Antecedents and consequences of acculturation preferences of non-indigenous Chileans in relation to an indigenous minority: Longitudinal survey evidence

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Abstract

Two longitudinal survey studies were conducted with non-indigenous majority Chilean participants (Ns = 755 cross-sectional, 198 longitudinal in study 1; 390 cross-sectional, 333 longitudinal in study 2). In contrast to most previous research, the longitudinal design allowed to test directly the hypothesised causal direction of effects. There were two broad research questions. Firstly, what is the relationship between acculturation preferences of non-indigenous majority members and negative affect towards the indigenous Mapuche? More specifically, does a preference for integration lead to less negative affect than a preference for assimilation, separation or marginalisation? Related to this, do the dimensions of culture maintenance and contact taken singly predict negative affect and/or vice versa? Secondly, does knowledge about the Mapuche causally and indirectly influence acculturation preferences, partially mediated by sympathy with the Mapuche? Results confirmed that knowledge influenced acculturation preferences, and that sympathy was a partial mediator. Acculturation preferences, in turn, influenced negative affect. The contact dimension underlying the categorical acculturation strategies was a predictor of outcomes, while the culture maintenance dimension was not. Implications of the findings are discussed. Copyright © 2008 John Wiley & Sons, Ltd.

The question which role ethnic minorities should have within a broader society often causes fierce debate and conflict. In fact, few political issues seem to be as contested as the question which liberties ethnic minority groups should be granted, how much their rights of celebrating their difference from mainstream society should be restricted and—more broadly— how the relations between minority and majority groups should be defined. Of course, these questions are not only applicable to new ethnic minorities—i.e. relatively recent immigrant groups—but also to indigenous peoples, who historically were once (but in many cases are no longer) in the majority in a given territory.

This paper investigates majority members' attitudes towards one such indigenous minority group: It explores the attitudes of non-indigenous majority Chileans towards the indigenous Mapuche (see e.g. Cornejo & Morales, 1999).[1] The goal of the present work was to find causal antecedents and consequences of acculturation preferences of non-indigenous Chileans in relation to the indigenous Mapuche. Expressed broadly, we were interested in how non-indigenous Chileans conceive of the Mapuche within larger society: Under which conditions are they interested in protecting the indigenous culture, and when are they more in favour of an assimilationist model? Consequences of different acculturation preferences were also examined.

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[1]In this case, majority status is defined by both group size and power; these two features coincide for the groups investigated by the present research. By non-indigenous Chileans, we mean those Chileans who do not self-identify to be of indigenous descent, and who are in the majority of Spanish and other European descent. Ethnic labels can have strong political connotations and can be highly contested—we settled for those which were least likely to offend people in Chile.

More specifically, we explored the relationship between acculturation preferences and one index of the valence of intergroup relations, namely negative affect towards the Mapuche. Further, it was tested whether knowledge about the Mapuche and sympathy with the Mapuche function as antecedents of acculturation preferences.

The Mapuche are Chile's largest, culturally most significant and most salient indigenous group (about 8% of the total population). They have fought against invasions of their territory for over 300 years and were finally defeated only in the 1880s, which makes them the last people to be subjugated by the colonisers on the whole South American continent. Since then, the Mapuche have suffered further infringements of their land rights, suppression of their culture and appalling health and education services (Bengoa, 2000; Bengoa & Coaut, 1997). According to the 2002 census, the Mapuche are still Chile's most deprived social group (Instituto Nacionale de Estadistica, 2002). Mapuche unemployment and alcoholism rates are disproportionally higher than for other groups in Chile; and there are a lot of negative attitudes and prejudice against the Mapuche. In recent years, they have become increasingly vocal in their battle to improve their living conditions, sometimes culminating in violent clashes with the police force and private security forces. What is more, there has now developed a public debate about non-indigenous Chilean people's mistreatment of the Mapuche in the past, and the possible need to rectify historical injustices. Also, the Chilean government has recently set up a body for the improvement of the Mapuche's situation (Ministerio de Planificacion y Cooperacion, 2003). In sum, there is growing concern among the non-indigenous population about how to act in a more enlightened manner compared to the policies of the past.

To measure non-indigenous Chilean's ideas about the ideal place of the Mapuche within Chilean society, we were inspired by the acculturation model proposed by Berry (1980, 1997). This model describes various preferences immigrants might have about how they want to live in the destination country after immigration. Two dimensions underlie these preferences: The minority member's desire to maintain the original culture, and the desire to have contact with members of the majority society. The combination of these dimensions of culture maintenance and contact results in four acculturation preferences: *Integration, assimilation, separation* and *marginalisation*. A preference for integration exists if minority members wish to maintain their original cultural identity and also wish to have contact with majority members. Minority members favour assimilation if they prefer to abandon their original cultural identity whilst seeking contact with majority members. If minority members want to maintain their original identity but do not want contact with majority members, a strategy of separation results. Finally, if minority members reject both their original culture and have no interest in having contact with majority members, marginalisation results. A typical goal of research following this paradigm is to demonstrate that integration is the strategy that leads to the best psycho-social and health outcomes (e.g. best psychological adaptation, least acculturative stress) for minority members, and should therefore be promoted (Berry, 1997; Berry, Kim, Minde, & Mok, 1987; Liebkind, 2001; but see Rudmin, 2003).

Recently, the paradigm has been extended in its sphere of application. While initially the research focus was always on the minority members' acculturation preferences, it has been pointed out that, of course, members of the majority can also have preferences about how they would like minority members to live. They, too, might have preferences for integration, assimilation, separation (sometimes called segregation) or marginalisation (Arends-Toth & Van de Vijver, 2003; Piontkowski, Florack, Hoelker, & Obdrzalek, 2000; Piontkowski, Rohmann, & Florack, 2002; Van Oudenhoven, Prins, & Buunk, 1998). Berry himself has frequently pointed out that majority members too want minority members to keep their original culture (or not), and that they too might want minority members to seek contact with majority members (or not; see e.g. Berry, 1997; Berry, 1999; Berry, Poortinga, Segall, & Dasen, 1992), even though the majority of Berry's empirical work has focussed on minority members. Another model which has highlighted *majority* members' preferences is the Interactive Acculturation Model by Bourhis, Moise, Perreault, and Senecal (1997). In this model, however, culture maintenance is crossed not with contact desire but with a dimension which is meant to capture a desire for culture adoption.

In the present study, we will follow several other studies which have investigated majority members' acculturation preferences empirically by asking how much majority members want immigrants to maintain their culture of origin, and how much they want immigrants to seek contact with members of the majority (e.g. Piontkowski et al., 2002; Zagefka & Brown, 2002). This measure of contact desire is likely to be related to measures of a desire for culture adoption (e.g. Bourhis et al., 1997) and to measures of actual contact (e.g. Brown & Hewstone, 2005), but they are nonetheless conceptually distinct.

Acculturation Preferences and Negative Affect

Although originally acculturation research focussed almost exclusively on psycho-social and health outcomes for minority members, recently it has been suggested that acculturation preferences might also affect the valence of intergroup relations

(Bourhis et al., 1997). Indeed, some evidence already exists in support of this (Zagefka & Brown, 2002). In the previous work, we demonstrated that those German majority members who preferred integration displayed, for example, less ingroup bias than those wanting minority members to adopt any of the other strategies. Importantly, a preference of integration among majority members was found to be most favourably correlated with indices of the quality of intergroup relations, just as a preference for integration among minority members was found to be most beneficial for psycho-social health outcomes by previous research. However, like the majority of other work on acculturation strategies (Neto, 2002; Piontkowski, Florack, Hoelker, & Obdrzalek, 2000; Verkuyten & Thijs, 2002), in this study results were cross correlational, and therefore inferences about the causal processes underlying the observed correlations were not possible. In fact, both causal directions seem plausible.

Why might acculturation preferences influence indices of intergroup relations such as negative affect? Such an effect might particularly be expected for the contact dimension underlying acculturation preferences. Although within acculturation research it is not customary to assess the effects of the two underlying dimensions singly rather than in conjunction (Rudmin, 2003), another body of work has examined the effects of a positive orientation towards intergroup contact. This considerable literature testifies that one of the most promising measures for improving intergroup relations is intergroup contact (Brewer & Gaertner, 2001; Brown & Hewstone, 2005; Pettigrew & Tropp, 2006). Even though in the contact literature too there is little work that goes beyond cross-sectional correlational evidence and could speak to the question of causality (for some exceptions, see Eller & Abrams, 2004; Levin, van Laar, & Sidanius, 2003), the contact hypothesis (Allport, 1954) clearly suggests that the causal effect should be mainly from contact to intergroup attitudes. However, actual contact might not even be needed to produce positive intergroup effects. For example, some previous work shows that extended contact can be effective (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). In a similar vain, we argue that a *desire* for contact—as measured through acculturation preferences—might have similar positive effects to actual contact.

An effect of culture maintenance on intergroup affect can be inferred from the notion among acculturation researchers that integration will lead to more positive intergroup relations (because integration implies a positive attitude towards culture maintenance). In a climate where minority members are permitted to maintain an important aspect of their identity, they are less likely to feel threatened and more likely to feel accepted by majority members. This should lead to less intergroup anxiety (Stephan & Stephan, 1985) and more positive intergroup affect of the Mapuche, and this in turn should lead to more positive affect of the non-indigenous, because people generally like those they feel liked by (Curtis & Miller, 1986; Gold, Ryckman, & Mosley, 1984; Kenny & la Voie, 1982). In sum then, the assumption within acculturation research is that a preference for integration, and a positive attitude towards culture maintenance, is likely to lead to more positive intergroup emotions among both the minority and majority group.

Pondering over the other causal direction, i.e. why the valence of intergroup relations might be expected to causally affect majority members' acculturation preferences, we will first focus on effects of the culture maintenance dimension. It can be proposed that majority members will be more inclined to support a minority group's struggle to protect their distinct cultural identity if negative affect towards the minority group and its cultural identity is low, for two reasons. Firstly, people might be more disposed to support the goals of other people (such as minority members' wanting to maintain their original culture) if they *like* those other people (i.e., if negative affect is low). This argument is based on the assumption that minority group members will want to preserve their original culture. As prior research demonstrates, this assumption is a fair one to make for an overwhelming proportion of minority groups (Berry, 1997). Secondly, the minority's culture is often an integral part of the social identity of its members (Deaux, 2000). Being positively inclined towards someone should result in more positive evaluations of *all* aspects of this person and their identity, even those that would be perceived negative in a less liked person. It can frequently be observed that having a positive attitude towards someone (e.g. a partner) leads to more favourable evaluations of and more tolerance towards potentially undesired traits of this person than would be the case for the same traits in a less liked person (e.g. 'scattiness' as amusing in a loved partner, and as annoying in a disliked colleague; Brown, 1995). The same mechanism might be at work in the intergroup domain. If negative affect towards the Mapuche is low, majority members will be more inclined to support culture maintenance. In sum, because low negative affect should lead to more support for the others' goals, and to more willingness to put up with aspects in the others' character which are not intrinsically appealing, one might expect negative affect to reduce support for culture maintenance.

A similar argument can be made in relation to the contact dimension underlying acculturation strategies: Majority members will be more inclined to seek contact with—and be approached by—minority members if these minority members are perceived as likable, nice, friendly, etc. It has been shown that people seek out others they are attracted to

(Levin, van Laar, & Sidanius, 2003; Pettigrew, 1997). In the present context, this might translate into negative affect reducing a desire for contact. In sum, then, one could hypothesise that positive intergroup relations (e.g. little negative affect) might lead to majority members' desiring both culture maintenance and contact, and therefore integration.

In the present work, we were interested in, first of all, replicating cross-sectional correlations between acculturation preferences and intergroup relations found in a different national context (Zagefka & Brown, 2002). If the effects are robust, we would expect them to hold across different national settings and types of groups. Secondly, given that both causal directions (from acculturation preferences to negative affect and vice versa) are plausible, one concern of the present research was to test for bi-directional causality between the two variables. To our knowledge, to date no experimental or longitudinal work exists which would allow for such causal inferences. In line with previous work on the four-fold categorical acculturation model, we were interested in contrasting a preference for integration with a preference for any of the other strategies (assimilation, separation or marginalisation). Furthermore, we were interested in analysing the effects of the two dimensions underlying the acculturation strategies separately, to yield a more fine-grained picture of their possibly differential effects.

Antecedents of Acculturation Preferences: Knowledge and Sympathy

One variable that might be powerful in predicting acculturation preferences is knowledge about the other group. This effect might be at least partially mediated by sympathy. Although knowledge and sympathy to date have not been examined in relation to acculturation preferences, they have been studied in relation to other variables. Knowledge can be assumed to have a positive impact on intergroup attitudes. This prediction can be traced to Allport (1954), and was developed in a more formalised way by Stephan and Stephan (1984, 1985, 2001; see also Pettigrew, 1998). Several empirical findings support the hypothesis that knowledge has a positive effect on intergroup attitudes (Bolton, 1935; Murphy & Likert, 1938; Nettler, 1946; Stephan & Stephan, 1984). Related to this, self-disclosure has been identified as an important factor influencing intergroup attitudes (Brown & Hewstone, 2005; Pettigrew, 1998; see also Dovidio, Gaertner, Validzic, Matoka, Johnson, & Frazier, 1997; Ensari & Miller, 2002). Since self-disclosure involves the exchange of information between members of different groups, it is entirely coherent with the effect of knowledge on intergroup attitudes.

Following Batson (1998), group-based sympathy can be defined as a willingness and desire to try to feel what another person might be experiencing. In the present context, it involves wanting to imagine, understand and be concerned for the Mapuche's plight. As Batson (1998) has argued, sympathy is closely related to empathy, which has been identified as an important mediator in other contexts, for instance in the contact literature (e.g. Tam, Hewstone, Kenworthy, Voci, Cairns, & Geddes, 2003). We propose that sympathy might play a similar mediating role for the effect of knowledge on acculturation preferences.

First of all, it seems plausible that knowledge would increase sympathy. In fact, some minimal knowledge about the outgroup seems inherently necessary to feel any level of sympathy. One can only sympathise with others if one knows about their situation and perspective. Hence, the more non-indigenous people know about the Mapuche's history, culture, customs, etc., the more they are able to sympathise with the Mapuche's suffering in the past, their need to protect their culture and so on. Further, one might propose that sympathy will lead to a greater endorsement of both the culture maintenance and the contact dimensions. Sympathising with someone who is perceived to have suffered in the past due to his or her group membership should increase the motivation to prevent such suffering in the future, and should thus lead to a greater desire to protect the other from further assaults on important aspects of their identity. Hence, sympathy should increase support for culture maintenance. Similarly, sympathising with someone who is perceived to have suffered in the past due to his or her group membership should increase a feeling of being protective towards the other, and should thus increase the desire to include the other—both metaphorically, in terms of being concerned for the other as one would be for oneself (Cialdini, Brown, Lewis, & Neuberg, 1997), and practically and behaviourally, in terms of acting in an inclusive, contact-seeking way. Hence, sympathy should increase the endorsement of the contact dimension. In sum, then, we expected knowledge to impact on both the culture maintenance and the contact dimension underlying the four-fold categorical acculturation preferences, and we expected this effect to be partially mediated by sympathy.

To recap, this research addressed two issues. Firstly, do acculturation preferences influence negative affect, does negative affect influence acculturation preferences, or both? Secondly, does knowledge impact on acculturation
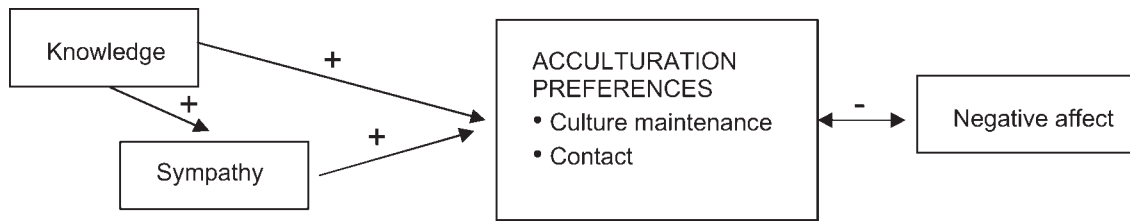
Figure 1.   Proposed antecedents and consequences of acculturation preferences

preferences, and is this effect partially mediated by sympathy? The mechanisms we set out to investigate are summarised in Figure 1. Since this research was driven by two separate *a priori* research questions (one concerning antecedents and one concerning consequences), separate analyses were conducted to address the two questions, although they are presented jointly in the figure.

Addressing the research questions seems important for five reasons. First, relatively few studies to date have addressed the question of the relationship between majority members' acculturation preferences and negative intergroup relations; this area is still under-researched. Second, many studies in acculturation research have used double-barrelled items, which the present work will avoid. Third, most studies in acculturation research have been cross-sectional, and the present study will be longitudinal. Fourth, most acculturation work has been carried out in North America, Europe or Australia; the present work presents an extension to those settings. Fifth, to our knowledge hardly any work has tried to identify antecedents of acculturation preferences, and certainly no work has explored the specific effects of knowledge and sympathy. Hence, the present work extends previous research by focussing on antecedents of acculturation preferences, rather than just correlates or consequences.

The questions were examined in two samples of non-indigenous adolescents, who were from ethnically mixed neighbourhoods and hence can be expected to have had quite a bit of involuntary contact. However, this contact is likely to have been relatively superficial for many participants (e.g. buying something from an indigenous person in a shop, rather than being friends with that person) because ethnic segregation in terms of social networks is still quite common in Chile (Bengoa & Coaut, 1997). Mapuche have facial features which are quite distinct from non-indigenous Chileans, they have a very recognisable traditional style of dress, and a distinct language and culture, both of which remain still very much alive in the countryside, whereas assimilation is further progressed in urban settings. One can expect at least some level of negativity against the Mapuche. Mapuche are characterised—e.g. in school books—as brave and fearless warriors, a part of the founding myth of the Chilean nation. As such, they are a source of pride for non-indigenous Chileans. At the same time, the Mapuche are frequently the target of negative attitudes and emotions from the majority. These ambivalent feelings of abstract glorification and concrete derogation co-exist within Chilean society (Saiz, 2002).

STUDY 1

Method

Design

Study 1 was a longitudinal survey with non-indigenous majority Chilean participants from two locations (Santiago and Temuco) conducted in 2002–2003.

Participants

Seven hundred and fifty five non-indigenous Chilean secondary school students participated in the survey (349 male, 393 female, 13 unspecified). The vast majority of participants (90%) were between 14 and 18 years of age, with 77% being

between 15 and 17 years of age. For 198 of the participants, data were collected at two points in time (i.e. once *prior* to the main data collection, with a time lag of approximately 6 months).

Procedure and Measures

Data were collected in the Chilean capital Santiago and in Temuco, a provincial capital several hundred kilometres further south. This and the second study were conducted with the support of the Ministry of Education, which ensured access to schools with ethnically diverse student populations. All participants filled out a questionnaire in Spanish during school class time, which contained the measures of the independent and dependent variables. Items were carefully translated and back-translated to ensure comparability between English and Spanish. The questionnaires distributed at both points in time were virtually identical; however, at time 1 the measures of knowledge and sympathy described below had not been included.

Acculturation strategies were assessed using the items described in Zagefka and Brown (2002). Participants indicated how much they wanted the Mapuche to maintain their original culture and how much they wanted the Mapuche to have contact with non-indigenous Chileans (1 = low preference to 5 = high preference, on all items). *Preference for cultural maintenance* was measured with a three-item scale: 'It is important to me that the Mapuche maintain their original culture'; 'it is important to me that the Mapuche maintain their original religion, language, and costumes'; and 'it is important to me that the Mapuche maintain their original way of living'; Cronbach's alpha (α) at time 1 = 0.81; at time 2 = 0.83. *Preference for contact* was measured with a two-item scale: 'It is important to me that the Mapuche have non-indigenous friends'; and 'it is important to me that the Mapuche spend their spare time also with non-indigenous people'; $\alpha = 0.76$ at time 1; $\alpha = 0.77$ at time 2.

Further, to translate these interval scale data into categorical data compatible with the categorical four-fold model, median splits were performed on the culture maintenance and the contact preference scales; and participants were categorised as being either comparatively more 'in favour' or more 'against' culture maintenance and contact, respectively. Of course it has long been recognised that the use of interval data is preferable (Maxwell & Delaney, 1993). However, since acculturation research has traditionally operated with categorical strategy preferences, we decided to present both approaches here. This way, we were able to simultaneously achieve comparability with the prior literature, and also have the added strength of making use of more powerful interval data.[2]

We chose to measure negative affect towards the outgroup as a proxy for negative intergroup relations and prejudice, because it has been pointed out that prejudice has a strong negative affective component which often appears to be more strongly related to other intergroup relations constructs than measures more cognitive in nature (Tropp & Pettigrew, 2004).[3] *Negative affect towards the Mapuche* was measured with an eight-item scale (1 = low negative affect to 7 = high negative affect, on all items): 'What do you feel towards the Mapuche in general? Do you feel ...envy?; ...jealousy?; ...anger?; ...resentment?; ...discomfort?; ...hatred?; ... despise them?; ...shame for them?'. The alphas were $\alpha = 0.82$ at time 1; $\alpha = 0.82$ at time 2; test-retest reliability (r) = 0.43, $p < 0.001$.

Intergroup knowledge was measured at time 2 only with a four-item scale (1 = very little knowledge to 7 = a lot of knowledge): 'In general, how much do you know about the Mapuche?'; 'In general, how much do you know about the following aspects of the Mapuche's culture: ... their history? ...their language? ...their values?'; $\alpha = 0.80$.

Sympathy was measured at time 2 only with a six-item scale (1 = very little sympathy to 5 = a lot of sympathy). Example items are 'when I think about how much the Mapuche have suffered in the past, I feel a great sympathy with them'; and 'when I think about the discrimination the Mapuche have to suffer day by day, I feel very bad for them'; $\alpha = 0.86$.

Participants also filled out a number of other scales which are not relevant in the present context. Finally, they completed some items about demographic data, such as their age and sex. These demographic variables did not interact with the independent variables in their effect on the dependent variables in substantive ways; and will therefore not be

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[2]Median rather than midpoint scale splits were used because preference distributions are usually so uneven that midpoint splits result in very low *N*s for some of the preferences, hence making it impossible to compare all four acculturation modes with each other (e.g. Dona & Berry, 1994). Median splits are a useful alternative (e.g. Zagefka & Brown, 2002). We argue that such a procedure is defensible if the researcher is not interested in *absolute* mean values of correlates of different acculturation strategies, but rather in a *relative* comparison of values between groups of participants favouring each of the four strategies. The focus of the present work is clearly on relative comparisons rather than the interpretation of absolute values.
[3]Other indicators of intergroup relations produced similar, albeit less strong, results, and will not be discussed further for simplicity's sake.

Table 1.   Study 1: Bivariate correlations and means

	Culture maintenance T1	Contact T1	Negative affect T1	Culture maintenance T2	Contact T2	Negative affect T2	Knowledge T2	Sympathy T2
Contact T1	0.39***							
Negative affect T1	−0.01	−0.13**						
Culture maintenance T2	0.31***	0.10	−0.05					
Contact T2	0.17*	0.08	−0.06	0.47***				
Negative affect T2	−0.03	−0.13•	0.44***	−0.09*	−0.18***			
Knowledge T2	0.03	−0.07	0.08	0.11**	0.12***	−0.004		
Sympathy T2	0.07	0.16*	0.02	0.28***	0.33***	−0.26***	0.15***	
Means	3.68 (1.16)	3.87 (1.13)	2.36 (1.19)	3.86 (1.17)	3.81 (1.17)	2.21 (1.20)	3.06 (1.38)	3.69 (0.95)

Note: T1 = Time 1; T2 = Time 2. •$p < 0.09$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. *SD*s in parentheses.

highlighted further in the following. Prior to participation, full consent for participation was obtained; all aspects of the research complied with the American Psychological Association (APA) ethics guidelines. Upon completion of the study, participants were thanked and debriefed.

Results

Results will be presented in the following order: (a) Analyses testing for cross-sectional and longitudinal (causal) effects of culture maintenance and contact on negative affect and vice versa using regression; (b) Analyses testing whether the four categorical acculturation preferences predict negative affect towards Mapuche (cross-sectionally and longitudinally); and (c) Analyses testing for an effect of knowledge—partially mediated through sympathy—on culture maintenance and contact using cross-sectional regression (for bivariate correlations between variables, see Table 1).

Recall that in study 1, the larger sample was obtained at time 2. Further, knowledge and sympathy were only assessed at time 2. Hence, cross-sectional analyses will focus on time 2 data. Note that for some of the analyses, the *N*s were slightly lower than the *N* of the entire sample, due to missing values. Preliminary analyses established that those participants for whom we did not manage to obtain data at both points in time did not significantly differ from those participants for whom we obtained data twice. No mean differences were found on any of the variables, with one exception: The 'single time-point' participants were slightly higher in the mean culture maintenance preference than the 'dual time-point' participants, $F (1, 742) = 3.86$, $p < 0.05$, Ms = 3.91, 3.73.

Longitudinal data can be used to test for causality (see e.g. Cook & Campbell, 1979; Finkel, 1995; Kessler & Greenberg, 1981). This is because by definition the cause occurs before the effect. Thus, if variable X at time 1 correlates with variable Y at time 2, this is more suggestive of a causal effect of X on Y than a cross-sectional associations between the two variables. Initially, scholars conducted cross-lagged panel analyses (Campbell, 1963) to test for significant differences between the X1–Y2 correlation and the Y1–X2 correlation, with the aim of establishing that the causal direction is stronger in one direction than in the other (Kenny, 1973), and in order to reject spuriousness (see e.g. Crano & Mellon, 1978). However, this approach has been criticised (Rogosa, 1980; c.f. also Crano, Kenny, & Campbell, 1972), and cross-lagged regressions were proposed as a way of establishing causality. The interest was now not to find *differences* between correlations, but to interpret β weights *in their own right* (and this is what we are interested in here). In cross-lagged regression, one tests whether X1 significantly predicts Y2 *while controlling for* the stability of Y (by including Y1 in the analysis). Of course, the method of cross-lagged regression is also imperfect. Although longitudinal data can never 'prove' causality, they can at least give much stronger indications than cross-sectional data are able to offer. When it comes to causality, after experimentation (which, of course, is not always feasible for practical and ethical reasons) they are the 'next best thing'.

Predicting Culture Maintenance and Contact from Negative Affect and Vice Versa

Cross-sectional Analyses   To analyse whether negative affect was predicted from culture maintenance and contact and vice versa, three regressions were conducted. First, negative affect at time 2 was regressed on culture maintenance and

contact at time 2. The interaction between the two predictors was entered in a second step in the regression, to allow for tests of the hypothesis that integration would be associated with the least negative affect. Then, culture maintenance was regressed on negative affect and contact, to look at the reverse causal direction. Finally, contact was regressed on negative affect and culture maintenance. Note that an additional advantage of this approach over the usual categorical approach is that it allows for testing of the mutual effects of the two dimensions underlying the four acculturation categories on each other (i.e. the effect of culture maintenance and contact and vice versa—the two dimensions are typically entered as independent factors in the ANOVA; they are assumed to be orthogonal and tests of their relatedness are not carried out).

Predicting Negative Affect Cross-sectionally The R^2 for this model was 0.03, $F (2,728) = 12.96$, $p < 0.001$. Only contact had a significant effect, $\beta = -0.18$, $p < 0.001$, showing that a preference for contact is indeed related to negative affect. The interaction was not significant.

Predicting Culture Maintenance Cross-sectionally The overall model predicted 21% of the variance, $F (2, 728) = 100.36$, $p < 0.001$. Only contact had a significant effect, $\beta = 0.46$, $p < 0.001$, showing that a preference for contact was positively related to a preference for culture maintenance.

Predicting Contact Cross-sectionally For this model, the overall R^2 was 0.23, $F (2, 728) = 113.01$, $p < 0.001$. Culture maintenance had a significant effect, $\beta = 0.45$, $p < 0.001$, as did negative affect, $\beta = -0.14$, $p < 0.001$, indicating that a preference for culture maintenance and less negative affect is associated with more desire for contact.

Longitudinal Analyses First, we regressed negative affect at time 2 on culture maintenance and contact at time 1; this tested the hypothesis that acculturation attitudes determine intergroup affect. The interaction between the two dimensions was entered in a second step, to test whether integration was indeed associated with the least negative affect. Then, the reverse causal hypothesis was examined by regressing culture maintenance at time 2 on negative affect and contact at time 1, and lastly, we regressed contact at time 2 on negative affect and culture maintenance at time 1. For all three models, the dependent variable (DV) at time 1 was always included as an additional predictor to control for initial levels in the DV.

Predicting Negative Affect Longitudinally The overall model predicted 19% of the variance in negative affect, $F (3,190) = 15.61$, $p < 0.001$. In addition to the DV at time 1 (for which a significant β is to be expected, $\beta = 0.42$, $p < 0.001$), only contact had a marginally significant effect, $\beta = -0.13$, $p < 0.06$, providing at least some indication that a preference for contact does indeed reduce negative affect. The interaction was non-significant.

Predicting Culture Maintenance Longitudinally The overall model predicted 9% of the variance, $F (3,188) = 6.00$, $p < 0.001$. Apart from the DV at time 1 ($\beta = 0.31$, $p < 0.001$), none of the predictors were significant.

Predicting Contact Longitudinally For this model, the overall R^2 was 0.03, $F (3,188) = 1.99$, *n.s.* Only culture maintenance had a significant effect, $\beta = 0.15$, $p < 0.05$, indicating that a preference for culture maintenance causally leads to more desire for contact. However, note that some caution is indicated when interpreting this result, given that the overall R^2 was not significant.

In sum, although there was evidence that the three constructs were associated with each other in various ways in the cross-sectional analyses, longitudinally only an effect of the contact dimension of acculturation preferences on negative affect was found; the reverse causal direction could not be supported. Further, no evidence was found that the two dimensions underlying the acculturation preferences interact.

Table 2.   Study 1: Mean levels of negative affect for different categorical acculturation preferences

Integration	Assimilation	Separation	Marginalisation
Cross-sectional analyses			
1.93 (1.15)[a]	2.02 (1.05)[ab]	2.17 (1.17)[b]	2.47 (1.26)[c]
Longitudinal analyses			
1.92 (1.11)[a]	1.94 (1.06)[a]	2.36 (1.21)[b]	2.18 (1.11)[b]

*Note: SD*s in parentheses. Means which do not share the same superscript (row-wise) are significantly different from each other at at least $p < 0.05$ according to Tukey's HSD.

Predicting Negative Affect from the Four Categorical Acculturation Preferences

Cross-sectional Analyses   An ANOVA was conducted (with time 2 data) with the median split culture maintenance and contact dimensions as two independent factors with two levels each. Negative affect was the dependent variable. Both culture maintenance and contact had significant main effects, $F (1, 727) = 4.35$, $p < 0.04$, $MSE = 1.66$; and $F (1, 727) = 13.18$, $p < 0.001$, respectively. There was no significant interaction between the two factors, $F (1, 727) = 1.19$, *n.s.* The pattern of means was in line with the predictions, in that the cell corresponding to integration (high culture maintenance, high contact desire) was associated with less negative affect than the other cells/acculturation preferences (see Table 2). However, comparing means with Tukey's honestly significant difference (HSD) test revealed that those favouring integration did not have significantly less negative affect than those favouring assimilation. Having said this, integration did differ significantly from separation and marginalisation.

Longitudinal Analyses   Next, to test whether the four categorical preferences would predict negative affect longitudinally, an ANCOVA was conducted. The median split preferences—this time as measured at time 1—on the culture maintenance dimension and the contact dimension were two independent factors with two levels each. The dependent variable was negative affect at time 2, as before. Negative affect at time 1 was used as a covariate, to control for prior levels of the DV. In addition to the covariate ($F (1, 189) = 42.85$, $p < 0.001$), only contact had a significant main effect, $F (1, 189) = 4.52$, $p < 0.04$, $MSE = 1.03$; and there was no significant interaction between the two factors. Again, the pattern of means was in line with the predictions (see Table 2, lower half). Integration was associated with less negative affect than the other cells/acculturation preferences. According to Tukey's HSD, there was no significant difference between integration and assimilation. Again, however, integration differed significantly from separation and marginalisation.

In sum, there was converging evidence from both the regression and the ANOVA analyses that the contact dimension but not the culture maintenance dimension of acculturation preferences longitudinally and causally affected negative affect. No support for the opposite causal direction was found, and no evidence was obtained that the two dimensions underlying acculturation preferences interact.

Testing for an Effect of Knowledge—Partially Mediated through Sympathy—on Culture Maintenance and Contact Using Cross-sectional Regressions (time 2 data)

Baron and Kenny's (1986) three-step method was used to test for partial mediation.

Culture maintenance as DV   Knowledge significantly predicted culture maintenance, $\beta = 0.11$, $p < 0.001$, fulfilling the first condition stipulated by Baron and Kenny (1986). Knowledge also significantly predicted sympathy, $\beta = 0.15$, $p < 0.001$, fulfilling the second condition. Finally, when culture maintenance was regressed simultaneously from knowledge and sympathy, the beta for sympathy was significant, $\beta = 0.27$, $p < 0.001$, while the beta for knowledge was marginally significant, $\beta = 0.07$, $p < 0.06$. To test whether the reduction in the effect of the IV from 0.11 to 0.07 was significant, Sobel was consulted, $z = 3.70$, $p < 0.001$. Hence, it was concluded that partial mediation was indeed present.

Contact as DV   Knowledge significantly predicted contact, $\beta = 0.12$, $p < 0.001$, fulfilling the first condition. Knowledge also significantly predicted sympathy, $\beta = 0.15$, $p < 0.001$, fulfilling the second condition. Finally, when

contact was regressed simultaneously from knowledge and sympathy, the beta for sympathy was significant, $\beta = 0.32$, $p < 0.001$, and the beta for knowledge was reduced though still significant, $\beta = 0.08$, $p < 0.04$. A Sobel test indicated that the reduction from 0.12 to 0.08 was significant, $z = 3.85$, $p < 0.001$. Hence, partial mediation was indeed present.

Discussion

Taken together, study 1 showed that the contact dimension of acculturation preferences was related (cross-sectionally and longitudinally) to negative affect, while the culture maintenance dimension was not. The two acculturation dimensions did not interact in their effect on negative affect. Longitudinal analyses indicated that the effect of contact on negative affect is unidirectional. Cross-sectional evidence was obtained for an effect of knowledge on both the culture maintenance and the contact dimensions, partially mediated by sympathy in both cases. A second study was conducted to replicate and extend the findings from study 1.

STUDY 2

We conducted a second survey among an independent sample of non-indigenous Chilean participants. The second study differed from the first in some important ways. First, all measures were included at both points in time, allowing for directional tests of the effects of knowledge and sympathy. Secondly, we chose a different time interval between the two waves of data collection. One problem in longitudinal research is that it is rarely possible to determine the optimal time-lag *a priori* on theoretical grounds (Finkel, 1995). However, for a robust causal effect we would expect the same effect to be observed across different time lags. Thirdly, studies 1 and 2 were conducted during periods of rather different political climates. When study 1 was conducted, the intergroup climate was somewhat hostile. There were conflicts (resulting in at least one casualty) between the Mapuche and non-indigenous groups regarding the building of a dam by a private company on indigenous land with religious meaning to them. There was also extensive media coverage of the trial of several Mapuche community leaders who were accused of arson attacks. By the time we conducted study 2, these disputes had dissipated, media coverage on the intergroup conflict had subsided and intergroup relations were somewhat calmer. Hence, we endeavoured to replicate similar correlational patterns as observed for study 1 in a different prevailing intergroup climate.

Method

Design

Study 2 was a longitudinal survey study among non-indigenous majority Chilean participants in Temuco in the south of Chile.

Participants

Three hundred and ninety non-indigenous Chilean secondary school students participated in the survey (170 males, 220 females). The mean age was 15.5 years (range 14–19). For 333 of the participants, data were collected at two points in time (i.e. once *after* the main data collection, with a time lag of approximately 2 months).

Procedure and Measures

All participants filled out a questionnaire in Spanish during school class time, which contained the measures of the independent and dependent variables as translated below. The questionnaires distributed at both points in time were identical to each other and to the questionnaire at time 2 of study 1.[4]

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[4]Between time 1 and 2, some participants were randomly selected and exposed to an intervention aimed to improve intergroup attitudes through increased intergroup contact, while others were in the control group and had no special treatment. Although the intervention was designed to change *mean levels* of intergroup attitudes, it was not hypothesised to—and in fact did not—substantially alter *associations* between variables. Because of this, longitudinal analyses presented here are based on the full sample (both experimental and control groups; note that the patterns for the 'control group only' sample were very similar to the ones presented here). Cross-sectional analyses were not affected by the intervention, since all T1 data were collected before exposure to the manipulation.

All constructs were measured with the same scales as described for study 1. The alphas were as follows: *Preference for cultural maintenance* $\alpha = 0.78$ at time 1; $\alpha = 0.87$ at time 2; *preference for contact* $\alpha = 0.79$ at time 1; $\alpha = 0.82$ at time 2; *negative affect towards the Mapuche* $\alpha = 0.83$ at time 1; $\alpha = 0.83$ at time 2; *knowledge* about the Mapuche was $\alpha = 0.79$ at time 1; $\alpha = 0.80$ at time 2; *sympathy* with the Mapuche was $\alpha = 0.83$ at time 1; $\alpha = 0.86$ at time 2. Again, median splits were performed on the culture maintenance and the contact preference scales. Participants also filled out some other scales which are not of relevance in the present context. Finally, they completed some items about demographic data, such as their age and sex. Prior to participation, full consent for participation was obtained; all aspects of the research complied with the APA ethics guidelines. Upon completion of the study, participants were thanked and debriefed.

Results

Results will be presented in the same order as for study 1. Because in study 2 the larger sample was obtained at time 1, cross-sectional analyses will focus on data from this point in time (for bivariate correlations, see Table 3).

Predicting Culture Maintenance and Contact from Negative Affect and Vice Versa

Cross-sectional Analyses   First, negative affect was predicted from culture maintenance, contact and their interaction; then, culture maintenance was predicted from negative affect and contact and finally, contact was predicted from negative affect and culture maintenance.

Predicting Negative Affect Cross-sectionally   The overall R^2 was 0.04, $F(2,383) = 8.27$, $p < 0.001$. Only contact had a significant effect, $\beta = -0.21$, $p < 0.001$, indicating that a preference for contact is associated with less negative affect. The interaction was not significant.

Predicting Culture Maintenance Cross-sectionally   The R^2 was 0.15, $F(2,383) = 33.96$, $p < 0.001$. Only contact was a significant predictor, $\beta = 0.39$, $p < 0.001$, indicating that a preference for contact is associated with a higher preference for culture maintenance.

Predicting Contact Cross-sectionally   For this model, the R^2 was 0.18, $F(2,353) = 42.82$, $p < 0.001$. Culture maintenance was a significant predictor, $\beta = 0.37$, $p < 0.001$, as was negative affect, $\beta = -0.18$, $p < 0.001$, indicating that a higher preference for culture maintenance and low negative affect were associated with more desire for contact.

Longitudinal Analyses   Next, three longitudinal regressions were run: (1) regressing negative affect at time 2 on culture maintenance and contact at time 1 (the interaction was entered in a second step); (2) regressing culture maintenance at time 2 on negative affect and contact at time 1; and (3) regressing contact at time 2 on negative affect and culture maintenance at time 1. For all three regressions, the DV at time 1 was always included as an additional predictor to control for initial levels in the DV.

Predicting Negative Affect Longitudinally   The overall model predicted 27% of the variance in negative affect, $F(3,325) = 41.78$, $p < 0.001$. In addition to the DV at time 1 ($\beta = 0.50$, $p < 0.001$), only contact had a significant effect, $\beta = -0.10$, $p < 0.05$, indicating that a preference for contact causally leads to less negative affect. The interaction was not significant.

Table 3. Study 2: Bivariate correlations and means

	Culture maintenance T1	Contact T1	Negative affect T1	Knowledge T1	Sympathy T1	Culture aintenance T2	Contact T2	Negative affect T2	Knowledge T2	Sympathy T2
Contact T1	0.38 ***									
Negative affect T1	−0.05	−0.20 ***								
Knowledge T1	0.09•	0.13 **	0.02							
Sympathy T1	0.23 ***	0.26 ***	−0.12 *	0.22***						
Culture maintenance T2	0.23 ***	0.19 ***	−0.01	0.17**	0.33***					
Contact T2	0.13 *	0.30 ***	−0.10•	0.16**	0.27***	0.56 ***				
Negative affect T2	−0.05	−0.19 ***	0.51 ***	−0.02	−0.13 *	−0.06	−0.19***			
Knowledge T2	0.15 **	0.08	0.05	0.64***	0.15**	0.18 ***	0.12*	0.09•		
Sympathy T2	0.18 ***	0.16 **	−0.04	0.24**	0.54***	0.43 ***	0.38***	−0.11•	0.27***	
Means	3.82 (1.05)	3.87 (1.14)	2.24(1.19)	3.01 (1.31)	3.75 (0.86)	3.74 (1.07)	3.82 (1.06)	2.03 (1.07)	3.08 (1.33)	3.61 (0.89)

Note: T1 = Time 1; T2 = Time 2. •$p < 0.09$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. *SD*s in parentheses.

Predicting Culture Maintenance Longitudinally   The R^2 was 0.07, $F(3,325) = 8.16$, $p < 0.001$. Apart from the DV at time 1 ($\beta = .18$, $p < 0.001$), contact was a significant predictor, $\beta = 0.13$, $p < 0.03$, indicating that a preference for contact causally leads to more preference for culture maintenance.

Predicting Contact Longitudinally   For this model, the R^2 was 0.09, $F(3,325) = 11.52$, $p < 0.001$. Apart from the DV at time 1 ($\beta = 0.29$, $p < 0.001$), neither of the other two predictors was significant.

As in study 1, these regression analyses confirm the three variables are associated with each other in multiple ways. However, longitudinal analyses revealed that only the contact dimension of acculturation preferences causally determines negative affect. No evidence was found in support of the other causal direction (from negative affect to acculturation preferences). However, there was evidence that contact affects culture maintenance. Again, no significant interactions between the two dimensions were found.

Predicting Negative Affect from the Four Categorical Acculturation Preferences

Cross-sectional analyses   An ANOVA was conducted (with time 1 data) with the median split culture maintenance and contact dimensions as two independent factors with two levels each. Negative affect was the dependent variable. Culture maintenance did not have a significant main effect; but contact did, $F(1, 382) = 9.89$, $p < 0.002$, $MSE = 1.37$; and there was a significant interaction between the two factors, $F(1, 382) = 6.69$, $p < 0.01$.

The pattern of means was in line with the predictions, in that the cell corresponding to integration (high culture maintenance, high contact desire) was associated with less negative affect than the other cells/acculturation preferences (see Table 4). According to Tukey's HSD, those favouring integration indeed had significantly less negative affect than those favouring any of the three other strategies.

Longitudinal Analyses   Next, to test whether the four categorical preferences would predict negative affect longitudinally, an ANCOVA was conducted. The median split preferences as measured at time 1 on the culture maintenance dimension and the contact dimension were two independent factors with two levels each. The dependent variable was negative affect—this time at time 2. Negative affect at time 1 was used as a covariate, to control for prior levels of the DV. Mirroring the findings from study 1, in addition to the covariate ($F(1, 324) = 106.55$, $p < 0.001$), only contact had a significant main effect, $F(1, 324) = 5.73$, $p < 0.02$, $MSE = 0.84$; and there was no significant interaction between the two factors. According to Tukey's HSD (see Table 4, bottom half), there was no significant difference between integration and assimilation. Again, however, integration differed significantly from separation and marginalisation.

Taken together, as in study 1 these analyses confirm the findings from the regressions. Both analytical approaches confirmed that the contact but not culture maintenance dimension of acculturation preferences is longitudinally related to negative affect. No evidence was found in support of the reverse causal direction (from negative affect to acculturation preferences).

Table 4.   Study 2: Mean levels of negative affect for different categorical acculturation preferences

Cross-sectional analyses			
Integration	Assimilation	Separation	Marginalisation
1.85 (0.97)[a]	2.27 (1.16)[b]	2.57 (1.33)[c]	2.34 (1.23)[b]
Longitudinal analyses			
1.75 (0.98)[a]	1.89 (0.83)[a]	2.36 (1.24)[b]	2.13 (1.07)[b]

*Note: SD*s in parentheses. Means which do not share the same superscript (row-wise) are significantly different from each other at at least $p < 0.05$ according to Tukey's HSD.

Testing for an Effect of Knowledge—Partially Mediated through Sympathy—on Culture Maintenance and Contact Using Longitudinal Regressions

Again, partial mediation was tested according to the three-step model proposed by Baron and Kenny (1986). For study 2, we were able to use longitudinal data for this analysis, because all constructs had been assessed at both points in time. The same regressions as described in study 1 were conducted, but this time we used (a) the IV and mediator from time 1; (b) the DV from time 2; and (c) the DV at time 1 was entered as an additional predictor into the regression models testing Baron and Kenny's steps 1 and 3, so that initial levels of the DV would be controlled for.

Culture Maintenance as DV Knowledge significantly predicted culture maintenance, $\beta = 0.16$, $p < 0.003$, fulfilling the first condition. Knowledge also significantly predicted sympathy, $\beta = 0.19$, $p < 0.001$, fulfilling the second condition. Finally, when culture maintenance was regressed simultaneously from knowledge and sympathy (controlling for the DV at time 1, $\beta = 0.16$, $p < 0.01$), the beta for sympathy was significant, $\beta = 0.27$, $p < 0.001$, while the beta for knowledge was smaller but still significant, $\beta = 0.10$, $p < 0.05$. Sobel indicated that the reduction in the effect was significant, $z = 3.43$, $p < 0.001$. Hence partial mediation was indeed present.

Contact as DV Knowledge significantly predicted contact, $\beta = 0.14$, $p < 0.007$, fulfilling the first condition. As reported above, knowledge also significantly predicted sympathy, $\beta = 0.19$, $p < 0.001$, fulfilling the second condition. Finally, when contact was regressed simultaneously from knowledge and sympathy (controlling for the DV at time 1, $\beta = 0.25$, $p < 0.001$), the beta for sympathy was significant, $\beta = 0.20$, $p < 0.001$, and the beta for knowledge was now only marginally significant, $\beta = 0.10$, $p < 0.06$. Sobel indicated that partial mediation was indeed present, $z = 2.93$, $p < 0.003$.

In sum, as in study 1, evidence was found for an effect of knowledge on the two dimensions underlying Berry's model, partially mediated by sympathy (note that the same pattern emerged when the mediator as measured at T2—rather than at T1 as reported here—was entered into the model). The results of study 2 corroborate those of study 1, but they also extend them in that they were longitudinal, and supported the proposed causal direction of the effect.

Discussion

There were striking similarities between the results obtained in this independent, second sample and the results obtained in study 1. Again, acculturation preferences were demonstrated to impact on negative affect (rather than vice versa) and, as before, it was only the contact and not the culture maintenance dimension that emerged as an important predictor. Again, we found an indirect effect of knowledge on both the culture maintenance and the contact dimensions, partially mediated by sympathy in both cases. This time, however, we were able to assess this effect longitudinally, hereby confirming the proposed causal direction.

GENERAL DISCUSSION

In the following, first the main results regarding each of the research questions will be summarised. Then, implications of these results for theory and practice will be discussed, some important strengths and weaknesses of the current research are addressed, and avenues for future research are outlined.

The Effect of Culture Maintenance and Contact on Negative Affect and Vice Versa

Cross-sectional regressions revealed that culture maintenance (CM), contact and negative affect were associated with each other in multiple ways. However, longitudinal analyses revealed that acculturation preferences affect intergroup relations

variables such as negative affect, rather than vice versa. It was only the contact dimension (and not the CM dimension) which proved effectual. Contact had a longitudinal unidirectional effect on negative affect. Further, there was evidence that the two acculturation dimensions mutually influence each other, and there was no evidence that the two dimensions interact in their effect on negative affect.

The Effect of the Four Categorical Acculturation Preferences on Negative Affect

Supplementary analyses with the four categorical acculturation preferences corroborated the regression results. Cross-sectional analyses confirmed the associations between acculturation preferences and negative affect, and longitudinal analyses confirmed that the causal direction is indeed from the contact dimension of acculturation preference to affect. There was little evidence for an interaction between the two dimensions (the interaction was significant only once). Further, HSDs revealed that integration was not significantly different from assimilation in terms of the associated negative affect in three out of the four categorical analyses. Again, this confirms that the effect of acculturation preferences on negative affect is due to the contact dimension, rather than due to culture maintenance. This provides a clear extension to previous work, which has rarely looked at the effects of both dimensions singly, and therefore has not been in a position to test their differential effects. The longitudinal aspect of this work also advances prior cross-sectional research, which has not been able to attend to the proposed causality of effects.

The Effect of Knowledge—Partially Mediated through Sympathy—on Culture Maintenance and Contact

Results pertaining to this question were consistent across the two studies. There was an effect of knowledge on both the CM and the contact dimension, which was partially mediated by sympathy in both instances. Study 2 also yielded evidence that the effect of knowledge was in the hypothesised causal direction. To our knowledge, this result is one of the first to demonstrate antecedents of acculturation preferences, rather than their consequences.

Theoretical Implications

First of all, our results suggest that while acculturation preferences (particularly contact desire) influence intergroup relations, the reverse might not necessarily be true. In some ways, these findings lend additional support to those in the contact literature, which suggests that the effect of contact on attitudes is stronger than the reverse effect (Pettigrew & Tropp, 2006). Hence, the data can be understood as a cross-validation of those insights. On another level, if intergroup affect does not predict acculturation preferences, then this makes it even more apparent that we know next to nothing about predictors of this variable. Although the present work also examines the effects of knowledge and sympathy, there are no doubt a lot of other factors which will prove influential, and which future research should attend to.

Some of the findings pose grave questions about the fourfold theory of acculturation preferences. Firstly, culture maintenance did not have a significant longitudinal effect on negative affect. Secondly, the two acculturation dimensions were not found to interact in their effect on negative affect (only 1 out of 8 tested interactions were significant). Related to this, HSDs showed that in the categorical analyses integration was not significantly different from assimilation (again speaking to an effect of contact, rather than a main effect of CM or an interaction between the two dimensions). Thirdly, evidence was found that the two acculturation dimensions actually causally impact on *each other*. CM affected contact in study 1, and contact affected CM in study 2. It is unclear what these differences between the two studies can be attributed to, but this would certainly be an interesting topic for further investigation. In either case, both results are contrary to acculturation theory, which conceptualises the dimensions as independent, and the problems they pose for acculturation theory will be highlighted below.

The fact that the two dimensions were not found to interact in their effect on the outcome measure suggests that it is misleading to cross the dimensions with each other and imply that they will interact as proposed by the fourfold typology. Rather, the two dimensions should be thought of as operating independently from each other (see Rudmin, 2003). This is especially important since the two dimensions were found to be related to each other, possibly leading to collinearity

problems. Also, if one uses median splits with such related dimensions, one runs the risk of producing statistical artefacts (Maxwell & Delaney, 1993). For instance, it is possible that the effect for CM in the cross-sectional ANOVA for study 1 is simply a result of the fact that the two independent variables (CM and contact) which are assumed to be orthogonal in this analysis are indeed related to each other. Hence, our findings suggest that researchers should move away from the fourfold categorical model, and start thinking of CM and contact as two continuous constructs which should be studied independent of each other.

Further, the fact that only the contact but not the culture maintenance dimension underlying acculturation preferences was influential raises the question of how much the fourfold acculturation theory can really add over and above insights already gained from the contact literature (see Brown & Hewstone, 2005) to the prediction of intergroup attitudes. As already mentioned, contact desire as operationalised in acculturation work is likely to be related but not identical to actual contact as measured in the contact literature. However, to answer just how much overlap there is between the two constructs, and whether or not there are potential redundancies, more work will need to be carried out focussing on the relationship between the 'acculturation' and 'classic' contact constructs. Further, it might also be interesting to explore how contact desire and actual involuntary, i.e. non-chosen contact might *interact* in their effect on outcome measures. Moreover, although our results suggest that culture maintenance might not causally influence intergroup affect, it might well be the case that *perceived* attitudes towards culture maintenance of the outgroup causally influence intergroup affect. These are issues which future research might usefully attend to.

Strengths and Weaknesses

Some strengths and weaknesses of the present research should be noted. Previous work has rarely examined the effects of the two underlying strategies taken singly; and the present work is therefore able to provide a more fine-grained picture of the processes underlying the effects of acculturation preferences. The inclusion of a longitudinal element to this design and the attempt to address questions of causality for the first time represents an important contribution of this research. Further, the present work represents one of the first attempts to focus on antecedents of acculturation preferences, rather than purely on its consequences. Last but not least, issues of acculturation have rarely been investigated in the Chilean national context. Since findings obtained in one national context cannot simply be generalised to other national contexts without testing the appropriateness of such generalisations, it is of obvious value to extend the array of national settings in which we conduct psychological research.

In terms of weaknesses, it would obviously have been desirable to include all constructs of interest at both points in time not only for study 2, but also for study 1. As it is, longitudinal tests for the hypothesised effects of knowledge and sympathy were confined to the second sample. Further, we assessed the effects of self-perceived rather than actual knowledge, and our sympathy measure was very focussed on the historic suffering of the Mapuche. Hence, it remains unclear whether the same patterns would have been obtained for actual knowledge and a more general sympathy measure. It would also have been desirable to employ more than two points of measurement, so that, for instance, a mediation model could have been tested where an IV is measured at time 1, a mediator at time 2 and an outcome variable at time 3. However, obviously such a design would imply quite a major administrative operation, which unfortunately was beyond the scope of our resources.

Future Research

It would obviously be desirable to replicate the present findings in other national settings. Further, surely variables other than knowledge and sympathy remain to be discovered as antecedents of acculturation preferences. Also, since the effect of knowledge was only partially mediated by sympathy, other mediators are likely at play too which future research could help to unearth. Future research into acculturation preferences should be serious about focussing on both sides of the equation, i.e. on antecedents as well as consequences. To do so effectively, we think that a more widespread employment of longitudinal or—even better—experimental designs will be crucial. Most importantly, however, it would be worthwhile to study the mechanisms we highlighted for minority groups rather than only majority groups. As argued above, our findings have some quite fundamental implications for the fourfold theory of acculturation preferences. However, because

this theory was originally formulated with minority groups in mind, the mechanisms studied here should be researched for minority groups too before one jumps to premature conclusions

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