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## The influence of helper factors on internet helping behavior: moderating effect of anonymity

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### ABSTRACT

The purpose of present study is to examine the influence of helper factors on internet helping behavior, this study is designed to construct a new theoretical model in which anonymity acts as moderator variable, and 564 people are assessed through questionnaire. The empirical result indicates: (1) there are significant positive correlations between helper factors (empathy, moral judgment, self-esteem and prior experience) and internet helping behavior; (2) anonymity has a significant moderating effect on relationship between helper factors and internet helping behavior; (3) anonymity has significant moderating effects on associations between empathy, prior experience and internet helping behavior, however it can't adjust significantly associations between moral judgment, self-esteem and internet helping behavior.

### KEYWORDS

Internet helping behavior; Helper factors; Anonymity; Positive correlation; Moderating effect.



## INTRODUCTION

Internet changed greatly the people's lifestyles, the behavior in virtual world has become many scholars's research hotspot. Internet behavior includes both positive behavior and negative behavior, but the current research on internet behavior tends to focus on negative behavior (such as internet pornography, internet violence, internet addiction etc.); there are few studies on internet positive behavior at present<sup>[1]</sup>.

In order to describe internet positive behavior, scholars have proposed some concepts: "network pro-social behavior"<sup>[2,3]</sup>, "online volunteering"<sup>[1]</sup>, "network altruistic behavior"<sup>[4]</sup> and so on; internet helping behavior is similar to these concepts, but its extension is small, it is only a kind of special internet positive behavior. In this paper, internet helping behavior is defined as: behavior of spontaneous helping others in internet context, it can be divided into three parts: technical or methodological guidance, information consulting, social assistance.

Previous studies about internet helping behavior, focused on influence factors of behavior; research results showed that all variables influencing internet helping behavior can be grouped into three categories: helper factors, recipient factors and situational factors. However, current research in this area is very fragmented, lacks especially corresponding empirical research and quantitative research, also lacks consideration for internet situational factors.

## HELPER FACTORS

Helper factors are those variables related to helper (person of helping others), this study refers to research results of helping behavior in the real-life society, extracts 4 variables: empathy, moral judgment, self-esteem and prior experience. However, whether these variables still apply to the virtual world, needs further empirical testing.

Empathy, it is defined by Titchener as: the process of object humane<sup>[5]</sup>. Hoffman (1975) believed that empathy is an important motivation for pro-social behavior, high empathy level individual will be more motivated to help others than low empathy level individual<sup>[6]</sup>; Hudec (2002) found that empathy level can predict personal willingness to participate in volunteer activities<sup>[7]</sup>; Song (2005), Zheng (2012) also pointed out a positive correlation between empathy level and internet positive behavior<sup>[2,8]</sup>.

Thus, we hypothesize H1: empathy has a positive impact on internet helping behavior.

Moral judgment is individual psychological process of using moral awareness and evaluating social phenomena. Rushton (1976) found that high moral judgment level child will show more altruistic behavior<sup>[9]</sup>; Wei (2007), Jiang (2010) also believed that the high level of moral judgment has a positive impact on network pro-social behavior<sup>[3,10]</sup>.

Thus, we hypothesize H2: moral judgment has a positive impact on internet helping behavior.

Self-esteem is the extent that a person loves oneself, it is the self-evaluation result of individual social roles and values. Benson (1978) found that low self-esteem individuals will produce more pro-social behavior<sup>[4]</sup>. But many researchers had different views on this, they considered that high self-esteem individuals are more prone to helping others<sup>[3,8,10]</sup>.

Thus, we hypothesize H3: self-esteem has a positive impact on internet helping behavior.

Prior experience is something that individual encountered or done, in this paper, it refers to online experience to help others or be helped by others. Hamilton (1988) found, young people who had volunteer experience will show more actions of volunteer service<sup>[11]</sup>; Hudec (2002) believed that the prior experience has a great positive impact on volunteering behavior<sup>[7]</sup>. Wei (2007) pointed out, people who had received help from others in the internet will be grateful for the love, they would be more willing to help others<sup>[3]</sup>.

Thus, we hypothesize H4: prior experience has a positive impact on internet helping behavior.

## ANONYMITY VARIABLE AND MODEL CONSTRUCTING

Empathy, moral judgment, self-esteem and prior experience all have impacts on helping behavior, but it should be noted that, the occurrence of behavior is not only affected by personal factors, but also is affected by situational factors. Latane (1970) believed that situational factors of helping behavior are very important<sup>[12]</sup>; Krebs (1982) also noted that the same individual in different contexts will make completely different actions, before making action, the helper will first observe the context<sup>[13]</sup>.

Virtual world is different from real environment, and internet situational variables will also be different from real environment variables; but, what variables are included in internet situational variables? what are effects of these variables on internet helping behavior? Previous studies about these questions are few, so in this respect, more in-depth study is necessary.

Anonymity is a special network situational variable, it refers to the non-real-name level of online environment, it reflects the degree of hiding individual true identity and strange extent of members to each other in virtual world.

In the view of sociobiology, helping others contributes to genes heredity and race reproduction, for genetic self-interest, individuals will be more willing to help close or familiar people. Therefore, in virtual world, determined and real-name environment should be easier to arouse helping behavior, anonymity leads to differences of helper factors influences on internet helping behavior, it acts as moderator.

Thus, we hypothesize H5: in the course of influence helper factors on internet helping behavior, anonymity plays a negative regulatory role.

Based on hypothesis H5, we can draw out the following sub-hypothesis:

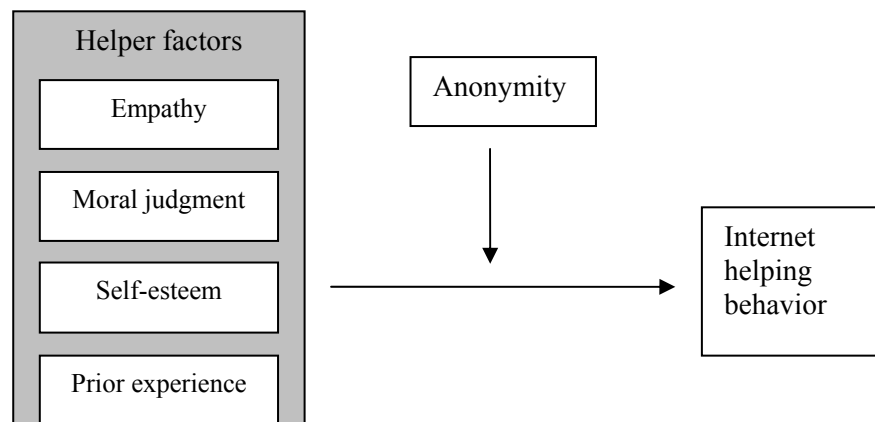
H5a: anonymity has a significant moderating effect on relationship between empathy and internet helping behavior, with the enhancement of anonymity level, positive impact of empathy on internet helping behavior is increasingly weak;

H5b: anonymity has a significant moderating effect on relationship between moral judgment and internet helping behavior, with the enhancement of anonymity level, positive impact of moral judgment on internet helping behavior is increasingly weak;

H5c: anonymity has a significant moderating effect on relationship between self-esteem and internet helping behavior, with the enhancement of anonymity level, positive impact of self-esteem on internet helping behavior is increasingly weak;

H5d: anonymity has a significant moderating effect on relationship between prior experience and internet helping behavior, with the enhancement of anonymity level, positive impact of prior experience on internet helping behavior is increasingly weak.

The theoretical model diagram of study is shown in Figure 1.



**Figure 1 : Theoretical model**

## RESEARCH DESIGN AND DATA

### Access to research data

To obtain the data, this study conducted a survey, and mainly used Likert five-point scale to measure all variables. Investigation was started in June 2012, and was completed in August 2012.

In order to ensure the quality of the survey, investigation used electronic questionnaires and paper questionnaires. Distribution and recovery of electronic questionnaires were done through QQ or Email; and paper questionnaires were distributed to subjects in campus, internet cafes or other public places, then were recovered after subjects completed questionnaires. 925 questionnaires were distributed and 612 questionnaires were recovered in the survey, questionnaires recovery rate is 66.2%; 564 valid questionnaires, questionnaires validity rate is 92.2%, the number of valid samples exceeds greatly Nunnally's standard suggested<sup>[14]</sup>. The male is 308, female is 256; 352 people are between 18 and 25 years old, Young people accounted for 62.4% of the total number of valid samples.

### Measurement and calculation of variables

The theoretical model includes six variables: empathy, moral judgment, self-esteem, prior experience, anonymity, internet helping behavior, the following text describes measurement of each variable.

This study measures empathy through interpersonal reactivity index scale (IRI-C) revised by Wu et al, each question scores from 1 to 5 points, the scale has good reliability and validity in the Chinese context<sup>[15]</sup>.

The measurement of moral judgment is carried out through Lind's moral judgment test (MJT)<sup>[16]</sup>, the result of MJT is moral judgment C score, but the scoring style of this study is five-point scale, so C score must be converted to five-point score, the assignment rule of this study is: C score less than 10 points, value of 1; C score 50 points or more, value of 5; C score is between 10 and 50 points, value of C/10.

Self-esteem is measured through Rosenberg's self-esteem scale (SES)<sup>[17]</sup>, each question scores from 1 to 5 points, the mean of all questions scores is treated as self-esteem level.

This study refers to the network altruistic behavior scale<sup>[4]</sup>, uses the questionnaire to measure prior experience. each question scores from 1 to 5 points, from "strongly disagree" to "strongly agree", the mean of all questions scores is treated as level of prior experience, as shown in TABLE 1.

**TABLE 1 : Measurement items of prior experience**

Codes	Measurement items
PE1	I helped ever others on the internet.
PE2	Someone provided data or information to me on the internet.
PE3	Someone helped me to solve my problems on the internet.
PE4	No one supported me on the internet. (reverse scoring)
PE5	Someone advocated participating in blood or money donation on the internet.
PE6	In order to help others, I ever forwarded their help information on the internet.

Anonymity is measured through self-made questionnaire, each question scores from 1 to 5 points, from "strongly disagree" to "strongly agree", the mean of all questions scores is treated as level of network anonymity, as shown in table 2.

**TABLE 2 : Measurement items of network anonymity**

Codes	Measurement items
NA1	In my network organization (BBS forum, QQ group etc logined actively), the organization is a non-real-name system, members use virtual screen names or nicknames as their own logos.
NA2	At the time of registration, new members don't provide their real identity information in my network organization.
NA3	I and other members in my network organization, we don't know each other in the real world.

This study refers to the network altruistic behavior scale<sup>[4]</sup>, uses self-made questionnaire to measure internet helping behavior, it should be pointed out that internet helping behavior is a narrow concept in this study, it doesn't include network sharing and emotional support behavior. Each question scores from 1 to 5 points, from "never" to "always", the mean of all questions scores is treated as level of helping behavior, as shown in TABLE 3.

**TABLE 3 : Measurement items of internet helping behavior**

Codes	Measurement items
Hb1	I answered someone else's questions on the internet.
Hb2	I guided online the network rookie to kill computer viruses.
Hb3	I created groups, provided communication platform for netizens.
Hb4	I help others to solve his difficulties on the internet.
Hb5	I forwarded others help information, in order to let more people see.
Hb6	I mediated online others interpersonal conflicts.
Hb7	I send files or documents to help netizens.
Hb8	I advocated blood donation, charitable donations or other love actions on the internet.
Hb9	I helped online rookies to better adapt to internet environment.
Hb10	I provided valuable information to callers online.
Hb11	In order to help others find someone or something, I launched the flesh search.

### Reliability and validity testing

#### Reliability analysis

The research uses the Cronbach  $\alpha$  coefficient to measure reliability, the  $\alpha$  value above 0.7 means high reliability<sup>[14]</sup>. In this paper, the reliability of each variable is tested, results show good reliability of each variable, as shown in TABLE 4.

**TABLE 4 : Reliability analysis of sample data**

Variables	Codes	$\alpha$
Empathy	EL	0.851
Moral judgment	MJ	0.862
Self-esteem	SE	0.905
Prior experience	PE	0.794
Anonymity	NA	0.708
Helping behavior	Hb	0.839

### Validity analysis

Validity analysis mainly includes two aspects: content validity and structure validity.

In terms of content validity, researchers need to control strictly it in the process of acquiring data, in addition, this paper refers to Hau's suggestion<sup>[18]</sup>, and tries to select mature scale items to ensure good content validity of questionnaire.

In terms of structure validity, the study uses exploratory factor analysis, and ensures high construct validity through the KMO value, Bartlett ball test, the cumulative contribution rate and the factor loading values, among them, the KMO value should be greater than 0.5, the Sig. value should be less than 0.05, the cumulative contribution rate of over 50% is acceptable, the factor loading value above 0.4 is significant.

Mature scales are used in the variable measurement process of empathy, moral judgment and self-esteem, so this study only needs to analyze three variables: prior experience, anonymity and internet helping behavior in the structure validity test, as shown in TABLE 5. The results show that the questionnaire used meet validity requirements.

**TABLE 5 : Structure validity analysis of measurement indicators**

Variables	Item codes	Validity	
Prior experience	PE1	0.581	
	PE2	0.637	
	PE3	0.849	KMO : 0.705
	PE4	0.663	Cumulative contribution rate: 64.637%
	PE5	0.742	
	PE6	0.515	
Network anonymity	NA1	0.572	
	NA2	0.784	KMO : 0.588
	NA3	0.632	Cumulative contribution rate: 54.491%
	Hb1	0.889	
Internet helping behavior	Hb2	0.604	
	Hb3	0.685	
	Hb4	0.753	
	Hb5	0.854	KMO : 0.757
	Hb6	0.580	Cumulative contribution rate: 69.739%
	Hb7	0.838	
	Hb8	0.866	
	Hb9	0.711	
	Hb10	0.812	
	Hb11	0.719	

## RESULTS AND DISCUSSION

According to the research model and hypotheses, hierarchical regression analysis of SPSS16.0 software is used in this paper to verify the moderating effect of anonymity on relationship helper variables with internet helping behavior. Test results of moderating effect on anonymity are shown in TABLE 6.

In the third step of hierarchical regression analysis in TABLE 6, product terms of anonymity and each variable are joined, the  $\Delta R^2$  is 0.023, the significance of equation 3 is: sig.=.043, equation 3 passed significance test(sig.<0.05), according to results, the research can draw the conclusion: anonymity has a significant moderating effect on relationship between helper factors and internet helping behavior. Hypothesis H5 has been verified.

In TABLE 6, these coefficients of four variables (empathy, moral judgment, self-esteem and prior experience) are all positive, and all pass the significance test (sig.<0.1); therefore, these four variables are all significantly positively related to internet helping behavior. Hypotheses H1, H2, H3, H4 have been verified. This shows: as the real world, the positive influence of helper factors also exists even in the virtual world.

In addition, coefficient of anonymity is negative, and also pass the significance test (sig.<0.1); therefore, anonymity is significantly negatively related to internet helping behavior, it has negative impact on internet helping behavior. The result shows: in the context of personnel familiar with each other, or in the real-name network, people will be more prone to internet helping behavior.

In order to further clarify moderating effect of anonymity on relationship between each independent variable and internet helping behavior, the study analyzes specific regression analysis equations. It can be seen in TABLE 6, in equation 3,

moderating effects of anonymity on relationships between moral judgment, self-esteem and internet helping behavior are not significant. Therefore, hypotheses H5b, H5c have not been verified.

**TABLE 6 : Test results of moderating effect of anonymity on relationship between helper variables and internet helping behavior**

Steps	Variable codes	Equation 1			Equation 2			Equation 3		
		B	Std.B	Sig.	B	Std.B	Sig.	B	Std.B	Sig.
	(Constant)	0.130		0.489	-0.043		0.533	0.251		0.991
1	EL	0.174	0.145	0.043	0.162	0.134	0.053	0.145	0.120	0.085
	MJ	0.237	0.177	0.017	0.240	0.179	0.013	0.256	0.191	0.009
	SE	0.029	0.021	0.082	0.025	0.020	0.066	0.051	0.040	0.062
	PE	0.305	0.255	0.000	0.267	0.224	0.001	0.265	0.222	0.001
2	NA				-0.110	-0.120	0.001	-0.108	-0.131	0.009
	EL * NA							-0.106	-0.124	0.087
3	MJ * NA							0.012	0.019	0.820
	SE * NA							0.038	0.056	0.511
	PE * NA							-0.034	-0.059	0.041
	R <sup>2</sup>		0.155			0.203			0.226	
	ΔR <sup>2</sup>		0.155			0.048			0.023	
	Sig. of ΔF		0.000			0.000			0.043	
	F		10.917			12.043			7.545	
	Sig. of Model		0.000			0.000			0.000	

However, the moderating effects of anonymity on relationships between empathy, prior experience and internet helping behavior are significant (sig.<0.1), and the coefficient values of EL\*NA and PE\*NA are both negative; so it can be believed that with the increasing of anonymity level, the non-real-name level of network will be higher and members will be more strange, but the relationships between empathy, prior experience and internet helping behavior will become more and more weak, the positive influence of empathy and prior experience on internet helping behavior will be increasingly weak. Therefore, hypotheses H5a, H5d have been verified.

In this issue on full implementation of internet real-name system, there is still currently controversial in academic circles, according to these empirical results, it can be seen that we should make a concrete analysis for specific questions. In terms of network management, if only for the purpose of creating favorable environment in order to stimulate more internet helping behavior, to a certain extent, the implementation of internet real-name system is reasonable. Especially when there are a large number of individuals with different empathy levels and prior experiences on the internet, it is more necessary for the network community or organization to carry out internet real-name system.

## CONCLUSIONS AND FUTURE RESEARCH

Based on the research perspective of influence factors on internet helping behavior, this paper argues that there is a moderator variable (namely anonymity) between four helper variables (namely empathy, moral judgment, self-esteem and prior experience) and internet helping behavior, moreover conducts a empirical research through multi-linear regression analysis, and draws the following conclusions:

(1) Empathy, moral judgment, self-esteem and prior experience, these four variables significantly positively correlated with internet helping behavior, they have all positive effects on internet helping behavior.

(2) Anonymity is a situational variable reflecting the non-real-name level of network and strange extent of members to each other, it has a negative impact on internet helping behavior, moreover has a significant moderating effect on relationship between helper variables and internet helping behavior.

(3) Specifically, moderating effects of anonymity on relationships between moral judgment, self-esteem and internet helping behavior are not significant; but anonymity has significant moderating effects on relationships between empathy, prior experience and internet helping behavior: with the enhancement of anonymity level, positive impacts of empathy, prior experience on internet helping behavior are both increasingly weak.

In this study, the attention focus of independent variables is helper factors, so the recipients factors (namely those variables related to recipients) are not considered; and the one of situational factors involved, anonymity is considered as a moderating variable. But in fact, the recipients factors and some other situational factors also can affect internet helping behavior, the relationships between them and internet helping behavior need to be studied further, in the follow-up study, more new variables should be added into the theoretical model in order to improve the research.

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