Exploring Cyberfriendship Formation Among Malaysian Youth

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EXPLORING CYBERFRIENDSHIP FORMATION AMONG MALAYSIAN YOUTH

ABU SADAT NURULLAH

Cyberspace has become a common place for youth to involve in online networking and to make new friends. This paper focuses on: a) the dynamics of cyberfriendship formation; b) the role of self-disclosure, alienation, and frequency of online interaction on formation of cyberfriendship; and c) the extent of satisfaction achieved from that relationship. A stratified random sample of 250 youth (Mean age = 21.16, SD = 1.36) studying in different undergraduate faculties from a large Malaysian university responded to self-tailored questionnaires. The results revealed that 85.6% youth have formed online friendship using multiple communication channels. Major findings of this research indicated that the combined use of communication channels (i.e., Instant Messengers, e-mail, and Social Networking Sites), together with pre-existing face-to-face friendship and loneliness, mediated through online self-disclosure and frequency of online interaction contributed to the formation of cyberfriendship. In addition, loneliness was identified as a contributing factor for cyberfriendship formation among youth. Discussion includes implications of the present findings and suggestions for future research.

Keywords: cyberfriendship, computer mediated communication, online networking, relationships, social technology

The widespread usage of internet as a medium of social networking and interaction yields many psycho-social connotations, and has changed the way people construct friendships with the passage of time. It has enhanced the skill of social networking, as over the years online friendship is rapidly becoming a prevalent form of making and maintaining relations among youth. In fact, the internet explosion has redefined the concept of personal space and presentation of personality spawning the cyberspace in the virtual novel world where people

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meet and interact as of people in real life. Thus, the cyberspace is a common place where people can make friends who may or may not meet in real life situation. This kind of friendship building may lead to a more stable and meaningful form of relationship or may just be a temporary span of interaction via computer. In any case, the nature of friendship formation in the cyberspace requires sociological concerns and empirical investigations.

The archetype of making friends in the cyberspace is fairly a recent phenomenon. With the creation of e-mail (Yahoo!, Hotmail, Gmail etc.), social network sites (SNS’s such as Facebook, Friendster, MySpace, Orkut, etc.), instant messaging services (IMs, such as ICQ, Yahoo! Messenger, MSN Messenger, etc.), chat rooms (IRC), and numerous other plentiful Websites have enhanced the formation of friendship among people. People construct their individual space in the virtual world to develop interpersonal communication, to contact friends, family, and relatives, to create personal relationships, and for other numerous reasons. Furthermore, the more years individuals use the internet, the more involved they are in relationship formation (Chen, Boase, & Wellman, 2002; Howard, Rainie, & Jones, 2002).

The young generation, particularly the university students, are exposed to this innovative trend, and are increasingly inclined towards making new friends over the internet. This trend is further strengthened through the innovation of new social network sites, as well as IMs, and other overflowing online communities. However, very few empirical researches have addressed the nature of friendship formation over the internet and in the cyberspace, the pattern and quality of that relationship, and the distinction between online friendships with the one people experience in reality, and the like. To this date, no particular researches have been carried out focusing on cyberfriendship in Malaysian context in general, and on the young generation in particular. In addition, the particular focus of cyberfriendship studies remains on youth due to the fact that they are the defining users of the internet. They not only spend more time online than adults, but they also use internet-based communication technologies more often, such as instant messaging and Internet Relay Chat, thus integrating the internet and online communication into their social lives (Madden & Rainie, 2003; Turkle, 1997).

**THE CONCEPT OF CYBERFRIENDSHIP**

Cyberfriendship is a form of friendship developed and maintained through online communication channels. It can exist independently, whereby individuals maintain their relationship in cyberspace instead of face-to-face interaction. It can also exist concurrently with real life friendships. In addition, cyberfriendship can be helpful in initiating a friendship, which may be transformed into long term real life friendship. The multidimensional and pervasive use of internet enhances personal relationship formation in the cyberspace, particularly friendship formation through diverse channels of communication, such as e-mail, IMs, IRCs, social networking sites, etc. There are five basic components of online relationships: (a) proximity and frequency of contact; (b) self-
presentation; (c) similarity; (d) reciprocity; and (e) expectations and idealisations; each of which components is present during online interactions (Levine, 2000).

Internet is becoming more and more integrated in individuals’ everyday life, including the formation and maintenance of intimate and non-intimate social relationships (Haythornthwaite & Wellman, 2002). For some users, the Internet is becoming another location to meet and socialise (Hampton & Wellman, 2002; Mesch & Levanon, 2003). Recent studies have shown that youth use the internet not only to maintain social relationships with distant relatives and friends but also to create new relationships online; some of these friendships become integrated into their social circle (Mesch, 2005). Barnes (1996: 29) argues that online relationships are a source of genuine relationships, because for a great many people, internet contact is a genuine source for making social connections. Computer-mediated social networks may provide their members with companionship, social support, information, and a sense of belonging (Wellman & Gulia, 1998).

THEORETICAL PERSPECTIVES

Existing researches illustrate three distinct views on online friendship formation: the reduced social cues perspective, neutral perspective, and the constructionist perspective. First, the reduced social cues perspective is based on the observation that computer-mediated communication (CMC) allows the exchange of fewer cues than face-to-face environments and suggests that CMC is less appropriate for the support of emotional exchanges or the conveyance of complex information and a sense of social presence (Mesch, 2005). Since there are fewer nonverbal cues available (e.g., lack of facial expression, physical appearance) in computer-mediated communication (CMC), it is considered low in social presence and should thus be more impersonal and shallow than face-to-face interaction (Cheng, Chan, & Tong, 2006). In other words, cyberspace cannot be a source of meaningful friendships (Numes, 1995).

Second, the neutral perspective asserts that internet use does not affect involvement in close relationships and the community (Katz & Rice, 2002; Hampton & Wellman, 2002; Mesch & Levanon, 2003) and individuals supports and maintains relationships with friends and family after moving to a new location (Cummings, Lee, & Kraut, 2004). The ‘rich-get-richer’ hypothesis states that the internet will primarily benefit extraverted individuals, because contact can be made more easily online, the greater social skills of extraverted individuals can develop fully and will facilitate the formation of online friendships (Kraut, Kiesler, Boneva, et al., 2002). This school of thought maintains the technology is basically too limited to provide a useful basis for relationship formation (Katz & Aspden, 1997).

Third, the constructionist perspective argues that internet can provide a meaningful space for supportive, intimate and personal relationships building with others, and the development of friendships and romantic interests (McKenna & Bargh 1998; Walther & Boyd, 2002; Thayer & Ray, 2006). Computer-mediated communication facilitates not only
the maintenance of social ties but also the formation of new relationships among individuals (Kiesler, 1997; McKenna, Green, & Gleason, 2002; Parks & Floyd, 1996; Shields, 1996). While face-to-face relationships remain highly important, for those youth who develop intimacy with others in the internet, online ties are strong and meaningful (Mesch & Talmud, 2006).

**THE DYNAMICS OF CYBERFRIENDSHIP FORMATION**

**Self-disclosure**

Generally, self-disclosure is vital for the formation of friendships (Altman & Taylor, 1973; Derlega, Metts, Petronio, et al., 1993). Studies have shown that people often disclose intimate information about themselves online, and individuals who disclosed personal and intimate information over the internet reported greater closeness to their online friends (McKenna et al., 2002). Early self-disclosure can stimulate online friendship formation, in particular when a person can self-disclose continuously with the same person, as is the case with internet communication (Bargh, McKenna, & Fitzsimons, 2002; McKenna et al., 2002). Strong ties exist in relationships on a high level of intimacy, involving more self-disclosure, shared activities, emotional as well as instrumental exchanges, and long-term interaction (Haythornthwaite & Wellman, 2002). In online relationships people typically share personal information that they do not share with their offline partners (Ben-Ze’ev, 2004: 105), and people can disclose some aspects of themselves that they normally would not in physical interaction (Bonebrake, 2002).

The relative anonymity of the internet reduces the risks of disclosure, particularly intimate information, because such information can be shared without the fear of discomfort resulting from disclosing intimate information to members of the close-knit, face-to-face social circle (Joinson, 2001; McKenna et al., 2002; Bargh & McKenna, 2004). Further, the greater opportunities for self-disclosure in cyberspace are part of the so-called ‘disinhibition effect’, which makes people online feel more uninhibited and express themselves more openly (Ben-Ze’ev, 2004: 39). The studies revealed that (a) people were better able to express their “true” selves to their partner over the internet than when face-to-face, and (b) when internet colleagues liked each other, they tended to project qualities of their ideal friends onto each other more than did the face-to-face group (Bargh, McKenna, & Fitzsimons, 2002). Further, self-disclosure was used in the support group in three distinct ways: to initiate a transactional relationship with another member for the purpose of attracting social support through the open expression of concerns and frustrations; to demonstrate that coping is possible for the recipient through the reciprocal self-disclosure of similar concerns and situations; and to share reciprocal social companionship relationships (Tichon & Shapiro, 2003).
Frequency of Online Interaction

The formation and maintenance of cyberfriendship depends significantly on the frequency of online interaction among friends. In their pioneering study on formation of cyberfriendship, Parks and Floyd (1996) found that best predictors of whether an individual had developed a personal relationship were the duration and frequency of their participation online. Recent research has revealed that online friendship formation is the result of more opportunities for online interaction (Mesch, & Talmud, 2006: 38). In this concern, previous research has rarely studied the role of the frequency of online communication on friendship formation (Peter, Valkenburg, & Schouten, 2005).

Loneliness

A debate has emerged in recent years on whether the internet is a technology that causes loneliness (Kraut et al., 1998; Matsuba, 2006) or whether loneliness drives some individuals to the Internet (Amichai-Hamburger & Ben Artzi, 2003). The motivation for online friendship formation proved to be related to youth’s attempts to compensate for a lack of social support by using the Internet for communication (Mesch & Talmud, 2006). In a study conducted by Moody (2001), low levels of social and emotional loneliness were both associated with high degrees of face-to-face networks of friends, while high levels of internet use were associated with low levels of social loneliness and high levels of emotional loneliness. Recent studies show less evidence of a steep internet effect on loneliness, embracing more positively the argument that individuals reporting low self-esteem and loneliness are more likely to use the internet for social purposes (Amichai-Hamburger & Ben Artzi, 2003).

Cyberfriendship Formation among Youth

Research has found that men and women between the ages of 20 to 30 are the most frequent users of the internet (Thayer & Ray, 2006). The distinctive features of CMC facilitate self-disclosure, trust, and intimacy, which are central to the formation of strong ties, especially among youth (McKenna et al., 2002). Surveys indicate that large numbers of youths use the internet to communicate with others, particularly to develop online friendship (Roberts, Foehr, Rideout, & Brodie, 1999). Forming online relationships is thus one of the most engaging aspects of internet use among young people (Mesch & Talmud, 2006). Further, the use of the internet for relationship formation is of particular interest among adolescents (Mesch, 2005).
THE PRESENT STUDY

Previous researches on cyberfriendship concentrate on the prospect of having meaningful relationships using computer-mediated communication (CMC). However, much of the researches do not focus on combined use of internet applications (e-mail, IM’s, SNS’s), and having pre-existing friendships as the factors leading to cyberfriendship formation. Furthermore, there is an absence of particular researches on cyberfriendship in Malaysian context. Therefore, in absence of related literature, the present study aimed at an exploratory investigation into the phenomenon of cyberfriendship formation among Malaysian youth. Specifically it focused on, a) the nature of cyberfriendship formation; b) the relationship between the combined use of online communication channels (IM’s, e-mail, and SNS’s), pre-existing face-to-face friendship, online self-disclosure, frequency of online interaction, and cyberfriendship formation among youth; and satisfaction attained through that friendship; and c) the effect of loneliness on the development of cyberfriendship among undergraduate students of International Islamic University Malaysia.

Hypotheses

In the present study, we hypothesised the following:

H1: The combined use of IM’s, e-mail, and SNS’s will lead to cyberfriendship formation among youth.

H2: Pre-existing face-to-face friendship will lead to cyberfriendship formation among youth.

H3a: The combined use of IM’s, e-mail, and SNS’s will lead to more online self-disclosure.

H3b: Youth with pre-existing face-to-face friendship will more frequently interact online.

H3c: Online self-disclosure will lead to more frequent online interaction, and vice versa.

H3d: The more youth self-disclose online, the greater likelihood there is of the formation of cyberfriendship.

H3e: The more youth frequently interact online, the greater likelihood there is of the formation of cyberfriendship.

H4: Loneliness will lead to the formation of cyberfriendship among youth.
H5: The understanding and satisfaction among cyberfriends will positively correlate with cyberfriendship.

METHODS

Participants and Procedure

In this cross-sectional quantitative research, a total of 250 respondents, who were between 18 and 24 years of age (Mean age=21.16, $SD=1.36$), were selected by using stratified random sampling technique. The study comprised of undergraduate students from six major faculties of International Islamic University Malaysia. All the participants of this study were Malaysians. The criteria for participating in this study included being a user of Social Networking sites, Instant Messengers, and/or other communication channels in the cyberspace in making and maintaining relationships with others. They responded to the five-page questionnaires comprised of six parts, each part contained several items representing a topic relevant to cyberfriendship formation.

A pilot study was conducted among 35 youth prior to the actual data collection. Initially 250 questionnaires were administered among the respondents in August 2007. For that purpose, the researcher randomly clustered out several classes consisting of undergraduate students from different faculties. Afterwards, the lecturers of respective classes were contacted, and were asked for assistance in conducting the research. The researcher was present during regular class hours in the classroom (either at the beginning or at the end of class, as preferred by the respective lecturer), and read-out the purpose of the research as well as the criteria for participation in the study. After the consent was obtained from the respondents, surveys were distributed among them. Each questionnaire took about 12 — 15 minutes to complete. The respondents were rewarded with a pen upon completion of the questionnaire.

Measures

The quantitative survey instrument was a pilot studied modified version of the questionnaire used in earlier studies (Hu et al., 2004; Mesch, 2005; Parks & Floyd, 1996; Peter et al., 2005; Wolak et al., 2002; Miller, Berg, & Archer, 1983; Russell, Peplau, & Cutrona, 1980).

Cyberfriendship. The concept of cyberfriendship was measured using two items, indicating friendship formation and maintenance online; such as, ’I have found new friends and acquaintances through the internet’. The response categories for each of the items ranged from 1 (fully disagree) to 5 (fully agree).
Channels used. The concept of channels used in online communication was measured using three items, indicating three different media use (e.g., IM’s, e-mail, and SNS’s). The items were ‘I use E-mail everyday’, ‘I use Social Networking sites frequently’. The response categories for each of the items ranged from 1 (fully disagree) to 5 (fully agree).

Pre-existing friendship. Pre-existing friendship was measured using one item, which was ‘Most of my friends who I meet online are also my friends in real life’. The response categories for the item ranged from 1 (fully disagree) to 5 (fully agree).

Frequency of online interaction. The respondents were asked two questions about the time spent on the internet in an average day, and time spent interacting with their online friends. The response categories ranged from 1 (Less than 1 hour) to 4 (More than 4 hours).

Self-disclosure. Online self-disclosure was operationalised using self-constructed Likert-type scale, which was partially adopted from the previous study (Miller, Berg, & Archer, 1983). It consisted of seven items, such as ‘Internet helps me disclose my personal matters more than face-to-face interaction’, ‘I disclose my personal problems to my online friends’. The response categories for each of the items ranged from 1 (never) to 4 (always). The seven items formed a one-dimensional scale, with a Cronbach’s alpha of 0.77.

Loneliness. The concept of loneliness was operationalised using self-constructed Likert-type scale, which was partially adopted from the previous studies (Russell, Peplau, & Cutrona, 1980). It consisted of seven items, such as ‘I feel lonely, and so I browse the internet to make friends online’, ‘I experience a sense of emptiness in my life, so I make friends online’, ‘There is no one really that I would like to share my ups and downs with, so I make friends online’. The response categories for each of the items ranged from 1 (never) to 4 (always). The seven items formed a one-dimensional scale, with a Cronbach’s alpha of 0.82.

RESULTS

Data were analysed using SPSS 15.0 for Windows®. Among the respondents, 82.8% were females (n = 207, Mean age = 21.09, SD = 1.38), and 17.2% were males (n = 43, Mean age = 21.49, SD = 1.20). Initial results revealed that regardless of gender, most of the youth (85.6%) formed online friendship using multiple communication channels. The study concentrated only on the group who formed online friendships.
Table 1
Types of relationship formed online (n = 250)

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquaintance</td>
<td>14</td>
<td>5.6</td>
</tr>
<tr>
<td>Friend</td>
<td>191</td>
<td>76.4</td>
</tr>
<tr>
<td>Best friend</td>
<td>11</td>
<td>4.4</td>
</tr>
<tr>
<td>Intimate/romantic</td>
<td>3</td>
<td>1.2</td>
</tr>
<tr>
<td>Casual</td>
<td>31</td>
<td>12.4</td>
</tr>
</tbody>
</table>

Types of Relationship Formed Online

This study focused on the types of relationship formed online. The primary finding was that “friendship” was the most common type of personal relationship formed online. Results summarised in Table 1 illustrate that most of the respondents (76.4%) formed ‘Friendship’ online, followed by ‘casual’ relationship (12.4%). Some of them formed acquaintanceship online (5.6%), followed by ‘Best friendship’ (4.4%), and surprisingly a few of them (1.2%) developed ‘intimate’ or romantic relationship on the internet.

Factors Leading to Cyberfriendship Formation

One of the main goals of this study was to examine the factors leading to friendship formation on the internet. To explore the relationship between online self-disclosure, frequency of online interaction, combined use of multiple channels, pre-existing face-to-face friendship, loneliness, and cyberfriendship formation, the researcher conducted the Pearson product-moment correlation coefficient analyses.

Results presented in Table 2 show that cyberspace provides a significant platform for youth to make friends. Cyberfriendship scores correlated positively with scores of rest of the variables. Reported combined use of channels (Instant Messengers, e-mail, and Social Networking Sites) and cyberfriendship were positively associated, $r(248) = 0.53, p < 0.001$. This indicates that the combined use of IM’s, e-mail, and SNS’s highly relates to the formation of online friendship. Similarly, reported pre-existing face-to-face friendship correlated positively with cyberfriendship, $r(248) = 0.40, p < 0.001$. It asserted that having pre-existing face-to-face friendship increases the likelihood of cyberfriendship formation.
### Table 2

Pearson Product-Moment Correlation Coefficients ($n = 250$)

<table>
<thead>
<tr>
<th>Variables</th>
<th>$M$</th>
<th>$SD$</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Combined use of channels</td>
<td>10.77</td>
<td>2.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pre-existing face-to-face friendship</td>
<td>3.82</td>
<td>.99</td>
<td></td>
<td>.34***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cyberfriendship formation</td>
<td>7.70</td>
<td>1.54</td>
<td></td>
<td></td>
<td>.53***</td>
<td>.40***</td>
<td></td>
</tr>
<tr>
<td>4. Online self-disclosure</td>
<td>18.64</td>
<td>4.34</td>
<td></td>
<td></td>
<td>.21***</td>
<td>.03</td>
<td>.15*</td>
</tr>
<tr>
<td>5. Frequency of online interaction with friends</td>
<td>1.69</td>
<td>.70</td>
<td>.38***</td>
<td>.13*</td>
<td></td>
<td>.29***</td>
<td>.25***</td>
</tr>
<tr>
<td>6. Loneliness</td>
<td>15.23</td>
<td>4.26</td>
<td>.10</td>
<td>-.06</td>
<td>.28***</td>
<td>.42***</td>
<td>.14*</td>
</tr>
</tbody>
</table>

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**. Correlation is significant at the 0.001 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
among youth. Those who used multiple communication channels (Instant Messengers, e-mail, and Social Networking Sites) disclosed themselves more in the cyberspace, \( r(248) = 0.21, p < 0.001 \). Therefore, it is more likely that the more individuals use the channels, the more they will disclose personal matters to their online friends. It suggests that the result can to also be true in a reverse way: in order to disclose themselves more in the cyberspace youth use multiple communication channels.

Likewise, as expected, youth with pre-existing face-to-face friendship interacted online more frequently, \( r(248) = 0.13, p < 0.05 \). Those who disclosed themselves more online were likely to interact online more frequently, \( r(248) = 0.25, p < 0.001 \). This bivariate correlational relationship is also true in a reverse way: those who interacted online more frequently were more likely to disclose themselves more online. The youth who disclosed themselves more online were likely to make more online friendships, \( r(248) = 0.15, p < 0.05 \). This attests that more online self-disclosure leads to an increase of online friendships.

Those who interacted online more frequently were likely to make more cyberfriends, \( r(248) = 0.29, p < 0.001 \). It proves that more online interaction increases individuals’ engagement in cyberspace in the process of making friends. Finally, those who were lonely were more likely to go for making friends online, \( r(248) = 0.28, p < 0.001 \). The result asserts that lonely individuals compensate themselves by interacting and making friends in the cyberspace. The results illustrated in Table 2 clearly prove that the combined use of communication channels, pre-existing face-to-face friendship and loneliness had direct effect on the formation of cyberfriendship.

In addition, frequency of online interaction with friends correlated positively with combined use of channels, \( r(248) = 0.38, p < 0.001 \). This indicates that more frequent interaction with friends in the cyberspace increases the number of online communication channel usage. However, to the surprise of the researcher, the correlation between the pre-existing face-to-face friendship and online self-disclosure was not significant, \( r(248) = 0.03, p = 0.645 \). This may due to the risk of privacy in interaction with known friends. The participants may have thought that they will be able to express themselves more freely as they like online with strangers (including deception or grim fun that they will not be able to do with their known friends).

Loneliness correlated positively with cyberfriendship formation, as mentioned before. Interestingly, loneliness also correlated positively with online self-disclosure, \( r(248) = 0.42, p < 0.001 \). This explains that those who feel lonely, disclose themselves and engage in the cyberspace in the process of building relationships and making friends there. Similarly, loneliness correlated positively with frequency of online interaction with friends, \( r(248) = 0.14, p < 0.05 \). It asserts that those who feel lonely are inclined to interact with online friends more frequently. This is likely that cyberspace is one of the favourite places for the lonely individuals to interact with other persons and make friends, as confirmed by other studies (Moody, 2001; Amichai-Hamburger & Ben Artzi, 2003).
TOWARDS DEVELOPING A MODEL OF CYBERFRIENDSHIP FORMATION

The findings of the study clearly indicated that most of the study variables correlated positively with each other. Therefore, to identify the variables predicting cyberfriendship among youth, the researcher conducted multiple linear regression analysis. In this process, three multiple regression analyses were conducted to evaluate the predictor variables predicting cyberfriendship formation. The first analysis included the five measures (combined use of channels, pre-existing face-to-face friendship, online self-disclosure, online interaction with friends, and loneliness) as predictors directly predicting cyberfriendship formation. The second analysis incorporated the three measures (combined use of channels, pre-existing face-to-face friendship, and loneliness) as predictors predicting the intervening variable online self-disclosure. The third analysis included the three measures (combined use of channels, pre-existing face-to-face friendship, and loneliness) as predictors predicting the intervening variable online interaction with friends.

The findings of the analyses are illustrated in Figure 1, which point out that the study variables significantly predicted cyberfriendship formation. Hypothesis 1 predicted that the combined use of IM’s, e-mail, and SNS’s will lead to cyberfriendship formation among youth. As expected, hypothesis 1 was confirmed, the use of multiple online communication channels led to the formation of cyberfriendship ($\beta = .39, p < .001$). Hypothesis 2 predicted that pre-existing face-to-face friendship will lead to cyberfriendship formation among youth. Likewise, hypothesis 2 was also confirmed, as the factor pre-existing face-to-face friendship led to the formation of online friendship ($\beta = .28, p < .001$). Hypothesis 4 predicated that loneliness will lead to the formation of cyberfriendship among youth. Similarly, as expected, hypothesis 4 was confirmed too, loneliness appeared as a significant variable to predict cyberfriendship formation ($\beta = .28, p < .001$).

The adjusted $R^2$ for this model was .396, and the model was significant ($F(5, 244) = 33.69, p < .001$). It indicated that 40% of the criterion variance in cyberfriendship formation can be explained by its linear relationship with the predictor variables.

The findings illustrated in Figure 1 demonstrate the relationship among variables in predicting cyberfriendship formation, which precisely summarises the results of the three regression analyses. The coefficients in Figure 1 are standardized Beta’s. It was hypothesised that (hypothesis 3a) the combined use of IM’s, e-mail, and SNS’s will lead to more online self-disclosure. Hypothesis 3a was confirmed: the use of multiple online communication channels led to online self-disclosure ($\beta = .22, p < .001$). Hypothesis 3b specified that youth with pre-existing face-to-face friendship will more frequently interact online. However, hypothesis 3b was not supported, as it was resulted in non-significant relationship ($\beta = .12, p = .053$).
Hypothesis 3c predicted that online self-disclosure will lead to more frequent online interaction. This was confirmed: online personal disclosure led to the increase in online interaction, $\beta = .17$, $p < .01$. It was hypothesised that (hypothesis 3d) the more youth self-disclose online, the greater likelihood there is of the formation of cyberfriendship. However, this was not supported: it was resulted in non-significant relationship ($\beta = .08$, $p = .220$). Hypothesis 3e predicted that the more youth frequently interact online, the greater likelihood there is of the formation of cyberfriendship. It was confirmed: online personal disclosure led to the formation of online friendship, $\beta = .28$, $p < .001$.

The model helps explain the precise relationship between and among the variables. The combined use of online communication channels, pre-existing face-to-face friends, and loneliness, with the two intervening variables (online self-disclosure, and frequency of online interaction) were accounted for the major predictors of cyberfriendship formation. Therefore, it can be affirmed that the combined use of IM’s, e-mail, and SNS’s, together with loneliness resulted in more online self-disclosure, which contributed to the frequency of online interaction with friends, and finally culminated in cyberfriendship formation. Furthermore,
the combined use of IM’s, e-mail, and SNS’s, together with loneliness gave rise to more frequent online interaction with friends, which resulted in cyberfriendship formation.

For this reason, although the combined use of IM’s, e-mail, and SNS’s, pre-existing face-to-face friendships, and loneliness directly predicted cyberfriendship formation; a better picture arose when the two intervening variables — online self-disclosure, and frequency of online interaction — appeared to influence the prediction. It is worth noting that online self-disclosure did not directly predict cyberfriendship formation, but rather was mediated by the frequency of online interaction, which also has a better prediction value \( \beta = .28, p < .001 \). So, it is the frequency of online interaction which appears to be the strongest intervening variable \( R = .294, F (1, 248) = 23.55, p < .001 \), compared to online self-disclosure \( R = .145, F (1, 248) = 5.30, p = .022 \), facilitating the formation of online relationship.

It can be observed that the three main predictor variables, the combined use of IM’s, e-mail, and SNS’s, pre-existing face-to-face friendships, and loneliness, resulted in 39% of the variance in cyberfriendship formation \( \text{the adjusted } R^2 = .390, F (3, 246) = 54.09, p < .001 \). Among those three, the combined use of channels and pre-existing face-to-face friendships together were accounted for 33% of the variance (the rest 6% of the variance can be explained by loneliness).

A final point to ponder is that among the predictors, the combined use of IM’s, e-mail, and SNS’s (combined use of channels) emerged as the strongest direct predictor of cyberfriendship formation \( \beta = .39, p < .001 \). Likewise, loneliness strongly predicted online self-disclosure that ultimately resulted in cyberfriendship formation, which indicates that lonely individuals are more likely to go for online friendship.

**DISCUSSION**

The purpose of this study was to investigate the nature of online friendship formation among Malaysian youth. The findings clearly indicated that online communication technology helps the formation of new types of relationship among individuals. Thus, it supports the earlier findings that the internet has become another location for individuals to meet and socialise (Hampton & Wellman, 2002; Mesch & Levanon, 2003). Since youth are the most avid users of the internet, they form online friendship quite often. Many cyberfriends become ‘best friends’ in real life in due course when the interaction process crosses the cyberspace to be integrated into the social life. In this way, it confirms previous researches that youth use the internet not only to maintain social relationships with friends but also to create new relationships online; which eventually become integrated into their social circle (Mesch, 2005).

This study reveals that among the stratified random sample of undergraduate students, majority of the respondents (85.6%) formed online friendship. It implies that the propensity of cyberfriendship formation is a very prevalent experience among Malaysian youth in the university campus setting. Thus, it asserts the **constructionist perspective** that internet can
provide a meaningful space for personal relationships formation and the development of friendships (McKenna & Bargh 1998; Walther & Boyd, 2002; Thayer & Ray, 2006). The participants used multiple communication channels, such as Social Networking sites and Instant Messengers in addition to e-mail, to make friends in the cyberspace.

The youth presented their ‘self’ online through multiple communication channels in the cyberspace. In this connection, pre-existing face-to-face friendship was one of the major factors that led to cyberfriendship formation among youth. This supports earlier research which suggests that online social communication is an extension of interactions in maintaining pre-existing relationships in traditional social networks (Birnie & Horvath, 2002). Consistent with previous studies on online friendship formation conducted in other countries (e.g., Wolak et al., 2002), we found that in the cyberspace people make ‘friends’ more compared to acquaintance or romantic relationship. Some respondents also met strangers online. In this process the respondents used Social Networking sites much more than e-mail or Instant Messengers. It is worth noting that in South-East Asia, Friendster (a SNS) is the most popular among users.

Overall, the findings reveal that cyberspace is a key platform for youth to make friends. The combined use of Instant Messengers, e-mail, and Social Networking Sites, together with pre-existing face-to-face friendship and loneliness, mediated through online self-disclosure and frequency of online interaction contributed to the formation of cyberfriendship. It confirmed the assertion of McKenna and Bargh (2000) that “the Internet by itself is not a main effect cause of anything”. From the findings of this research it can be affirmed that loneliness, online self-disclosure, and frequency of online interaction have greater significance in addition to channel use in facilitating online friendship formation. Loneliness as a psychological factor also had enormous impact on cyberfriendship formation. This is likely that cyberspace is one of the favourite places for the lonely individuals to interact with other persons and make friends, as confirmed by other studies (Moody, 2001; Amichai-Hamburger & Ben Artzi, 2003).

The findings of this research offer a number of significant contributions to the rapidly expanding literature on online social relationships in general, and on cyberfriendship among youth in particular. The most important feature of this study is the formation of a model of cyberfriendship formation, which may contribute to the formulation of a new perspective in the field of online friendship formation. According to the model, the combined use of IM’s, e-mail, and SNS’s, pre-existing face-to-face friendship, and loneliness strongly predicted cyberfriendship formation. In addition, online self-disclosure and online interaction with friends were identified as the mediating variables for friendship formation online. The model was statistically significant as well. This model of online friendship formation is able to integrate psychosocial aspects in making it a comprehensive one of its kind.

The results also highlight the importance of multiple channels use, which has not been previously identified. The revised final model helps explain the precise relationship between and among the variables. The most important predictor of cyberfriendship formation was the
combined use of IM’s, e-mail, and SNS’s. Thus multiple communication channel use in the cyberspaces assists the formation of new friendship as well as strengthens the existing one. Likewise, pre-existing face-to-face friendship leads to the formation of cyberfriendship, which is confirmed by earlier researches (Birnie & Horvath, 2002). In addition, loneliness strongly predicts cyberfriendship formation, supporting previous studies (Moody, 2001; Amichai-Hamburger & Ben Artzi, 2003). However, in this process, cyberfriendship formation is mediated by online self-disclosure and frequency of online interaction.

It can be observed that the combined use of IM’s, e-mail, and SNS’s and loneliness lead to more self-disclosure, facilitating greater frequency of online interaction, which in turn resulted in the formation of cyberfriendship among youth. Also, combined channels usage and loneliness kept people more frequently engaging in online interaction. Thus, it is the frequency of online interaction which appears to be the strongest intervening variable. Further interesting findings emerge when the study revealed that self-disclosure did not directly predict cyberfriendship formation, but rather was mediated through frequency of online interaction. In this way, it contradicted the earlier researches that self-disclosure can directly stimulate online friendship formation (Bargh, McKenna, & Fitzsimons, 2002; McKenna et al., 2002).

This study has combined concepts from psychology, ICT, communication and sociology research to develop an initial model of youth online friendship formation. By including concepts from diverse fields of research, the model may also contribute to an interdisciplinary theory formation. At present, multi-disciplinary researches are encouraged due to the complex nature of social reality. Since the nature and pattern of relationship formation has become more complex than it was before, the integration of inter-disciplinary approach would provide us with a better scenario of the issue under scientific investigation. Thus, this study can be considered as a pioneering study in the field of online friendship formation in Malaysian context.

However, the study has several limitations. The data of this study were obtained from a cross-sectional study of a sample of undergraduate students at International Islamic University Malaysia. The study was conducted in Kuala Lumpur area, which may not necessarily reflect the opinion and responses of other university students in Malaysia. In addition, it did not include the youth who are not currently studying. The results obtained from this study may not be representative of all students in Malaysia and thus generalisation of the findings might be limited. Similarly, this study focuses only on the formational aspects of cyberfriendship, without determining the outcome or long-term consequences of those relationships.

Therefore, future research should use more heterogeneous and larger representative random samples of youth from all over Malaysia. The inclusion of non-student segment of the youth in the sample may provide a different picture. In addition, the use of ethnographic fieldwork and participant observation in the cyberspace in data collection may be useful for obtaining the holistic picture of the phenomenon. Longitudinal method of investigation
should also be adopted to determine long-term effect of cyberfriendship. Likewise, once relationship develops online, the outcome and stability of that relationship should be measured over time.

REFERENCES


Abu Sadat Nurullah

Exploring Cyberfriendship


