

# Development of Indicators of Cyberbullying among Youths in Songkhla Province

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## Abstract

The objectives of this study were to develop indicators and to test the goodness of fit of the structural relationship model of indicators of cyberbullying among youths in Songkhla Province. The study was conducted with 480 youths, and confirmatory factor analysis was performed.

The results of the study revealed that the indicators of cyberbullying among youths in Songkhla Province consisted of five factors with twenty-four indicators. The factor with the highest weight was slandering (b=0.90) consisting of five indicators, followed by revealing other people's personal secrets (b=0.89) consisting of five indicators; identity theft (b=0.88) consisting of five indicators; deleting or blocking others from the group (b=0.65) consisting of four indicators; and flaming (b=0.17) consisting of five indicators. The linear structural model of cyberbullying among youths was in statistically significant congruence with empirical data.

**Keywords:** confirm factor analysis, cyberbullying, indicators development, youths

## 1. Introduction

Information technology advancement provides other ways for youths to have more freedom and alternatives for doing violence to others causing cyberbullying that can happen at all time and places through electronic communication tools like computers and mobile phones with the Internet as the interface (Field, 2006; Chamchuli, 2007; Pokpong & Musikphan, 2010). Cyberbullying is done through writing to slander and tease others which can be done through posting pictures or video clips that are other people's secrets both true and not true on social network places to harass, threat, damage or embarrass others. This is an effective and quick way to publicize such writing, pictures and video clips to virtually everyone. Social network sites are also places where people can express their opinions freely that the persons being bullied cannot respond which results in stress, feeling hurt, embarrassment, and loss of confidence in living with others in society. In some cases, it can lead to the problem of violence (Smith, Mahdavi, Carvalho, & Tippett, 2006; Willard, 2006; Hines, 2011; Wipulakorn, 2013).

Even though most research findings tend to indicate that cyberbullying among youths is normal and accepted as outlets and fun because nobody is injured and troubled. Thus, it does not receive much attention and is not very seriously addressed (Pokpong & Musikphan, 2010). Bullying among youths is an issue known in groups of peers who bully and being bullied, and there are never-ending retaliations going back and forth among them in the cyber world (Musikphan, Yongchin, & Chanchaoren, 2011). The important cause of cyberbullying is youths' access to modern communication tools like mobile phones and the Internet that are widely available and speedy. Cyberbullying among youths can be classified into five types: (1) flaming through email, (2) slandering through social networks, (3) using others' names through social networks, (4) revealing or forwarding other people's personal secrets or information in online networks, and (5) deleting or blocking others from cyber groups (Willard, 2006; Hines, 2011).

From reviewing related documents and research reports, no standardized measurement tools for cyberbullying had been developed in Thailand. Most cyberbullying-related literature was found to be about the problem and types of bullying, and equipment used through cyberbullying. No studies about tools or development of indicators of cyberbullying among youths were found. Nowadays youths' behaviors in using online social networks have been expanded widely and quickly. Therefore, youths utilized online social networks as tools to

bully others in many ways causing bad effects on bullies themselves and youths being bullied. This can cause problems that are difficult to solve to family and society. Thus, it is necessary to develop concrete and clear indicators of cyberbullying among youths to use in testing and screening youths to solve the problem. This is because cyberbullying among youths is a silent danger that is threatening Thai youths nowadays. Thus, reducing risk of cyberbullying among youths and reducing effects from it are considered challenging for local private and public organizations, other parties, youths themselves, and their families. Because the family institution is the most sensitive and most important, cooperation from all parties concerned is needed in solving the problem for youths so that they can be developed in all dimensions.

The abovementioned phenomena made the researcher interested and see the necessity in developing indicators of cyberbullying among youths, and in testing the goodness of fit of the linear structural model of cyberbullying among youths to the empirical data. The results of this study would be beneficial for forming policy related to solving cyberbullying behavior problems among youth in Songkhla Province and other areas in order to reduce and prevent cyberbullying behavior as well as to make changes, provide assistance and improve the problem of cyberbullying behavior before it becomes a social problem that is difficult to prevent and to solve in the future.

## **2. Research Objectives**

- 1) To develop indicators of cyberbullying among youths in Songkhla Province;
- 2) To test the goodness of fit of the linear structural model of cyberbullying among youths in Songkhla Province.

## **3. Methods**

The method of the study consisted of five steps as follows.

### **Step 1: Determining factors and indicators**

Studying related concepts and theories and synthesizing them into factors and indicators. Concepts on cyberbullying were studied from related textbooks, academic documents and research reports published domestically and abroad, and factors and indicators of cyberbullying among youths were synthesized, and a conceptual framework for research was determined.

### **Step 2: Devising a research instrument**

Making a draft of the research instrument which was a questionnaire consisting of 5-point scale rating questions from the most appropriate to the least appropriate. The questionnaire consisted of 24 question items and five factors: 1) flaming consisting of 5 indicators, 2) slandering consisting of 5 indicators, 3) identity theft consisting of 5 indicators, 4) revealing other people's secrets consisting of 5 indicators, and 5) deleting or blocking others from the group consisting of 4 indicators.

### **Step 3: Testing the instrument**

The questionnaire was tested by five experts for its content validity and content coverage of the factors, and then Index of Item-Objective Congruence (IOC) was analyzed (Charoensuk, 2010) before indicators with an IOC index of .50 and above were selected as this indicated that particular indicator was in congruence with the objectives and content to be measured (Kanchanawasi, 1999). The result was that the IOC indexes were in the range .60-1.00. Construct validity and suitability were also tested by pilot testing the questionnaire with 40 subjects in order to find the reliability of the entire questionnaire. The result was that the reliability was in the range .828-.950. The questionnaire was improved and then used to collect data from a group of 480 subjects. The construct validity and suitability of the indicators were tested and the result was .539-984.

### **Step 4: The population and subjects**

The population of the study consisted of youths aged 13-18 years who used the Internet for three hours or more a day and lived in Hat Yai City Municipality and Songkhla City Municipality. The subject size of 480 was determined using the concept of Angsuchot, Wichitwanna, and Phinyophanuwat (2011) and the subjects were selected using multi-stage sampling as follows. 1) The area where the subjects lived was classified into two areas: Hat Yai City Municipality and Songkhla City Municipality; 2) youths who used the Internet for three hours or more a day were selected using simple random sampling from gaming Internet cafes in Hat Yai City Municipality and Songkhla City Municipality. On selecting youths who were related with cyberbullying, the researcher observed their Internet using behavior, inquired café assistants, and inquired friends of the youths.

### **Step 5: Data analysis**

Only returned questionnaires that were complete were encoded and primarily analyzed using frequency and percentage. Then, suitability of the indicators of cyberbullying among youths in Songkhla Province was

analyzed to find out the average and standard deviation to be compared with the interpretation criteria of Khonkan (2004) which are as follows. An average of 4.50 or more meant that the indicator was the most suitable; 3.50-4.49 meant very suitable; 2.50-3.49 meant moderately suitable; 1.50-2.49 meant somewhat suitable; and 1.50 or less meant the least suitable. After confirmatory factor analysis was performed to test the goodness of fit for the structural model of the factors, weights were assigned to construct the indicators and empirical data to determine the weights of the main variables used in constructing the indicators. Then the goodness of fit of the research model that was a theoretical model to the empirical data was tested using the following statistics (Joreskog & Sorbom, 1993).

1) Chi-square statistic is a statistical value used to test a statistical hypothesis to see whether the fitting function value is null. If the chi-square value is very low or close to null, it indicates that the LISREL model data is fitted to empirical data.

2) Goodness of Fit Index is a ratio of difference between the fitting function of a model before and after being adjusted. If the GFI value is more than 0.90, it indicates that the model is fitted to the empirical data.

3) AGFI (Adjusted Goodness of Fit Index) refers to a GFI that has been adjusted taking into consideration the sizes of variables and subjects. AGFI is used in the same way as GFI which means that if its value is close to 1, it indicates that the model is fitted to the empirical data.

4) RMSEA (Root Mean Square Error of Approximation) is a value that indicates a lack of fit of the model to the population covariance matrix. According to Browne and Cudeck (1993), an RMSEA value less than .05 indicates a close fit. However, a value that is valid and with a fit to a model should not be more than .08.

Then the indicators of cyberbullying among youths in Songkhla Province with factor loading of .30 or above, and with an average of suitability equals to 3.50 or above, were selected.

#### 4. Results

1) In developing indicators of cyberbullying among youths in Songkhla Province, after related documents and research reports were studied, goodness of fit, clearness and correctness of the indicators were tested; the following five factors and twenty-four indicators were obtained.

Factor 1: Flaming (FLAMING) consisted of five indicators: 1) I gossip and say bad words behind someone's back (FL1); 2) I use rude words to scold others (FL2); 3) I tease others about their bad or embarrassing behaviors (FL3); 4) I make fun of others' physical impairments (FL4); and 5) I speak to embarrass, dishonor others and harm their reputation (FL5).

Factor 2: Slandering (SLANDER) consisted of five indicators: 1) I slander against others' name to third persons (SL1); 2) I slander against others to make third persons hate them (SL2); 3) I share embarrassing pictures or videos of others (SL3); 4) I share images of others to harm their reputation (SL4); and 5) I spread rumors to humiliate others (SL5).

Factor 3: Identity theft (REFER) consisted of five indicators. 1) I use someone else' name without permission to chat online through social networks (RE1); 2) I use someone else' name without permission in bad ways (RE2); 3) I use images of others without permission (RE3); 4) I use someone else' name without permission for my benefits (RE4); and 5) I use someone else' name without permission to hurt third persons (RE5).

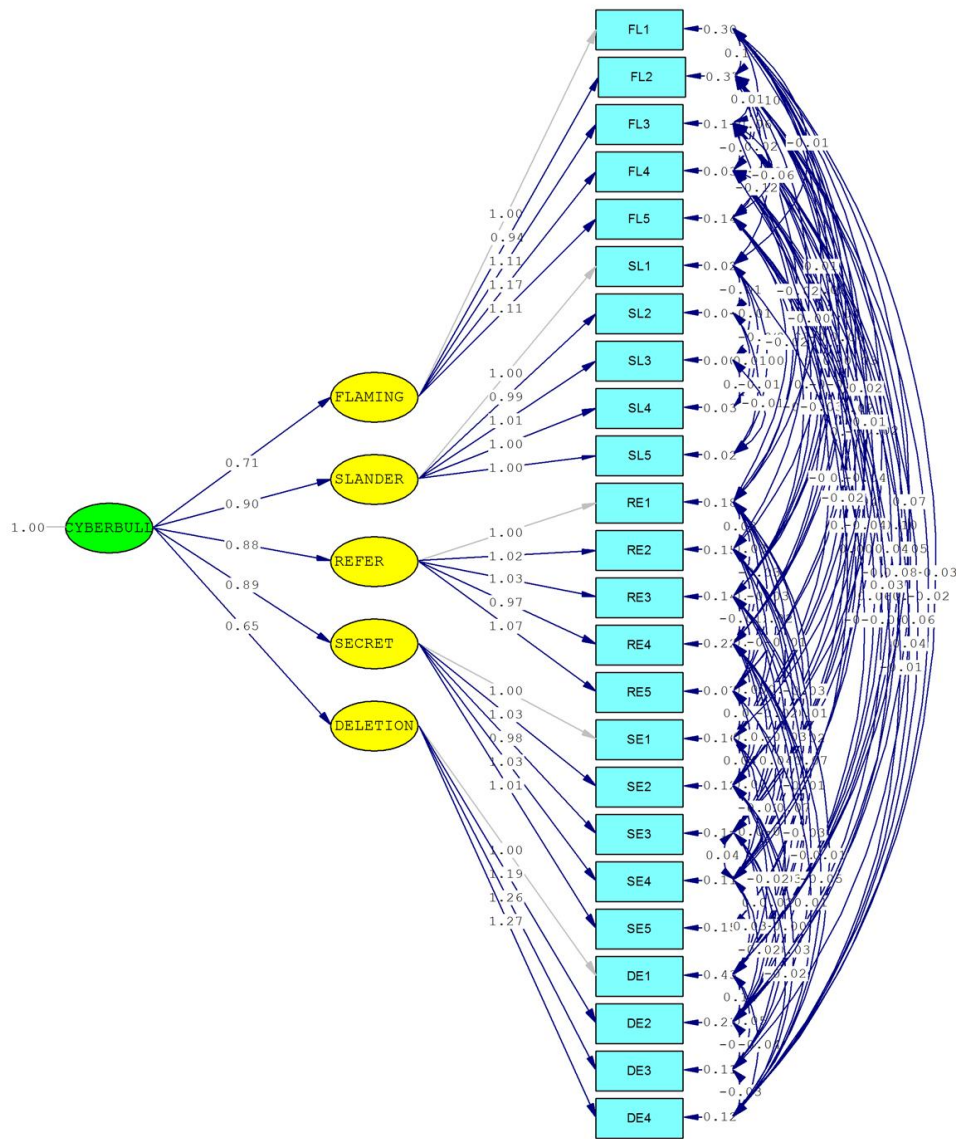
Factor 4: Revealing other people's personal secrets (SECRET) consisted of five indicators. 1) I brought the name of parents or closely adult relative of other people to disclose or forward (SE1); 2) I put the secret of inferiority complex of others people to disclose or forward (SE2); 3) I led the secret that makes the shame and disgrace of the others people to disclose or forward (SE3); 4) I put the personal information of other people to disclose without permission (SE4); and 5) I share the secrets of others people to a third ones (SE5).

Factor 5: Deleting or blocking others from the group (DELETION) consisted of four indicators. 1) I unfriend or delete people I do not like from the group (DE1); 2) I obstruct or block people I do not like from the group (DE2); 3) I order some of my friends to unfriend people I do not like (DE3); and 4) I order some of my friends to obstruct or block people I do not like from the group (DE4).

2) To test goodness of fit of the structural model of indicators of cyberbullying among youths in Songkhla Province to the empirical data, second-order confirmatory factor analysis was performed. The results of the second-order confirmatory factor analysis with a statistical program for developing indicators of cyber bullying among youths in Songkhla Province are shown in Table 1 and Figure 1.

Table 1. The results of the second-order confirmatory factor analysis with a statistical program for developing indicators of cyberbullying among youths in Songkhla Province

Indicators	Factor loading b*(SE)	Prediction coefficients (R <sup>2</sup> )	Factor score coefficients (FS)	Error of indicators (e)
<b>First order</b>				
FL1	1.00*(0.025)	0.14	0.21	0.30
FL2	0.94*(0.035)	0.12	-0.07	0.37
FL3	1.11*(0.023)	0.28	0.08	0.12
FL4	1.17*(0.035)	0.21	0.54	0.0025
FL5	1.11*(0.024)	0.18	0.20	0.14
SL1	1.00*(0.0081)	0.16	0.15	0.0022
SL2	0.99*(0.0051)	0.11	0.08	0.039
SL3	1.01*(0.0045)	0.35	0.57	0.0046
SL4	1.00*(0.0054)	0.19	-0.05	0.031
SL5	1.00*(0.0052)	0.18	0.25	0.017
RE1	1.00*(0.019)	0.11	0.14	0.18
RE2	1.02*(0.014)	0.14	0.16	0.15
RE3	1.03*(0.013)	0.12	0.06	0.14
RE4	0.97*(0.017)	0.21	0.07	0.22
RE5	1.07*(0.011)	0.09	0.39	0.068
SE1	1.00*(0.015)	0.15	0.09	0.16
SE2	1.03*(0.012)	0.11	0.19	0.12
SE3	0.98*(0.015)	0.17	0.07	0.19
SE4	1.03*(0.011)	0.11	0.26	0.11
SE5	1.01*(0.012)	0.15	0.15	0.15
DE1	1.00*(0.037)	0.35	-0.07	0.43
DE2	1.19*(0.020)	0.17	0.20	0.21
DE3	1.26*(0.027)	0.13	0.30	0.11
DE4	1.27*(0.019)	0.17	0.33	0.12
<b>Second-order</b>				
FLAMING	0.17*(0.040)	0.75		0.20
SLANDER	0.90*(0.035)	0.82		0.17
REFER	0.88*(0.036)	0.94		0.055
SECRET	0.89*(0.036)	0.94		0.043
DELETION	0.65*(0.041)	0.77		0.13
Chi-Square = 120.82      df = 126      p-value = 0.61351      GFI = 0.98      AGFI = 0.95      RMSEA = 0.000				



Chi-Square=120.82, df=126, P-value=0.61351, RMSEA=0.000

Figure 1. The results of the model analysis of indicators of cyberbullying among youths in Songkhla Province obtained from the second-order confirmatory factor analysis

From Table 1 and Figure 1, the results of the second-order confirmatory factor analysis with a statistical program for developing indicators of cyberbullying among youths in Songkhla Province revealed that the chi-square value was 120.82 at the degree of freedom,  $df = 126$  and a probability value of 1 ( $p = 1.00$ ). This means that the chi-square value is not significantly different from the null. The GIF and AGIF values are close to 1 (0.98 and 0.95, respectively) and  $RMSEA = 0.000$  show that the main hypothesis is accepted meaning that the researched model is fitted to the empirical data.

According to the details of the model in Table 2 and Figure 1, it was found that the weights of all the five factors of the indicators of cyberbullying among youths in Songkhla Province were in a positive range from .17 to .90 with a statistical significance of .01 for all of them. The order of the indicators according to degrees of suitability from highest to lowest was as follows. Slandering was with a weight of 0.90; revealing other people’s personal secrets with a weight of 0.89; identity theft with a weight of 0.88; deleting others from the group with a weight of 0.65; and flaming with a weight of 0.17, respectively. The indicators of cyberbullying among youths in

Songkhla Province were derived respectively from these factors.

## 5. Discussion

Based on the results, there are three important issues to be discussed as follows.

1) The indicators of cyberbullying have quality as they meet the validity criteria. This indicates that they are tools that can measure according to the content, problems, objectives, and characteristics that need to be measured. It also indicates that the development of the indicators was conducted according to the required steps of determining the scope, objectives, content, and structure, defining variables and characteristics of the target group, having them tested by experts, definitions checked by experts for correct and appropriate language and in congruence with the objectives (Boonphueng, 2007; Laeheem & Sangkharat, 2012). The indices of item objective congruence (IOC) of the indicators of cyberbullying were .06-1.00 and only those with an IOC from .05 and above were selected as they were in congruence with the characteristics to be measured. The indices of item objective congruence of these indicators were high when compared with the criteria showing that they can be used for measurement (Sihawong, 2007; Laeheem & Sangkharat, 2012).

2) The indicators of cyberbullying have the coefficient in the range .984-.539, the reliability .985-.984 and the reliability of the entire questionnaire is more than .70 indicating that the indicators developed through this research are tools with quality in accordance with the principles of research tool development (Charoensuk, 2010). They are also in accordance with studies by various researchers who found that the indicators they developed had quality in terms of validity and reliability (Boonsong, 2008; Phahuthanaphon, 2010).

3) The indicators of cyberbullying have a chi-square value of 210.82 with the degree of freedom,  $df = 126$  ( $df$  must not be greater than 2), thus the results of this study are according to the criterion (Boonsong, 2008; Angsuchot, Wichitwanna, & Phinyophanuwat, 2011). The GFI and the AGFI are close to 1 (0.98 and 0.95, respectively), and the RMSEA = 0.000. This indicates that the main hypothesis is accepted as the model from the study is fitted to the empirical data (Chusap, 2007; Charoensuk, 2010; Angsuchot, Wichitwanna, & Phinyophanuwat, 2011).

## 6. Recommendations

### 6.1 Recommendations for Application

The results of this study revealed that all the 24 indicators of cyberbullying among youths in Songkhla Province were fitted to the empirical data and had construct validity. Therefore, they are indicators that can identify youths with cyberbullying behavior, and related persons and organizations should apply the results of this study in controlling, preventing, and addressing the problem of cyberbullying. Other provinces with similar context area as Songkhla can also apply these indicators in controlling, preventing and addressing the problem of cyberbullying efficiently and effectively.

### 6.2 Recommendations for Further Studies

The results of this study revealed that the indicators of cyberbullying among youths in Songkhla Province consisted of 5 factors and 24 indicators. It is recommended that for further studies, these 24 indicators should be implemented in other areas and follow-ups conducted. Moreover, for this study, goodness of fit of the model of cyberbullying among youths in Songkhla Province was tested. Thus, these indicators should be used as guidelines in conducting further research on development of indicators of cyberbullying among youths in other provinces with different context areas.

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