Reciprocal Relations Between Social Self-Efficacy and Loneliness Among Chinese International Students
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Among international students in the United States, those with a Chinese cultural heritage (e.g., students from China, Taiwan, and Hong Kong) now constitute the largest group, representing over a third of all such students. However, relatively little is known about the psychosocial factors that may predict successful transition into the United States. As such, independent of the effects of perceived English proficiency and social isolation, the present study assessed the relations between social self-efficacy and loneliness among Chinese international students in a 3-wave cross-lagged study (i.e., timeline ranging from prearrival to their 2nd semester in the United States). Their associations with social isolation and sources of friendship (i.e., U.S. friends, Chinese friends, or international friends) were also examined. Participants were 409 Chinese international students (57% female) enrolled in universities across the United States. Findings revealed bidirectional relations between social self-efficacy and loneliness across all 3 time points. Furthermore, we found that those with higher levels of social self-efficacy had a proportionally higher number of American friends during their 1st semester in the United States. In other words, having perceived close friendships with Americans may be an important factor associated with the social adjustment of Chinese international students. Implications of these findings are discussed.

Keywords: international students, social self-efficacy, loneliness, Chinese
same as the objective absence of social relationships (i.e., social isolation). Among a sample of older adults, of the 8.6% defined as often lonely, 50% were classified as socially isolated (Turnbull, 1957). That is, socially isolated people are not always lonely, and lonely people are not always socially isolated. Indeed, controlling for the effects of objective social isolation, loneliness has been associated with depression (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006), as well as stress and poorer interpersonal relationships (see Heinrich & Gullone, 2006, for a review). This cognitive conceptualization of loneliness (Perlman & Peplau, 1981) has been linked with personality characteristics such as low self-esteem, shyness, and low assertiveness (Perlman & Peplau, 1982), which in turn may be associated with having low social self-efficacy (Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Sherer & Adams, 1983).

Self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1995, p. 2). By extension, social self-efficacy refers to an individual’s perceived ability to initiate and maintain interpersonal relationships (Sherer & Adams, 1983; Smith & Betz, 2000). Social self-efficacy may be an important protective factor against the experience of loneliness. For instance, individuals with high social self-efficacy can trust their own capabilities to initiate and develop interpersonal relationships, which are instrumental to developing a new support network abroad (Duck, 1990). In this way, high social self-efficacy can buffer against the loss of a social network caused by the move to the United States. Indeed, recent research on international students has linked social self-efficacy to lower accumulative stress (Lin & Betz, 2009), and individuals with high social self-efficacy may be more likely than those with low social self-efficacy to initiate conversations, participate in group activities, and tolerate social rejections that are common in new social environments (Smith & Betz, 2000). Moreover, one’s level of social self-efficacy may be different across language settings. For example, Chinese international students’ social self-efficacy was reported to be higher in Chinese settings compared to English settings (Lin & Betz, 2009), which could have implications for the types of friendships that are developed.

Researchers have documented the importance of developing social bonds among international students (Kagan & Cohen, 1990). For example, having friendships with host nationals (i.e., U.S. friends) is associated with satisfaction with living abroad and less homesickness (Hammer, Wiseman, Rasmussen, & Brunschke, 1998; Hendrickson, Rosen, & Aune, 2011). Given the importance of having a satisfying social network (Veiel & Baumann, 1992), having the skills and beliefs that one can successfully navigate interpersonal situations is highly important (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003; Leganger, Kraft, & Roysamb, 2000). What is unclear, however, is whether high social self-efficacy among international students is associated with greater ease of developing friendships with individuals from all backgrounds (e.g., U.S. friends vs. other international students) or specific to a certain friend group. Due to cultural differences, developing friendships with students from the United States may be more challenging than developing friendships with other Chinese students, even for individuals with high social self-efficacy.

Although the finding that low social self-efficacy is associated with loneliness is well established, such studies have primarily relied on cross-sectional designs (e.g., Rahman & Rollock, 2004). In the present study, we used a cross-lagged design that allowed us to formally test for reciprocal predictive relationships. By considering the potential bidirectional nature between social self-efficacy and loneliness, we could test whether the experience of loneliness can decrease social self-efficacy over time. For instance, lonely individuals are judged as less interpersonally competent than are individuals who are not lonely (Spitzberg & Canary, 1985), and extant research has consistently documented a negative correlation between social skills and loneliness (Segrin, 1993). Indeed, the cognitive awareness of a deficiency in one’s social relationships can negatively affect one’s self-esteem (Dussault & Deauldien, 2001), which may lead to lower social self-efficacy.

According to Berry’s (1997) acculturation framework, the length of time an international student has been in the United States can also play an important role in the adjustment process. However, except for a few studies (e.g., Hechanova-Alampay, Beehr, Christiansen, & Van Horn, 2002; Wang et al., 2012), most studies on international students’ adjustment have utilized cross-sectional designs and have not examined both prearrival and postarrival time points to the United States (Zhang & Goodson, 2011). During the first few months of the academic year, there is often greater social pressure to initiate conversations and engage in interpersonal interactions to develop a new support network (Compas, Wagner, Slavin, & Vannatta, 1986). By extension, it may be especially important for international students to hold high levels of social self-efficacy or have low levels of loneliness prior to arrival in the United States. Indeed, one study showed that psychological well-being was more strongly associated with general self-efficacy on entry compared with 6 months later among a sample of international students (Hechanova-Alampay et al., 2002). Therefore, it is important to not only consider the length of time in the United States but also to utilize a longitudinal approach when studying international students.

Current Study

The objective of the present study was to assess the reciprocal relations between social self-efficacy and loneliness across different periods of Chinese international students’ transition to the United States. Following a review of the literature, we predicted that high levels of loneliness can be both a cause (i.e., feeling disconnected from others may lead individuals to feel low social self-efficacy) and a consequence (i.e., absence of high social self-efficacy may lead individuals to experience loneliness) of low social self-efficacy. Because few studies have examined the relations between social self-efficacy and loneliness over time (see Hechanova-Alampay et al., 2002, for an exception), no specific predictions were made regarding differences in relations across different time periods. We controlled for social isolation and perceived English proficiency in our cross-lagged model when examining the reciprocal relations between social self-efficacy and loneliness. Last, we explored sources of friendship (i.e., proportion of friends who were Chinese, other international students, or from the United States) among our Chinese international student sample.
Method

Participants

Data from Wang, Wei, and Chen (2015) was used in the present study. Wang and his colleagues utilized growth mixture modeling to examine how social factors and perceived English proficiency predicted different subjective well-being trajectories (i.e., negative affect and life satisfaction). They found four distinct trajectory classes, with individuals who had (a) consistently high well-being, (b) some degree of culture shock, (c) enhanced well-being, and (d) low well-being. As such, the present study examined a different research question. In total, 467 Chinese international students participated in the study. Of the 467 participants, 56 did not pass the validity check item on the survey (i.e., “please select [strongly disagree] for this item”) and were excluded from data analyses. Moreover, we removed data from two participants who reported a number of friends that was over three standard deviations away from the average reported number of friends (e.g., one participant reported having 100 close friends at Time 2 [T2]). Thus, data from 409 international students studying in the United States were used in this three-wave longitudinal study. The majority were studying in the Midwest (47%), followed by the South (21%), West (18%), and Northeast (14%). At Time 1 (T1; prearrival), there were 409 participants. At T2 (first semester in the United States), there were 366 participants, and at Time 3 (T3; 2nd semester in the United States), there were 271 participants. Among the 409 participants, 59% were female, and the mean age was 22.92 years (SD = 3.57). All participants were ethnically Chinese, with 72% of the participants coming from China, 27% from Taiwan, and 1% from Hong Kong.

Because there were only four participants from Hong Kong, an analysis of variance (ANOVA) with the three groups was not conducted. Instead, a series of t tests were conducted between Chinese and Taiwanese students. Chinese and Taiwanese students did not differ in gender; overall perceived English ability; or levels of social self-efficacy, loneliness, or social isolation across all three time points (ps > .05). However, Chinese students (M = 22.52, SD = 3.52) were younger than Taiwanese students (M = 25.61, SD = 3.23), t(218) = 3.01, p < .001. Thus, we aggregated Chinese, Taiwanese, and Hong Kong students in our analyses because of their shared cultural heritage (Hofstede, 1980). The majority of the participants were graduate students (76%) and undergraduate students (18%), with a minority in nondegree programs (6%) such as exchange or language programs. The most popular majors that students were enrolled in were engineering (26%), business (17%), science (15%), and the social sciences (10%). The majority of the sample (61%) had never visited the United States prior to their move to study in the United States. We refer to the Chinese, Taiwanese, and Hong Kong international students in our sample as Chinese international students for brevity from this point on.

Measures

Social self-efficacy. Social self-efficacy was assessed with the Social Self-Efficacy subscale from the Self-Efficacy Scale (SSE; Sherer et al., 1982). This six-item subscale assesses individuals’ perceptions of their ability to initiate social interactions and their persistence in making friends. Participants were asked to rate each item (e.g., “If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me”) on a 5-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores on the SSE indicate greater social self-efficacy. The SSE has good construct validity with ego strength, interpersonal competency, and self-esteem (Sherer et al., 1982) and has been validated for use with international students with a Cronbach’s alpha of .77 in a sample of Taiwanese international students (Mallinckrodt & Wang, 2004). In the current study, internal consistency was adequate at T1 (α = .66), T2 (α = .64), and at T3 (α = .70). Although the internal consistency at T1 and T2 were lower, previous research has reported an internal consistency of .71 (Sherer & Adams, 1983), and Anderson and Betz (2001) reported an internal consistency of .69 with European American samples. This provides some support that the lower alphas may not be influenced by ethnicity. In addition, the smaller number of items in this subscale may partially explain the lower alpha (Cortina, 1993).

Loneliness. Loneliness was assessed with the UCLA Loneliness Scale—Short Form (ULS–8; Hays & DiMatteo, 1987). Participants were asked to rate eight items (e.g., “There is no one I can turn to” and “I can find companionship when I want to” [reverse-scored]) on the frequency with which they experience these feelings using a 4-point Likert-scale ranging from 1 (never) to 4 (always). Higher scores on the ULS–8 indicate greater experience of loneliness. The ULS–8 has adequate psychometric properties. The construct validity of ULS–8 has been supported by its negative associations with social support and satisfaction with life among Taiwanese college students (Wu & Yao, 2006). In the current study, internal consistency was adequate at T1 (α = .81), T2 (α = .82), and at T3 (α = .85).

Social isolation and friendship source. Social isolation was assessed by asking participants to indicate the number of close friends that they had who were (a) Chinese international students, (b) international students from other countries, and (c) U.S. students during each time point. Number of friends was calculated by summing the number of close friends from each category at T2 and T3, respectively. Because higher number of friends indicates lower social isolation, we multiplied the number of friends by −1 to reverse-code this variable. The percentage of close friends from each category was calculated by dividing the number in each category by the total number of close friends (before reverse-coding). Friendship source was represented by three variables indicating the proportion of close friends from each category.

Perceived English ability. Perceived English ability was assessed with the Perceived English Proficiency Scale (PEP; Wei, Liao, Heppner, Chao, & Ku, 2012). Participants rated five items on their level of proficiency in the following areas: listening, speaking, reading, writing, and overall English, using a 5-point Likert scale.
scale ranging from 1 (very poor) to 5 (very good). Higher scores on the PEP indicate higher self-perceived English fluency. The PEP has good construct validity, supported by a positive association with the length of time in the United States and negative associations with acculturative stress and psychological distress among Chinese international students (Wei et al., 2012). In the current study, internal consistency was adequate at T1 (α = .86), T2 (α = .86), and at T3 (α = .85).

**Procedure**

Participants were recruited through e-mailing the presidents or chairs of student associations and directors of international student offices and asking them to forward the invitation e-mail to incoming students. Because potential participants have already submitted their intent to attend their respective universities, the directors of international student offices were able to forward our recruitment e-mails to these incoming students. Participants were told that the study was about international students’ adjustment process related to their psychological well-being. All participants completed the surveys online in simplified Chinese if they were from China or traditional Chinese if they were from Hong Kong or Taiwan. All measures were translated from English to Chinese following established translation and back-translation guidelines (Brislin, 1980). Students from China and Taiwan reviewed the simplified Chinese and traditional Chinese versions, respectively, to ensure that the translations were adequate. Moreover, within each survey, validity check items were included as exclusion criteria (e.g., “please select [strongly disagree] for this item”). Time 1 was collected during the summer prior to the students’ arrival in the United States (between July and August 2011). Time 2 was collected during the middle of their first semester in the fall (October 2011), and Time 3 was collected during the middle of their second semester in the winter (February 2012). Participants were compensated with a guide on studying abroad and a chance to win a US$50 or US$25 gift card through a raffle at each time point.

**Results**

**Preliminary Analyses**

Table 1 shows the zero-order correlations and the mean and standard deviations for all study variables across each time point. First, we noted that the Chinese international students in our sample reported having around 12 close friends at T2 (M = 11.72, SD = 9.65) and 14 close friends at T3 (M = 14.38, SD = 14.65). Results indicated that social self-efficacy and loneliness were significantly correlated with each other across all three time points (rs = −.54 to −.63, ps < .001). Notably, the highest proportion of friends were Chinese among our Chinese international student sample (average percentage = 66% at T2 and 63% at T3). We found small but significant correlation coefficients between friendship source, social self-efficacy, and loneliness. At T2, social self-efficacy was significantly associated with having a greater percentage of U.S. friends (r = .11, p < .05) and lower percentage of Chinese friends (r = −.11, p < .05). T2 loneliness was positively associated with percentage of Chinese friends (r = .15, p < .05) and negatively associated with percentage of U.S. friends (r = −.13, p < .05). However, T3 loneliness was no longer associated with T3 percentage of friends. Regarding social isolation, T2 social isolation was significantly associated with lower T2 social self-efficacy (r = −.18, p < .01) and higher T2 loneliness (r = .15, p < .05). Similar results were also found for T3. That is, T3 social isolation was significantly associated with lower T3 social self-efficacy (r = −.21, p < .001) and greater T3 loneliness (r = .14, p < .05). To examine whether social self-efficacy is theoretically different from social isolation in its association with loneliness, we conducted a z test between two correlation coefficients (Lee & Preacher, 2013). A significant result (z = 6.66, p < .001) showed that the correlation between T2 social self-efficacy and T2 loneliness (r = −.63) was significantly greater in magnitude than the correlation between T2 social self-efficacy and T2 social iso-

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<td>20.02 (3.48)</td>
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<td>4. Loneliness</td>
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<td>5. Ch friends</td>
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<td>66 (26)</td>
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<td>6. Intl friends</td>
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<td>7. U.S. friends</td>
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<td>−.11***</td>
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<td>11.72 (9.65)</td>
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<td>9. SSE</td>
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<td>19.70 (3.61)</td>
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<td>10. Loneliness</td>
<td>−.46***</td>
<td>.62***</td>
<td>−.48***</td>
<td>.72***</td>
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<td>.05</td>
<td>−.54***</td>
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<td>17.27 (4.09)</td>
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<td>11. Ch friends</td>
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<td>−.21***</td>
<td>.10</td>
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<td>63 (25)</td>
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<td>12. Intl friends</td>
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<td>−.17</td>
<td>−.46***</td>
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<td>−.68***</td>
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<td>13. U.S. friends</td>
<td>.22***</td>
<td>−.14**</td>
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<td>14. Social isolation</td>
<td>−.22***</td>
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<td>−.16</td>
<td>.16</td>
<td>.26***</td>
<td>−.21***</td>
<td>−.19</td>
<td>.45***</td>
<td>−.21***</td>
<td>.14</td>
<td>.21***</td>
<td>−.07</td>
<td>.23***</td>
<td>14.38 (14.65)</td>
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</table>

**Note.** Means for social isolation are presented as positive for ease of interpretation (i.e., no. of friends). T = time; SSE = Social Self-Efficacy; Ch = Chinese; Intl = international.

*p < .05. **p < .01. ***p < .001.
The Cross-Lagged Model

The longitudinal relations between social self-efficacy and loneliness across three time points were conducted with a cross-lagged model using path analysis with Mplus 6.11 (Muthén & Muthén, 2010). Mplus handles missing data using full-information maximum-likelihood estimation, which uses all available data in the analyses. The model tested included age, 3 gender, 4 perceived English proficiency, and social isolation as covariates. Because international students can improve their English proficiency over time, variables at T1 were controlled for overall English ability at T1, and variables at T2 were controlled for perceived English proficiency at T2. T2 social isolation (i.e., number of friends) was included in the model as a covariate because of its known associations with loneliness and well-being (Peplau, Russell, & Heim, 1979). Specifically, the cross-lagged path of T2 social self-efficacy to T3 loneliness and T2 loneliness to T3 social self-efficacy controlled for T2 social isolation.

We examined the prospective relations between social self-efficacy and loneliness across three time points (see Figure 1). The standard conventions for adequate model fit are comparative fit index (CFI) greater than .95, root-mean-square error of approximation (RMSEA) less than .08, and standardized root-mean-square residual (SRMR) less than .08 (Hu & Bentler, 1999). The model fit the data adequately (CFI = .97, RMSEA = .10, SRMR = .03), $\chi^2(6, N = 409) = 31.15, p < .05$. The model showed that social self-efficacy was moderately stable over time from T1–T2 and T2–T3 ($s = .54$ and .52, respectively, $p < .001$). Similarly, loneliness was moderately stable over time from T1–T2 and T2–T3 ($s = .54$ and .56, respectively, $p < .001$). There were negative cross-sectional associations between social self-efficacy and loneliness at all time points (T1: $\beta = -.55$, T2: $\beta = -.41$, T3: $\beta = -.23$, $p < .05$). Approximately 43% of variance in T2 social self-efficacy and 43% of variance in T2 loneliness were explained by T1 social self-efficacy, T1 loneliness, and all covariates. Similarly, approximately 54% of variance in T3 social self-efficacy was explained by T1 and T2 social self-efficacy, T2 loneliness, and covariates; 54% of variance in T3 loneliness was explained by T2 social self-efficacy, T1 and T2 loneliness, and covariates.

From T1 to T2, both cross-lagged paths from T1 social self-efficacy to T2 loneliness and T1 loneliness to T2 social self-efficacy were significant ($s = -.19$ and -.19, respectively, $p < .05$). Similarly, both cross-lagged paths between social self-efficacy and loneliness from T2 to T3 were significant. T2 social self-efficacy led to lower levels of T3 loneliness ($\beta = -.14, p < .05$) and T2 loneliness led to lower T3 social self-efficacy ($\beta = -.17, p < .01$).

Discussion

This is one of the first few longitudinal studies to examine the relationship between social self-efficacy and loneliness among Chinese international students with a cross-lagged model. In this model, we also controlled for perceived English proficiency and objective social isolation at their respective time points for their known associations with loneliness. Results confirmed our hypotheses that independent of perceived English proficiency and social isolation, there are bidirectional relations between social self-efficacy and loneliness for Chinese international students during their first semester of studying in the United States. That is, high levels of social self-efficacy can reduce the experience of loneliness, and the experience of loneliness can also decrease one’s social self-efficacy. Moreover, we found that the magnitude of association between social self-efficacy and loneliness was significantly greater than the magnitude of association between social self-efficacy and social isolation during the first and second semesters. Last, social self-efficacy was associated with having a greater percentage of U.S. friends in the first and second semesters.

The inclusion of perceived English proficiency and social isolation in our cross-lagged model strengthens the value of considering social self-efficacy as a meaningful predictor of adjustment among Chinese international students. Perceived English proficiency is one of the more studied predictors of adjustment among international students (Zhang & Goodson, 2011), and perceived English proficiency has been linked with greater adjustment outcomes (Ying & Liese, 1990, 1991). Our model suggests that, independent of perceived English proficiency and objective social isolation, social self-efficacy may transcend national borders such that individuals’ ability to interact socially with others back in their home country (i.e., prearrival) may carry over into the new cultural setting of the United States. Indeed, Jerusalem and Mittag (1995) found that young East German migrants with high self-efficacy during a stressful life transition moving to West Germany following the collapse of the Berlin Wall adapted significantly better than the migrants with low self-efficacy to the social changes in their lives. Dovetailing with our findings, social self-efficacy appears to be a stable trait that is not easily affected by the stress of cross-cultural journeys. During the cross-national transition period, identifying ways to increase Chinese international students’ social self-efficacy would be one potential strategy for reducing the risk of loneliness in the United States.

We found that the proportion of friendships with separate groups of individuals (i.e., Chinese international students, non-Chinese international students, and U.S. students) is associated with social self-efficacy and loneliness across time. Those with higher levels of social self-efficacy have a proportionally higher number of American friends during their first two semesters in the United States. Moreover, students with a greater percentage of U.S. friends tend to have lower levels of loneliness during their...
first semester in the United States. In other words, perceived close friendships with Americans may be an important factor associated with the social adjustment of Chinese international students. This result is in line with results of past studies that have found Chinese international students who had more social support and social connectedness with American students experiencing better psychological well-being (Wang et al., 2012). These findings illustrate the importance of considering the source of friendships in understanding the social adjustment of Chinese international students.

Moving to the United States can be challenging for international students who experience a loss of relevant cultural knowledge after crossing national borders (Rakhsha, 2002). The notion of cross-cultural losses may explain the many challenges international students encounter after crossing national borders due to the need to reconstruct a new frame of reference around issues related to everyday living (Wang, Wei, Zhao, Chuang, & Li, 2015). The nuances of making friends (e.g., social norms and rules around initiating a new conversation) in the United States can be very different from how Chinese international students made friends back in their home country. For example, responding to a common everyday question such as “How are you?” can be complicated for Chinese international students. The following is a quote from a Chinese international student about her experiences:

When I first came here, I had a meeting in Townsend Hall. It took me a long time to find the place. When I finally arrived in the lobby, I saw an American student passing by. She greeted me by saying, “How are you doing?” When I heard this, I felt so surprised and thought, “Wow, Americans are so friendly.” Then, I thought I should reply. I stopped and answered, “I am not good. I just got lost...” She had already walked away. I stood there with lots of questions in my mind. Why did she ask me, “How are you doing?” She didn’t want to know what happened to me. I met many Americans like her who just said, “How are you?” then walked away before I answered them. I started to realize they didn’t really care whether I was good or not. “How are you?” is merely a greeting. (Chang, 2009, para.1)

Responding to “How are you?” in a socially appropriate manner is just one of countless social interactions that international students need to relearn in the United States. Other situations include ways to enter and leave conversations, having small talk, recognizing interpersonal boundaries and personal space, and learning social rules and norms surrounding social engagements (e.g., paying for meals). Indeed, we found that Chinese international students who have low social self-efficacy (e.g., lacking the confidence to enter a conversation) experience higher levels of loneliness.

**Practical Implications**

Our results suggest that it may be important to help international students increase their social self-efficacy. Because success experiences lead to increases in self-efficacy (Bandura, 1982), hosting workshops and events for Chinese international students to learn social skills may increase the probability of having these success experiences and aid them in navigating the U.S. cultural setting. For example, it would be helpful for international student offices to offer workshops on effective social skills in the United States. Moreover, beyond traditional lectures, having experiential exercises and role plays (Leask, 2009) would be most helpful in providing international students the opportunity to practice and interact with Americans. Through these experiential interactions, cultural differences and similarities can be identified and discussed. It would also be important, in addition to developing social self-efficacy and interpersonal skills, to facilitate cross-cultural friendships for Chinese international students to make friends with other international students or Americans to alleviate loneliness. For example, an intervention conducted in Australia successfully facilitated cross-cultural friendships by organizing lunch events led by trained counselors where Australian and international students engaged in structured activities during their meal. Consistent with the results of past studies (e.g., Swagler & Ellis, 2003; Wang et al., 2012), our findings point to the benefits of having a larger proportion of American friends. Notably, Gareis (2012) found that about 40% of international students reported having zero American friends but would have liked to have more meaningful relationships with Americans. As such, it will be important for U.S. campuses to offer social events as opportunities for international and American students to engage with each other (Swagir, Marginson, Deumert, Nyland, & Ramia, 2008). Because it can often be challenging to initiate cross-cultural interactions due to language concerns or fears of being culturally insensitive, it would be helpful to provide some initial structure in cross-cultural social events and to have the presence of bicultural individuals to facilitate these interactions. From a counseling perspective, it would
also be critical for counselors to address the issue of loneliness and how these experiences may have led them to experience low self-efficacy in their social skills. It would also be helpful to approach poor social self-efficacy from a developmental as opposed to a deficit perspective by normalizing the need to realign the new social rules in this different cultural context.

Limitations and Future Directions

There are limitations and future research directions of this study to note. First, generalizability of this study is limited to Chinese international students. Caution should be taken when applying the results and implications of this study to international students from other countries, due to the heterogeneity of the international students across different countries. Although China, Hong Kong, and Taiwan are all collectivistic societies (Hofstede, 1980) with a common Confucian cultural heritage and a common Chinese language, they have each developed distinct political and economic systems over the 50-year separation after the Chinese Civil War (Lynch, 2014). Moreover, because of material resources, market competition, and Western influence on everyday Chinese life (Steele & Lynch, 2013), a growing number of studies have pointed to a shift from collectivism to individualism among Chinese individuals (Su & Hu, 2000). Thus, these between-groups differences in economic, political, and cultural backgrounds may influence motivational, academic, and adjustment outcomes. Future studies would benefit from an examination of these sociocultural and political factors between Chinese, Hong Kong, and Taiwanese international students, as well as for international students from other countries and regions. Additionally, future research might explore differences between international students from different degree programs (e.g., relatively shorter language exchange programs vs. relatively longer graduate programs). Second, the internal consistency of social self-efficacy (e.g., .66 at T2) was low, and thus future replication with other measures of social self-efficacy is warranted (e.g., the Scale of Perceived Social Self-Efficacy, which is specially designed for use with international students; Smith & Betz, 2000). Third, although temporal precedence can be established from the cross-lagged design, causality may not be concluded in the strictest sense. Interventions that aim at enhancing social skills and facilitating social interactions could clarify the causal relations between social self-efficacy and loneliness. Lastly, the total number of participants who received recruitment e-mails is unknown, and thus, there is a possibility of a selection bias of students who enrolled in this study.

Although we have found important relations between social self-efficacy and loneliness in the present study, the mechanism of international students’ social well-being could be further investigated by examining variables such as acculturation, actual knowledge about American cultural and social norms, experiences of cross-cultural losses, and international friendliness of campus environments. Along this vein, future research can examine the relations between group-specific social self-efficacy (e.g., social self-efficacy with U.S. students) and well-being (Thomé, Van Tilburg, & Knipscheer, 2003), as well as their interaction with university-level variables. For instance, high social self-efficacy with U.S. students may be most predictive of well-being among students attending a university with a small number of international students. Finally, the effects of the cross-lagged paths were smaller than were the stability or cross-sectional paths and thus should be interpreted modestly. Nonetheless, these significant cross-lagged relations represent important steppingstones to further investigate these processes across time. The modest effect sizes of the cross-lagged paths may stem from a relatively short longitudinal design because our data were limited to international students’ adjustment within the first year of their arrival. Although speculative, the relations between social self-efficacy and loneliness may be different as international students acculturate more to the United States. Future studies would benefit from examining these variables across longer periods of time.

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