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## **Perceptions and Use of Anonymous Communication across Cultures**

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### **ABSTRACT**

*We use social networks to communicate, keep in touch and express our opinions in a manner that has become completely ubiquitous. However, this very ubiquity and ease of expression have exposed another, contentious side – one where nobody can remain completely anonymous for long and where every conversation is stored in perpetuity. Some fear that the ephemeral quality of a social interaction has been lost, which threatens our right to be forgotten and freedom of expression. In this paper, we look at why people engage in anonymous communication, and if there is a perceived need for legal protection of anonymous communication. Moreover, this paper attempts to identify cultural stratifications, if any, in the ways in which people of various cultures perceive the importance of anonymous communications. The primary cultural clusters we studied are Anglo (e.g. Australia, Canada, England, USA) and Eastern European (e.g. Albania, Bulgaria, Moldova, Russia). Our data set consists of 374 responses to our survey from people belonging to these cultures. We found that perceived freedom afforded by anonymous communication and propensity to trust are both positively related to use of anonymous communication, which in turn is positively related to perceived need for legal protection of anonymous communication. Moreover, we found that the relationship between propensity to trust and use of anonymous communication is stronger for respondents in the Eastern Europe cultural cluster than for respondents in non-Eastern Europe cultural clusters.*

### **INTRODUCTION**

*May 13, 2014*

*The EU Court of Justice ruled in favor of a Spanish man, Mario Costeja González, who sought to have links to his personal data removed from Google search results.*

*(Court of Justice of the European Union, 2014)*

*October 1, 2014*

*Chris Cox, Facebook's chief product officer, apologized to members of the LGBT community who were affected by Facebook's insistence on using real names for their accounts.*

*(Cox, 2014)*

These two brief vignettes showcase the increasing insistence of people who use social networks to remain anonymous. In today's hyper-networked society, the use of social networks to

communicate, keep in touch and express one's opinion has become ubiquitous. However, this ubiquity and the ease of expressing oneself have exposed another, contentious side – one where nobody can remain completely anonymous for long, and where every conversation and every bit of data transferred is stored in perpetuity, and thus could be traced back to its origins. Some fear that the ephemeral quality of a social interaction has been lost. People can no longer hope for the right to be forgotten. Others see a threat to freedom of expression. Given the global prevalence of social networks, it would be interesting to see if there are cultural stratifications in the perceptions of anonymity. Specifically, we are interested in the following research questions: Why do people engage in anonymous communication? Is there a perceived need for legal protection of anonymous communication? How do cultural differences impact these relationships?

We attempt to address these questions by studying the perceptions of anonymity among users of social networks across different cultures. In order to do this, we first look at prior work in two broad areas: (a) anonymous communication in the legal, technical, and social science literature; and (b) work on the cultural determinants of behavior.

## ANONYMOUS COMMUNICATION

The desire for individuals to maintain anonymity while interacting in public has long been in existence. People have sought anonymity for a variety of reasons. Prior work in the area of anonymity can be found in the legal, technical, and social science literature. Before discussing these works, it is useful to start with a working definition of the concept of anonymity.

The Merriam Webster Online Dictionary defines “anonymity” as the quality or state of being unknown to most people (Merriam-Webster, 2014). It defines “anonymous” as an entity that is not named or identified, not distinct or noticeable, that is made or done by someone unknown, and/or that lacking interesting or unusual characteristics.

### *Legal Perspective*

From a legal standpoint, proponents of the right to anonymity have argued that modern society *requires* the protection of anonymity in order to function in a free and open manner, without which free expression would be heavily curtailed. Anonymously authored pamphlets and public notices have often enabled the authors to raise issues without the fear of reprisals. The right to author and distribute handbills anonymously has been upheld on many occasions by the US Supreme Court. One of the earliest is the 1960 case, *Talley v. California*, in which the Court ruled in favor of Talley, stating that “forced identification and fear of reprisal might deter perfectly peaceful discussions of public matters of importance” (U.S. Supreme Court, 1960).

Another case pertaining to freedom of expression is *McIntyre v. Ohio Election Commission*, in which McIntyre was fined for distributing leaflets on a school tax-related issue without publishing her name. However, the Supreme Court ruled in favor of McIntyre's rights, noting that anonymity provides dissenters a shield from retaliation and the tyranny of the majority, thereby protecting the right to free expression – which is the purpose behind the U.S. Bill of Rights (EFF, n.d.).

An oft-cited case is *ACLU v. Miller* in the State of Georgia, in which the Federal District Court of Georgia agreed with the ACLU that it was *not* illegal for someone to send email or post on the Internet using a falsified name (ACLU, 1997). Thus in all of these cases, we see that the courts have decided on the side of freedom of expression.

### ***Technical Perspective***

From a technical standpoint, Sheridan (1975) was among the first to report on the usefulness of maintaining anonymity in certain computer communications. In an early Delphi study pertaining to drug use among college students, faculty, and strangers, all of the groups freely indicated how often they used certain drugs, which Sheridan notes would not have occurred without use of the anonymity features offered by the computerized Delphi (Sheridan, 1975). A much more detailed research report on the potential uses of privacy and anonymity in computerized conferencing systems was authored by Robert Bezilla in 1978 at the New Jersey Institute of Technology Computerized Conferencing and Communications Center (Bezilla, 1978).

There have been several approaches towards anonymity in computer science. They mostly revolve around how organizations can share data while maintaining the anonymity of the subjects to whom the data pertains. Researchers identified several approaches to maintain anonymity while de-identifying data through processes of data minimization. The two main approaches utilizing data minimization techniques are k-anonymity (Sweeney, 2002) and l-diversity (Machanavajjhala, Gehrke, Kifer, & Venkatasubramanian, 2006).

### ***Social Perspective***

From a social sciences standpoint, the topic of anonymity was addressed as early as 1895 by Gustave Le Bon in his work *The Crowd: A Study of the Popular Mind* (Le Bon, 1895). Based on his experience of social unrest in France during the 19<sup>th</sup> century, Le Bon suggests that anonymous members of a crowd are less inhibited and generally more anti-social.

Research on anonymity in the social sciences, particularly social psychology, has generally focused on the behavioral effects of anonymity in groups. Largely experimental in nature, this research found that anonymity generally increases identification with group norms.

Experimental work by Festinger and colleagues (Festinger, Pepitone, & Newcomb, 1952) generally confirmed that anonymous subjects tend to be less inhibited. These findings were further refined and came to be known as “deindividuation” theory (Zimbardo, 1969). Deindividuation is a reference to the term individuation, which was coined by Carl Jung as differentiating oneself through the process developing an individual personality (Jung, Adler, & Hull, 1971). In essence, deindividuation theory proposes that as an individual becomes anonymous in a group of people, he can no longer be held responsible for his actions, thus leading him to feel freed of social norms and ultimately encouraging anti-social behavior. Following the reasoning of deindividuation theory, anonymity always leads to anti-social behavior (Diener, 1980).

To address the shortcomings of deindividuation theory – namely the assumption that anti-social behavior is the norm – social identity theory of deindividuation effects (SIDE) was developed (Reicher, Spears, & Postmes, 1995). SIDE places the identification with group norms at its center. Subsequent empirical work found support for the hypotheses of SIDE (Douglas & McGarty, 2001; Postmes, Spears, Sakhel, & de Groot, 2001). More recent work found that individuals tend to move towards more extreme opinions in online group interaction than in face-to-face interaction (Cavanagh, 2007; Sunstein, 2001).

## **CULTURE**

This paper focuses on determining the perceptions of users of social networks with regards to anonymity across cultures. Culture refers to the shared perceptions of a social environment that inform a group of people of certain behaviors that are desirable or should be avoided are often referred to as culture. Culture forms the way individuals behave, communicate and interact with each other (Hofstede, 1980). The role of culture has been studied frequently through the comparison of two cultural dimensions – collectivism and individualism (Hofstede, 1980). Collectivistic cultures are described as family oriented with the collective goals to be dominant in shaping the behavior (Triandis, 1989), while individualistic cultures are more independent and success is determined by individual accomplishments rather than group membership (Hofstede, 1980; Srite & Karahanna, 2006).

The primary cultural clusters we studied were Anglo (e.g. Australia, Canada, England, USA) and Eastern Europe (e.g. Albania, Bulgaria, Moldova, Russia). Eastern Europeans tend to score highly in in-group collectivism. They express pride in their families and loyalty towards group members. Anglo cultures score low in this dimension, being more individualistic and self-centered. In addition, Anglo cultures tend to be more performance oriented, while Eastern European cultures do not (House et al. 2004). Regions with a low performance orientation, such as Eastern Europe, tend to care more about family and their surroundings and less about performance achievements and excellence (Javidan et al., 2006).

Eastern European cultures can be further described as less future oriented. Their future oriented behaviors such as planning, saving and investing in the future are quite low. Anglo cultures at the same time express more future oriented behaviors such as delaying gratification and thorough planning, and engage less in risk taking and opportunistic behaviors (Javidan et al., 2006). Lastly, Eastern European cultures express low uncertainty avoidance characterized by minimal orderliness, structure and formal procedures to organize events in daily lives. Anglo cultures score higher in this dimension and prefer more order and predictability of future events (Javidan et al., 2006).

The above sections complete our review of prior literature pertaining to anonymity and culture. We now proceed to describing the methods used in this study.

## **METHODS**

Given the lack of established scales or a theoretical basis upon which to build a research model and hypotheses, we adapted and extended the Global Survey about Anonymity on the Internet,

which was created by Youth IGF Project – an organization for young people at the Internet Governance Forum. The original survey consisted of 34 multiple-choice questions and focused on perceived freedom afforded by anonymous communication and use of anonymous communication. The results were published in October 2013 and highlight age differences with regards to perceived freedom and use of anonymous communication.

To ease interpretation and analysis of the original survey, we changed the answer choices to Likert-style. To understand the role of propensity to trust in influencing use of anonymous communication, we included a scale, which measures propensity to trust (McKnight et al., 2004). Additionally, we included a scale assessing perceived need for legal protection of anonymous communication, which we developed ourselves. We made the survey available online between November 6 and December 16, 2013 and encouraged students at our university, as well as students at other universities around the globe, to complete the survey. Given the exploratory nature of the survey, we used partial least squares (PLS) path modeling in R to analyze the data (Sanchez, 2013).

## RESULTS

The survey received a total of 374 responses. We dropped 87 cases (23%) due to missing data, for a final sample size of  $N = 287$ . As can be seen in Table 1, the sample is heavily skewed towards younger respondents. Given that our survey was primarily targeted at college students, this result is not surprising. As part of the demographic questions we asked respondents to indicate the country that has most shaped their values and beliefs. Respondents' answers were grouped into cultural clusters following the guidelines of the GLOBE study (House, et al., 2004).

**Table 1: Sample characteristics.**

Characteristic	Number (%)
Gender	
Male	155 (54%)
Female	132 (46%)
Age	
18-24	269 (94%)
25-29	9 (3%)
30+	9 (3%)
Education	
High school	119 (41%)
2-Year college degree	24 (8%)
4-Year college degree	113 (40%)
Master's degree	25 (9%)
Doctoral degree	6 (2%)
Cultural cluster	
Anglo (e.g. Australia, Canada, England, USA)	208 (72%)
Eastern Europe (e.g. Albania, Bulgaria, Moldova, Russia)	55 (19%)
Other	24 (9%)

Following standard PLS path-modeling procedure (Vinzi, et al., 2010), we began by specifying a measurement model using all available items. The constructs in the initial measurement model exhibited low convergent and discriminant validity. Subsequently, we dropped items with low factor loadings or high cross-loadings until all remain items loaded highly and significantly on their assigned constructs. As can be seen in Table 2, the final measurement model indicates good convergent validity (all Cronbach's alpha > .7, Dillon Goldstein's rho > .7, factor loadings > .7, average variance extracted > .5).

**Table 2: Item loadings and construct reliability.**

Construct	Item	Loading	SE	$\alpha$	$\rho$	AVE
Anonymous communication	AC1	.82***	.03	.79	.87	.62
	AC2	.84***	.02			
	AC3	.72***	.05			
	AC4	.76***	.04			
Perceived freedom	PF1	.83***	.03	.85	.89	.63
	PF2	.74***	.04			
	PF3	.83***	.03			
	PF4	.74***	.04			
	PF5	.82***	.03			
Perceived need for legal protection	LP1	.77***	.05	.72	.85	.64
	LP2	.83***	.04			
	LP3	.80***	.04			
Propensity to trust	PT1	.75***	.15	.82	.88	.63
	PT2	.85***	.17			
	PT3	.83***	.11			
	PT4	.75***	.13			

Note: SE = standard error,  $\alpha$  = Cronbach's alpha,  $\rho$  = Dillon Goldstein's rho, AVE = average variance extracted.

To assess discriminant validity, we compared the square root of average variance extracted to the inter-construct correlations. As can be seen in Table 3, the square root of average variance extracted is larger than any of the inter-construct correlations for a construct. Thus, we can conclude that the measurement model exhibits good discriminant validity.

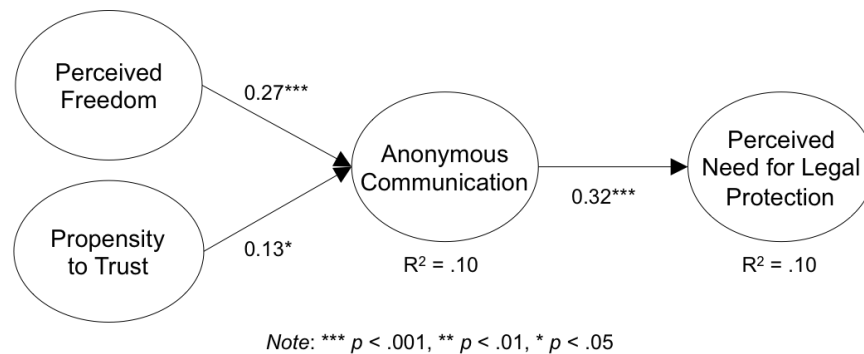
**Table 3: Inter-construct correlations.**

Construct	AC	PF	LP	PT
Anonymous communication (AC)	<b>.78</b>			
Perceived freedom (PF)	.29	<b>.79</b>		
Perceived need for legal protection (LP)	.32	.38	<b>.80</b>	
Propensity to Trust (PT)	.17	.16	.22	<b>.79</b>
Mean	4.95	2.78	2.62	2.71
SD	1.05	0.84	0.72	0.77

Note: Numbers in bold denote the square root of average variance extracted.

Given our research questions, we specified a structural model that loads perceived freedom afforded by anonymous communication and propensity to trust on anonymous communication and, in turn, anonymous communication on perceived need for legal protection. As indicated by the results of the path analysis shown in Figure 1, perceived freedom and propensity to trust are both positively associated with anonymous communication. In other words, the more people perceive freedom afforded by anonymity, the more they engage in anonymous communication. Likewise, the more people have a propensity to trust others, the more they engage in anonymous communication. Anonymous communication was found to be positively related to perceived need for legal protection. This suggests that the more people engage in anonymous communication, the more they perceive a need for legal protection of anonymous communication.

**Figure 1: Results of structural model.**



To further understand potential within-sample differences in the constructs and relationships, we conducted several different two-group comparison tests based on a bootstrap with 200 repetitions. First, we conducted a two-group path coefficient comparison based on gender ( $N_{\text{male}} = 155$ ,  $N_{\text{female}} = 132$ ). We found no significant differences in path coefficients between male and female respondents (all  $\Delta\beta < .04$ ,  $p > .05$ ). This suggests that the relationships identified in Figure 1 above hold equally for male and female respondents.

Second, we compared latent variable scores between male and female respondents. We found male respondents exhibit greater propensity to trust ( $M_{\text{male}} = 3.39$ ,  $M_{\text{female}} = 3.16$ ,  $t = 2.51$ ,  $p < .05$ ), make more use of anonymous communication ( $M_{\text{male}} = 2.29$ ,  $M_{\text{female}} = 1.75$ ,  $t = 4.57$ ,  $p < .01$ ), and have a stronger perceived need for legal protection of anonymous communication ( $M_{\text{male}} = 3.49$ ,  $M_{\text{female}} = 3.23$ ,  $t = 3.14$ ,  $p < .01$ ) than female respondents in our sample.

Third, we conducted a two-group path coefficient comparison based on belonging to the Anglo cultural cluster ( $N_{\text{Anglo}} = 208$ ,  $N_{\text{non-Anglo}} = 79$ ). No path coefficient exhibited significant differences between these groups (all  $\Delta\beta < .21$ ,  $p > .05$ ). This finding suggests that the relationships identified in Figure 1 above hold equally for respondents across Anglo and non-Anglo cultural clusters.

Fourth, we tested for differences in latent variable scores between respondents in Anglo and non-Anglo cultural clusters. We found respondents in the Anglo cultural cluster exhibit lower



perceived freedom ( $M_{\text{Anglo}} = 3.16$ ,  $M_{\text{non-Anglo}} = 3.36$ ,  $t = 2.02$ ,  $p < .05$ ), make less use of anonymous communication ( $M_{\text{Anglo}} = 1.95$ ,  $M_{\text{non-Anglo}} = 2.29$ ,  $t = 2.53$ ,  $p < .05$ ), and subsequently indicate a lower perceived need for legal protection of anonymous communication ( $M_{\text{Anglo}} = 3.28$ ,  $M_{\text{non-Anglo}} = 3.62$ ,  $t = 3.93$ ,  $p < .001$ ) vis-a-vis respondents in non-Anglo cultural clusters. But, respondents in the Anglo cultural cluster exhibit a higher propensity to trust than respondents in non-Anglo cultural clusters ( $M_{\text{Anglo}} = 3.37$ ,  $M_{\text{non-Anglo}} = 3.07$ ,  $t = 2.79$ ,  $p < .01$ ).

Fifth, we conducted a two-group path coefficient comparison based on belonging to the Eastern Europe cultural cluster ( $N_{\text{Eastern Europe}} = 55$ ,  $N_{\text{non-Eastern Europe}} = 232$ ). We found a significant difference in the path coefficient associated with propensity to trust and anonymous communication ( $\beta_{\text{Eastern Europe}} = .42$ ,  $\beta_{\text{non-Eastern Europe}} = .08$ ,  $t = 1.99$ ,  $p < .05$ ), which indicates that propensity to trust plays a greater role in influencing use of anonymous communication among respondents in the Eastern Europe cultural cluster than among respondents in non-Eastern Europe cultural clusters. None of the other path coefficients exhibited significant differences (all  $\Delta\beta < .04$ ,  $p > .05$ ).

Finally, we examined differences in latent variable scores between Eastern European and non-Eastern European respondents. We found that respondents in the Eastern Europe cultural cluster exhibit a lower propensity to trust ( $M_{\text{Eastern Europe}} = 2.94$ ,  $M_{\text{non-Eastern Europe}} = 3.37$ ,  $t = 2.79$ ,  $p < .01$ ), yet a greater perceived need for legal protection of anonymous communication ( $M_{\text{Eastern Europe}} = 3.63$ ,  $M_{\text{non-Eastern Europe}} = 3.31$ ,  $t = 3.31$ ,  $p < .01$ ) than respondents in non-Eastern Europe cultural clusters.

We discuss the meaning and significance of these results below.

## DISCUSSION

Taken together, the above findings suggest several relationships that are worthy of further investigation. Specifically, we may posit the following propositions based on our findings, which may be tested in future research:

***P1: Perceived freedom afforded by anonymous communication is positively related to use of anonymous communication.***

***P2: Propensity to trust is positively related to use of anonymous communication.***

***P3: Use of anonymous communication is positively related to perceived need of legal protection.***

***P4: The relationship between propensity to trust and use of anonymous communication is stronger for respondents in the Eastern Europe cultural cluster than for respondents in non-Eastern Europe cultural clusters.***

Proposition P1 suggests that the more people perceive anonymous communication to give them freedom (such as to say something they are embarrassed about or to say something they are scared to say), the more they will engage in anonymous communication. In a way, perceived

freedom is similar to the concept of perceived usefulness in the technology acceptance model (Davis, 1989). Usefulness, in this context, is the perceived freedom resulting from the use of anonymous communication.

Proposition P2 is interesting in that it is slightly counter-intuitive. The proposition suggests that people who have a greater propensity to trust – which means people who generally believe in the honesty of other people and who feel that people generally back up what they say – are *more* likely to use anonymous communication. Why would people who are generally more trusting use more anonymous communication than people who are less trusting? Obviously we can only speculate about the answer to this question. It is possible that people who are more trusting see anonymous communication as a way to build and maintain trust with strangers. Maybe – as suggested by the data – trust and anonymity are actually mutually reinforcing. Given our finding, we believe there is a definite need for future research investigating the relationship between propensity to trust and anonymous communication.

Proposition P3, on the other hand, suggests that the more people use anonymous communication, the more they want it to be protected legally. This may be related to the concept of psychological ownership (Pierce et al., 2003), which suggests that people form ownership beliefs about concepts and things they do regularly. In a way, people might feel that because they communicate anonymously online, such communication is part of who they are, thus leading them to feel the need for legal protection.

Lastly, proposition P4 points to an interesting difference between non-Eastern and Eastern European cultures: the impact of propensity to trust on behavior (in this case, anonymous communication behavior). Based on the data, it appears that the relationship between propensity to trust and anonymous communication is stronger for people in Eastern European cultures than for people in non-Eastern cultures. This may be related to differences in focus on safety and security of the individual between non-Eastern and Eastern European cultures (Javidan et al. 2006). While the focus on safety and security and related self-protective dimensions is fairly high in Eastern Europe, it is fairly low in non-Eastern cultures. This is supported by the fact that respondents in Eastern Europe have a lower propensity to trust than respondents in Anglo cultures. Thus it is possible that people in Eastern European cultures rely more on propensity to trust in guiding their behavior, including anonymous communication, than people in non-Eastern cultures. Clearly, future research needs to investigate this relationship further.

Finally, we would like to point to the potential limitations of our study. First and foremost, the sample we used was relatively small and is not representative of the broader population. It is heavily skewed towards young, educated people in Anglo cultures. Although we had a decent amount of respondents in non-Anglo cultures, particularly Eastern European, the sample split was far from even. Second, given the lack of established scales and a strong theoretical basis, we conducted an exploratory data analysis using newly-developed and adapted scales. Although the scales showed good convergent and discriminant validity in our analysis, only future research will indicate their test-retest reliability. Lastly, we proposed relationships that indicate a causal nature. Since our findings are based on cross-sectional data, it is possible that the identified relationships are spurious or even operate in the opposite direction. For example, it is possible that anonymous communication impacts propensity to trust and not vice versa. Only

experimental research will provide definite answers to the causal nature of the relationships identified in this study.

## CONCLUSION

A literature review of anonymous communication and culture identified a need for an empirical study of perceptions and use of anonymous communication across cultures. Given the lack of established scales in this domain, we developed and adapted scales and conducted a survey among respondents in the Anglo cultural cluster (e.g. Australia, Canada, England, USA) and the Eastern Europe cultural cluster (e.g. Albania, Bulgaria, Moldova, Russia). After analyzing the measurement model, we retained four constructs: perceived freedom afforded by anonymous communication, propensity to trust, use of anonymous communication, and perceived need for legal protection of anonymous communication. Results of the structural model indicate that perceived freedom and propensity to trust both increase use of anonymous communication. Use of anonymous communication, in turn, increases perceived need for legal protection. In addition, we found systematic differences between Eastern European and non-Eastern European respondents. Specifically, for Eastern European respondents the relationship between propensity to trust and use of anonymous communication is stronger than for non-Eastern European respondents. This work makes important contributions to the nascent literature at the nexus of anonymous communication and culture. Future work should focus on further exploring and testing the relationships identified in this study.

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## APPENDIX: SURVEY MEASURES

**Anonymous communication:** Six-point scale measured as 1 – never, 2 – very rarely, 3 – rarely, 4 – occasionally, 5 – frequently, 6 – very frequently (adapted from Youth IGF Project, 2013).

AC1: I leave an anonymous comment on a blog.

AC2: I leave a comment on a website that I don't have to register for (example: anonymous message board).

AC3: I use a service that allows me to chat anonymously with strangers (like anonymous video chat or chatting while gaming).

AC4: I use online tools that are designed to hide my identity (such as Tor, I2P, or personal VPN).

**Perceived freedom:** Five-point scale measured as 1 – strongly disagree, 2 – disagree, 3 – undecided, 4 – agree, 5 – strongly agree (adapted from Youth IGF Project, 2013).

CC1: Communicating anonymously online allows me to say something I'm embarrassed about.

CC2: Communicating anonymously online allows me to protect my reputation.

CC3: Communicating anonymously online allows me to say something I'm scared to say.

CC4: Communicating anonymously online allows me to say something controversial.

CC5: Communicating anonymously online allows me to reveal a secret without repercussions.

**Perceived need for legal protection:** Five-point scale measured as 1 – strongly disagree, 2 – disagree, 3 – undecided, 4 – agree, 5 – strongly agree (self-developed).

LC1: Anonymous online communication should be protected by law.

LC2: People should have the right to communicate anonymously online.

LC3: Anonymous online communication is essential to the functioning of a democratic society.

**Propensity to trust:** Five-point scale measured as 1 – strongly disagree, 2 – disagree, 3 – undecided, 4 – agree, 5 – strongly agree (McKnight et al., 2004).

PT1: I believe that people really do care about the well-being of others.

PT2: I believe that people generally try to back up their words with their actions.

PT3: I believe that most people are honest in their dealings with others.

PT4: I believe that people care enough to try to be helpful, rather than just looking out for themselves.