Measuring Patterns of Self-Disclosure in Intercultural Friendship: Adjusting Differential Item Functioning Using Multiple-Indicators, Multiple-Causes Models

Yea-Wen Chen & Masato Nakazawa

This study examined how friendship types, levels of friendship, and cultural backgrounds affected breadth of self-disclosure (BSD). BSD was measured with six self-disclosure topic items—in which higher scores indicated greater willingness to engage in conversations about various topics—from three groups with varying experiences with intercultural friendships. Confirmatory factor analysis was used with Multiple-Indicators, Multiple-Causes models to control for the influence of differential item functioning (DIF, groups responding differently to particular items). Findings in this study found significant evidence of DIF. These findings highlight the complex role of cultural backgrounds in the social penetration processes in intercultural friendships.

Keywords: Intercultural Friendship; Self-Disclosure; Taiwanese; Social Penetration Theory

Most intercultural friendships face challenges that are largely absent in intracultural friendships (Chen, 2002; Orbe & Harris, 2008). Research on the cultural grounding of friendship has demonstrated cross-cultural differences in friendship patterns (Adams & Plaut, 2003; French, Bae, Pidada, & Lee, 2006; Sheets & Lugar, 2005). Studies also suggest that cultural differences may hinder the initiation and/or development of intercultural relationships (e.g., Diggs & Clark, 2002; Gareis, 2000;...
Kudo & Simkin, 2003). Several scholars have indicated that intercultural friendship remains largely understudied (Chen, 2002; Lee, 2006; Morgan & Arasaratnam, 2003); thus, this study seeks to fill this gap by examining patterns of disclosure topics in intercultural friendships between Taiwanese and native English speakers.

Communication is the single most frequent activity in which friends engage (Fehr, 1996; Gudykunst & Nishida, 1983). One of the key communicative features of friendship formation is self-disclosure (e.g., Matsushima & Shiomi, 2002). Self-disclosure can be understood as the process of revealing personal information that others might not know otherwise. Self-disclosure is one of the major interactive techniques utilized to reduce uncertainty and develop intercultural relationships (Gudykunst, 1985a; Kudo & Simkin, 2003). In particular, Kudo and Simkin (2003) have identified self-disclosure as a critical indicator of intercultural friendship, third only to similarity and frequency of contact. Despite the importance of self-disclosure in developing close friendships, little is known about the ways in which people disclose personal information in intercultural friendships, and little has been done to investigate possible relationships between cultures and self-disclosure. Based on his finding that traditional Japanese friendship patterns seldom involved intimate self-disclosure, Barnlund (1989) has even contended that self-disclosure might be a Western concept. Barnlund’s assertion underscores the need to examine cultural influences on self-disclosure in friendship patterns.

To investigate the development of intercultural friendships, Altman and Taylor’s (1973) social penetration theory provides the necessary theoretical linkage between self-disclosure and relationship development. Altman and Taylor asserted that individuals engaged in progressively intimate self-disclosure as relationships developed over time. Intercultural communication scholars such as Gudykunst (1985b, 1989) have validated that predictions derived from social penetration theory are applicable to intercultural relationships. However, how individuals disclose information about themselves in intercultural relationships is largely unexplored (Chen, 2002; Gudykunst, 1985a).

Another issue involved in studying intercultural friendship is that researchers so far have only examined friendships between individuals from a very limited number or range of (national) cultures. In particular, researchers have problematically privileged cross-cultural comparisons between certain Asian and Western cultures (Gudykunst, 2002) such as those between Japanese and U.S. Americans (see below, Friendships in Western and Non-Western Cultures). Hence, several researchers have voiced the need of testing communication framework on understudied populations other than the dominant white, middle-class North Americans (Gudykunst & Nishida, 1983; Love & Powers, 2002). Considering that Sarti (1981) emphasized the necessity to study each country in its own context, this study seeks to shed light on relationships in Taiwan. Also, as Hofstede (1991) and Olaniran (1996) have stressed the correlation between cultural dissimilarity and levels of social difficulty, the higher levels of cultural dissimilarities between Taiwanese and native English speakers might indicate greater social difficulties, which underscores the focus of this study on intercultural friendships between Taiwanese and native English speakers.
In sum, considering the paucity of research on intercultural friendship as well as the gap of knowledge on the impact of cultures on self-disclosure, this study examines the relationship between self-disclosure topics and intercultural friendship between Taiwanese and native English speakers. Such focus is important for several reasons. First, the focus proffered in this study could have practical implications of promoting positive intercultural encounters between Taiwanese and native English speakers. Research has found that frequent contact and forming close intercultural friendships with members of the host cultures can greatly assist sojourners’ adjustment and adaptation in foreign countries (Olaniran, 1996; Ying, 2002; Zimmermann, 1995). According to Open Doors 2010 Report, Taiwan remained the fifth top nation that sent many students to study in the United States (IIE, November 15, 2010); at the same time, there is an increasing movement of white-collar expatriates from Western developed nations migrating to developing nations in Asia, Africa, Latin America, and Eastern Europe (Iredale, 2000). Second, the study of intercultural friendship has theoretical significance in extending theoretical framework of friendship to intercultural settings (Gudykunst, 1985a; Gudykunst, Lee, Nishida, & Ogawa, 2005). The available research on intercultural friendships have explored limited areas such as the formation of intercultural friendship (Gareis, 1995; Kudo & Simkin, 2003), communication competence (Collier, 1996), and sensation-seeking factors in making intercultural friends (Morgan & Arasaratnam, 2003). Thus, the focus proffered in this study addresses the need of expanding theories on self-disclosure and relationship to intercultural relationships.

Relevant Literature Review

Social Penetration Theory

Social penetration theory (Altman & Taylor, 1973; Taylor & Altman, 1987) serves as the bridge between the discussions on relationship development and the process of self-disclosure. The theorists state that relationship development is based on levels of self-disclosure; in other words, communication changes from relatively shallow to greater depth of, as well as relatively narrow to greater breadth of personal disclosure as relationships develop. While it has been speculated that social penetration theory is applicable to intercultural relationships (Gudykunst, 1985a, 1989), there remains limited empirical support for how social penetration processes function in intercultural relationships.

Friendship and Culture

The notion of friendship is constructed within cultural groups and to some extent varies across cultural contexts (e.g., Collier, 1996; Gareis, 1999; Sheets & Lugar, 2005). Collier (1996) confirmed that what characterized friendship differed across ethnic groups in the United States: (a) Latinos stressed relational support; (b) Asian Americans emphasized positive exchanges of ideas; (c) African Americans placed
emphasis on respect and acceptance; and (d) European Americans valued recognition of individual needs. Gareis’ (2000) found that both the different category width for the word “friend” and the different extent of public and private personality layers in German and U.S. American cultures caused confusion and misunderstandings in friendships between German students and their host U.S. students. However, there remains limited understanding of what a friend might or might not disclose across cultures as well as in intercultural friendships. Though G.-M. Chen (1995) found that U.S. Americans consistently reported higher levels of disclosure than Chinese on topics such as interests, opinions, work, personality, and body, nonetheless, little is known about what such cross-cultural disclosure patterns might play out in intercultural friendships.

**Interpersonal Relationships/Friendships in Taiwanese Culture**

In the individualism-collectivism dimension, Taiwanese culture is considered predominantly collectivistic. Triandis (1995) has stated that collectivistic cultures are societies in which individuals: (a) think of themselves as parts of their collective groups; (b) place the goals of the group above personal goals; (c) are trained to obey authority and be good group members, (d) place great emphasis on duty, loyalty, obligation, respectfulness, hierarchy, and mutual dependence; (e) distinguish between ingroups and outgroups; and (f) stay close to their collective groups. It is important to consider Taiwanese culture as a collectivistic culture in its own socio-cultural contexts with its own specific implications for personal relationships.

Empirical research supports that traditional Taiwanese interpersonal relationships place less emphasis on verbal communication and greater premium on sincerity, spirituality, and practicality (Gao & Ting-Toomey, 1998; Gareis, 1995; Yum, 1988). Cheng (1987) revealed that interaction and communication among Taiwanese (and Chinese) people followed a natural and spontaneous pattern. That is, communication skills and interpersonal relationships are regarded as something that cannot be forced or taught in contrived contexts, and interpersonal relationships are viewed as closely tied to the development of the society as a whole. Also, in Gareis’ (1995) descriptive case studies of five Taiwanese-American friendship experiences, the researcher observed that communication of the participating Taiwanese international students appeared cautious, introverted, less impulsive and less aggressive, disapproved of open disagreement, and inhibited expression of emotions. Despite these preliminary findings about communication patterns and relationship orientations in Taiwanese culture(s), it remains inclusive how Taiwanese culture(s) influence communication choices and processes. Thus, more work is needed to systematically examine the impact of national cultures on communication processes such as self-disclosure.

**Friendships in Western and Non-Western Cultures**

Broadly defined, Western friendships are considered voluntary, unconstrained and spontaneous relationships with reciprocated warm and caring feelings (Fehr, 1996; Gareis, 1995; Pahl, 2000). There is no one agreed-upon definition or meaning of
friendship. Despite this difficulty in definition, Bell (1981) and more recently Davies, Tropp, Aron, Piettigrew, and Wright (2011) argued that friendship is increasingly gaining importance in the U.S. society as many of the kinship ties gradually weaken. Friendships in Western cultures tend to prioritize self-concerns and interests and play a more social and casual role. In contrast, friendships in the collectivistic East Asian cultures focus more on the long-term goals based on sincerity and spirituality (Yum, 1988). For instance, it has been found that U.S. Americans are more open and receptive to contact with strangers (Barnlund, 1989) and tend to have many friends of low intimacy (Triandis, 1995); in contrast, Taiwanese tend to form close and intimate bonds with relatively few friends (Gareis, 1995). However, little scholarship has examined how such culture-specific orientations may impact the development of intercultural friendships such as those between native English speakers and Taiwanese.

**Self-Disclosure**

Self-disclosure, the process of revealing and sharing personal information about oneself to another, is one of the most important factors in the development of close relationships such as intimate intercultural friendships (Barnlund, 1989; Derlega, Winstead, Wong, & Greenspan, 1987; Kudo & Simkin, 2003; Matsushima & Shiomi, 2002). For the purpose of this study, the concept of self-disclosure is operationalized in terms of breadth of self-disclosure (BSD) and measured by various topics of conversations.

With regards to topics of self-disclosure, one of the benchmark studies is Jourard and Lasakow’s (1958) research on topic-based factors in self-disclosure. Their contribution is the widely-used Jourard-Lasakow Self-Disclosure questionnaire including self-report items that asks respondents to report their disclosure to a specific person under six general subject areas: (a) attitudes and opinions, (b) tastes and interest, (c) work or studies, (d) money, (e) personality, and (f) body. Research has confirmed the validity of this scale for measuring past disclosure to a specific targeted person (Tardy, 1988).

In terms of topics of self-disclosure in cross-cultural comparison of U.S. and Japanese friendship patterns, Gudykunst and Nishida (1983) found that U.S. Americans tended to talk more about topics such as marriage, love, and emotions, while Japanese inclined to talk about topics such as interests/hobbies, school/work, biographical matters, and physical activities. Similarly, Cahn (1984) concluded that U.S. Americans preferred to talk about intimate topics such as marriage, love/dating/sex, and emotions while Japanese tended to talk about superficial topics such as interests/hobbies, school/work, biographical matters, and physical activities. Not surprisingly, Cahn argued, when establishing intercultural friendships, it is of great importance to respect cultural differences in the depth and scope of conversational topics.

This centrality of cultural influences on the transactional process of self-disclosure has been empirically demonstrated. For instance, Wheeless, Erickson, and Behrens’
(1986) comparative examination revealed that non-Western cultures were correlated to greater depth of disclosiveness while Western cultures were correlated to greater amount. Following Wheeless’ (1978) conceptualization, amount of self-disclosure means the quantity of personal information that one voluntarily shares. Chen’s (1993) research showed a consistent lack of emphasis on amount and depth of self-disclose among Asian students in the United States. Kito’s (2005) study revealed that Japanese college students engaged in lower level of self-disclosure than their U.S. counterparts. In addition, a study on junior high friendships in Japan revealed that self-disclosure positively related to the breadth of friendship rather than the hypothesized depth of friendship (Matsushima & Shiomi, 2002).

While these studies “have” demonstrated how self-disclosure is influenced by cultures, self-disclosure is also believed to be an ongoing and dialectical process that changes as individuals and relationships develop (Dindia, 1997). For instance, Gudykunst’ (1985b) study on university students confirmed that self-disclosure was influenced by the type of relationship, in addition to the degree of cultural similarity. More importantly, Gudukunst concluded that the only differences between culturally similar and dissimilar friends were their attributional confidence and shared communication networks. In other words, cultural dissimilar backgrounds are becoming less and less significant in established intercultural relationships. These studies highlight the complex role that self-disclosure plays, with or without cultural influences, in the development of friendships.

In contrast, a study on junior high friendships in Japan revealed that self-disclosure positively related to the breadth of friendship rather than the hypothesized depth of friendship (Matsushima & Shiomi, 2002). On the one hand, these three studies highlight the role that self-disclosure plays in the development of relationships. On the other hand, they also point out the centrality of cultural influences on the transactional process of self-disclosure. For instance, Wheeless et al.’s (1986) comparative examination revealed that non-Western cultures were correlated to greater depth of disclosiveness while Western cultures were correlated to greater amount. Chen’s (1993) research showed a consistent lack of emphasis on amount and depth of self-disclose among Asian students in the United States. Kito’s (2005) study revealed that Japanese college students engaged in lower level of self-disclosure than their U.S. counterparts.

With respect to self-disclosure studies focusing on Taiwanese and Chinese populations, Chen (1995) discovered that, compared with U.S. students, Taiwanese university students not only engaged in lower degree of self-disclose but also self-disclosed less on topics of opinions, interests, work, financial issues, personality, and body. Anderson, Martin, and Zhong’s (1998) study discovered that Chinese people tended to communicate and self-disclose to best friends for reasons such as inclusion needs, similarity in personality and interests, increasing intimacy, alleviating loneliness, pleasure, and affection. Moreover, they also found that Chinese people disclosed more to friends than to others. Wong and Bond’s (1999) research on Chinese university roommates supported the positive correlation between the
respondents’ friendship rating and the respondents’ amount and intensity of self-disclosure as well as that of their roommates.

Lastly, among the paucity of research on intercultural friendship, Kudo and Simkin’s (2003) on intercultural friendship formation of Japanese students in Australia found self-disclosure to be the third major factor in friendship formation. Both depth and width of self-disclosure indicated closeness in the friendships, and self-disclosure in intercultural friendships was affected by the foreign students’ spoken English skills as well as their openness of communication.

These studies mentioned above have given a valuable insight into the relationship between self-disclosure and the development of intercultural relationship. However, there is still a dearth of research exploring this relationship, and also little research has been done to investigate self-disclosing processes in non-Western cultures.

**Friendship Development**

Relationships are conceptualized to progress in phases or stages toward higher degrees of intimacy. However, the majority of research on relationship development focuses on romantic relationships rather than friendships. Researchers interested in friendship formation tend to focus their analysis on the underlying dimensions of friendship formation, such as trust, support, and helping behavior, rather than the processes (Cushman & Cahn, 1985). Also, relationship development models are rarely applied to cross-cultural or intercultural samples (Korn & Nicotera, 1993). The few studies that do focus on friendship development tend to examine either stages of development in friendships or levels of closeness in friendships (Chan & H.-L., 2004; Finn & Powers, 2002; Johnson, Wittenberg, Villagran, Mazur, & Villagran, 2003; Korn & Nicotera, 1993).

Different levels of friendship progression have been conceptualized. In Korn and Nicotera’s (1993) review on conceptualization of friendship levels, they highlighted Parks’ model of 10 levels from acquaintances to intimate friends as well as LaGaipa’s model of four levels from social acquaintances to best friends in friendship research. Specifically, LaGaipa’s (1977) four distinct levels of friendships are (a) acquaintances, (b) casual friends, (c) good friends, and (d) best friends. Similarly, Johnson et al. (2003) examined friendships of three intimacy levels: casual, close, and best friends. Considering the increase of intimacy in friendship development, this study adopts a classification system similar to that of LaGaipai (1977) and Johnson et al. (2003).

**Research Questions**

This study seeks to investigate the relationship between self-disclosure and intercultural friendship between Taiwanese and native English speakers. This task calls for a comparative examination of friendships between (a) sojourning Taiwanese in the United States and the host native English speakers as opposed to (b) the friendships between native English speakers living in Taiwan and the host Taiwanese people. Ellingsworth’s (1988) theory of adaptation in intercultural dyads provides the
theoretical rationale for this comparative proposal. Adaptation theory proposes that territorial advantage or “owning the turf” (p. 276) is one of the major factors that conditions adaptation. Specifically, because the participant with a territorial advantage has both physical and psychological control of the environment, the responsibility of adaptation then usually falls on the shoulders of the foreigner and requires him/her to display adaptation. Therefore, we argue that it is more critical to examine the foreigners’ experiences of disclosing themselves when making friends with members of the host culture. While there has been extensive research on friendship and communication in Western cultural contexts (e.g., Rawlins, 1992, 2009), friendship in the context of Taiwan has not received much attention from communication scholars. Thus, we consider it necessary to include intracultural friendship in Taiwan as a reference group for better understanding the experiences of sojourning Taiwanese. In sum, this study examines comparatively the BSD among three groups of participants: (a) sojourning native English speakers (SojNES) in Taiwan, (b) sojourning Taiwanese (SojT) in the United States, and (c) Taiwanese in Taiwan (TaiIT) who primarily socialize with other Taiwanese. We attend to breadth rather than depth of disclosure partly because we are confident that the range of self-disclosure topics is conceptually equivalent across cultures (e.g., tastes and interests, the body, and personality), whereas we are uncertain if deep or intimate self-disclosure means the same across cultures. The following research questions are proposed to guide this study:

RQ1: To what extent do friendship types (i.e., intercultural friendship vs. intracultural friendship) influence BSD at each level of friendship development, in the case of SojT vs. TaiIT?

RQ2: To what extent do cultural backgrounds (i.e., from Taiwan vs. from English-speaking countries) influence BSD at each level of friendship development, in the case of SojT vs. SojNES?

Social penetration theory, supposing that self-disclosure increases as friendships develop, may predict that differences in BSD among the three groups would be constant across the friendship levels. That is, the group with the highest BSD at the strangers’ level may still be the highest at the other levels (Figure 1a). In contrast, the group that had the lowest BSD at the strangers’ level may display BSD closer to the other two groups at the highest level (Figure 1b). If the latter were the case, the relationship between self-disclosure and friendship development may be moderated by types of friendship as well as cultural backgrounds of the participants (e.g., cultural socialization; Hughes et al., 2006; Trans & Lee, 2011). By answering our research questions, we examined which predictions were closer to our findings.

Methods

Prior to conducting this research, the first author obtained an approval from the Institutional Review Board (IRB) at the university with which she was affiliated during the time of conducting this project. All data were collected after obtaining
informed consent. Additionally, since this project involved respondents from or in Taiwan who may not be familiar with the English language, we made available an IRB-approved Mandarin Chinese version of the consent form.

Research Participants

Populations for the present study comprised: (a) SojNES residing in a large city in Northern Taiwan, (b) SojT residing in a large metropolitan area in the U.S. Southwest, and (c) TaiIT who primarily socialized with other Taiwanese. Participants in all three groups were recruited through direct contact by the first author. In addition, a snowball sampling procedure was also employed. The primary criteria for the selection of participants were their experiences in making friends as well as their cultural backgrounds. Also, each SojNES and SojT self-reported to have developed close intercultural friendships with members of the host culture, while each TaiIT had developed intimate friendships with other Taiwanese people. The participants in this study were 56 SojNESs, 49 SojTs, and 67 TaiITs (N = 172).

Most of the SojNESs were English instructors residing at a metropolitan city in Northern Taiwan during the time of this study. Of the 56 SojNESs, 26 were U.S. Americans, 15 Canadians, 8 New Zealanders, 5 Britons, 1 Australian, and 1 South African. In this study, we categorized seven different national cultures into one group of SojNES, even though there may have been no differences within this group.

Figure 1. Hypothesized Patterns of Changes in Breadth of Self-Disclosure Across Friendship Levels. (1a). A pattern consistent with social penetration theory; (1b). A pattern inconsistent with social penetration theory.
For the purpose of this study, our categorization was justified for both statistical and contextual reasons. Statistically, a series of one-way ANOVAs with the nationalities among English speakers as the independent variable revealed that the nationality variable had no significant effect on any of the demographic variables or indicators (adjusted ps > 0.20). Therefore, these English speakers were categorized into one SojNES group although we recognize potential diversities among peoples from different English-speaking countries. Contextually, the cultural line in intercultural friendship in Taiwan as situated in this study was drawn between Western versus Taiwanese and native English speakers versus non-native English speakers (or native Mandarin Chinese speakers). For instance, one participant in the larger study that this research was part of remarked that he often felt like “a walking English dictionary” in interacting and relating to Taiwanese.

The majority of the SojTs (n = 40) were Taiwanese international students enrolled in a large university in the U.S. Southwest. Nearly half of the TaiIT (n = 33) were college students at the time of this research, and the other half (n = 34) were not. Additional descriptive statistics of demographic and sojourning variables are shown in Table 1.

The group difference was significant in sex (70/33/39% in SojNES/SojT/TaiIT; p < 0.01) and marginally significant in age (30.4/28.6/26.6; p = 0.06). Sex and age differences are known to influence communication patterns in friendships (e.g., Holladay & Kerns, 1999; Mortenson, 2005), so these two variables could have influenced the observed outcome. Thus, to control for potential sex and age effects, these background variables were included in the model as covariates.

### Table 1. Demographic Characteristics of Participants (N = 172).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sojourning Taiwanese</th>
<th>Sojourning Native English Speakers</th>
<th>Taiwanese in Taiwan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size (n)</td>
<td>M Range</td>
<td>M Range</td>
<td>M Range</td>
</tr>
<tr>
<td>Age†</td>
<td>56 22–51</td>
<td>49 20–60</td>
<td>67 18–53</td>
</tr>
<tr>
<td>% Male**</td>
<td>69.6 28.6</td>
<td>32.7 26.6</td>
<td>38.8 18–53</td>
</tr>
<tr>
<td>% from the U.S.</td>
<td>26.8</td>
<td>30.4 28.6</td>
<td>26.6 18–53</td>
</tr>
<tr>
<td>Highest education level completed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school diploma</td>
<td>3.6 14.9</td>
<td>26.5 19.4</td>
<td></td>
</tr>
<tr>
<td>Bachelar’s</td>
<td>58.9 53.7</td>
<td>40.8 19.4</td>
<td></td>
</tr>
<tr>
<td>Master’s</td>
<td>23.2 19.4</td>
<td>14.3 14.3</td>
<td></td>
</tr>
<tr>
<td>A Ph.D.</td>
<td>3.6 0.0</td>
<td>0.0 0.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>10.7 12.0</td>
<td>18.4 12.0</td>
<td></td>
</tr>
<tr>
<td>Length of Sojourning</td>
<td>4.1 1–7</td>
<td>4.3 1–7</td>
<td></td>
</tr>
<tr>
<td>Number of Intercultural Friends</td>
<td>2.5 6–10</td>
<td>2.0 1–5</td>
<td></td>
</tr>
<tr>
<td>Number of Intracultural Friends</td>
<td>2.8 6–10</td>
<td>3.0 11–15</td>
<td>2.2 1–5</td>
</tr>
</tbody>
</table>

Note: M = mean; †p = 0.06, **p < 0.01.
Procedures and Research Instruments

The authors used a survey questionnaire to measure BSD and its potential change across three levels of intercultural friendships (strangers, casual friends, and good friends). This questionnaire has been successfully used to measure patterns of self-disclosure in participants from collectivistic cultures (Chen, 2006). The survey, derived from Jourard-Lasakow’s Self-Disclosure questionnaire (1958), consisted of six topic areas: (a) attitudes and opinions, (b) tastes and interests, (c) work or studies, (d) money, (e) personality, and (f) body and appearance. The survey questionnaire separately asked participants to indicate their agreement with each item whether they were “often willing to talk about” a certain topic when talking with “strangers,” “casual friends,” and “good friends” on a 5-point Likert-type scale ranging from 5 (strongly agree) to 1 (strongly disagree). In total, the survey questionnaire consisted of 18 items (= 6 items × 3 scales) and 11 demographic questions. To assess the internal consistency of the participants’ response to the survey, Cronbach’s α was computed for each group (3) within each friendship level (3). In all 3 × 3 = 9 subgroups, participants showed acceptable levels of internal consistency (αs > 0.70, see Table 2).

There was one version of the survey for each of the three specified groups. The version for SojNES asked participants to think about themselves talking with Taiwanese strangers, casual friends, and good friends. The version for SojT asked when they were talking with U.S. American strangers, casual friends, and good friends. The version for TaiT asked when they were talking with Taiwanese strangers, casual friends, and good friends. Thus, the questionnaire asked SojNES and SojT about their self-disclosure in intercultural friendship, but it asked TaiIT about their self-disclosure in intracultural friendship. In the case of Taiwanese people who may not speak English, an equivalent version of the survey in Chinese was proofread and checked by a native Chinese speaker who spoke Mandarin and Taiwanese. Also, a bilingual individual fluent in Chinese and English read the Chinese version of the survey and translated the items back into English to check semantic connotations of the word choices as it is customarily done with translated surveys (Lin & Harwood, 2003).

Analysis

We shortened the original self-disclosure scale to ensure that the developed questionnaire could be reasonably completed within 20–25 minutes to prevent fatigue. Thus, to test the empirical validity and model fit of the shortened measurement, the scale along with background variables was submitted to confirmatory factor analysis (CFA) using the Mplus structural equation modeling program with maximum likelihood estimation (ver. 6). The confirmatory model assumed a three-factor solution: BSD with Strangers, Casual Friends, and Good Friends (see Figure 2). The same set of participants was repeatedly asked to respond to the same items at different levels of friendship; the obtained data have a repeated-measures structure. Therefore, residuals in the model between corresponding
indicators were allowed to be correlated (e.g., the Money indicator with BSD with Strangers with the Money Indicator with BSD with Casual Friends; Brown, 2006; Ledbetter, 2010).

The model was evaluated based on two sets of criteria. First, the overall fit of the model was evaluated using the following fit indices: (a) the ratio of $\chi^2$ to degrees of freedom ($\chi^2/df$); (b) the comparative fit index (CFI); (c) the Tucker-Lewis index (TLI); (d) the root mean square error of approximation (RMSEA); and (e) standardized root mean square residual (SRMR). An acceptable model fit was defined as meeting at least four of the above criteria (Browne & Cudeck, 1993; Field, Tyre, Jonzen, Rhodes, & Possingham, 2004; Kline, 2011; Ledbetter, 2010): $\chi^2/df < 3.0$, RMSEA $< 0.08$, and CFI/TLI $> 0.90$, and SRMR $< 0.10$. Second, each individual indicator was evaluated using the following criteria: (a) an indicator needed to have a significant standardized factor loading; and (b) the standardized residual variance of an indicator was less than 1.96 (Brown, 2006).

Table 2. Descriptive Statistics of Item Scores by Group and Friendship Levels.

<table>
<thead>
<tr>
<th>Items</th>
<th>With Strangers</th>
<th>With Casual Friends</th>
<th>With Good Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Strangers</td>
<td>With Casual Friends</td>
<td>With Good Friends</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>Skew</td>
</tr>
<tr>
<td>Sojourning Native English Speakers ($n = 56$)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>3.50</td>
<td>1.11</td>
<td>−0.45</td>
</tr>
<tr>
<td>Tastes</td>
<td>3.89</td>
<td>1.04</td>
<td>−1.19</td>
</tr>
<tr>
<td>Studies</td>
<td>4.07</td>
<td>0.87</td>
<td>−1.51</td>
</tr>
<tr>
<td>Money</td>
<td>2.25</td>
<td>1.19</td>
<td>0.89</td>
</tr>
<tr>
<td>Personalit</td>
<td>3.30</td>
<td>1.06</td>
<td>−0.27</td>
</tr>
<tr>
<td>Body</td>
<td>1.98</td>
<td>1.17</td>
<td>0.89</td>
</tr>
<tr>
<td>Cronbach’s $\alpha$</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Sojourning Taiwanese ($n = 49$) | | | | | | | | | | | | |
| Attitude               | 2.98 | 1.03 | −0.08 | −0.88 | 3.49 | 0.84 | −0.29 | −0.52 | 4.08 | 0.70 | −0.11 | −0.90 |
| Tastes                 | 3.49 | 1.11 | −0.61 | −0.56 | 4.00 | 0.71 | −0.74 | 1.34 | 4.29 | 0.65 | −0.35 | −0.64 |
| Studies                | 3.61 | 1.00 | −0.46 | −0.83 | 4.02 | 0.72 | −0.72 | 1.16 | 4.27 | 0.67 | −0.37 | −0.73 |
| Money                  | 1.90 | 0.92 | 1.55 | 3.61 | 2.47 | 0.98 | 0.99 | 0.40 | 3.08 | 1.08 | 0.04 | −1.00 |
| Personalit             | 3.12 | 1.20 | −0.24 | −1.01 | 3.61 | 0.79 | −0.52 | −0.03 | 4.10 | 0.68 | −0.54 | 0.76 |
| Body                   | 2.16 | 1.14 | 0.80 | −0.13 | 2.49 | 1.06 | 0.08 | −1.20 | 2.96 | 1.00 | −0.31 | −0.70 |
| Cronbach’s $\alpha$   | 0.75 |      |      |     | 0.73 |      |      |     | 0.70 |      |      |     |

| Taiwanese in Taiwan ($n = 67$) | | | | | | | | | | | | |
| Attitude               | 2.95 | 0.90 | 0.05 | −0.47 | 3.43 | 0.86 | −0.38 | 0.02 | 4.19 | 0.72 | −0.56 | 0.00 |
| Tastes                 | 3.12 | 0.98 | −0.25 | −0.20 | 3.51 | 0.86 | −0.02 | −0.58 | 4.25 | 0.70 | −0.67 | 0.33 |
| Studies                | 3.00 | 1.00 | 0.19 | −0.85 | 3.52 | 0.82 | −0.58 | −0.40 | 4.09 | 0.73 | −0.38 | −0.28 |
| Money                  | 2.07 | 0.89 | 0.77 | 0.74 | 2.73 | 0.79 | 0.71 | −0.41 | 3.52 | 0.89 | −0.07 | −0.69 |
| Personalit             | 2.45 | 1.02 | 0.77 | 0.18 | 3.01 | 0.91 | 0.59 | −0.43 | 3.88 | 0.84 | −0.55 | −0.07 |
| Body                   | 2.40 | 0.91 | 0.61 | 0.10 | 2.84 | 0.81 | 0.31 | −0.47 | 3.55 | 0.84 | −0.41 | 0.38 |
| Cronbach’s $\alpha$   | 0.83 |      |      |     | 0.84 |      |      |     | 0.84 |      |      |     |

Note: $M =$ mean; $SD =$ standard deviation; $K =$ kurtosis.
Since we were interested in measuring the latent factor of BSD and comparing its means across preexisting cultural groups, we needed to test whether these groups similarly responded to items of the measuring instrument (i.e., measurement invariance; Byrne, 2008; van de Vijver & Leung, 1997). There are two common approaches for testing measurement invariance: multiple-groups CFA and multiple-indicators, multiple-causes (MIMIC) models (Brown, 2006).

While the first approach is more versatile, allowing researchers to examine all potential aspects of invariance across groups, we chose MIMIC models for the following reasons. First, MIMIC models require smaller sample size than multiple groups CFA, especially when a study involves three or more groups (Brown, 2006). Second, MIMIC models allow us to compare factor means and indicator intercepts across groups, our primary interest. Third, they enable us to detect differential item 

**Figure 2** Hypothesized Model of Factorial Structure of Breadth of Self-Disclosure. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. BSD = breadth of self-disclosure; S1/CF1/GF1 = attitude; S2/CF2/GF2 = tastes; S3/CF3/GF3 = studies; S4/CF4/GF4 = money; S5/CF5/GF5 = personality; S6/CF6/GF6 = body; Pre-DIF = standardized factor loadings before controlling for DIF; Pre-DIF = standardized factor loadings after controlling for DIF. All factor loadings significant at $\alpha = 0.01$ level.
functioning (DIF): participants from different groups with the same latent-factor score responding differently to specific items (Zumbo, 2007). One advantage of MIMIC models is that one can compare latent-factor means across groups while controlling for DIF effects.

We first ensured that the three-factor model of BSD with Stranger, Casual Friends, and Good Friends with the three covariates of Sex, Age, and Group was reasonable and good fitting in the full sample using on the criteria described above. Second, we examined the evidence of DIF by fixing all direct effects between the Group covariate and the indicators to zero. Afterward, we allowed the direct effects with modification indices greater than 4.0 to be freely estimated (Brown, 2006). Finally, to answer our Research Questions (RQs), we performed contrast tests comparing SojNES with SojT for RQ1 and SojT with TaiIT for RQ2 while controlling for potential DIF effects.

Results

Descriptive statistics ($M, SD$, skewness, kurtosis) for each subgroup is shown in Table 2. Because some subgroups showed evidence of extreme skewness ($|\text{skewness}| > 2.0$) and kurtosis ($|\text{kurtosis}| > 3.0$), we suspected that the multivariate normality was likewise violated. Therefore, we used Mardia’s test of multivariate normality to confirm a significant violation of multivariate-normality ($p < .001$). To obtain accurate parameter estimate under multivariate non-normality, we used the robust maximum-likelihood estimator based on the Satorra-Bentler scaled $\chi^2$ ($SB\chi^2$) (Satorra & Bentler, 1994).

We first evaluated the overall fit of a CFA model with three-factor solution. The five fit indices were above the recommended benchmarks: $SB\chi^2 (159, N = 172) = 267.39$, $p < 0.01$, $SB\chi^2/df = 1.68$, $CFI = 0.92$, $TLI = 0.90$, $RMSEA = 0.06$, $SRMR = 0.09$. All standardized factor loadings were significant at the $\alpha = 0.01$ level while none of the standardized residual variances was greater than 1.96. These results together indicated that the three-factor solution fit the data acceptably well.

We subsequently evaluated the effect of the three covariates. The direct effect of Group was significant on all BSD factors: on BSD with Strangers: Standardized coefficient (Standard error in parentheses) $-0.49 (0.09)$, $p < 0.01$; with Casual Friends: $-0.52 (0.09)$, $p < 0.01$; with Good Friends: $-0.21 (0.10)$, $p = 0.04$. This significant Group indicates that groups significantly differed in the BSD. The Age effect was significant only on BSD with Casual Friends ($p = 0.01$) while Sex was not significant on any of the factors ($ps > 0.20$).

It is possible that these significant group effects may have been caused by certain item bias, indicated by significant DIF. To detect DIF, all direct effects from Group to all 18 indicators were fixed to 0 in the model, and modification indices were examined. The model showed that Group had significant direct effects on Studies and Body indicators for BSD with Stranger ($ps < 0.01$). Specifically, given the same BSD factor score, SojNESs self-disclosed significantly more about work and studies with
strangers than TaiITs ($p < 0.05$). On the other hand, they self-disclosed significantly less about their body and appearance than both SojTs and TaiITs ($ps < 0.05$).

To determine whether the effect of Group was still significant while controlling for these DIF effects, a new model was fit with the direct effects of Group on the Studies and Body indicators for the BSD-with-Stranger factor. The five fit indices again were above the recommended benchmarks with slightly better model fit: $SB\chi^2 (157, N = 172) = 256.07$, $p < 0.01$, $SB\chi^2/df = 1.63$, $CFI = 0.93$, $TLI = 0.90$, $RMSEA = 0.06$, $SRMR = 0.09$. Again all standardized factor loadings were significant at $\alpha = 0.01$ level while none of the standardized residual variances was greater than 1.0. These results together indicated that the three-factor solution with DIF effects fit the data acceptably well. Most importantly, all the Group effects remained significant, and their effect sizes were nearly unchanged: BSD with Strangers: $-0.46$ ($0.09$), $p < 0.01$; with Casual Friends: $-0.52$ ($0.09$), $p < 0.01$; with Good Friends: $-0.21$ ($0.10$), $p = 0.04$.

To answer our Research Questions, we performed contrast tests, comparing latent-factor means for SojNES with SojT and SojT with TaiIT. SojNESs had significantly greater latent factor means than SojT in BSD with Strangers ($0.46 [0.22]$, $p = 0.03$) but only marginally in BSD with Casual Friends ($0.34 [0.19]$, $p = 0.08$) and with Good Friends ($0.36 [0.21]$, $p = 0.08$). SojTs had significantly greater latent factor means than TaiIT in BSD with Strangers ($0.45 [0.22]$, $p = 0.04$) and with Casual Friends ($0.67 [0.19]$, $p < 0.01$) but not with Good Friends ($0.07 [0.20]$, $p > 0.20$). Overall, our result supports the model inconsistent with social penetration theory (Figure 1b) rather than the consistent model (Figure 1a).

**Discussions and Conclusions**

This study attempted to bridge gaps among self-disclosure, friendship development, and types of friendship as well as cultural backgrounds. Three groups with varying intercultural friendship experiences were studied: sojourning Taiwanese (SojT) in the United States, sojourning native English speakers (SojNES) in Taiwan, and Taiwanese in Taiwan (TaiIT) who primarily socialize with other Taiwanese.

This study concludes the following findings. First, cultural backgrounds (i.e., native English speaking vs. Taiwanese) influenced patterns of self-disclosure in intercultural relationships. Specifically, sojourning native English speakers had significantly broader self-disclosure when talking with strange Taiwanese than sojourning Taiwanese talking with strange U.S. Americans. On the other hand, this cultural difference was not significant when they were talking with casual or good intercultural friends, suggesting that the effect of cultural backgrounds may be depending on the degree of friendship. Second, friendship types (i.e., intercultural vs. intracultural) influenced patterns of self-disclosure. Specifically, sojourning Taiwanese had significantly broader self-disclosure when talking with U.S. Americans who were strangers or casual friends than Taiwanese in Taiwan talking with Taiwanese who were strangers or casual friends. This group difference was not
significant when they were talking with good friends. Again, suggesting that the effect of friendship types may also be dependent on degrees of friendship. These findings highlight a complex interplay among cultural backgrounds, friendship types, and degrees of friendship in influencing patterns of self-disclosure.

Our study also found evidence of DIF on certain topics in a context-specific manner. Specifically, sojourning native English speakers had tended to disclose more about studies and work but less about body and appearance than their Taiwanese counterparts, but this difference was significant only when they were talking with strangers. There was no such effect when self-disclosure involved casual or good friends. These findings together suggest that the context (i.e., degrees of friendship) modifies the extent to which cultural backgrounds and friendship types influence participants in self-disclosing about certain topics.

Our findings suggest that cultural dissimilarities influence early stages of relationship development more than later stages, not just in the early stages of relationship development. Differences between the three groups examined further sheds lights on the self-perceived influences of cultural backgrounds (i.e., Taiwanese vs. English speaking) and types of friendships (i.e., intra- vs. intercultural) on the social penetration processes in intercultural friendships.

When comparing SojTs and TaiITs’ self-reported self-disclosure, SojTs consistently revealed themselves more to strangers than TaiITs as indicated by greater factor means for breadth of self-disclosure. Notions of insider-outsider dichotomy and implicit communication (Gao, 1996; Gao & Ting-Toomey, 1998) help to explain TaiITs reservation toward strangers. As Confucius’ principles of faithfulness (i) and propriety (li) indicates, it is only socially appropriate for a Taiwanese person to refrain from self-disclosing to a stranger. Empirically, Barry (2003) identifies the phenomenon of guarded self-disclosure among Asians based on his study of 170 East Asian immigrants in the United States. In contrast, SojTs self-reported disclosing more to strangers might be the results of accommodating to the targeted Western strangers or assimilating to the social norms of disclosure in the host U.S. society. After all, self-disclosing is a dyadic and transactional activity (e.g., Dindia, 1997).

On the other hand, this study found that TaiITs disclosed substantially more broadly to good friends than SojTs. The insider-outsider dichotomy also supports the Taiwanese’s treating close friends as sibling or family members to whom they could disclose more freely and openly without worries (Gao, 1996; Gao & Ting-Toomey, 1998). In comparison, SojTs disclosing less to good intercultural friends might be due to factors such as cultural dissimilarities, English language competency, intercultural communication competence, social difficulties, or discontentment with their American friendships as suggested by previous literature (Collier, 1996; Kudo & Simkin, 2003; Olaniran, 1996; Zimmermann, 1995).

The effects of both friendship types and cultural backgrounds appear to have decreased as friendship develops (i.e., from strangers to good friends). While Gudykunst et al. (e.g., Gudykunst, 1985a, 1985b, 1989; Gudykunst & Nishida, 1983) indicate that communication in intimate intercultural relationships tend to be more personalized and synchronized, the substantial difference between SojTs and TaiITs
in this study suggests that communication in close intercultural friendship may not be as personalistic as that in close intracultural friendship and may be more complex. As Chen (2002) and Collier (2002) argue, issues such as stereotypes, social power, unearned privilege, cultural identities, and social perceptions are often implicated in intercultural relationship communication processes and need to be taken into account when considering the social penetration processes of intercultural relationships.

When comparing SojTs and SojNESs, one significant difference was found. SojNESs in this study disclosed more to strangers in various topics than SojTs. Similarly, G.-M. Chen’s (1995) study of 200 U.S. American students and 144 Taiwanese international students in the United States found that the U.S. Americans consistently self-disclosed more than Taiwanese/Chinese on the same six topics examined in this study. Also, Chen concluded that the U.S. students in his study disclosed substantially more than Taiwanese/Chinese students to target persons such as strangers, parents, and intimate friends. This study found that SojNESs disclosed more on topics than SojTs only to strangers, but not to causal or good friends. This finding may be inclusive and needs further verification partly because of the heterogeneity of population within the SojNESs from five different English-speaking countries and partly because of the confounding factor of sojourning.

Several methodological limitations in this study should be noted. First, the sojourning subjects used in this study were mostly overseas Taiwanese students and an overwhelming number of male native English speakers teaching English in Taiwan. Besides the demographic differences between the two groups of sojourners, the sample represented a small range of socioeconomic backgrounds and age groups. Moreover, as teachers of English, the sojourning native English speakers were most likely surrounded by Taiwanese who were already interested in Western cultures and thus may not have been required to adapt in the same manner required for businessmen or missionaries. Second, measuring self-disclosure through self-reports is open to a number of biases, among which is a tendency to either underreport or overestimate levels of disclosure with friends for reasons of impression management. Despite these methodological limitations, this is a unique exploratory study that attempts to shed light on an understudied yet valuable phenomenon in this increasingly globalized world today.

Taken together, our findings add to the growing evidence that cultural factors influence the development of socialization practices (Hughes et al., 2006), including friendship (Trans & Lee, 2011). Future research should strive for a more comprehensive understanding of the dyadic nature of self-disclosure and the complex influences of cultures on the social penetration processes in developing and maintain intercultural friendships. Specifically, the authors recommend the following to better understand the social penetration processes in intercultural friendships: (a) including more levels or stages of friendship, (b) investigating culturally specific conceptions of self-disclosure using qualitative research methods, (c) using longitudinal studies with multiple methods, or (d) employing an experimental study involving pairs of intercultural friends for verification and cross examination.
Notes

[1] As friendship typically developed from relationships with individuals who were first considered strangers, communication with strangers served as the baseline for understanding intercultural friendship development in this study.

[2] While a range of cut-off values have been proposed for each index, we chose less conservative values because, given the exploratory nature of our study, we wished to reduce the chance of committing Type II errors (Field et al., 2004).

References


Zumbo, B. D. (2007). Three generations of DIF analyses: Considering where it has been, where it is now, and where it is going. Language Assessment Quarterly, 4, 223–233.