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The integration hypothesis: A critical evaluation informed by multilevel meta-analyses of three multinational datasets

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ABSTRACT

The integration hypothesis is the proposal that individuals who engage in both their heritage culture and in the larger society (by using the integration strategy) have better psychological adaptation than those using other strategies (by engaging with only one or neither cultural framework). This hypothesis has received substantial support over the years, but it has been recently contested by Bierwiaczonek and Kunst (2021). In their paper, which contributed new meta-analytic evidence, including some based on longitudinal studies, they argue that there is limited support for the role of acculturation strategies in adaptation and that contextual factors are more important than acculturation strategies for adaptation. Our paper shows that their correlational meta-analysis underestimates the integration-adaptation effect size, and that findings from the longitudinal meta-analysis do not appropriately support their claim. We present empirical findings in support of the integration hypothesis, particularly for positive indicators of adaptation (e.g., life satisfaction, self-esteem), and examine additional moderators using multilevel analyses of three multinational datasets: Nguyen and Benet-Martínez's (2013) meta-analytic data, the MIRIPS dataset (Berry et al., 2022), and the ICSEY dataset (Berry et al., 2006). As a result, our study represents the largest test of the integration hypothesis to date. We complement these findings with theoretical work, relevant evidence from qualitative studies, and other metaanalyses and narrative reviews.

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Introduction

The original presentation of the integration hypothesis (Berry, 1997) stated that acculturating individuals¹ who adopt the integration acculturation strategy will have better psychological adaptation than those who adopt any other strategy (assimilation, separation, or marginalization). In the integration strategy, individuals engage in both their heritage culture and in that of the larger society. In contrast, the assimilation strategy involves giving up the heritage culture and replacing it with that of the larger society. Separation is the opposite, whereas marginalization means not engaging with either culture.

In later studies, this integration hypothesis was extended beyond psychological adaptation ("feeling well") to two other forms of adaptation: sociocultural and intercultural. Sociocultural adaptation ("doing well") refers to the acquisition of competence in living in the larger society, including in work, school, and community life. Intercultural adaptation ("relating well") refers to developing positive attitudes and relationships with those of other cultural backgrounds, including having low levels of prejudice and a positive intergroup ideology.

The ecocultural approach to human behavioral ecology (Berry, 2018) suggests that all human behavior can be seen as adaptive to the contexts within which those behaviors were developed and are now expressed. For the process of acculturation, there are many features of the context that provide new challenges, such as the policies and expectations of the society of settlement, and the power differential between the groups in contact. The adaptation benefits of using the integration strategy reside in the possibility of combining elements of a number of different cultural streams by maintaining contact with various ethnocultural groups without losing one's cultural background. The integration strategy may also provide more behavioral flexibility when adapting to these new cultural contexts because it provides an expansion of one's behavioral repertoire. This contrasts with the assimilation strategy (which involves the loss of one's heritage culture), the separation strategy (which involves the avoidance of acquiring the repertoire of the larger society), and the marginalization strategy (which involves disengaging from both backgrounds).

A large number of studies, including several meta-analytic studies, have shown that there is a positive relationship between using the integration strategy and the different forms of adaptation (Berry et al., 2022; Nguyen & Benet-Martínez, 2013; Schmitz & Schmitz, 2022; Stogianni et al., 2021; Yoon et al., 2013). For example, these studies show that individuals adopting the integration strategy have better performance outcomes, such as better school adaptation, greater academic achievement (Berry et al., 2006; Berry, 2017b), and better work performance (Valenzuela et al., 2021); increased creativity (Tadmor et al., 2012); higher levels of psychological wellbeing (Yoon et al., 2013), including higher self-esteem (Pham & Harris, 2001); and greater prosocial tendencies (Ward & Kennedy, 1994).

Despite this substantial evidence supporting the benefits of the integration acculturation strategy for adaptation, the evidence for the integration hypothesis has been recently challenged. In their recent meta-analysis, Bierwiaczonek and Kunst (2021) claim that "empirical support is still lacking for the most basic premises of acculturation theory" (p. 1476). This statement is likely to be mistakenly understood to mean that policies and practical interventions to guide the adaptation of immigrants or members of eth-nocultural groups informed by acculturation research are not needed. We counter their concerns by (1) reviewing theoretical and empirical research on acculturation (some of which Bierwiaczonek and Kunst did not cover) as well as research from relevant fields (such as social psychology), and (2) re-analyzing three sets of data with the addition of newly gathered sample-level and country-level contextual variables as moderators.

Brief overview of Bierwiaczonek and Kunst (2021)

Over the past few decades, there have been critiques of the literature on acculturation (e.g., Boski, 2008; Chirkov, 2009; Croucher & Kramer, 2017; Gamsakhurdia, 2022; Kunst, 2021; Rudmin, 2003; Rudmin et al., 2017; van der Zee & van Oudenhoven, 2022b) with subsequent debates and responses (e.g., Berry, 2009; Grigoryev & Berry, 2022; van der Zee & van Oudenhoven, 2022a). These critiques have usually focused on conceptual and methodological issues, such as definitions of acculturation, consideration of attitudes instead of behavioral strategies, using double-barreled items, and so on. In contrast to this, Bierwiaczonek and Kunst (2021) provide an empirical-driven critique. Based on meta-analytic evidence, Bierwiaczonek and Kunst (2021) make three main points: (1) cross-sectional evidence suggest a weak effect of integration strategy for adaptation with high heterogeneity, which makes the effects largely unpredictable (see also Bierwiaczonek et al., 2023)²; (2) there is a lack of evidence supporting a causal contribution of the integration strategy for adaptation (see also Kunst, 2021); and (3) there are likely confounding effects for the relationship between integration strategy and adaptation (e.g., both may be due to discrimination or individual differences in personality traits and cognitive resources).

An accurate understanding of the theoretical framework of acculturation is crucial for fully comprehending extant empirical findings on acculturation, its correlates, and the acculturation process. Berry (1997) proposed that the path from different acculturation experiences to *long-term outcomes* (adaptation) is mediated by *short-term outcomes* (e.g., acculturative stress), and is moderated by different acculturation strategies. Investigating acculturation as a temporal process requires an appropriate theoretical framework, such as the moderated mediation model suggested by Berry (1992). That is, psychological processes should closely match a

¹ By acculturating individuals we refer to people whose cultures differ from those in the larger society in which they live. These include migrants, refugees, indigenous peoples, sojourners, and national minorities.

² Bierwiaczonek et al. (2023) conducted their study in reaction to an earlier version of our current work, which was previously available as a preprint (refer to Grigoryev et al., 2022). As Bierwiaczonek et al.'s (2023) work was published prior to ours, we have taken this opportunity to address their study in our discussion section.

well-specified theory about the temporal scale of the process and be specific about the time scale at which the process unfolds. It should also include the frequency with which important changes in the process occur, the overall duration of the process, and the timing of important events in the process (Hopwood et al., 2022). The temporal process of the integration strategy can cover different trajectories depending on various individual and contextual factors (e.g., Cobb et al., 2021; Schwartz et al., 2013). Bierwiaczonek and Kunst's meta-analysis of longitudinal studies did not include these specifications and combined only few studies with heterogeneous sample characteristics to allow for generalizations and comparisons with the datasets included in other meta-analyses. In addition, individual longitudinal studies point to the positive role of the integration strategy (e.g., Park & Bae, 2021; Schwartz et al., 2015).

It is important to note that the acculturation framework for the integration hypothesis is a *structural framework*, not a *causal framework* (Grigoryev & Berry, 2022). That is, contrary to the critique of Bierwiaczonek and Kunst (2021) of the acculturation literature, we argue that correlational studies are indeed informative and that causal inferences are not the only goal of research. This notwithstanding, we and others (e.g., Schwartz et al., 2020) encourage the use of longitudinal acculturation studies, not only because they can be used to establish causality, but also because they reflect acculturation as a temporal phenomenon. However, dealing with acculturation as a temporal phenomenon may require a more dynamic view of culture as well. The view on culture as *malleable* refers to it as varying across time, across social contexts, and in its meaning across individuals (Wong et al., 2018).

Thus, the main argument against the integration hypothesis (based on longitudinal data) in Bierwiaczonek and Kunst's paper is problematic. This can be seen as a wider problem that is rooted in misunderstandings of Berry's acculturation frameworks. We illustrate this by referring to two recent papers (van der Zee & van Oudenhoven, 2022b; Wilczewska, 2023) where there are errors in how the Berry frameworks are presented. In the first paper, they refer to the second dimension not as *contact with*, but *adoption of* the other cultures.³ The second paper does not recognize the distinction between acculturation strategies and adaptation, claiming that the integration strategy does not allow for changes that are novel. However, in the framework, both cultural and personal adaptations involve substantial changes that are new ways of living and acting.⁴ These variations in the ways that the strategies have been assessed contribute to the heterogeneity that can be found in the meta-analyses. However, when there is a common conceptualization and measurement of the strategies, we may reduce the heterogeneity that makes some meta-analyses problematic. In the present paper, we analyze two multinational datasets (MIRIPS and ICSEY) that employ a common conceptualization and measurement.

Common misunderstandings of the theoretical framework of acculturation

The meaning of "acculturation" has been revised and debated since the first formulations made in the 1930s by Redfield et al. (1936) and the (United States) Social Science Research Council (1954). The essence of acculturation identified in these statements is that it is a process of cultural change that begins with direct contact between two or more cultural groups that differ in some respects. These changes occur in all groups in contact and continue to occur over generations. Subsequent refinements were made by Graves (1967) who extended the concept of acculturation to include individuals who change in a process of *psychological acculturation*, and by Ferguson and Bornstein (2012), who asserted that direct contact is not required for acculturation to occur (called *remote acculturation*). The concept of acculturation and these extensions have been frequently reviewed (Sam & Berry, 2016; Sam & Ward, 2021). Criticism and the ongoing pursuit for a more comprehensive definition of acculturation persist to this day (see Boski's comments (2023) on this subject).

Many of the phenomena that constitute acculturation have been incorporated into frameworks that begin with the study of the features of the cultures in contact, the cultural and psychological changes that take place in those groups, and the eventual adaptations that are achieved that enable intercultural living (Berry, 2003; see Safdar et al., 2013 for a review). These frameworks begin with the need to acquire knowledge of the background contexts of both groups, the nature of their contact, the cultural and psychological attributes brought to the acculturation arena, the cultural and psychological changes that arise during the acculturation process, and the various outcomes that result from the process. In the Berry (2003) framework, the psychological changes identified are behavioral (e.g., in daily activities, attitudes, and identities), acculturative stress (e.g., anxiety and depression arising from the challenges of intercultural contact), and the acculturation strategies used by individuals (i.e., integration, assimilation, separation, and marginalization). There are three proposed outcomes or adaptations: psychological (e.g., life satisfaction and self-esteem), sociocultural (e.g., competence in the tasks of daily intercultural living), and intercultural (e.g., mutual positive attitudes among the individuals in contact) adaptation.

³ Specifically, whereas most researchers use the original first dimension (preference for maintenance of heritage culture), there have been differences in the meaning of the second issue (contact with other groups in the larger society). Some other researchers have used either (1) the adoption of the culture of the majority rather than contact with the majority or (2) the majority or mainstream culture rather than other groups in the larger society. These disparities in interpretation were later recognized and considered by van der Zee and van Oudenhoven (2022a).

⁴ Wilczewska's three-dimensional framework focusing on novel or creative ways of behaving, suggesting that Berry's framework does not account for changes in either the cultures or behaviors of acculturating individuals. However, this assertion is based on an incomplete reading and understanding of Berry's (2003) acculturation framework, which does consider new ways of living for both groups and individuals. At the group level, Berry's framework emphasizes the need to study the new forms of social life resulting from contact. All cultural groups in contact change, undergoing a range of cultural transformations, from easily accomplished shifts like evolving a new economic base, to major cultural disruptions such as colonization and enslavement (Berry et al., 1986). At the individual level, the paper's comments focus solely on individual acculturation strategies, neglecting the adaptations where new behaviors reside. Berry's framework identifies three forms of adaptation that involve changes to fit the contexts.

In these frameworks, all the identified features are considered to be *inter-related* and to influence each other, starting with the background societal contexts, the cultural features of the groups, and the nature of the contact through to the various psychological changes and the eventual adaptations made. In the recent research literature reviewed above, of all these features of the acculturation process, two have come to be extensively examined: the role of acculturation strategies and the achievement of psychological adaptation. The focus on this single relationship has tended to divert attention from the importance of many of the other features of these frameworks, including the need to understand the societal contexts (such as national immigration and settlement policies, and cultural differences between groups), and the experience of discrimination and exclusion (as sources of acculturative stress). Nevertheless, in this paper, we continue to focus on the relationship between acculturation strategies and psychological adaptation in an attempt to clarify whether acculturation strategies are important to psychological wellbeing.

Recent evidence for the integration hypothesis

In this paper, we strive to present a comprehensive review of the literature on the relationship between acculturation strategies and adaptation. For example, we review findings from recent meta-analyses and systematic review studies, as well as qualitative studies that Bierwiaczonek and Kunst (2021) overlooked. In most of these studies, an integration strategy is associated with positive adaptation, even after controlling for some contextual variables. Several meta-analyses found average effect sizes between integration (measured as simultaneous engagement with the larger society and heritage cultures) and adaptation varying from r = .10 to .20 (see Berry et al., 2022; Schmitz & Schmitz, 2022; Stogianni et al., 2021; Yoon et al., 2013). In addition to these quantitative studies, acculturation strategies can be identified in qualitative research, which is often better at demonstrating the complex nature of the positive relationship between integration strategy and adaptation than quantitative research (see e.g., Arslan & Dağhan, 2022; Fedi et al., 2019).

A systematic review of 152 empirical studies on the links between the use of the integration strategy ('biculturallism') and adaptation for U.S. Latinxs found that maintaining balanced dual-cultural orientations was related to several indicators of physical (68%) and psychosocial (74%) health, although the strength of the association varied across different operationalizations of biculturalism and indicators of adaptation (Safa & Umaña-Taylor, 2021). These authors also report findings from qualitative studies, showing that a preference for the integration strategy was linked to better academic and job performance. Similarly, another systematic review of empirical studies provides evidence for the integration hypothesis in organizational settings, with most studies reporting a positive relationship between integration and work-related variables, such as higher job satisfaction, greater organizational commitment, lower burnout, greater levels of overall creativity, higher promotion rates, and more complex conflict resolution types (Valenzuela et al., 2021). Integration strategy was clearly associated with more positive adaptation than a mainstream or a heritage cultural orientation alone. Thus, this whole body of evidence does not seem to fit well with the claim that empirical support is still lacking for the role of the integration strategy in adaptation.

Integration strategy and individual/contextual differences

Like Bierwiaczonek and Kunst (2021), we believe that acculturating individuals must have the necessary cognitive resources to integrate two more or less compatible cultural identities into their self-concept (biculturalism) to overcome some of the challenges of acculturation and enjoy positive adaptation. In doing so, bicultural individuals may experience these identities as harmonious and blended (vs. conflictual and compartmentalized; Benet-Martínez et al., 2021) and may use hybrid and alternating cultural identity styles (Ward & Szabo, 2019). Alternating refers to switching between two or more cultural identities, whereas blending is a combination of behavioral patterns associated with both cultures (Phinney & Devich-Navarro, 1997). Research findings suggest that motivation to integrate can activate hybrid or alternating identity styles, which are in turn associated with different adaptation outcomes (Ward et al., 2018).

In another claim, Bierwiaczonek and Kunst (2021) address confounding effects and neuroticism as an example that integration strategy and adaptation can "co-occur and are explained by some other underlying construct" (p. 1478). Indeed, the integration strategy is correlated with the socially desirable ends of personality scales (Schmitz & Schmitz, 2022; see also Ryder et al., 2000). This constellation likely emerges as a *general factor in personality* and reflects general social effectiveness or emotional intelligence that is related to other features, such as better objective or supervisor-rated job performance, objectively measured delinquent behavior, leadership emergence, and social status (van der Linden et al., 2021). Schmitz and Schmitz's meta-analysis (2022) also reports similar evidence for the integration strategy, including its strong correlation with emotional intelligence (r = .49). Thus, all these phenomena are entwined in a complex set of behaviors that may be called a *behavioral syndrome* (see Grigoryev & Berry, 2022). This syndrome derives from both the cultural learning and social interaction approach to acculturation (Masgoret & Ward, 2006), and from the stress and coping approach (Berry, 2006b) that involves the integration strategy.

Moreover, the strategies that individuals employ are not solely dependent on their own decisions. Because of greater social and economic power, the dominant society may significantly influence the strategies adopted by non-dominant groups and individuals through public policies and practices (Berry, 1980; 2017a). There are differences across societies in the contexts of migration and settlement that can influence both the strategies that are adopted, and the adaptations that are achieved. For instance, the integration strategy may be pursued when the larger society appreciates cultural diversity and supports equitable participation of non-dominant groups may only have the options to assimilate, separate, or become marginalized.

Acculturation and adaptation transpire under varying conditions based on factors such as settlement contexts (e.g., Berry, 2017b; Jasinskaja-Lahti et al., 2011), generation (e.g., Berry & Sabatier, 2010; Tonsing, 2014), gender (e.g., Grigoryev & Berry, 2017; Güngör

& Bornstein, 2013), and more. In addition to these features of the acculturation context, other contextual features have been proposed (Berry, 2006a) as possibly influencing acculturation and adaptation, including the difference between being a voluntary or forced migrant (refugee), and between being a migrant or being a member of a national minority or established ethnocultural group.

Multicultural societies that promote mutual accommodation, positive perceptions of diversity, and policies supporting cultural maintenance and equitable participation generally favor the integration strategy and adaptation. For instance, the connection between the integration strategy and adaptation was stronger in Canada compared to France, where there was greater perceived discrimination and limited multicultural policies (Berry & Sabatier, 2010). Meanwhile, it seems that over time, multicultural contexts have led to more complexity and differentiation. In particular, the dimensionality in multicultural ideology has been recently observed in the United Kingdom (Lefringhausen et al., 2022), Germany, and Luxembourg (Stogianni et al., 2023), but not in Japan (Park et al., under review) because this dimensionality that manifests within a society should correspond with the diversity and specificity of their current intercultural relations.

Consequently, while Bierwiaczonek and Kunst's critique raises valid points, it underscores the importance of examining the intricate relationship between individual and contextual factors in the acculturation process. It is essential to acknowledge the contributions of both individual and societal elements in promoting successful adaptation. We need to persist in enhancing our comprehension of the integration strategy amid the interconnectedness of our world.

Current study

To supplement existing correlational evidence for the integration hypothesis, we present new evidence from re-analyses of existing meta-analytic datasets using contextual variables as new moderators. Specifically, we conducted three multilevel meta-analyses: further analysis of (1) data from Nguyen and Benet-Martínez's (2013) meta-analysis, (2) data from the MIRIPS project (Berry et al., 2022), and (3) data from the ICSEY project (Berry et al., 2006). Because many studies, regardless of methodological approach, have shown a positive link between the preference for the integration acculturation strategy and adaptation (e.g., Abu-Rayya & Sam, 2017; Berry et al., 2022; Safa & Umaña-Taylor, 2021), we hypothesized a non-negligible effect size for the relationship between integration strategy and adaptation in accordance with the integration hypothesis. Additionally, we expand on existing meta-analytic findings by examining the moderating role of discrimination, which Bierwiaczonek and Kunst (2021) suggested is a more direct influence on adaptation even after controlling for perceived discrimination (Abu-Rayya & Sam, 2017), we hypothesize that discrimination would *not* moderate the relationship between integration strategy and adaptation. We also include other variables (i.e., religious and cultural background of acculturating groups, cultural context of the receiving society) that have been found to influence the relationship between integration (Berry, 1997; Sam & Berry, 2010; Ward & Szabo, 2019) as potential moderators.

Method

Data and analysis strategy

In our analyses, we used absolute values of raw bivariate correlations between integration strategy and adaptation, which allows for correlated sampling errors and true effects. The three-level meta-analytic models (i.e., effect sizes were nested within samples, and samples were nested within countries) were estimated by *metafor* R package using ML estimation for the amount of heterogeneity, and a random-effects model is then automatically fitted (Viechtbauer, 2010). Thus, in a three-level meta-analysis, variance at three different levels is analyzed: (1) effect size variance (*Level 1*), (2) variance between effect sizes within samples (*Level 2*), and (3) variance among effect sizes between countries (*Level 3*). Hence, the multilevel technique not only estimates overall effect size, but it also allows for the exploration of moderators (e.g., by sample, methodology, and/or country features) if large variance is present at *Level 2* and/or *Level 3*. This is a substantial improvement over commonly used meta-analytic methods (including that used in Bierwiaczonek & Kunst, 2021), which assume independence of effect sizes even when this is not normally the case. This multilevel technique also permits the use of multiple effect sizes (within samples) from the same sample.

Datasets

We obtained effect sizes from three multinational datasets comprising adult and adolescent samples. The first dataset included findings from correlational empirical studies (published during the years 1969–2008) that were reported in Nguyen and Benet--Martínez's (2013) original meta-analysis on the relationship between biculturalism (integration) and adaptation. The dataset includes 322 effect sizes from primary studies and 23,197 participants, nested in 83 samples across 12 countries (Australia, Canada, France, Germany, Italy, Nepal, Netherlands, New Zealand, Norway, Portugal, Sweden, United States).

Second, we used the MIRIPS dataset (Berry et al., 2022), which included findings from a large-scale multi-study project that investigated mutual acculturation and adaptation processes in dominant and non-dominant cultural groups. Two advantages of the MIRIPS dataset are that it has the widest coverage of societies studied to date, and that almost all of the studies used measures from the MIRIPS questionnaire. A third advantage is that the strategies were conceptualized and operationalized in the same way across all the societies, thus eliminating variations that are found in other studies.

In the MIRIPS project, the acculturation strategies scale included four items per acculturation strategies on a 5-point Likert-type scale (an example of the integration item is: 'I prefer social activities which involve both [national] members and [ethnic]

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Table 1

The Results of the Meta-Analyses of Nguyen and Benet-Martínez's (2013) Dataset and Data from the MIRIPS Project (Berry et al., 2022) and the ICSEY Project (Berry et al., 2006).

	ES (r) [95 % <i>CI</i>]	B [95 % CI]	SE	z	р	Q (df)	$\sigma^2_{\text{Level }2}$ (<i>n</i>)	$\sigma^2_{\text{Level 3}}$ (<i>n</i>)	Total I ²	% of total variance - Level 1	% of total variance - Level 2	% of total variance - Level 3
		Ngu	iyen and I	Benet-Martí	nez (2013)): $k_{\text{Level 1}} = 32$	22, $k_{\text{Level }2} = 8$	83, $k_{\text{Level 3}} =$	12			
Overall	.11 [.04,.18]		0.036	3.048	.002	4260.6 (321)*	0.025 (83)	0.005 (12)	91.7	8.34	75.44	16.22
Meta-regression ^a						4177.7 (315)*	0.024 (83)	0.001 (12)	89.8	10.24	89.75	0.01
Intercept		-0.302 [-1.057, 0.453]	0.385	-0.785	.432							
Adaptation (R: psychological)												
Health adaptation		0.037 [0.005, 0.069]	0.016	2.284	.022							
Sociocultural adaptation		0.089 [0.067, 0.111]	0.011	7.988	<.001							
Religious affiliation (1 $=$		-0.193 [-0.370,	0.090	-2.135	.033							
Muslims, $0 = \text{non-Muslims}$)		-0.016]										
Multiculturalism Policy Index		0.051 [0.009, 0.093]	0.021	2.396	.017							
Migrant Acceptance Index		0.033 [-0.076, 0.142]	0.056	0.596	.551							
Type of country (1 = settler, 0 = non-settler)		-0.021 [-0.127, 0.085]	0.054	-0.388	.698							
			Berr	y et al. (202	$(22)^{\ddagger}: k_{\text{Level}}$	$_{1} = 71, k_{\text{Level}}$	$_{2} = 29, k_{\text{Level}}$	$_{3} = 21$				
Overall	.18		0.023	7.675	<	510.9	0.013	0.001	80.8	19.19	77.56	3.25
	[.13,.23]				.001	(70)*	(29)	(21)				
Meta-regression ^b						444.2 (65)*	0.015 (29)	0.001 (21)	82.8	17.16	82.83	0.01
Intercept		0.068 [-0.087, 0.223]	0.079	0.856	.392							
Adaptation (1 = sociocultural, 0 = psychological)		-0.061 [-0.096, -0.026]	0.018	-3.388	< .001							
Religious affiliation (1 = Muslims, 0 = non-Muslims)		0.104 [0.059, 0.149]	0.023	4.551	< .001							
Multiculturalism Policy Index		-0.005 [-0.031, 0.020]	0.013	-0.412	.681							
Migrant Acceptance Index		0.020 [-0.009, 0.049]	0.015	1.324	.185							
Type of country (1 = settler, 0 = non-settler)		0.081 [-0.169, 0.331]	0.128	0.633	.527							
)00000			Berry	7 et al. (200	6): k _{Level 1}	$= 210, k_{\rm Level}$	$_{2} = 42, k_{Level}$	$_3 = 13$				
Overall	.17 [.14,.20]		0.017	9.998	< .001	570.6 (209)*	0.006 (42)	0.001 (13)	50.5	49.54	41.99	8.47

(continued on next page)

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Table 1 (continued)

	ES (r) [95 % <i>CI</i>]	B [95 % CI]	SE	Z	р	Q (df)	$\sigma^2_{\text{Level }2}$ (<i>n</i>)	σ ² _{Level 3} (n)	Total I ²	% of total variance - Level 1	% of total variance - Level 2	% of total variance - Level 3
Meta-regression ^c						399.6 (203)*	0.006 (42)	0.001 (13)	43.9	56.06	43.93	0.01
Intercept		-0.064 [-0.210, 0.079]	0.074	-0.858	.391							
Indicator of adaptation $(1 = positive, 0 = negative)$		0.132 [0.108, 0.156]	0.012	10.827	< .001							
Adaptation (1 = sociocultural, 0 = psychological)		-0.019 [-0.042, 0.005]	0.012	-1.541	.123							
Religious affiliation (1 = Muslims, 0 = non-Muslims)		0.032 [-0.035, 0.098]	0.034	0.954	.340							
Multiculturalism Policy Index		-0.012 [-0.027, 0.003]	0.008	-1.616	.106							
Migrant Acceptance Index		0.023 [0.001, 0.046]	0.011	2.075	.038							
Type of country (1 = settler, 0 = non-settler)		0.069 [0.006, 0.133]	0.033	2.133	.033							

Note. * p < .001.

 \checkmark

^a VIF < 1.94, $Q_M(6, 315) = 79.4$, p < .001, $R^2 = .20$.

^b VIF < 2.35, $Q_M(5, 65) = 29.9, p < .001$.

^c VIF < 1.61, $Q_M(6, 203) = 136.5$, p < .001, $R^2 = .23$. [‡] This dataset has been supplemented with data using the MIRIPS questionnaire from Lebedeva (2022; Armenia, Estonia, Moldova) and Park et al. (2023; Japan).

members'). We selected from the dataset only immigrant and ethnic minority groups and supplemented new MIRIPS data from Lebedeva, 2022 and Park et al. (2023). The final dataset includes 71 effect sizes from the MIRIPS studies with 7576 participants, nested in 29 samples from 21 societies (Armenia, Azerbaijan, Belgium, Canada, Estonia, Georgia, Germany, Greece, Hong Kong, India, Italy, Japan, Kyrgyzstan, Latvia, Lithuania, Malta, Moldova, Portugal, Russia, Spain, Tajikistan).

Finally, we used the ICSEY dataset (Berry et al., 2006), which included findings from a large-scale multi-study project that investigated acculturation processes and several indicators of adaptation in immigrant youth. As in the MIRIPS study, acculturation strategies were assessed using a standard conceptualization and operationalization, thus eliminating variability across societies. A total sample of 5366 adolescents ($M_{age} = 15.32$, SD = 1.53, 53.4 % female) with migrant background from 13 different countries participated in the survey. The main advantage of the ICSEY dataset is that all studies used the same measures. The ICSEY dataset allows for the creation of two dimensions based on cultural identities, language competence, peer contacts, customs, and participation in social activities: one element for a person's preferences on the cultural maintenance issue and the other on their preference for involvement in the larger national society (see Abu-Rayya & Sam, 2017; Abu-Rayya et al. in press). We chose to use the ICSEY dataset because it was also better distributed across countries: 210 effect sizes nested in 42 samples in 13 different countries (Australia, Canada, Finland, France, Germany, Israel, Netherlands, New Zealand, Norway, Portugal, Sweden, United Kingdom, United States). In comparison, Nguyen and Benet-Martínez's (2013) dataset included 53 of 83 samples (63.9 %) and 234 of 322 effects (72.7 %) from the USA. In addition, measurement equivalence (i.e., structural, metric, and scalar invariance) of the ICSEY's acculturation assessment instruments and adaptation measures were ascertained (e.g., Vedder et al., 2006), facilitating confident cross-cultural (sample) comparisons. An advantage of the ICSEY data set over the other datasets is that it includes a single age group (adolescents), has a large diversity of cultural groups within a single society (an average of 3 different culture groups per society), and like the MIRIPS, used a standard questionnaire across samples.

Our final, combined dataset included all individual effects provided in Nguyen and Benet-Martínez's (2013) meta-analysis, Berry et al.'s (2022) MIRIPS dataset, and the ICSEY survey, totaling 603 effects covering 33 societies (see Table 1).⁵ (These data are available in as supplementary material.) Thus, multilevel meta-analyses of three multinational datasets should provide robust evidence for providing a critical evaluation of the role of engaging in both the heritage culture and the larger society for cross-cultural adaptation.

Moderators

We added moderator variables to the combined dataset in form of additional sample-level and country level contextual variables. Some of these correspond to important contextual factors that influence the course of acculturation, as outlined by Berry (2006a), such as attitudes and policies towards migrants. As suggested by Bierwiaczonek and Kunst (2021), we included contextual factors, such as national multiculturalism policy (Banting & Kymlicka's Multiculturalism Policy Index, MPI – https://www.universityresearch.ca/projects/multiculturalism-policy-index/)⁶, the survey on acceptance of immigrants (Gallup Migrant Acceptance Index, MAI – https://news.gallup.com/poll/320678/world-grows-less-accepting-migrants.aspx), and settler or non-settler type of country (e.g., Canada vs. Germany, respectively). These were the *Level 3* moderators in our meta-regressions.

Moreover, we also explored additional moderators for *Levels 2* and 1. Religious affiliation of participants in samples (Muslims vs. non-Muslims) was used as a proxy of cultural distance because almost all host countries had a dominant Christian background, which could affect the adaptation of Muslim participants (*Level 2*). Following similar meta-analytic approaches (Bender et al., 2019), we also considered how effect sizes vary (*Level 1*) depending on the type of adaptation (psychological, sociocultural, health-related) for three datasets and positive or negative indicators of adaptation (e.g., life satisfaction vs. psychological problems) for the ICSEY only.

Results

We conducted multilevel meta-analyses using a random-effects model to examine the robustness of the integration hypothesis in the three datasets and the role of potential moderators in this relationship between integration and adaptation. See Table 1 for the results, including the number of effect sizes, samples, and countries (k); correlations (r) and their 95 % confidence intervals (95 % CI; i. e., the error around these corrected mean correlations), standard errors (*SE*), and the I^2 values (i.e., percentages of the total variability in outcomes that is due to heterogeneity at different levels).

Estimated effect sizes

A three-level model was estimated, examining the sampling variation for each effect size (*Level 1*), variation within samples (*Level 2*), and variation across countries (*Level 3*). In general, the integration hypothesis was supported in all three datasets: r = .11 for Nguyen and Benet-Martínez's (2013) dataset, r = .18 for Berry et al.'s (2022) dataset, and r = .17 for the ICSEY dataset (Berry et al., 2006). Although according to Cohen's conventions these effect sizes can be categorized as small, the non-zero effect of acculturation on adaptation could in fact be a substantial and meaningful effect in practical terms. A small change in mean integration scores might increase by thousands the number of immigrants and ethnocultural group members who are not experiencing depressed mood or

⁵ For a comprehensive understanding of the samples and contexts, please refer to the following studies, as they provide detailed descriptions that are beyond the scope of this paper: Abu-Rayya and Sam (2017), Berry (2017b), Berry et al., (2006, 2022), and Nguyen and Benet-Martínez (2013).

⁶ Since the MPI is not available for many of the MIRIPS participating societies, we used our own estimate based on the original MPI indicators.

feelings of helplessness and who are not marginalized by their lack of sociocultural adaptation in their communities. Seemingly trivial effect sizes in acculturation research can translate into a substantively important acculturation finding (see Grigoryev & Berry, 2022).

Our results showed that effect sizes had *considerable* heterogeneity (92 %) in Nguyen and Benet-Martínez's (2013) dataset and *substantial* heterogeneity (81 %) in Berry et al.'s (2022) MIRIPS dataset; however, effect sizes in the ICSEY dataset (Berry et al., 2006) had only *moderate* heterogeneity (51 %). The highest percentage of this heterogeneity was at *Level 1* (8.34 % vs. 19.19 % vs. 49.54 %) and *Level 2* (75.44 % vs. 77.56 % vs. 41.99 %), which means that contextual factors at the country level (i.e., *Level 3*) were responsible for only a small part of effect size heterogeneity (16.22 % vs. 3.25 % vs. 8.47 %). Therefore, factors other than country-level differences seem to contribute more to the observed heterogeneity.

Meta-regressions

We conducted meta-regressions to test potential moderators of the integration-adaptation association. For the Nguyen and Benet-Martínez's dataset and the ICSEY dataset, only 20 % and 23 %, respectively, of the variance of the evaluated effect sizes were associated with our considered moderator variables. In Nguyen and Benet-Martínez's dataset, low MPI of country, Muslim religious affiliation, and psychological adaptation as the outcome (in contrast to other types of adaptation) predicted weaker effect sizes between integration strategy and adaptation. In the ICSEY dataset, low MAI and non-settler type of country, and the negative indicator of adaptation as the outcome positively predicted weaker effect sizes between integration strategy and adaptation. However, these moderators reduced effect size heterogeneity by only 1.9 % and 6.6 %, respectively. For both datasets, the heterogeneity on *Level 3* was also almost eliminated by our moderator variables.

For the MIRIPS dataset, we found religious affiliation (Muslim vs. non-Muslim) and type of adaptation (sociocultural adaptation vs. other types of adaptation) to be significant moderators. That is, the effect size for the association between the integration strategy and adaptation was weaker for non-Muslim acculturating individuals and for sociocultural adaptation than for Muslim acculturating individuals and for sociocultural adaptation explained substantial variance in effect sizes, almost eliminating heterogeneity at *Level 3* (i.e., across societies). Surprisingly, however, total heterogeneity was increased by 2 %. Although this outcome may seem counterintuitive, such occurrences are possible in multilevel estimates (López-López et al., 2014).

To better understand these results in the MIRIPS dataset, we conducted additional analyses. Entering moderators one-by-one showed that MAI positively predicted the integration-adaptation effect size (B = 0.024 [95 % *CI*: 0.003, 0.044], SE = 0.010, z = 2.266, p = .023) and reduced the total heterogeneity by about 3 % (total $I^2 = 77.6$ %; $Q_M(1, 69) = 5.1$, p = .023). In comparison, adding an interaction term for the two significant predictors (i.e., type of adaptation and religious affiliation) in the meta-regression showed that the interaction eliminated the earlier increase in total heterogeneity (total $I^2 = 80.6$ %; $Q_M(6,64] = 72.1$, p < .001). Moreover, the interaction term negatively predicted effect sizes between integration strategy and adaptation among Muslims (B = -0.235 [95 % *CI*: -0.306, -0.165], SE = 0.036, z = -6.530, p < .001): r = .29 [95 % *CI*: .22, .35; 95 % *PI*: .03, .55] for psychological adaptation (life satisfaction and self-esteem) and r = .12 [95 % *CI*: .05, .19; 95 % *PI*: -.15, .38] for sociocultural adaptation. Interestingly, the moderation analysis of the ICSEY dataset showed that the effect size among adolescents can be up to r = .23 [95 % *CI*: .19, .26; 95 % *PI*: .08, .37] for the relationship between integration strategy and life satisfaction and to r = .22 [95 % *CI*: .18, .27; 95 % *PI*: .03, .42] for the relationship between integration strategy and self-esteem (both are positive indicators of psychological adaptation), whereas the effect size between integration and behavioral problems (negative indicator of sociocultural adaptation) is only r = -.07 [95 % *CI*: -.11, -.04; 95 % *PI*: -.23, .08].

The 95 % prediction intervals (PI) provide an estimated range within which future data points are expected to fall 95 % of the time. In this context, they help us understand the variability in the relationship between integration strategy and adaptation outcomes such as life satisfaction and self-esteem. Simply put, if we were to conduct new studies on the same topic, we could expect that 95 % of those studies would yield effect sizes (i.e., the strength of the relationship) within the specified range of the 95 % prediction intervals. This range accounts for both the average effect size and the variability in effect sizes observed across different studies. Thus, the obtained estimates of 95 % prediction intervals for life satisfaction and self-esteem in the MIRIPS dataset and the ICSEY dataset counter the claim by Bierwiaczonek et al. (2023) that effects of integration strategy for adaptation are in general largely unpredictable.

Discussion

Our findings indicate that the integration acculturation strategy has positive associations with adaptation (especially for positive indicators of adaptation) as evidenced in most studies published in the literature over the past years. This is the case even when considering perceived discrimination and other contextual factors at the country level; they explained a small percentage of effect size heterogeneity. In other words, contrary to Bierwiaczonek and Kunst's (2021) proposition, acculturation is not inconsequential to, or less important for, adaptation than contextual factors such as discrimination when inspecting cross-sectional datasets. Future studies from non-Western cultural contexts, mapping more heterogeneous samples, are needed to make broader conclusions. For example, a recent study showed the validity of some core principles of intercultural relations in Japan, such as the role of security in underpinning the acceptance of multiculturalism (see Park et al., 2022).

Like Bierwiaczonek and Kunst (2021), we also believe that contextual factors play an important role in predicting psychological and sociocultural adaptation and thus should be taken into consideration in cross-cultural studies. As explained in Berry's (1980) acculturation framework, acculturating individuals' level of adaptation is greatly affected by the socio-political context of the larger dominant society in which they live. These include immigrant integration policies; the economic, social, and political power of the dominant society to promote or constrain the strategies chosen and used by non-dominant groups; and non-dominant group members'

relationships with dominant group members (such as discrimination) and with members of other ethnocultural groups in these increasingly multicultural contexts (Berry et al., 2022).

However, we should not overlook the role of individual agency in shaping acculturation outcomes. Differences in the ways acculturating individuals negotiate multiple cultural influences are important to consider for understanding the complexity of acculturation phenomena across different contexts. The importance of individual agency in the acculturation process was why the term acculturation *strategies* was used, rather than simply acculturation *attitudes* or *orientations*. Overly focusing on contextual factors should not come at the expense of considering agency and motivation in acculturation research. Motivation is a core dynamic process at the individual level (Grigoryev & Berry, 2022; see e.g., one of the most illustrative examples in Abu-Rayya et al., 2023), and agency is related to critical aspects of the acculturation process, such as stress and coping, culture learning, as well as identity and intergroup relations (see Gezentsvey & Ward, 2008). Acculturating groups (e.g., sojourners, refugees, indigenous peoples), just like acculturating individuals, vary in agency, goals, and available means to enact their goals. For example, Boski (2013) showed differences in the lifestyles of economic immigrants and educational sojourners.

Bierwiaczonek et al. (2023) suggest that previous research on the integration hypothesis overlooked certain group-level moderators and claimed that "high-status migrant groups might be able to maintain their heritage culture without much backlash even in hostile environments" (p. 7). Indeed, heterogeneity in the integration hypothesis has been previously attributed to similar complex intergroup dynamics within society (see Birman, 2022; Schwartz & Cobb, 2022). An analysis of both aggregate-level and individual-level data showed a strong negative correlation between perceived low status of ethnic groups and acculturation expectation of integration/biculturalism, whereas the opposite pattern was observed for expectations of assimilation, separation, and marginalization (Grigoryev, 2022a). However, by focusing exclusively on intergroup relations *within* countries, the literature often overlooks the status differences *between* countries as an outcome of international inequality (Berry & Grigoryev, 2022). For example, ethnic groups from warmer climates and from lower wealth countries (i.e., usually from countries close to the Equator) are given lower evaluation in status and both competence and warmth stereotypes (Grigoryev, 2022b). In addition, there is some evidence that people are more likely to expect immigrants from a perceived low-status, rather than high-status country of origin, to assimilate to the mainstream culture and that ethnocentrism mediates this effect (Zhao & Biernat, 2022). Thus, perceptions of the larger societies of the Global North that immigrants from the Global South have low *social worth* have implications for the relationship between discrimination, integration, and adaptation. This requires further unpacking in future work.

Our meta-analyses using the MIRIPS and ICSEY datasets showed stronger effect sizes of the integration-adaptation association for the positive adaptation indicators of life satisfaction and self-esteem.⁷ These effect sizes align with effect sizes found in influential social psychological research on theory and policy. Specifically, they are comparable to the effect sizes reported in several meta-analyses investigating the effects of direct and indirect intergroup contact on prejudice reduction (Abu-Rayya et al., in press). This indicates that the relationship exhibits a comparable magnitude to the effects observed in studies exploring intergroup contact.

Hence, the link between the use of the integration strategy and adaptation seems to be stronger for these positive indicators of adaptation, as explained earlier (e.g., Berry & Hou, 2016; Neto & Neto, 2023). Indeed, research findings have shown that individuals who integrate multiple group memberships are in better psychological and physical health, highlighting the role of intercultural social interactions (Berry & Hou, 2019; Ertel et al., 2008; Helliwell, 2003; Jetten et al., 2015; see also Samnani et al., 2012). Group memberships can function as psychological resources, providing social support and boosting one's self-esteem. Personal self-evaluations are greatly affected by the collective self-esteem that individuals derive from social group membership (Jetten et al., 2015). Therefore, bicultural individuals who maintain strong ties with both their heritage and the dominant culture can benefit from multiple resources, which explains the association with multiple positive adaptation variables. It is likely that these effects may be most pronounced in settler societies (like Australia and Canada), which provide the condition for optimal distinctiveness (see Brewer, 2003; also Batkhina et al., 2022): high cultural distance between cultural groups (e.g., Christians and Muslims) coupled with a low level of discrimination and a high level of support for multiculturalism.

Regarding the limitation of our results, we note that the integration strategy is conceptualized as a combination of peoples' preferences on two issues. The first is a desire for *heritage culture maintenance*, which is the common operationalization in most research studies. The second issue, however, is defined and measured in a variety of ways. It was first assessed by asking about a desire for *intergroup contact* or *participation* in the larger society. As noted above, it was extended by some researchers to be *identification* with the larger society and to the *cultural adoption* of practices of the larger society (Sam & Ward, 2021; Ward & Szabo, 2019). The operationalization of this second issue (in terms of either contact, identification, or adoption) can lead to different distributions of participants across the four acculturation strategies (Snauwaert et al., 2003) and subsequently, to different associations between acculturation and adaptation (Berry & Sabatier, 2011; see also Ward & Kus, 2012). Indeed, meta-analytic findings suggest that how acculturation strategies are measured affects the magnitude of the relationship between integration strategy and adaptation (Nguyen & Benet-Martínez, 2013; Stogianni et al., 2021; Valenzuela et al., 2021). In addition, some argue that balanced, coordinate bilingualism could be a better predictor of well-being indices than integration attitudes (Kmiotek & Boski, 2017). However, our study as well as the study by Bierwiaczonek and Kunst (2021) did not take into consideration the entire landscape of findings on acculturation, with its various operationalizations and associations with adaptation. Therefore, both meta-analytic conclusions do not fully reflect the actual relationship between integration strategy and adaptation; the findings are conflated by how acculturation was measured that which requires further analytical work.

⁷ We did not have separate records to test it on Nguyen and Benet-Martínez's dataset.

In summary, our conclusion based on a review of the literature and additional meta-analytic findings is that there is indeed adequate evidence for the integration hypothesis when understood and investigated as a structural rather than causal framework. These findings, which are relevant to consider for both interventions and policy makers, may provide a sufficient knowledge basis to promote ways to improve the lives of acculturating individuals in many societies. As Bierwiaczonek and Kunst (2021) recommended, further longitudinal evidence is important to the advancement of the temporal disentanglement of antecedents, moderators, and outcomes of the acculturative process, in line with earlier acculturative frameworks (e.g., Arends-Tóth & van de Vijver, 2006; Berry, 1992, 1997; Carlson & Güler, 2018; Navas et al., 2005; Ward & Szabo, 2019; Sam & Berry, 2010). Moving forward, this enriching our knowledge of the nuances and complexities involved in the acculturation process will be instrumental in refining policies and practices that facilitate successful adaptation. Ultimately, this is expected to substantially enhance the overall welfare of individuals living in plural societies. We also welcome Bierwiaczonek et al. (2023) endorsement of our proposal for collaborative multi-lab efforts in this direction. There are some notable exemplars of engaging in cooperative theory building based on adversarial alignment enables competing approaches (see e.g., Ellemers et al., 2020). We foresee this approach as the next significant advancement in comprehending the role of the integration strategy in the adaptation process.

Author contributions

D. Grigoryev and J.W. Berry initiated the paper. All authors contributed to the study design. D. Grigoryev conducted the data analysis. M. Stogianni and D. Grigoryev were involved in the interpretation of the findings. D. Grigoryev provided conceptual arguments. D. Grigoryev, J.W. Berry, and M. Stogianni drafted the manuscript. A.M. D. Nguyen, M. Bender, and V.M. Benet-Martínez provided critical revisions. All authors approved the final version of the manuscript for submission.

Declaration of interest

The authors declare that there is no conflict of interest.

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Open practices statement

Our datasets are available in Supplemental Material.

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