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A Comparison of Various Conceptualizations of Acculturation and the Prediction of Adaptation of International Students

Abstract

This paper examines differences between three conceptualizations of acculturation (contact, adoption and identification), and compares them in terms of their ability to predict three different kinds of adaptation: psychological well-being, psychological ill-being, and socio-cultural difficulties. The three acculturation conceptualizations yielded different distributions of participants across four acculturation strategies (integration, separation, assimilation, and marginalization), and the inter-measure agreement between the three conceptualizations was poor. Regarding the predictive ability of the three conceptualizations, combining the contact and adoption conceptualizations provided the best predictor of socio-cultural difficulties. However, findings varied by measure of adaptation: the acculturation conceptualizations predicted well-being but not ill-being; and socio-cultural adaptation predicted ill-being but not well-being. These results support the growing evidence that well-being and ill-being are distinct constructs rather than representing opposite poles of the same continuum. The possibility that ill-being is a better measure than well-being for acculturation research is discussed.
The purpose of the present chapter is to extend the understanding of acculturation by simultaneously examining three popular approaches to operationalizing the concept: Berry and colleagues’ framework of desire for intercultural contact (see: Berry, 1980), Ward and colleagues’ framework of ethnic and host culture adoption (see: Ward & Kennedy, 1994), and an approach that focuses on ethnic identification (Phinney & Devich-Navarro, 1997). Differences between these approaches are rarely addressed. Therefore, in the current study we examine the differences in results produced by these three operationalizations and examine which, or which combination, of them, is the most useful for predicting adaptation.

Background of acculturation research

Acculturation research examines the effects of prolonged intercultural contact experienced by individuals and/or groups (Berry, Portinga, Segall, & Dasen, 1992). The most commonly cited definition of acculturation is one that was proposed in 1936:

Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups (Redfield, Linton, & Herskovits, 1936, p. 149).

Although this definition refers to cultural changes at a group level, psychological research typically examines changes in behaviours, attitudes, values and identities of individuals in cross-cultural contact, rather than changes experienced at a group level. This individual level acculturation is what Graves (1967) termed “psychological adaptation”. Analysis at both group and person levels is of value, particularly as there is, typically, greater intra- than inter-sample variation (Smith, Bond & Kagitciobic, 2005). Furthermore, a distinction between process and outcomes, not given by the above definition, is necessary. In the following, the process is referred to as acculturation and the outcome(s) as adaptation.

The Process of Acculturation: Linear vs. Bi-directional Models

Acculturation was originally conceptualized as a linear, uni-dimensional process whereby one adapts to a new culture and simultaneously dissociates from one’s culture of origin. Gordon’s (1978) One-dimensional Assimilation
Model exemplifies this linear approach to acculturation according to which all individuals proceed through a gradual process of adopting the larger society’s behaviours, values and beliefs, resulting in the loss of their ethnic culture. In this model, biculturalism is simply viewed as the midpoint in the process (see: Castro, 2003). However, in the early 1980s, many researchers began to question whether the loss of ethnic culture in the acculturation process was inevitable or necessary for successful adaptation. As Szapocznik, Kurtines and Fernadez (1980) point out, individuals who interact successfully with members of their ethnic culture as well as the larger society require cultural skills in both domains.

Berry and his colleagues (e.g. Berry, 1980; Berry & Sam, 1997) have made a major contribution to the understanding of acculturation by developing a two-dimensional framework that has substantially influenced how much of the research in the area is conducted. Instead of being viewed as a linear process whereby participation in the dominant culture results in a corresponding loss of the original culture, Berry (1997) proposed that adaptation to a new cultural milieu depends on two fundamental issues that face all acculturating persons or groups: 1) “Is it of value to maintain one’s ethnic culture?”; 2) “Is it of value to have relationships with and participation in the larger society?”. Thus, a motivation towards involvement with the larger society on one hand, and with one’s ethnic culture on the other, are considered independent dimensions in this framework. Positive and negative answers to these two questions give four possible options or acculturation strategies: integration, separation, assimilation, and marginalization (see the chapter by Berry & Safdar, in this book pp. 223–240). Berry’s framework not only has provided a more sophisticated conceptualization of acculturation than the linear model, but also has given a conceptual base for an integrated body of research, having been tested with numerous acculturating groups in Canada including Aboriginal groups, immigrants, and other ethnic minorities (see: Berry, 1988 for review).

Other Operationalizations of Acculturation

Alternative frameworks to Berry’s include ones which focus on ethnic identification (Phinney, Horenczyk, Liebkind & Vedder, 2001), on the quality and quantity of social relationships with members of each culture (Kosic, Mannetti & Sam, 2005), language preference (Lopez & Contreras, 2005), self-reported behaviours and attitudes (Arends-Toth, van de Vijver & Poortinga, 2006), lik-
ing for each culture (Ouarasse & Van de Vijver, 2005), and on one’s perceived similarity with each culture (Ward & Kennedy, 1993). All of these measures address a particular aspect of either acculturation or cross-cultural adaptation. However, the lack of a universally accepted approach makes comparison of results across various lines of research difficult.

Liebkind (2001) explored the conceptual differences between the various operationalizations of acculturation and outlined three distinct approaches. The contact conceptualization, the adoption conceptualization, and the identification conceptualization.

The contact conceptualization is exemplified by Berry’s framework, and refers to the degree to which individuals wish to maintain their ethnic culture and engage in intercultural relations with the larger society, in other words on the value that they place on both of these two potential sources of relationships.

The adoption conceptualization is a modification of an earlier model by Bourhis, Moise, Perreault, and Senécal (1997), which involves maintenance of one’s own ethnic culture and the adoption of behaviours appropriate to the larger society’s culture. The focus in the adoption model is the person’s present behaviour vis-à-vis the larger society, rather than the extent to which the person values the idea of contact, or relationships, with the larger society. This approach is exemplified by the Acculturation Index developed by Ward and colleagues (see: Ward & Kennedy, 1994) which complements Berry’s approach to the extent that it also assesses affiliation with one’s ethnic culture and the larger society to describe four potential combinations of engagement and disengagement from either or both. However, this operationalization assesses acculturation by having participants rate the similarity of their experiences and behaviours to people of their own ethnic group and to people of the larger society, rather than by assessing how much these contacts are valued. Ward used the terms “co-national identification” and “host culture identification” to refer to the two cultural dimensions assessed by the Acculturation Index; however, the terms “ethnic” and “host adoption” will be used throughout this

1 The participants in the current study are international students, thus the term “host culture” rather than “larger society” will be used in the current study as a more appropriate term for this sample. It should be noted that Ward and colleagues’ measure of adoption is different from other adoption measures in the literature as it focuses on perceived similarity, not self-rated adoption of behaviours or value towards adopting the host culture. However,
chapter instead as the person is regarded, in Ward’s model, as adopting the behaviours of one group or another.

The term identification better describes the third conceptualization of acculturation described by Liebkind, (2001) which refers to the degree to which individuals identify themselves as being part of their ethnic culture and the larger society. An example of this approach is the work of Phinney (1990), who have also used a $2 \times 2$ framework resembling Berry’s, but in this case the variation is in strong or weak identification with each of the two (own ethnic and larger societal) cultures (Phinney et al., 2001). These are, again, represented as independent dimensions; in other words, each cultural identity may be strong or weak, however, the strength of one does not affect the strength of the other. Berry’s acculturation strategy terms are also used to label the four identity quadrants formed by this model: integrated identity, separated identity, assimilated identity, and marginalized identity. Phinney’s research (Phinney, 1990; Phinney et al., 2001) supports the view that ethnic identity is independent from identification with the larger society.

The contact and identification conceptualizations appear to be distinct as they have been found to correlate only weakly (Hutnik, 1991). The correlations between these two conceptualizations and that of adoption have not been examined, however, Snauwaert, Soenens, Vanbeselaere and Boen (2003) have explored these three conceptualizations in some detail. Their participants were Belgians from ethnic minorities who completed scales derived from each of the three conceptualizations of acculturation, on the basis of which they were grouped according to the four strategies in Berry’s framework. The distribution of participants into the four acculturation orientations differed significantly across the three methods. Integration appeared to be the most popular strategy when a contact conceptualization was used, but separation was the most frequently chosen strategy using the adoption and identification conceptualizations. Snauwaert et al. (2003) found that many individuals have a strong desire for relationships with the larger society without feeling a strong sense of belonging to that group, or having a strong desire to adopt aspects of that culture. The results obtained using one conceptualization of acculturation are often assumed to apply to other conceptualizations as well, but studies such as both of these measures reflect participants’ present state in terms of behaviours, and cognitions, the acculturation index measure was used as the culture adoption measure in the current study.
as that conducted by Snauwaert et al. (2003) suggest that this may not be the case. As the use of these three different conceptualizations of acculturation can lead to different results, it is important to recognize the specific differences between them in order to understand how they indicate different relationships with variables of interest in the field. The first aim, therefore, of the present study is to compare these three operationalizations of acculturation.

Adaptation

Much of the acculturation research examines the relationship between the process of acculturation and adaptation outcomes. Researchers have used a variety of adaptation measures, but most of these can be grouped into two basic categories: measures of psychological adaptation and socio-cultural adaptation (Ward, Bochner & Furnham, 2001).

Psychological adaptation refers to the emotional or affective aspect of adaptation. Berry and Sam (1997, p. 229) define psychological adaptation as “a set of internal psychological outcomes including a clear sense of personal and cultural identity, good mental health, and the achievement of personal satisfaction in the new cultural context”. However, psychological adaptation is usually operationalized as a form of mood disturbance such as depression (e.g. Seale & Ward, 1990), psychosomatic symptoms (e.g. Ouarrasse & van de Vivjer, 2005), loneliness (e.g. Birman, Trickett & Buchanan, 2005), anxiety (e.g. Phinney, Devich-Navarro, 1997), or psychophysical distress (e.g. Safdar, Lay & Struthers, 2003). Berry and Sam (1997) proposed that it is when one’s ability to manage the demands of a new culture overcomes one’s personal resources that acculturative stress occurs. Acculturation, therefore, does not necessarily lead to mental health impairments.

Socio-cultural adaptation, rather than referring to mental states, refers to the skill sets that are needed to successfully navigate through one’s social and cultural milieu. It has been argued that socioculturally adapted individuals have more success (e.g. at school or work) and are better able to deal with the everyday demands of their new cultural context than their less adapted counterparts. This form of adaptation has been studied with measures examining the level of difficulty experienced in everyday situations that include making friends and dealing with the climate (e.g. Furnham & Bochner, 1982; Searle & Ward, 1990), and success at school or work (e.g. Ouarrasse & van de Vivjer, 2005).
The distinction between socio-cultural and psychological adaptation is supported by research indicating that each form of adaptation is predicted by different factors. Psychological adaptation has been found to be predicted by such things as ethnic identity, personality factors, life events, social support, and similarity with one’s ethnic culture whereas socio-cultural adaptation is predicted by linguistic and cultural competence, length of stay in the country, and similarity with the larger society (see: Ward & Kennedy, 1993, for review).

Berry maintains that the integration strategy is associated with the best psychological and socio-cultural outcomes, and many studies have supported this position (Szapocznik et al., 1980; Ward & Kennedy, 1994). However, there are also studies that have either not found a significant relationship, or have found that integration leads to greater acculturative stress (see: Rudmin, 2005, for review). These conflicting results may reflect differences in operationalizations of acculturation, measurement differences (e.g. researchers use a variety of procedures to categorize participants into one of the four strategies), or heterogeneity between cultural groups and cultural contexts. Examining the relative ability of the different operationalizations of acculturation to predict adaptation outcomes is the second purpose of the present study.

Categorization procedures

According to Berry’s original procedure, the four acculturation strategies were assessed using separate scales. Items in these scales related to various life domains such as friends, family, work, and customs, and respondents rated how well the item reflected their feelings and beliefs. One example, from the separation scale is: “Most of my friends are Koreans because I feel comfortable around them, but I don’t feel as comfortable around Canadians”. Two criticisms have been made of items such as this. The first is that the items tend to be long and double-barreled (i.e. only one assessment is allowed for two separate concepts – feelings toward ethnic culture and feelings toward the larger society). The second criticism is that attitudes to one’s ethnic group and to the larger society are independent of each other, and combining them into one item does not reflect their independence (Ward & Kennedy, 1994).

In the light of these criticisms, most researchers use separate scales to assess affiliations to the larger society and to respondents’ own ethnic culture, and then participant scores for each scale are dichotomized in order to classify participants into one of the four acculturation strategies. There are a number of
methods researchers use to dichotomize participant ratings, the most popular being the scalar split and the median split. Many researchers, including Berry (2003), advocate using a scalar split (i.e. using the midpoint of the scale to classify participants’ attitudes as ‘positive’ or ‘negative’) as this procedure is truest to Berry’s framework. That is, a median split dichotomizes participants into those scoring in the “high” or “low” half of the sample as opposed to those having “positive” or “negative” attitudes. Another reason for using scalar splits is that because median splits rely on characteristics of the sample, this procedure may have limitations for cross-sample comparisons and may provide a distorted view of participant attitudes (see: Berry, 2003; Rudmin, 2005 for discussions of this issue). For example, if the median score for both scales is very high, then participants classified as integrated and those classified as marginalized may have positive attitudes towards ethnic maintenance and intercultural interactions; in other words, half of any sample will be categorized as “low” on any given dimension, however positive their attitude. In practice, many researchers use a median split because this procedure ensures a more even distribution of participants across the four strategies, although this is only appropriate when samples are normally distributed across the available range of scores. Additionally, for researchers who perform regression analyses, median splits allow for direct comparison between ANOVA and regression results (Ward & Kennedy, 1994).

Ward and colleagues advocate using a procedure that ignores the four strategies and thus preserves the continuous nature of the data for each cultural dimension measure (Ward & Kennedy, 1994). They also examine the host and ethnic culture separately. Analyses have shown that only larger society similarity predicts socio-cultural adaptation and only ethnic culture similarity predicts psychological adaptation (no other main effects or interactions with the other cultural dimension). Thus, there is evidence for the utility of examining host and ethnic culture separately as this procedure has been shown to be a good way to prevent the loss of statistical power caused by categorization procedures.

Acculturation in the context of international students

International students are sojourners who are distinct from other acculturating groups as they are mobile (i.e. they move to the other cultural group’s area unlike aboriginal people), they move to their new cultural circumstance voluntarily (unlike aboriginal people and refugees), but are only temp-
Temporary visitors (unlike immigrants). The duration of these temporary visits varies, but six months to five years is a commonly used duration to define a sojourn (Ward, Bochner, & Furnham, 2001).

International students have been reported to be one of the largest sojourn groups in the world (1.3 million world-wide) and their contribution to national economies around the world is substantial (Hayes, 1998). In the year 2000, international students contributed 3.5 billion dollars to the Canadian economy (AUCC, 2002). International students are also a valuable group of people for universities for a number of reasons in addition to economic ones. The most important reasons cited by Canadian universities in the 2000 Association of Universities and Colleges Canada survey were: 1) to integrate domestic and international students so that domestic students become internationally knowledgeable and intercultiurally competent; 2) to improve the institution’s reputation and increase its contacts in target countries; and 3) to generate revenue for the institution (Knight, 2000). Thus, while the revenue generated by international students is very important, institutions also seek to create contacts in key countries by returning graduates who will become future leaders in their country’s political, business, and research arenas. Future contact with successful graduates and the continued recruitment of new international students depends on the experience of those students who graduated from Canadian programs and returned home, and the reports of Canada that these graduates take back to their country. Therefore, it is important to examine factors that may have an impact on international students’ adjustment in their new cultural surroundings, so that their experience may be as positive as possible. International students commonly experience many changes including: language of instruction, classroom dynamics, evaluation processes, and role differences (e.g. professor-student relationships) that may exceed their ability to cope, leading to acculturative stress. It is, therefore, important to explore the process of adaptation of newly arrived international students in order to better understand ways to ease their adjustment (e.g. through policy, counseling services, special programs, etc.). For these reasons, international students were sampled in the present study.

Present Study

The aims of the present study were: 1) to examine differences in distributions of samples across the four acculturation strategies produced by the
three conceptualizations of acculturation (contact, adoption, and identification); 2) to assess which operationalization best predicts adaptation, and 3) to consider whether, and how, the three conceptualizations can be combined to improve their prediction of adaptation.

Because the sample consisted of newly arrived sojourners, it was deemed inappropriate to measure identification with the larger society (i.e., it does not make sense to ask international students if they “feel proud to be Canadian”). Therefore, an ethnic identification/host contact conceptualization was used instead. Hereafter, the ethnic identification/host contact conceptualization will simply be called the identification conceptualization, and the host culture measure for this conceptualization will be called host identification. On the basis of the theoretical and research literature, the following hypotheses were made in order to examine the aims described above.

**Hypothesis 1.** The majority of participants will be categorized into the integration strategy using the contact conceptualization, and into the separation strategy using the adoption conceptualization.

**Hypothesis 2.** Only the adoption measure in relation to the larger society will predict socio-cultural adaptation. Because socio-cultural adaptation is one’s ability to successfully deal with the everyday demands of the new cultural situation, it was predicted that only measures reflecting a participant’s actual experience and behaviour (e.g., adoption of behaviours, attitudes, cognitions) would predict socio-cultural adaptation, whereas the value placed on these interactions would not. That is, we predicted that only respondent’s cultural skills (not their attitude or identification) would predict fewer difficulties in the new situation.

**Hypothesis 3.** It was predicted that all acculturation measures (i.e., contact, adoption and identification) relating to respondents’ ethnic culture would predict psychological adaptation.

**Exploratory Analysis.** A Path analyses model for each conceptualization will connect the three sets of acculturation measures relating both to respondents’ ethnic group and to the larger society with socio-cultural adaptation. As no study to date has compared these three conceptualizations of ac-

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2 Ethnic identity/desire for intercultural relations is another conceptualization of acculturation that has been used in the literature (Castro, 2003).

3 Of our three conceptualizations examined in this study, that of Ward and colleagues is the only one that examines both kinds of adaptation using separate scales for ethnic and host culture (as opposed to one scale for each strategy). Thus, it was decided that their model and statistical procedures are most appropriate for the current study.
culturation and their relationship to adaptation, these analyses are exploratory in nature and no a priori predictions were made.

Method

Participants

Newly arrived international students\textsuperscript{4} were recruited from the University of Guelph in Guelph, Ontario and York University in Toronto, Canada at the end of their first year of university study. Ontario has the second greatest number of students in Canada next to Quebec with approximately 27.4\% of Canada’s international students (Knight, 2000); and therefore was seen as an ideal location for the current study. The sample included 40 participants from the University of Guelph and 32 from York University, a total of 72 (47 females and 25 males). The mean age of participants was 23 years old (range from 18 to 53). The majority of participants had arrived in Canada within the previous year (77\%); however, a number of participants had arrived one to three years earlier. Participants originated from all over the world. Of the seventy participants who gave this information, 50\% were from Asia (\textit{n} = 7 from Southwest Asia; \textit{n} = 6 from South Asia; \textit{n} = 2 from Southeast Asia; \textit{n} = 20 from East Asia), 16\% were from Europe, 13\% were from North America (\textit{n} = 7 from the United States; \textit{n} = 2 from Mexico), 7\% were from the Caribbean, 7\% were from Africa, 6\% were from South America, and 1\% was from Central America.

Procedure and Measures

An e-mail requesting participants was sent to each student in April at the end of their first university year. This message contained a link to an online consent form, then to the online questionnaire. All of the following scales were delivered in English.

\textsuperscript{4} Note that only international students were invited to participate in this study, not exchange students. International students live in another country to complete a degree whereas exchange students study at a foreign university for a short time period (one or two semesters) while a student from that university attends the exchange students’ university in their place.
Contact conceptualisation: ethnic culture & larger society. The Acculturation Attitudes Scales measured the contact model of acculturation from participants’ ratings on the following items: “How important is your ethnic culture to you?”, “How important is it to have friends and acquaintances from your own ethnic group?”, “How important is Canadian culture (i.e. Canadian values/norms) to you?”, and “How important is it to have Canadian friends and acquaintances?”. Each question was rated on a 5-point scale ranging from 1 – “not at all important” to 5 – “very important”. The Cronbach’s alpha coefficient for this scale was .89 in relation to respondents’ ethnic group and .82 in relation to the larger society.

Adoption Conceptualisation: ethnic culture & larger society. The culture adoption conceptualization of acculturation was measured with a shortened version of Ward and Rana-Deuba’s (1999) Acculturation Index. This index contains ten behaviours and attitudes (e.g. clothing, political ideology) that participants rated based on their assessment of similarity between themselves and the larger society or their ethnic group. Each item is rated on a 5-point scale ranging from 1 – “not at all similar” to 5 – “very similar”. Cronbach’s alpha coefficient for this scale was .92 in relation to respondents’ own ethnic group and .93 in relation to the larger society.

Identification conceptualisation: participants’ ethnic culture. The identification conceptualization in relation to participants’ ethnic culture was measured with an ethnic identity scale adapted from Cameron, Sato, Lay, and Lalonde (1997) and used by Safdar et al. (2003). This scale measures three aspects of identification: cognitive centrality of identification (e.g., I often think about the fact that I am a member of my ethnic group), perceived similarity to one’s ethnic group (unlike the Acculturation Index, this measure assesses global and not domain specific similarity; e.g. I see myself as a fairly typical member of my ethnic group), and affect towards one’s identification (e.g. I feel good when I think about myself as a member of my ethnic group). Fifteen items were used in this scale (5 items per identification aspect) that participants rated from 1 – “strongly disagree” to 5 – “strongly agree” whereby higher scores reflect greater identification. Cronbach’s alpha coefficient for this scale was .94.

Identification conceptualization: larger society. The identification conceptualization of acculturation in relation to the larger society was measured using a shortened version of Chirkov, Vansteenkiste, Tao and Lynch’s (2006) Motivation for Acculturation Scale. This scale contains 8 items
that assess the degree to which one wishes to learn about Canadian Culture and to interact with Canadian people that are each rated on a 5-point scale ranging from 1 – “strongly disagree” to 5 – “strongly agree” (e.g., I want to get to know Canadians as individuals, I have no desire to participate in or celebrate Canadian holidays). Cronbach’s alpha coefficient for this scale was .83.

 Psychological adaptation I. A Psychophysical Distress Scale was used as a measure of psychological adaptation. The scale consisted of 14 items from the Health Problems Inventory-Revised (Kohn, Gurevich, Pickering & MacDonald, 1994) and the Stress Symptoms Checklist (Cheng & Hamid, 1996). As many cultures have a tendency to show their psychological distress in somatic ways, and not to admit emotional distress, a measure that included both emotional and somatic items was seen to be most appropriate. For this scale, participants rated each symptom (e.g., insomnia, having crying spells) for severity in the last few weeks. The scale ranged from 1 – “not at all severe” to 5 – “extremely severe”; thus, higher scores reflect greater distress. Cronbach’s alpha coefficient for this scale was .90.

 Psychological adaptation II. This scale was adapted from Ryff’s (1989) Psychological Well-being Measure (short-version). This scale measures positive psychological functioning as opposed to negative functioning. Each of the 18 items in this scale (e.g., In general, I feel I am in charge of the situation in which I live; I have confidence in my own opinions, even if they are contrary to the general consensus) was rated on a 5-point scale ranging from 1 – “strongly disagree” to 5 – “strongly agree”. Cronbach’s alpha coefficient for this scale was .89.

 Socio-cultural adaptation. Searle and Ward’s (1990) Socio-cultural Adaptation Scale (SCAS) was used to measure socio-cultural adjustment. This scale includes a number of skills that are necessary in managing everyday situations experienced when living in a new cultural environment (e.g., making friends, dealing with the climate). Participants rated each item in this scale from 1 – “no difficulty” to 5 – “great difficulty”. The SCAS has been shown to be consistently reliable in sojourning groups (Ward & Kennedy, 1993, 1994; Ward & Rana-Deuba, 1999); and it was in the present study, $\alpha = .84$. 
Results

Preliminary Analyses

Exploratory analyses of the variable distributions revealed that the scores were acceptably variable and normally distributed (see: Table 1 for Means and Standard Deviations). Comparisons between the University of Guelph and York University participants did not reveal any differences in country-of-origin distributions, $\chi^2 = 12.53, p > .05$. Neither were there any significant differences between the university samples on any of the measures with the exceptions of the ethnic adoption measure and psychophysical distress. Separate analyses, conducted for the two universities, revealed very similar results; therefore, these two samples are combined for the following analyses.

Table 1. Descriptive Statistics for all Variables Used in the Current Study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic Contact</td>
<td>3.33</td>
<td>3.50</td>
<td>1.21</td>
</tr>
<tr>
<td>Host Contact</td>
<td>3.51</td>
<td>3.50</td>
<td>0.97</td>
</tr>
<tr>
<td>Ethnic Adoption</td>
<td>4.43</td>
<td>4.60</td>
<td>1.45</td>
</tr>
<tr>
<td>Host Adoption</td>
<td>4.35</td>
<td>4.40</td>
<td>1.44</td>
</tr>
<tr>
<td>Ethnic Identification</td>
<td>3.45</td>
<td>3.47</td>
<td>0.92</td>
</tr>
<tr>
<td>Host Identification +</td>
<td>3.92</td>
<td>4.00</td>
<td>0.59</td>
</tr>
<tr>
<td>Psychological Difficulties</td>
<td>1.66</td>
<td>1.61</td>
<td>0.47</td>
</tr>
<tr>
<td>Socio-cultural Difficulties</td>
<td>1.89</td>
<td>1.86</td>
<td>0.52</td>
</tr>
<tr>
<td>Psychological Well-being</td>
<td>3.92</td>
<td>3.94</td>
<td>0.49</td>
</tr>
</tbody>
</table>

*The Acculturation Motivation scale used to measure the host culture dimension of the identification conceptualization

Assessment of Hypothesis 1: The majority of participants will be categorized into the integration strategy using the contact conceptualization, and into the separation strategy using the adoption conceptualization.

The distribution of participants across the four acculturation strategies, using both scalar and median splits of the data, is presented in Table 2. More
participants were classified into the integration strategy by the measure based on the contact conceptualization, the Acculturation Attitudes Scale, than by the Acculturation Index based on the adoption conceptualisation. This is consistent with the first hypothesis. However, the majority of participants were not categorized into the separation strategy by the adoption measure as had been predicted. The largest percentage of participants was still classified into the integration strategy, although the differences were much smaller than using the measure based on the contact conceptualization.

Table 2. Number and percentage of participants categorized into the four Acculturation Strategies according to each Conceptualization of Acculturation

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Conceptualization</th>
<th>Contact</th>
<th>Adoption</th>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Scalar Split</td>
<td>Integration</td>
<td>46</td>
<td>64</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Assimilation</td>
<td>14</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Separation</td>
<td>4</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Marginalization</td>
<td>8</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Median Split</td>
<td>Integration</td>
<td>32</td>
<td>44</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Assimilation</td>
<td>10</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Separation</td>
<td>9</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Marginalization</td>
<td>21</td>
<td>29</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: n = 70 for contact and adoption conceptualizations; n = 72 for the identification conceptualization.

Additionally, in order to test the relationships between the three conceptualizations, a number of correlational analyses were conducted (see: Table 3). These analyses showed that while the ethnic contact and identification measures were significantly correlated ($r = .81, p < .001$), neither measure was significantly related to the adoption measure (identification: $r = .21, p = .08$; contact: $r = -.01, p = .96$). Similarly, host identification significantly correlated with
the host contact measure ($r = .49, p < .001$), but neither measure correlated with the adoption measure (identification: $r = .18, p = .14$; contact: $r = .07, p = .58$). The low correlations would suggest that the acculturation measures are not interchangeable.

Table 3. Correlation Matrix for each Component in the Three Conceptualizations of Acculturation

<table>
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<tr>
<th></th>
<th>Ethnic Contact</th>
<th>Host Contact</th>
<th>Ethnic Adoption</th>
<th>Host Adoption</th>
<th>Ethnic Identity</th>
<th>Host Contact +</th>
</tr>
</thead>
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<tr>
<td>Host Contact</td>
<td>.43**</td>
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<tr>
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<td>.07</td>
<td>.41**</td>
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<tr>
<td>Ethnic Identity</td>
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<td>.27*</td>
<td>.21</td>
<td>-.24*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Host Identification +</td>
<td>.07</td>
<td>.49**</td>
<td>.17</td>
<td>.18</td>
<td>.49**</td>
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* Acculturation Motivation Scale used to measure the host culture dimension of the identification conceptualization

* $p < .05$; ** $p < .01$

To test the correspondence between conceptualizations, Kappas were calculated (for scalar and median splits separately) representing the inter-measure agreement (after controlling for agreement that could be expected by chance) in the categorization of participants across the four strategy types. Kappas represent the percentage of participants classified into the same strategy for both measures rather than comparing the overall distributions. Landis and Koch (1977) have suggested that .41 to .60 should be considered moderate agreement and greater than .60, substantial agreement. With scalar splits of the data, the inter-measure agreements between the adoption categorization and the contact and identification categorizations were poor ($\kappa = .03$ and $\kappa = .04$ respectively, both n.s.). There was more agreement between the contact and identification categorizations: $\kappa = .33, p < .01$. However, even this significant agreement is not high enough to suggest that the measurements can be used interchangeably. As an illustration of this, of the participants grouped into
the integration strategy according to the contact categorization, only 76% and 35% were grouped into the integration strategy using the identification and adoption categorizations respectively. Therefore, the strategy a participant is perceived to favour very much depends on the measurement of acculturation used.

With median splits of the data, the inter-measure agreements between the adoption categorization, and the contact and identification categorizations, were still poor ($\kappa = .10$ and $\kappa = .05$ respectively, both n.s.); and while there was significant agreement between the contact and identification categorizations, $\kappa = .31, p < .01$, this agreement was still undesirably low (i.e. below .41). Thus, there was poor inter-measure agreement between the conceptualizations for both data splitting procedures.

Analyses for Hypotheses 2 and 3 plus the exploratory analysis

To test the last two hypotheses, plus the exploratory analysis, path analyses were conducted in AMOS for each conceptualization of acculturation. Consistent with Ward and colleagues’ procedures (see: Searle & Ward, 1990; Ward & Kennedy, 1994), acculturation measures related to respondents’ ethnic culture were connected to psychological adaptation and acculturation measures related to the larger society were connected to socio-cultural adaptation for each conceptualization. Model fit was assessed using the goodness of fit index (GFI), the root mean square of approximation (RMSEA), and the chi-square to df ratio. By convention, good model fit is indicated by a GFI greater than .95 (GFI ranges from 0 to 1 where 1 indicates a perfect model fit), a RMSEA value (or the average lack of fit per degree of freedom) of .08 or less, and a low value (i.e. less than 3) of chi-square/df. The Chi-square test assesses the correspondence between the covariance structure of the given model and observed data, and lower values indicate greater correspondence.

In all the following three path analyses, Psychological Distress and Socio-cultural Difficulties were the two outcome variables. In the first path analysis, the model representing the contact conceptualization, the two predictor variables were Ethnic Contact and Host Contact. The results indicated significant relations between Host Contact and Socio-Cultural Difficulties ($\beta = -.14, p < .05$) and Socio-cultural Difficulties and Psychological Distress ($\beta = .54, p < .01$). The model, however, was not a good fit with the data, GFI = .84; RMSEA = .28; $\chi^2 / df = 6.3$. 
In the second path analysis, the model representing the adoption conceptualization, the two predictor variables were Ethnic Adoption and Host Adoption. Similar to the previous analysis, significant relations between Host Adoption and Socio-cultural Difficulties ($\beta = -.48, p < .01$) and Socio-cultural Difficulties and Psychological Distress ($\beta = .56, p < .01$) were found. Nevertheless, the model did not indicate a good fit with the data, GFI = .92; RMSEA = .21; $\chi^2 / df = 3.9$.

In the third path analysis, the model representing the identification conceptualization, the two predictor variables were Ethnic Identity and Host Identity. The only significant relation was between Socio-cultural Difficulties and Psychological Distress ($\beta = .59, p < .01$). The model was found to be a poor fit with the data, GFI = .95; RMSEA = .14; $\chi^2 / df = 2.3$. Modification indices indicated a path from host identification to psychological adaptation. This path was considered in the next analysis.

**Assessment of Hypothesis 2**: Only the adoption measure in relation to the larger society will predict socio-cultural adaptation.

Contrary to hypothesis 2, socio-cultural adaptation was predicted by both the measure based on the contact conceptualization in relation to the larger society and the measure based on the adoption conceptualization in relation to the larger society. This would indicate that a person’s motivation towards contact with the larger society, as well as their actual behaviour and experience, will affect the person’s experience of socio-cultural adaptation (for good or ill).

**Assessment of Hypothesis 3**: All acculturation measures (i.e. contact, adoption and identification) relating to respondents’ ethnic culture would predict psychological adaptation.

Hypothesis 3 was not supported as none of the paths leading from acculturation measures related to respondents’ ethnic culture were significant ($\beta = .03$ for the contact conceptualization, $\beta = -.11$ for the adoption conceptualization, and $\beta = .001$ for the identification conceptualization). This result is surprising as the relationship between ethnic variables and psychological adaptation has been well documented.

**Exploratory Analysis**: Which conceptualization fits the adaptation data best, and is there a way to combine the measures to obtain a better prediction of adaptation?

None of the above models fit the data well, so an additional model was tested that utilized information from the previous analyses. As two of the ac-
culturation measures in relation to the larger society were found to predict a significant amount of unique variance in socio-cultural adaptation, the combination of these measures might afford a better prediction of socio-cultural adaptation. Additionally, since none of the acculturation conceptualizations in relation to respondents’ ethnic culture predicted a significant amount of variance in psychological adaptation, this path was not included in this new model. This model indicated the best fit to the data out of all the models tested in this paper, GFI = .99; RMSEA = .01; \( \chi^2 / df = 0.4 \) (see: Figure 1). However, the path between acculturation based on the contact conceptualization in relation to the larger society and socio-cultural difficulties was not significant (\( \beta = -0.20; p = .06 \)), raising questions as to the importance of this path.

Figure 1. New path-analysis model suggested from previous analyses (Standardized beta coefficients for each path are displayed)

\[
\begin{align*}
& \text{Host Adoption} \\
& \text{Psychological Distress} \\
& \text{Host Contact} \\
& \text{Sociocultural** Difficulties}
\end{align*}
\]

\( \chi^2 = .31 \)
\( df = 2 \)

GFI = .998
RMSEA = .001

** \( p < .01 \)

Other Findings

Consistent with the procedures of Ward and Kennedy (1994), the main and interaction effects for each operationalization of acculturation were examined via multiple regression analyses. For all of the following analyses, scores in relation to respondents’ ethnic culture and the larger society for each of the acculturation variables were first centered around zero to reduce the possibil-
ity of multi-collinearity between the larger society and ethnic culture scores and their cross-product terms. The interaction term (host × ethnic) was then calculated for each operationalization, and each pair of centered variables with their interaction term were entered into a simultaneous regression analysis to predict psychophysical distress and socio-cultural difficulties.

**Psychophysical Distress.** The regression analysis models did not predict a significant amount of variance in psychophysical distress using any of the three conceptualizations of acculturation (main effects for measures relating to the larger society and to respondents’ ethnic culture plus their interaction term): for the contact conceptualization, \( R^2 = .04, F(3,64) = 8.07, p = .5 \); for the adoption conceptualization, \( R^2 = .32, F(3,65) = 2.43, p = .07 \); and for the identification conceptualization, \( R^2 = .06, F(3,62) = 1.20, p = .32 \).

In sum, the third hypothesis, that all ethnic variables would predict psychophysical distress (over and above host variables), was not supported in this study.

**Socio-cultural Adaptation.** The regression analysis model for the measure based on the contact conceptualization (main effects of host and ethnic contact plus their interaction term) did not predict a significant amount of variance in socio-cultural adaptation, \( R^2 = .07, F(3,64) = 1.58, p = .20 \), neither did the regression analysis for the identification measure (main effects plus their interaction term), \( R^2 = .04, F(3,62) = 1.74, p = .53 \). However, the regression analysis model for the adoption measure (main effects of ethnic and host adoption plus their interaction term) did predict a significant amount of variance in socio-cultural adaptation, \( R^2 = .23, F(3,62) = 6.44, p < .001 \). Only the main effect of host adoption predicted a significant amount of unique variance, \( b = -.44, t(62) = -3.57, p < .001 \). Therefore, the regression analyses for socio-cultural adaptation supported the second hypothesis of this study. Only the measure based on the adoption conceptualization predicted socio-cultural adaptation.

**Psychological well-being.** The absence of a relationship between the measures relating to respondents’ ethnic culture and psychophysical distress was surprising, as this relationship has been widely reported (Liebkind, 2001; Phinney et al., 2001; Ward & Kennedy, 1994, 1993; Ward & Rana-Deuba, 1999). Another set of analyses was run using a different measure of psychological adaptation: psychological well-being. Regression analyses revealed that both the identification and adoption measures significantly predicted psychological well-being \([R^2 = .19, F(3,61) = 4.69, p < .01 \) for the identification conceptualization; \( R^2 = .17, F(3,61) = 4.15, p = .01 \) for the adoption conceptualization].
The model based on the contact conceptualization was marginally significant, $R^2 = .11$, $F(3,63) = 2.54$, $p = .06$. These analyses revealed that only four variables predicted a significant amount of unique variance: identity and adoption measures relating to respondents’ ethnic culture [$\beta = .24$, $t(61) = 2.02$, $p = .05$ and $\beta = .40$, $t(61) = 3.15$, $p < .01$ respectively], and measures relating to the larger society based on the contact and identification conceptualizations [$\beta = .31$, $t(63) = 2.30$, $p < .05$ for the contact measure, and $\beta = .28$, $t(61) = 2.43$, $p < .05$ for the identification measure]. A regression analysis conducted with all four of these significant variables revealed that only the measure based on the adoption conceptualization in relation to respondents’ ethnic culture predicted a significant amount of unique variance in psychological well-being, $\beta = .35$, $t(60) = 3.12$, $p < .01$. Based on the results of this regression, a modified version of the last model was conducted. This model replaced psychological distress with psychological well-being, and included paths from the measure based on the adoption conceptualization in relation to respondents’ ethnic culture and the one based on the contact conceptualization relating to the larger society to psychological well-being (see: Figure 2). This model did not show a good fit with the data, GFI = .92; RMSEA = .19; $\chi^2/df = 3.2$

Figure 2. Path-analysis model for Psychological well-being (standardized beta coefficients for each path are displayed)
While all acculturation measures relating to respondents’ ethnic culture were shown to individually predict psychological well-being, their combination did not lead to a better prediction of this variable. Additionally, these analyses show that models that use psychophysical well-being as a measure of adaptation fit the data better than models that use psychological distress.

Discussion

The distinction between various conceptualizations of acculturation has often been overlooked in the acculturation literature. These distinctions are poorly understood and while their conceptual differences have been discussed (e.g. Liebkind, 2001), there has been very little research conducted to examine their relationships and the different predictions that they give for variables of interest in the field of acculturation and adaptation. The current study compared three of the most popular conceptualizations of acculturation: the contact, adoption and identification conceptualizations, and examined their predictions of psychological and socio-cultural adaptation.

The results demonstrated the statistical distinctness of these three conceptualizations. Consistent with hypothesis 1, the strategy distributions varied by conceptualization. More participants had an integration strategy for the contact versus the adoption or identification conceptualizations. However, unlike Snauwaert et al.’s (2003) findings, the separation strategy was not the most popular under the adoption conceptualization. This difference between studies might be due to the different measures used, or perhaps the population that was studied (Snauwaert et al., 2003, studied ethnic minorities in Belgium). Perhaps international students tend to choose countries that they have pre-existing skills or orientations for.

Analyses revealed poor inter-measure agreement between the three conceptualizations. This finding strengthens the proposition that the differences between various acculturation conceptualizations should be taken into account, especially when examining data categorized into the four acculturation strategies. The fact that various measures are correlated is often used as a reason for studying a single conceptualization, as all correlated conceptualizations should produce the same results (e.g. see: Berry, 2003 in his discussion of attitude and behavioural measures). Contrary to this logical claim, however, our results show that the various conceptualizations show poor intermeasure agreement,
even when the separate ethnic and host variables are significantly correlated. In the present study, the components of the identification and contact conceptualizations were significantly correlated; however, these two measures showed poor agreement. This would suggest that the various conceptualizations are distinct aspects of the acculturation experience. For example, an acculturating individual may utilize an integration strategy in terms of valuing relationships with each ethnic group, but a separatist strategy in more involved aspects (e.g. adopting aspects of a culture such as behaviours and cognitions). Thus, an individual who uses a separation style in terms of cultural adoption may or may not be interested in having good relations with Canadians. The results of these analyses strengthen the proposition that acculturation is multi-faceted. It is important that the distinctions between these different aspects of acculturation are studied in order to understand their differences and similarities.

The only acculturation measure in the current study that takes into account a person’s current state, rather than desires or motivations for a certain state, is the adoption measure. The prediction made in hypothesis 2 that only this measure would predict everyday difficulties (i.e. socio-cultural difficulties) was partly supported. Although the measure relating to the larger society according to the contact conceptualization was also found to predict socio-cultural adaptation, the final path model that included the measures based on both the contact and the adoption conceptualizations in relation to the larger society (using psychological distress as the measure of psychological adaptation) did not show a significant effect for the contact based measure. In addition, the regression model for the contact based conceptualisation in relation to the larger society did not significantly predict socio-cultural adaptation. If there is an effect for the measure relating to the larger society according to the contact conceptualization, it is not a strong one.

It makes intuitive sense that adoption of behaviours appropriate to the larger society would be the best predictor of socio-cultural adaptation as one’s current skill set should affect the level of difficulties faced more than one’s attitudes towards intercultural relations. Those who think and act more like Canadians should have less problems figuring out, and fitting into Canadian society.

However, the possible relationship between a desire for contact with the larger society and socio-cultural adaptation should also be addressed. This effect was only found in the analysis of the model based on the contact conceptualisation, not the regression analysis nor the final path model. Again, the possibility
of a relationship is plausible. It is possible that those who value interactions
with Canadians tend to see their interactions as more positive, regardless of
difficulties faced. It is also important to note that regression analyses are cor-
relational not causal; although the analyses can be interpreted to mean that
desire for contact with the larger society leads to socio-cultural adaptation, it
could also be the case that experiencing distress or difficulties with everyday life
may lead to less desire for intercultural contact. A third variable, such as mood,
could also affect the ratings of both difficulties and value for host culture creat-
ing an apparent relationship between these latter two variables. However, these
are speculative interpretations, further disentangling of the variables in this
study is required.

The finding that the variables relating to respondents’ ethnic culture did
not predict psychophysical distress runs counter to previous findings. How-
ever, this is not the only study to find that psychological adaptation is only
affected through socio-cultural adaptation. In their study of Moroccans in
the Netherlands, Ouarasse & van de Vijver (2005) also found no relation be-
tween attitudes towards ethnic culture and mental health, but did find that
socio-cultural adaptation (as measured by school and work success) did predict
psychological adaptation. The reason for the disparity between findings across
studies is unknown.

In support of the proposition that results vary according to the adaptation
measure used, the current study found many differences between the results
produced with psychophysical distress versus psychological well-being. Analys-
es conducted with this latter measure of adjustment found that both ethnic
identification and adoption of behaviours appropriate to participant’s ethnic
culture significantly predicted psychological well-being. In addition, the path
model with this measure of adjustment showed no relationship between socio-
cultural and psychological adaptation whereas this relationship was found when
using psychophysical distress as the measure for psychological adaptation. The
path model for psychophysical distress showed a good fit to the data whereas
the model for psychological well-being did not. These results demonstrate that
different measures of adaptation do produce very different results.

The difference between psychophysical distress and psychological well-be-
ing is not surprising in light of research in the area of well-being and ill-be-
ing. Findings in this area of research suggest that well-being and ill-being (e.g.
depression, anxiety, anger etc.) are distinct dimensions of mental functioning
rather than opposite poles of the same construct (Ryff, Love, Urry, Muller,
Rosenkranz, Friedman, Davidson & Singer, 2006). In addition, well-being has not been shown to be substantially affected by external events, and has been shown to be fairly stable over time (see: Diener, 1999 for review). In the light of this background literature and the results of the current study, it would seem that psychological well-being and ethnic orientation might be relatively stable traits that remain, in large part, unchanged by the acculturation experience.

Finally, the acculturation measures were shown to vary in their ability to predict the acculturation data. Although the adoption model showed the best fit to the data, none of the models for the three conceptualizations provided a good fit. The use of measures in relation to the larger society based on both the contact and the adoption conceptualizations as predictors of socio-cultural adaptation did improve the fit of the model. It could be the case, then, that international student adaptation would be best improved by increasing competencies in, and valuing of, Canadian culture, and by reducing the severity of everyday difficulties.

Conclusion

In conclusion, these results clearly show that the adoption, contact, and identification conceptualizations are not only conceptually distinct, but also statistically distinct. These three conceptualizations produce different distributions of acculturation strategies, and show poor inter-measure agreement as well as having different relationships with adaptation measures. The various conceptualizations can, however, be combined to improve the prediction of socio-cultural adaptation. In addition, some measures of psychological adaptation fit the acculturation data better than other measures (i.e. psychophysical distress versus psychological well-being).

Limitations

Some of the results obtained in this study need to be interpreted with caution due to the small sample size. In particular, the results from the path analyses need to be viewed tentatively. However, we can be confident about many of the path analyses as they were supported by other analyses (e.g. the distinction between the three conceptualizations and their ability to predict adaptation; the difference between psychological well-being and psychophysical...
Another limitation of the current study is that although the results were assumed to be due to the differences in the three operationalizations of acculturation, it is also possible that differences arose because of variations in the format of the scales used to assess each operationalization. Recent research by Kang (2006) demonstrated that different results are obtained from frequency scales (e.g. scale items rated from ‘never’ to ‘very often’) versus endorsement scales (e.g. rated from ‘strongly disagree’ to ‘strongly agree’). Kang (2006) found that while the two cultural dimensions (ethnic culture, larger society culture) were independent when assessed with endorsement scales, they were significantly correlated when assessed with frequency scales. Thus, future research should attempt to ensure that scales used to assess various operationalizations are equivalent.

Future Directions

The current study examined only three operationalizations of acculturation, but there are other operationalizations that may produce different results. Future research should examine more operationalizations of acculturation, and other operationalizations of adaptation. The influence of attitudes and policies in the larger society should also be considered. If, for example, an immigrant has an integration orientation, this could lead to distressing outcomes if the larger society is hostile, or rewarding ones if it is not. Phinney, Berry, Vedder, and Liebkind (2006) included a number of acculturation variables, including psychological and socio-cultural adaptation, and acculturation strategies as assessed through a contact operationalization (i.e. strategies formed from dichotomizing attitudes towards ethnic culture maintenance and relationships with the larger society). This research demonstrated that the majority of immigrant youth endorsed an integration strategy, and this effect held over all thirteen countries. It was also indicated that the integration strategy was associated with various levels of psychological and socio-cultural adaptation depending on the country being studied (i.e. the acculturation context).
References


