, unwanted sexual comments, and exclusion (Law *et al*., 2012; Patchin & Hinduja, 2006).

Social psychologists argue that the anonymous nature of the internet may reduce individuals' self-awareness resulting in deindividuation (Diener, 1980; Zimbardo, 1970). Deindividuated persons often have difficulty regulating their behavior and have lower levels of concern about others' evaluations of them (Zimbardo, 1970). Previous studies report higher levels of interpersonal misunderstanding, hostility, and aggression; and nonconforming behavior in people's online interactions relative to face-to-face interactions (McKenna & Bargh, 2000).

Individual and contextual factors may affect internet aggression. It is indicated that younger users' internet aggressive behaviors are related to their views and normative beliefs about the different forms of aggression (Bentley & Li, 1995; Zelli *et al*., 1999; Werner & Nixon, 2005; Bailey & Ostrov, 2008). Ybarra and Mitchell (2004) and Patchin and Hinduja (2006) found

that internet aggressors differ from non-aggressors in their patterns of internet use and persons who communicate socially more frequently online are more likely to behave aggressively online. Williams and Guerra (2007) found that poor familial relationships, low-level parental monitoring, and poor school climate are linked to younger users' internet aggressive behaviors. Research also demonstrated that individuals' online aggressive behaviors are consistent with their offline aggressive behaviors. Raskauskas and Stoltz (2007) surveyed middle school students and found that almost all students involved in online aggression had offline aggressive behaviors with others as well. Additionally, people who have been victimized offline are more likely to engage in online aggression as a way to retaliate against their aggressors (Olweus, 1978; Schwartz *et al*., 1993). Werner *et al*. (2010) also found that adolescents' involvement in internet aggression correlates with their internet use and offline aggression. Adolescents who spent more time using the internet to communicate and who, themselves, were targets of internet aggression were more likely to conduct aggressive behavior online. Also, individuals who had offline aggression were more likely to be involved in online aggression. Because of the anonymous nature of the internet, online aggression is significantly correlated more with verbal aggression (e.g., teasing and abusing) than spreading rumors and excluding others (Raskauskas & Stoltz, 2007).

Internet aggression may include various negative behaviors. In past years, there has been research that focuses on some specific aspects of online aggression. For example, flaming, which is characterized by profanity, obscenity, and insults, has been indicated to inflict harm in a virtual communication environment (Reinig *et al*., 1998; Alonzo & Aiken, 2004). Griefing, the act of intentionally causing distress to other players in an online game, is common in virtual worlds and has negative effects on the users (Chesney *et al*., 2009).

Based upon the literature review, we found that previous research on internet aggression mainly explored the factors that are correlated with online aggressive behavior, such as familial and school factors, individuals' internet use, offline aggression experiences, views, and normative beliefs. To reduce and control internet aggression, it is very important to understand what factors may decrease the likelihood of online aggressive acts. In this study, formal sanctions, such as community policies, and informal sanctions, including user's moral beliefs, face saving concerns, and peer pressure in an online community, are studied for their impacts in deterring internet aggression.

### Deterrence theory

Deterrence theory is a prominent theoretical perspective to explain illicit, deviant, and unethical behaviors. The classic version of deterrence theory focuses on formal (legal) sanctions and posits that the greater the perceived certainty and severity of sanctions for an illicit act, the more individuals are deterred from that act (Gibbs, 1975). The theory has been used in the study of various forms of deviant behaviors, and the perceived certainty and severity of formal sanctions are found to be effective in deterring information technology (IT)-related deviant behaviors, such as digital piracy, computer abuse, and security violations (e.g., D'Arcy & Hovav, 2009; Gopal & Sanders, 1997; Peace *et al*., 2003). Research on deterrence has extended the theory to include non-legal costs, such as informal sanctions, which includes social disapproval for a given action

(Piquero & Tibbetts, 1996). In addition, research also indicates that individual's moral beliefs play an important role as deterrents to criminal activities (Paternoster & Simpson, 1996). Thus, in contemporary deterrence theory, the informal sanctions include social disapproval from others and the self-disapproval and moral inhibition of individuals. If a person commits a criminal act, in addition to any formal legal punishment, he or she may receive condemnation from others, lose positive social image and respect, and suffer self-imposed costs, such as the negative feelings of shame and guilt (Pratt *et al*., 2006).

Based upon contemporary deterrence theory, researchers have studied the deterrent effects of informal sanctions in conjunction with formal sanctions. For example, Siponen and Vance (2010) assessed the influence of informal sanctions with formal sanctions in deterring IT security violations. Hu *et al*. (2011) incorporated informal sanctions (moral beliefs and shame) in the deterrence-based model for security policy compliance. D'Arcy and Devaraj (2012) indicated that informal sanctions may have stronger influence than formal sanctions in deterring IT misuse in organizations. According to the results of these studies, it is evident that contemporary deterrence theory is powerful in explaining an individuals' deviant behavior in various contexts.

The literature review uncovers that previous deterrence research in IT domains focuses upon deviant behaviors in the context of traditional organizations, such as software piracy, security policy violations, and computer misuse. Internet aggression is regarded as a deviant or unethical behavior in a virtual community. As an online social structure, a virtual community is different from traditional organizations in many aspects. It is necessary to investigate how the deterrence theory may apply in preventing individuals from conducting internet aggression in a virtual community. Moreover, although researchers indicated that the deterrence theory is culturally dependent (e.g., Hovav & D'Arcy, 2012), previous research was mostly based on samples from Western countries. To control the internet aggression globally, it is critical to understand the role and effect of national cultures in the deterrence process. China, which has the largest number of internet users today, is characterized by the culture of collectivism and Confucianism and face. In this paper, based on the contemporary deterrence theory, we develop the deterrence model by including the constructs and effects of Chinese culture.

## RESEARCH MODEL AND HYPOTHESES

Internet aggression is often regarded as an online deviant behavior. In this study, the research model investigates how formal and informal sanctions act together as countermeasures to the aggression intention by the Chinese users of online communities. The formal sanction is conceptualized as the effectiveness of a community's anti-aggression policy. The informal sanctions include peer pressure among members against aggression, individuals' moral beliefs, and face saving concerns. The research model is shown in Figure 1.

### Formal sanction

Research on deterrence theory indicates that deterrents to criminological behaviors include both formal and informal sanctions (Gibbs, 1975; Piquero & Tibbetts, 1996). Formal sanctions

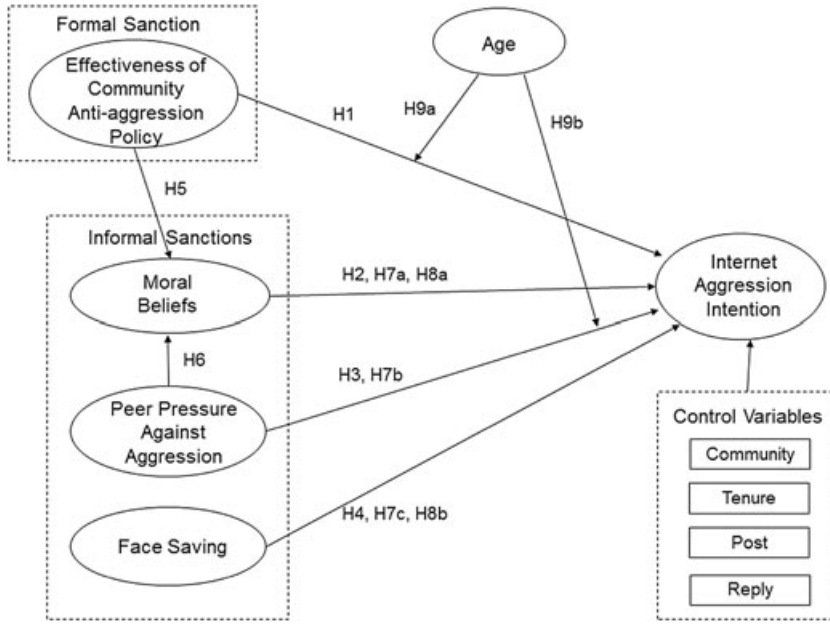



**Figure 1.** Research model.

refer to the punishment of people committing crimes if they are caught. The certainty and severity of formal sanctions prevent criminal acts. If an individual believes the certainty and severity of sanctions is high, he or she will not commit the crime (Gibbs, 1975; Tittle, 1980). Formal sanctions have been demonstrated to be effective in preventing and reducing many deviant behaviors, including employees' computer misuse (D'Arcy *et al*., 2008; Hovav & D'Arcy, 2012), security contravention (Workman & Gathegi, 2007), copyright infringement (Gerlach *et al*., 2009), and software piracy (Peace *et al*., 2003). For example, Siponen *et al*. (2007) found that formal sanctions might minimize the security violation issues in organizations because employees who violate the security policy will be punished by the organization. In an online community, formal sanctions also exist for aggressive behavior. The online community's policy against internet aggression is related to a formal sanction, because users violating the policy may be punished by being discredited and de-ranked or user account deactivation. Thus, we have the following hypothesis:

H1: Effectiveness of a community anti-aggression policy is negatively related to individual's internet aggression intention.

### Informal sanctions

According to the contemporary deterrence theory, formal sanctions refer to the legal punishment, while informal sanctions are related to social and self-imposed costs (Pratt *et al*.,

2006). Socially imposed costs are disapproval from other people. Peer pressure among community members against aggression may act as an informal sanction for online aggression because the conductor will receive condemnation from others and lose positive social image. Individual's moral beliefs may also act as an informal sanction for online aggression because the individual may suffer self-imposed costs, such as the negative feelings of shame and guilt resulting from the behaviors considered morally wrong. In addition, face saving is considered an informal sanction for online aggression in this study because face is an important aspect in Chinese culture and loss of face is considered a socially imposed punishment by Chinese users.

### *Moral beliefs*

Moral beliefs are individual judgements of right and wrong about a specific behavior (Bachman *et al*., 1992). The inherent rightness or wrongness of the behavior is evaluated by comparing the behavior with established deontological norms. If the behavior is judged to be inherently right, a favorable evaluation of that specific behavior will result. Conversely, if the behavior is judged to be inherently wrong, an unfavorable evaluation of it will result. Thus, the evaluation outcome will affect a person's decision to take action or not (Hunt & Vitell, 1986).

In contrast to formal sanctions, which are external forces to deter people from acting out a deviant behavior, moral beliefs are closely linked to self-imposed punishment. Previous research indicates that moral beliefs against committing criminal acts increase the degree of perceived sanctions and the shame associated with the acts (Bachman *et al*., 1992; Piquero & Tibbetts, 1996). Shame often occurs when a person becomes aware of having violated a moral standard, goal, or social convention, and it may be a highly painful state for the person (Lewis, 1971; Tangney, 1995). Thus, people with moral beliefs are self-regulative. If they believe a behavior is immoral, they will not conduct it.

Moral beliefs have been demonstrated to be critical in controlling many types of deviant behaviors. Thong and Yap (1998) and Moores and Chang (2006) found that moral beliefs are effective in preventing infringement of intellectual property rights and theft of digital goods (e.g., software piracy). Hu *et al*. (2011) found that employees' moral beliefs are useful in reducing violations of an organizational information security policy. Because internet aggression is often regarded as deviant in an online community, it is reasonable to believe that users' moral beliefs about online aggression will be a deterrent to internet aggression.

H2: Individual's moral beliefs are negatively related to internet aggression intention.

### *Peer pressure against aggression*

Based upon contemporary deterrence theory, informal sanctions for a given criminal act often derive from the disapproval of friends or peers (Gibbs, 1975; Piquero & Tibbetts, 1996). If a person commits a criminal act, in addition to any formal legal punishment, he or she may receive condemnation from friends or peers and lose positive social image and respect. For example, both formal and informal sanctions are important to minimize the security violation issues because

employees who violate the organizational security policy will be punished by the organization and may also be blamed or despised by colleagues (Hu *et al*., 2011; Siponen *et al*., 2007).

In an online community, the informal sanction for internet aggression is derived from peer pressure among users. Peer pressure is closely related to social influence, which resembles a subjective norm in the theory of planned behavior (Ajzen, 1991). When there is peer pressure against aggression, users in an online community disapprove of others' aggressive behavior. Users who commit aggressive behavior will be excluded and may lose their positive social image and status in the online social structure. Thus, they may perceive deterrence to internet aggression.

H3: Peer pressure against internet aggression is negatively related to individual's internet aggression intention.

*Face saving*

Face is an indigenous concept in Chinese culture and is embedded in every aspect of Chinese social life (Chow & Ng, 2004). Face has been defined as 'respect, pride, and dignity as a consequence of a person's social achievement and the practice of it' (Leung & Chan, 2003). It refers to the image that one maintains in order to gain acceptance and recognition from others. Rooted in Confucianism, face has significant influence on Chinese people's social acts. Because loss of face is considered an embarrassment, Chinese people care greatly about face and invest considerable effort to maintain it (Huang *et al*., 2011). In order to save face, Chinese people tend to avoid situations, such as conflicts or disagreements where face might be damaged (Huang *et al*., 2011). Face saving has been demonstrated to be significant in shaping Chinese people's online communication and knowledge sharing (Young *et al*., 2012). In the deterrence theory, informal sanctions are related to social and self-imposed costs (Pratt *et al*., 2006). Socially imposed costs are anticipated feelings of disapproval and loss of respect from family members or close friends. Self-imposed costs are negative feelings (e.g., shame and guilt) that result from behaviors considered morally wrong. In this study, we consider face saving an informal sanction because loss of face is a socially imposed cost, and face saving may act as a deterrent to aggressive intention for Chinese users.

H4: Face saving is negatively related to an individual's internet aggression intention.

Previous research suggests relationships among formal and informal sanctions (e.g., D'Arcy & Devaraj, 2012). An individual's ability to recognize the moral nature of a situation and to act on this tendency is partly based on standards that are formulated within a broader social context (Butterfield *et al*., 2000). It has been demonstrated that in various business contexts, individuals' moral beliefs of an issue may stem from corporate norms and the culture/climate (Jones, 1991; Valentine & Bateman, 2011). In an online community, the effective anti-aggression policy and peer pressure against aggression among community members will make individuals understand and believe that the aggressive behaviors are a violation of social standards and

consensus. This, in turn, results in shaping the individual moral beliefs against online aggressive behavior.

H5: Effectiveness of a community anti-aggression policy is positively related to an individual's moral beliefs against internet aggression.

H6: Peer pressure against internet aggression is positively related to an individual's moral beliefs against internet aggression.

Previous deterrence research also suggests some difference in the magnitude of influence between formal and informal sanctions. Some studies indicated that moral beliefs exhibit a stronger deterring effect than formal sanctions (Piquero & Tibbetts, 1996; Pratt *et al*., 2006; D'Arcy & Devaraj, 2012). There is also evidence that social disapproval from friends or peers is a stronger deterrent to criminal or deviant behavior than formal punishment (e.g., D'Arcy & Devaraj, 2012). Currently, although some online communities use a policy to control the aggressive activities, enforcement of the policy would be problematic because of the virtual nature of online communities. Thus, it is reasonable to believe that individuals' self-regulation (e.g., moral beliefs) would play a more important role than the formal policy in inhibiting the aggressive acts. In addition, Chinese culture is a typical collectivist culture according to Hofstede's dimensions. Social influence, including social norms and social pressure, has an impact that is more significant on Chinese people than on people from individualist cultures like that of the USA (e.g., Pavlou & Chai, 2002). It is reasonable to believe that in online communities, the fear of loss of face and disapproval from close friends would have more inhibitory influence than a formal policy. Thus, we assume for Chinese users that informal sanctions have stronger influence than formal sanctions in the context of a virtual community.

H7a: The effect of moral beliefs on internet aggression intention is stronger than that of an effective community policy.

H7b: The effect of peer pressure on internet aggression intention is stronger than that of an effective community policy.

H7c: The effect of face saving on internet aggression intention is stronger than that of an effective community policy.

Among the informal sanctions, peer pressure is an external deterrent because the community environment imposes it. However, moral beliefs and face saving are internal deterrents because they are enduring personal beliefs or characteristics (Bachman *et al*., 1992; Leung &

Chan, 2003). Thus, individuals with higher moral beliefs and face saving concerns may act more consistently to avoid the online aggressive activities, even when the peer pressure from others is not strong. Therefore, we assume that moral beliefs and face saving have stronger influence on aggression intention than peer pressure in a virtual community.

H8a: The effect of moral beliefs on internet aggression intention is stronger than that of peer pressure.

H8b: The effect of face saving on internet aggression intention is stronger than that of peer pressure.

**Moderator: age**

Prior research that has examined criminal and deviant behaviors suggests that age may have potential influence on behaviors. For example, empirical results have shown that younger employees are more likely to engage in a deviant workplace behavior, such as stealing from their employer (Hollinger & Clark, 1983; Tittle, 1980), as well as performing numerous unethical behaviors involving the use of computers (e.g., software piracy and unauthorized access) (e.g., D'Arcy & Hovav, 2009; Gattiker & Kelley, 1999; Loch & Conger, 1996). Moores and Chang (2006) also found the differences between older and younger people in software piracy. The traditional Chinese culture is derived from Confucian thinking. Today, Confucianism still exerts a strong influence on Chinese cultural values and is a basic pillar of Chinese social life (Chiang *et al*., 2011; Yau, 1988). Based on Confucian tradition, people are addressed in more hierarchical-type terms in China than in Western countries (Yau, 1988). Furthermore, Chinese culture stresses the differences between older and younger people. Older people have authority and respect in their social life; thus, they are expected to care more about the social norms and approval of others than younger people. Therefore, we believe that the formal and informal deterrents may have different effects on people of different ages. Particularly, we expect that age has a moderating effect on the relationships between community policy, peer pressure, and online aggression intention for Chinese users in an online community.

H9a: Age has a moderating effect on the relationship between the effectiveness of a community anti-aggression policy and internet aggression intention. Effectiveness of a community policy has a stronger negative effect on aggression intention for older members than for younger members.

H9b: Age has a moderating effect on the relationship between peer pressure and internet aggression intention. Peer pressure has stronger negative effect on aggression intention for older members than for younger members.

### Control variables

Community type, user community tenure, and user community activities, including his or her postings and replies, may influence a user's intention and behaviors. Thus, they were treated as control variables in the research model.

## RESEARCH METHOD

### Measures

To test the relationships implied by the research model and the research hypotheses, this study used a survey instrument for data collection. The first part of the survey was designed to measure respondents' face saving; moral beliefs against online aggression; the effectiveness of a community anti-aggression policy and peer pressure against aggressionl; age and gender; and the control variables in the research model. The research constructs were measured using multiple-item scales adapted from prior studies with minor wording changes in order to tailor them to the target context. To clarify meaning, the survey included a definition for internet aggression. Moral beliefs are based on the judgement of the rightness or wrongness of the behavior; in this study, we developed a scale for measuring individual's moral beliefs about internet aggression based upon the measurement from other contexts, such as in the works of Moores and Chang (2006) and Thong and Yap (1998). The scale contains several questions about whether or not an individual perceives internet aggression as being unethical and violating behavioral norms. The scale for peer pressure was adapted from Lewis *et al*. (2003). It measures the extent to which others in the community would view the internet aggressive behaviors unfavorably. The effectiveness of a community anti-aggression policy was measured through an individual's perception and evaluation of the community's policy. The scale was developed following prior research on organizational policy and deviant behaviors (e.g., Rottig *et al*., 2011; Sabiston *et al*., 2009). Measures for face saving were based on the works of Huang *et al*. (2011). All items were measured using seven-point Likert scales. Details are shown in Appendix A.

The second part of the survey was designed to capture respondents' internet aggression intention. Internet aggression intention was measured using three online aggression scenarios. Scenarios were chosen because they are considered non-intrusive, provide an unintimidating way to respond to sensitive issues (Nagin & Pogarsky, 2001), and result in improved internal validity (Harrington, 1996). The three scenarios included in the survey were as follows: (1) teasing; (2) abusing; and (3) disclosing private information. These actions happen frequently, and they are typical of online aggression in communities (e.g., Chesney *et al*., 2009; Raskauskas & Stoltz, 2007).

For each of the scenarios, respondents replied to questions measuring the intention for the particular aggressive behavior depicted in the scenario (see Appendix B for the scenarios and accompanying survey items). Items for internet aggression intention were adapted from Werner *et al*. (2010). Because the goal of this study was to examine the generalized patterns of online aggression rather than the specific behaviors depicted in each scenario, we created

composite measures of internet aggression intention by averaging the responses to these items across the three scenarios. This approach has been used in prior studies of deviant behaviors (e.g., D'Arcy *et al*., 2008).

The survey was first drafted in English and then translated into Chinese by one author proficient in both languages. The Chinese version was then translated back into English by other authors in order to check for inaccuracies. Changes were made to the original versions until the authors all agreed that the items accurately reflected the intention of the measurement. The scenarios were pretested by undergraduate students in a major Chinese university. Their feedback indicated a general consensus that the scenarios were realistic and that participants had little difficulty placing themselves in the hypothetical position of the scenario characters. The feedback also resulted in minor wording changes to some of the scenarios in order to remove ambiguities.

### Sample and data collection

This study chose one type of online community, for example, a social network community, for data collection. Today, social network communities, such as Facebook, are the most important online communities in the world. In China, social network communities are very popular, and the major social network communities, including QQ, Renren, and Kaixin, attract tens of millions of users and have a great impact on the users' social lives. Data were collected with the assistance of an internet research company in China. The survey was posted on the company's Web site and was globally accessible for 2 weeks. In order to enhance the representativeness of the sample, invitation messages (with a link to the survey) were distributed through multiple channels. First, social network community users were randomly selected from the database of the research company, and then invitation messages were sent to them by emails. Second, invitation messages were distributed by postings to major social network communities in China. In order to increase the response rate, an economic incentive of RMB 20 was provided to every survey respondent. Repetitive submissions of the questionnaire from the same respondent were forbidden, as verified with hyperlinks and internet protocol addresses.

In total, 322 valid responses were received. The respondents were from six different online social network communities, including men and women, of different ages with various internet and online community experience. The sample characteristics are summarized in Table 1.

As shown in Table 1, the responses were from six major Chinese social network communities: QQ, Renren, Kaixin, Pengyou, Weibo, and 51.com. All six communities had published some policy related to online aggressive activities, and terms of the policy are included in the user agreement. We also tested for non-response bias among individuals by comparing responses of early respondents with late respondents (Armstrong & Overton, 1977). Early respondents were those who responded within 1 week. The two samples were compared with all study variables and with age, gender, tenure in the community, and the number of posts and replies. All *t*-test comparisons between the means of the early and late respondents showed no significant differences. Therefore, we concluded that non-response bias was not a serious concern in this study.

**Table 1.** Respondents sample characteristics

| Gender | Number ($N = 322$) | Percentage (%) |
|---|---|---|
| Male | 172 | 53.4 |
| Female | 150 | 46.6 |
| Age (years) | | |
| ≤20 | 82 | 25.5 |
| 21–30 | 125 | 38.8 |
| 31–40 | 59 | 18.3 |
| 41–50 | 33 | 10.2 |
| >50 | 23 | 7.1 |
| Years using internet (years) | | |
| <2 | 20 | 6.2 |
| 2–5 | 43 | 13.4 |
| 5–8 | 107 | 33.2 |
| 8–10 | 77 | 23.9 |
| 10–15 | 56 | 17.4 |
| >15 | 19 | 5.9 |
| Community | | |
| QQ | 78 | 24.2 |
| Renren | 67 | 20.8 |
| Pengyou | 43 | 13.4 |
| Kaixin | 50 | 15.5 |
| Weibo | 58 | 18.0 |
| 51.com | 26 | 8.1 |
| Years in the online community | | |
| <2 | 120 | 37.3 |
| ≥2 and <4 | 101 | 31.4 |
| ≥4 and <6 | 62 | 19.3 |
| ≥6 and <8 | 28 | 8.7 |
| ≥8 | 11 | 3.4 |
| Number of postings in the community | | |
| <10 | 144 | 44.7 |
| 10–49 | 47 | 14.6 |
| 50–99 | 40 | 12.4 |
| 100–199 | 32 | 9.9 |
| 200–299 | 10 | 3.1 |
| 300–399 | 11 | 3.4 |
| 400–499 | 3 | 0.9 |
| >500 | 35 | 10.9 |
| Number of replies in the community | | |
| <10 | 126 | 39.1 |
| 10–49 | 53 | 16.5 |
| 50–99 | 33 | 10.2 |
| 100–199 | 42 | 13.0 |
| 200–299 | 19 | 5.9 |
| 300–399 | 11 | 3.4 |
| 400–499 | 6 | 1.9 |
| >500 | 32 | 9.9 |

## ANALYSIS AND RESULTS

We chose the partial least squares (PLS) method for data analysis. PLS is a structural equation modeling technique that simultaneously assesses the reliability and validity of research constructs' measures and estimates the relationships among the constructs (Wold, 1982). PLS uses a component-based approach for estimation and places minimal restrictions on sample size and residual distributions (Chin, 1998). In addition, PLS is considered suitable for this study because this study investigates internet aggression behavior in an exploratory manner, where PLS is advised as the right approach (Gefen *et al*., 2011; Ringle *et al*., 2012). We used SmartPLS 2.0 in the data analysis. We first analyzed the full sample to test the main effects in the research model; we then conducted multi-group analyses for the moderating effect of age.

### Full-sample model

We followed the recommended two-stage analytical procedure and analyzed the data from the subjects (Anderson & Gerbing, 1988).

#### *Measurement model*

In order to validate the measurement model, construct reliability and the two types of validity (convergent and discriminant) were assessed. Reliability was assessed using both item reliability and composite reliability. Item reliability indicates the amount of variance in an item due to the underlying construct rather than to error and can be obtained by squaring the factor loading. As shown in Table 2, item reliabilities in our measurement model were well above the recommended value of 0.50 (Fornell & Larcker, 1981). Composite reliability was calculated following the formula, $\rho = (\Sigma\lambda_i)^2/((\Sigma\lambda_i)^2 + \Sigma\theta_i)$, where $\lambda_i$ refers to the *i*-th factor loading and $\theta_i$ refers to the *i*-th error variance. Thus, unlike Cronbach's alpha, composite reliability considers the actual factor loadings instead of assuming that each item is equally weighted in determining the composite. As shown in Table 2, composite reliabilities in the measurement models were above the suggested 0.70 (Nunnally, 1978).

In order to evaluate construct validity, we examined convergent validity and discriminant validity. We assessed convergent validity by means of factor loadings and average variance extracted (AVE) (Fornell & Larcker, 1981). The threshold for factor loadings indicating satisfactory convergent validity is 0.70. The AVE measures the amount of variance due to the construct in relation to the amount of variance due to measurement error. AVE greater than 0.50 indicates acceptable convergent validity of the construct (Fornell & Larcker, 1981). As shown in Table 2, all factor loadings for the items in the measurement models exceeded 0.70. All AVEs were greater than 0.50. Therefore, we conclude that the measures demonstrated adequate convergent validity.

In order to evaluate discriminant validity, the square roots of AVE were compared with the correlations among the latent variables (Fornell & Larcker, 1981). The results in Table 3 confirmed the discriminant validity: the square root of the AVE for each construct was greater than the correlations involving the construct.

**Table 2.** Measurement model

| Construct | Item | Loading | CR | AVE |
|---|---|---|---|---|
| Internet aggression intention | IA1 | 0.98 | 0.98 | 0.94 |
| | IA2 | 0.94 | | |
| | IA3 | 0.98 | | |
| Moral beliefs | MB1 | 0.96 | 0.97 | 0.91 |
| | MB2 | 0.94 | | |
| | MB3 | 0.95 | | |
| Community policy | CP1 | 0.86 | 0.94 | 0.78 |
| | CP2 | 0.89 | | |
| | CP3 | 0.89 | | |
| | CP4 | 0.90 | | |
| Peer pressure | PP1 | 0.98 | 0.98 | 0.96 |
| | PP2 | 0.98 | | |
| | PP3 | 0.99 | | |
| | PP4 | 0.96 | | |
| Face saving | FS1 | 0.93 | 0.91 | 0.77 |
| | FS2 | 0.90 | | |
| | FS3 | 0.79 | | |

CR, composite reliability; AVE, average variance extracted.

**Table 3.** Correlation matrix

| | Mean | SD | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| 1. Internet aggression | 3.05 | 1.41 | **0.97** | | | | |
| 2. Moral beliefs | 5.41 | 0.96 | 0.44 | **0.95** | | | |
| 3. Community policy | 4.76 | 0.99 | 0.08 | 0.39 | **0.88** | | |
| 4. Peer pressure | 5.09 | 0.95 | 0.21 | 0.47 | 0.43 | **0.98** | |
| 5. Face saving | 5.20 | 0.92 | 0.48 | 0.57 | 0.35 | 0.45 | **0.88** |

SD, standard deviation.
The square root of the average variance extracted is shown in the diagonal of the matrix in bold. The inter-construct correlations are shown off the diagonal.

**The final constructs and items are shown in Appendices A and B**

In order to evaluate the potential common method bias, we first examined the correlation matrix (Table 3). All correlations were lower than 0.8, the threshold for major concerns over common method variance (Ettlie & Pavlou, 2006). Furthermore, we conducted a Harmon one-factor test on all constructs (Podsakoff & Organ, 1986). The test showed that the most covariance explained by one factor was 46.7%. Then, following Podsakoff *et al*. (2003), we included in the PLS model a common method factor whose indicators included all the principal constructs' indicators; we calculated each indicator's variances, which were substantively explained by the principal construct and by the method. The results indicated that the average of variances explained by the research constructs under study was 0.67 and that the average of variances explained by the common method factor was 0.01. The ratio of substantive variance to method variance was approximately 67:1. In addition, all of the coefficients between the common

method factor and the observed indictors were not significant. The potential of common method bias was, therefore, not a major concern in this study.

### *Structural model*

Having established an adequate measurement model, we then tested our hypotheses with SmartPLS. Figure 2 shows the path coefficients for the full-sample model with *t*-statistics derived from bootstrapping (200 resamples) in parentheses. Because responses were from various communities, community was treated as a control variable. Individuals' tenure in the community, the number of posts, and the number of replies are also treated as control variables.

The research model explained 30% of the variance in internet aggression intention and 27% of the variance in moral beliefs. For the individual paths, moral beliefs are significantly negatively related to internet aggression intention, supporting hypothesis 2. Face saving is significantly negatively related to internet aggression intention, supporting hypothesis 4. Effectiveness of a community policy is significantly positively related to moral beliefs, supporting hypothesis 5. Peer pressure is significantly positively related to moral beliefs, supporting hypothesis 6. However, the effectiveness of a community policy is not significantly related to internet aggression intention; thus, hypothesis 1 is not supported. Peer pressure is not significantly related to internet aggression intention; thus, hypothesis 3 is not supported.

Hypothesis 7a, b, and c predicted that moral beliefs, peer pressure, and face saving would each have stronger negative relationships with internet aggression intention than the community policy. Examining the magnitude of the standardized path coefficients in Figure 2 suggests that the relative impacts of moral beliefs and face saving on internet aggression intention are

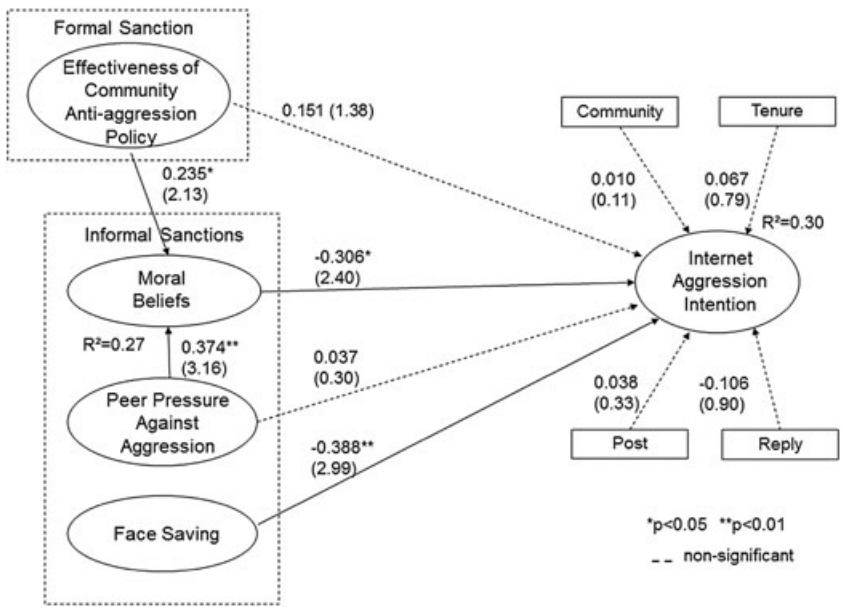



**Figure 2.** Results of hypotheses test (full sample).

each greater than those of an effective community policy. Statistical tests of the path coefficient differences (Chin, 1998) indicated that the path from moral beliefs to internet aggression intention and the path from face saving to internet aggression intention were significantly stronger than that from an effective community policy to internet aggression intention ($p < 0.01$). Thus, hypothesis 7a and c is supported. However, the path from peer pressure to internet aggression intention and the path from the effectiveness of a community policy to internet aggression intention were not significantly different. Thus, hypothesis 7b is not supported.

Hypothesis 8a and b predicted that moral beliefs and face saving would each have stronger negative relationships with internet aggression intention than peer pressure. Examining the magnitude of the standardized path coefficients, Figure 2 suggests that the relative impacts of moral beliefs and face saving on internet aggression intention are each greater than those of peer pressure. Statistical tests of the path coefficient differences indicated that the path from moral beliefs to internet aggression intention and the path from face saving to internet aggression intention were significantly stronger than that from peer pressure to internet aggression intention ($p < 0.01$). Thus, hypothesis 8a and b is supported.

The results suggest that having an effective community policy and peer pressure has indirect effects on internet aggression intention through moral beliefs. In order to test the mediating influence of moral beliefs formally, we followed the procedure of Baron and Kenny (1986). The procedure involved a series of regression analyses. First, we found that the effectiveness of a community policy ($\beta = -0.127$, $p > 0.1$) by itself was not significantly correlated with aggression intention. Second, the effectiveness of a community policy by itself was significantly correlated with moral beliefs ($\beta = 0.393$, $p < 0.01$). Then, we regressed both moral beliefs and community policy on aggression intention. The effect of a community policy was not significant ($\beta = 0.077$, $p > 0.1$). Thus, the effectiveness of a community policy only has an indirect relationship with aggression intention through moral beliefs. Then, we tested whether moral beliefs mediate the relationship between peer pressure and aggression intention. We found that peer pressure by itself was correlated with aggression intention ($\beta = -0.209$, $p < 0.05$). Also, peer pressure by itself was correlated with moral beliefs ($\beta = 0.474$, $p < 0.01$). We then regressed both peer pressure and moral beliefs on aggression intention. The effect of peer pressure was not significant ($\beta = 0.001$, $p > 0.1$), which suggests that moral beliefs fully mediate the relationship between peer pressure and aggression intention.

Results of the full-sample model show that individual's aggression intention may not be inhibited neither through the formal deterrence measure of a community policy nor through the informal deterrence measure of peer pressure in the community; however, aggression intention may be prevented through self-regulation of one's moral beliefs and concerns of face saving. Although community policy and peer pressure do not show direct inhibitive effects on individuals' aggression intention, they have significant influence on individuals' level of moral beliefs and may negatively affect the intention through the mediation of moral beliefs.

### Moderating effect of age

In order to test the moderating effect of age, we divided the sample into two groups based on age, those below 30 years versus those over 30 years. Previous research found that individuals over the age of 30 years were significantly different from those under the age of 30 years in their

**Table 4.** Factor loading, composite reliability, and average variance extracted by subgroups

| | Younger | | | Older | | |
|---|---|---|---|---|---|---|
| Item | Loading | CR | AVE | Loading | CR | AVE |
| IA1 | 0.98 | 0.97 | 0.94 | 0.98 | 0.97 | 0.93 |
| IA2 | 0.95 | | | 0.93 | | |
| IA3 | 0.97 | | | 0.98 | | |
| MB1 | 0.95 | 0.96 | 0.89 | 0.97 | 0.97 | 0.92 |
| MB2 | 0.94 | | | 0.95 | | |
| MB3 | 0.92 | | | 0.96 | | |
| CP1 | 0.82 | 0.92 | 0.75 | 0.91 | 0.95 | 0.83 |
| CP2 | 0.86 | | | 0.92 | | |
| CP3 | 0.89 | | | 0.89 | | |
| CP4 | 0.88 | | | 0.91 | | |
| PP1 | 0.98 | 0.98 | 0.96 | 0.98 | 0.98 | 0.95 |
| PP2 | 0.94 | | | 0.94 | | |
| PP3 | 0.97 | | | 0.97 | | |
| PP4 | 0.95 | | | 0.95 | | |
| FS1 | 0.92 | 0.91 | 0.78 | 0.92 | 0.89 | 0.73 |
| FS2 | 0.91 | | | 0.88 | | |
| FS3 | 0.81 | | | 0.75 | | |

CR, composite reliability; AVE, average variance extracted.

likelihood of engaging in deviant or unethical behaviors (Krambia-Kapardis & Zopiatis, 2008). Splitting the sample in such a way also compensated for the non-uniform distribution of age in the sample (Moores & Chang, 2006). We conducted multi-group analyses for the two subgroups of younger and older people. The factor loadings, composite reliabilities, and AVE for each subsample pass the required thresholds described earlier (Table 4).

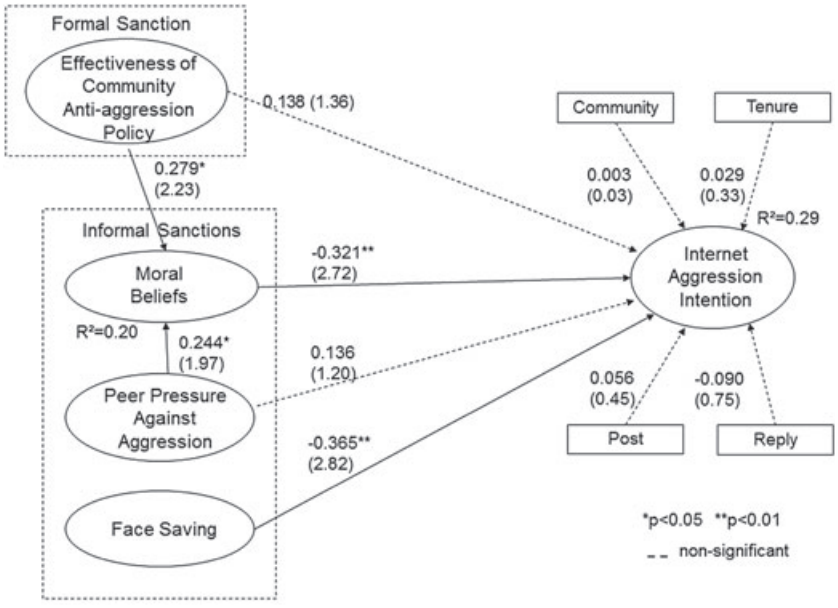
Figure 3a and b shows the results of the hypotheses test for the subgroups.[1]

The subgroup models are consistent with the full-sample model except that from peer pressure to internet aggression intention (Figure 3b). For older respondents, this result suggests that peer pressure plays a significant role in preventing internet aggression. However, for younger respondents, the link from peer pressure to internet aggression intention is not significant. The effect of a community policy is not significant for either the younger or older respondents.

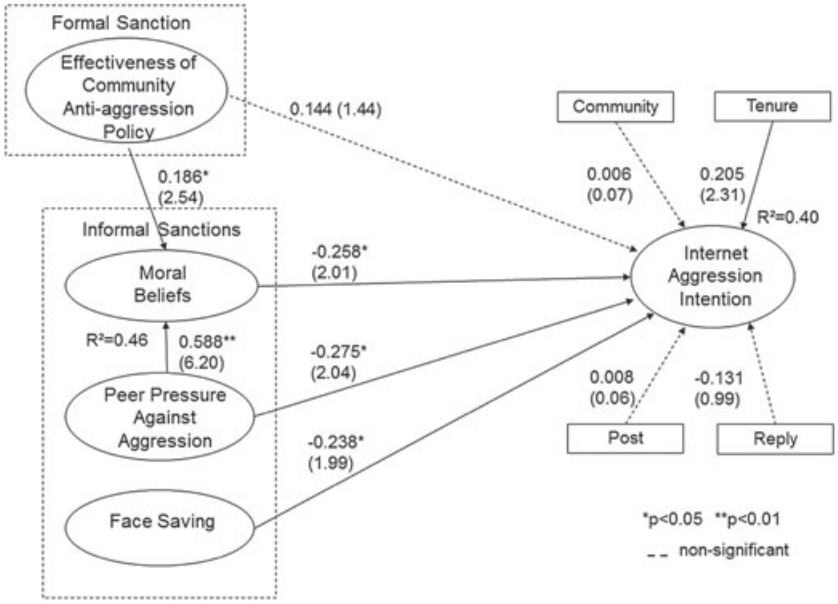
We then calculated a pooled error term *t*-test to determine statistical significance of the different path coefficients by age. Because the variances of the groups were not equal, we used the Smith-Satterthwait test, as described by Chin (2000). The results are shown in Table 5.

The results suggest that a significant difference exists in the path coefficient between peer pressure and aggression intention for younger and older respondents. For older respondents above the age of 30 years, peer pressure has a significantly stronger impact on their internet aggression intention than it does for younger respondents below the age of 30 years. Thus, hypothesis 9b is supported. There is no significant difference in the path coefficient between

[1]To double check the results, the full sample and two subgroups were analyzed using a covariance-based method of linear structural relation. The linear structural relation results are consistent with the partial least squares results.




a




b

**Figure 3.** 3a: results of hypotheses test (younger age group) ($n = 207$), and 3b: results of hypotheses test (older age group) ($n = 115$).

**Table 5.** Results of pooled error term *t*-tests by subgroup

| Path | Younger | | Older | | *t*-statistic | Significance |
|---|---|---|---|---|---|---|
| | Path coefficient | SE from bootstrap | Path coefficient | SE from bootstrap | | |
| Effectiveness of community anti-aggression policy -> internet aggression intention | 0.138 | 0.1136 | 0.144 | 0.0935 | 0.041 | No |
| Peer pressure against aggression -> internet aggression intention | 0.136 | 0.1232 | −0.275 | 0.1401 | 2.204 | Yes |

SE, standard error.

the effectiveness of a community policy and aggression intention for younger and older respondents. Thus, hypothesis 9a is not supported.

## DISCUSSION

Anger, annoyance, or hostility often leads to aggressive activities (e.g., Boyle & Vivian, 1996; Deffenbacher *et al*., 2005). Based upon the contemporary deterrence theory, this study focused on the measures that may have a deterring impact on individual's aggression intention in an online community. The research findings showed that individual's moral beliefs against internet aggression were a major countermeasure to his or her intention to conduct online aggressive behaviors. When an individual holds the belief that internet aggression is ethically unacceptable, he or she will act accordingly and may not likely perform an aggressive behavior in a cyber environment. In addition, concerns regarding face saving may also deter Chinese users' online aggressive intentions because face is an important aspect in Chinese culture and public aggressive activities often lead to loss of face, which may be an informal sanction for the conductor. However, the community anti-aggression policy may not directly deter individuals' aggression intention, which implied that formal sanction mechanisms were not effective in reducing the aggressive activities in an online environment. This can be interpreted by the virtual nature of online communities. Today, many online communities have adopted a policy on aggressive actions. Community members whose aggressive behaviors violate the policy will be punished accordingly by discrediting, de-ranking, or account closure. However, the punishment may not seem certain and severe enough to stop the members, because currently, the enforcement is often problematic and an offender may easily re-register into the community with a new account. The informal sanction from peer pressure had a stronger influence on the older users than on the younger ones. This can be interpreted from the traditional Chinese cultural belief that older people usually have higher social status and care more about their image than younger people do. Thus, social informal control was more effective for older users in a Chinese context.

An effective community policy against aggressive actions and peer pressure among community users may significantly strengthen community members' moral beliefs against aggression, thus reducing aggressive activities in online communities. Previous research indicates that individual's moral awareness and ethical recognition could be strongly influenced by social

context, such as behavioral norms and the ethical culture in the organization (Butterfield *et al*., 2000; Valentine & Bateman, 2011). In online communities, the community policy may serve as a behavioral norm for members, which clarifies what are considered aggressive actions and to what extent the actions are not allowed. Peer pressure reflects the ethical culture/climate in the community. As shown by the research findings, both peer pressure and effective community policy acted collectively toward promoting the development of community members' moral beliefs against internet aggression. Thus, the research revealed how formal and informal deterrents work together in inhibiting individuals' intention to engage in online aggression in the context of a virtual community.

### *Implications for research*

Previous research on internet users' behaviors mainly focused on community participation, knowledge sharing, and contribution activities. Besides these actions, internet users may also perform some aggressive behaviors, which are considered deviant and may have a negative impact on the virtual community. Mitigating and reducing online aggression are important for the successful development of a Web 2.0 system. This paper empirically investigates internet users' aggressive intention in online communities, particularly what factors may affect users' online aggressive intentions, and provides the first research revealing how to deter and prevent users from conducting aggressive online behaviors. This study provides a better understanding of users' online deviant behaviors and implies that online community behaviors may be further explored in this direction. Thus, this paper contributes to Web 2.0 and virtual community research.

Additionally, this paper contributes to deterrence theory. The contemporary deterrence theory posits that illicit or deviant behaviors may be deterred by formal and informal sanctions, such as laws, policies, social disapproval, and moral inhibition. This study applies the theory to the context of an online community and reveals that formal and informal deterrents are inter-related and that they have differential effects in deterring users' deviant behavior in the online environment. In addition, this paper extends the theory by considering the effect of cultural values and indicates that the Chinese cultural factor of face may serve as a deterrent for Chinese users in an online community. The contemporary deterrence theory may be further tested and extended by exploring more factors in the formal or informal sanction category.

### *Implications for practice*

This study has implications for virtual community development and management. Internet aggression has caused negative consequences to online communities. Users who experience aggressive activities may choose to leave the community or initiate more aggression in return, which makes the community a place of conflict. Controlling aggression is critical for the sustainability and success of an online community. The research findings suggest that internal factors have a significant influence on the online aggressive behavior over that of formal deterrence mechanisms. Specifically, users with higher moral beliefs and a greater concern for face saving are less likely to conduct online aggressive behavior. Given the strength of the observed relationship between moral beliefs and internet aggression intention, communities should focus their efforts on improving the morality level of users as a means of combating online aggression. As indicated by research findings, community members' moral beliefs can result from and be

enhanced through a community policy on aggression and peer pressure among members against aggression. Thus, in order to increase the morality level of community members, it is necessary to institute an effective policy and to promote the culture, the climate, and the values against aggression in the community. Doing so makes community members aware of the unethicality of internet aggression and promotes the belief that internet aggression is immoral and unacceptable.

The findings also have implications for the design of social network community platforms. Face saving has been identified as a critical characteristic of Chinese and other Confucianism-based cultures (e.g., Korea and Japan). In order to control internet aggression, it would be effective to reduce the anonymity of users in a virtual community. Currently, some social network communities in China require users to register with their true identity. This would greatly reduce the occurrence of aggressive actions. It is suggested that posts or replies that are reported or identified as aggressive be shown in a more public manner, resulting in face loss to the conductor in the community.

The research also finds that peer pressure plays a very significant role in deterring internet aggression for older people but has no significant impact for younger people. This finding to some extent explains that currently, younger users have performed more of the aggressive activities on the internet. It is important for Web 2.0 administrators and online community managers to understand that social pressure and influence would be effective for older users but may not be effective for younger users. Thus, community managers should know the age distribution of members and pay more attention to younger users in controlling online aggression. When the community contains mostly young members, managers should exert more effort to increase moral awareness among members to enhance their self-regulation and reduce incidents of aggression.

### *Limitations and future research*

In this study, we focus on one type of virtual community, for example, online social network communities. Compared with other types of online communities, such as bulletin board systems and online forums, social network communities have relatively strong social influence and control among the members. Future research should extend to other types of communities to determine if the findings of this study apply to virtual communities in general.

This study shows that having a community policy does not exert direct influence on users' aggression intention. As discussed earlier, we assume this is caused by the nature of cyberspace. In a future study, we will conduct more in-depth research on how to make the community policy more effective in reducing the occurrence of aggressive activities. This study indicates that peer pressure is not an effective inhibitor to online aggressive actions by people younger than age 30 years. In a future study, we will continue research in this direction regarding attempts at decreasing aggression issues with younger users.

This study was conducted in Chinese context. Future research can collect data from internet users other than Chinese people to see what deterring measures are effective for users from other cultures. Furthermore, a cross-cultural study should be conducted to investigate the impact of culture in the context of online aggression and the differences in deterrents between Chinese and other users.

## CONCLUSION

This study investigates the factors that affect users' aggression intention in an online community. The research findings indicate that in an online community, individuals' aggression intention is inhibited by internal deterrents of face saving and one's moral beliefs, which may be enhanced through external deterrents, including an effective community policy and peer pressure among community members. This study also indicates that differences exist between younger and older people in the effects of deterrents on online aggression intention. This study contributes to virtual community research by providing a better understanding on internet users' online behaviors and has implications for online community management and Web 2.0 system administration.

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## APPENDIX A: MEASURES AND SCALES

### Moral Beliefs

MB1: I would consider internet aggression is morally wrong.
MB2: I would consider internet aggression is morally unacceptable.
MB3: I would consider internet aggression is unethical.

### Effectiveness of Community Anti-aggression Policy

CP1: The community has an effective policy against internet aggression.
CP2: Internet aggression is punished according to the community policy.
CP3: Internet aggression violates the community policy.
CP4: The community has an effective policy to punish internet aggression.

### Peer Pressure Against Aggression

PP1: My peers in the community think internet aggression not acceptable for the community.
PP2: My friends in the community think internet aggression not acceptable for the community.
PP3: My partners in the community think internet aggression not acceptable for the community.
PP4: My buddies in the community think internet aggression not acceptable for the community.

### Face Saving

FS1: I pay a lot of attention to how others see me.

FS2: I am usually very particular about the way I dress because I do not want others to look down on me.
FS3: I feel a loss of face when others turn down my favor.

## APPENDIX B: INTERNET AGGRESSION SCENARIOS

Scenario 1: Zhang is a member in your online community. He uses the internet and posts and publishes his views and idea online. One day, Zhang disputed with another person, Wang, in the community. He thought Wang is unreasonable, and was very angry. Thus, he began to tease Wang.
Scenario 2: Zhang is a member in your online community. He uses the internet and posts and publishes his views and idea online. One day, Zhang disputed with another person, Wang, in the community. He thought Wang is unreasonable, and was very angry. Thus, he began to abuse Wang with rude language.
Scenario 3: Zhang is a member in your online community. He uses the internet and posts and publishes his views and idea online. One day, Zhang disputed with another person, Wang, in the community. He thought Wang is unreasonable, and was very angry. Thus, he began to disclose Wang's private information to embarrass him.

Following each scenario, respondents were presented with the following questions:

IA1: If I were Zhang, it is likely that I would do the same.
IA2: I could see myself doing the same if I were in Zhang's situation.
IA3: What is the chance that you would do what Zhang did in the described scenarios?