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Perceptions of misalignment and the academic achievement of underrepresented groups in higher education

Running title: Misalignment and academic achievement

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Abstract

The concepts of cultural congruity, cultural mismatch, and identity incompatibility describe the misalignment of university students from diverse sociocultural backgrounds. These concepts are related to each other, but have been used in different, relatively independent literatures.

Furthermore, the literature predicts that misalignment contributes to achievement gaps between majority and underrepresented students. However, studies testing the entire mediation model are relatively scarce. In a sample of 558 first-year university students, we investigated the relations between belonging to an underrepresented group (ethnic minority, first-generation, low subjective income), several misalignment indicators, and academic achievement. We found strongest support for the role of identity incompatibility for first-generation students. Other misalignment indicators were also related to achievement and/or belonging to an underrepresented group, but did not show consistent (indirect) effects. This paper shows the added value of an integrative approach to investigating the impact of misalignment in higher education.

Abstract: French translation

Les concepts de congruence culturelle, de décalage culturel et d'incompatibilité identitaire décrivent le désalignement dont les étudiants issus de milieux socioculturels divers peuvent faire l'expérience. Bien que reliés les uns aux autres, ces concepts ont été jusqu'à présent utilisés dans des littératures différentes et de manière relativement indépendante. La littérature prédit également que le désalignement contribue aux écarts de réussite entre les étudiants issus de groupes majoritaires ou de groupes sous-représentés. Cependant, les études testant le modèle de médiation complet restent assez rares. Dans un échantillon de 558 étudiants, nous avons examiné

les liens entre l'appartenance à un groupe sous-représenté (minorité ethnique, première génération, faible revenu), plusieurs indicateurs de désalignement et la réussite académique. L'incompatibilité identitaire semble être le facteur jouant le rôle le plus important chez les étudiants de première génération. D'autres indicateurs de désalignement, bien que liés à la réussite et/ou à l'appartenance à un groupe sous-représenté, n'ont pas montré d'effets (indirects) cohérents. Cette recherche montre la valeur ajoutée d'une approche intégrative pour étudier le désalignement dont certains étudiants peuvent faire l'expérience dans l'enseignement supérieur.

Key words: cultural congruity, identity compatibility, cultural mismatch, academic achievement, higher education

Mots-clés: Congruence culturelle, incompatibilité identitaire, décalage culturel, réussite académique, enseignement supérieur

Differences in accessibility of higher education and attainment persist for many groups from diverse socio-cultural backgrounds, such as first-generation students (students for whom neither parent has a bachelor's degree or higher) and ethnic/racial minorities. Contributing factors to these achievement gaps include a lack of economic, social, and cultural capital (Gofen, 2009; Harackiewicz et al., 2014). While a lack of economic capital is a primary factor (Furquim, et al., 2017), elements such as psychological barriers that emerge upon entering university are equally, if not more, important to students' academic and social outcomes (Beasley, 2021; Suhlmann et al., 2018; Easterbrook & Hadden, 2021; Goudeau et al., 2024).

Students from disadvantaged socio-economic backgrounds are more likely to be exposed to unfamiliar values or behavioural expectations upon entering higher education (de Vreeze et al., 2018), causing experiences of misalignment that contribute to the social-class achievement gap. Indeed, one's socio-economic background is an important group membership (Easterbrook, Hadden et al., 2019; Easterbrook, Kuppens, et al., 2019; Matschke et al., 2022; Phillips et al., 2020). Moreover, competitive norms in higher education further disadvantage students from disadvantaged socio-economic backgrounds (Autin et al., 2019; Batruch et al., 2019; Crouzevialle et al., 2019; Jury et al., 2015).

The ethnic/racial achievement gap is driven by various factors disadvantaging non-White students, such as Black, Hispanic, and Native American students in the US (Constantine, et al., 2002; Chee, et al., 2019; Gloria, et al., 1999). Confronted with stereotypes of not being high achievers and not belonging in higher education (Steele, 1997; DeVitre et al., 2021), being underrepresented in higher education (Castellanos & Gloria, 2006), and lacking familial support (Gloria et al., 2009), ethnic minority students are at higher risk for negative academic trajectories in higher education (Aguinaga & Gloria, 2015; Rischall & Meyers, 2019).

One construct present in literatures on the class and ethnic achievement gaps is the perception of misalignment, although different labels have been used to refer to it. Cultural congruity, cultural mismatch, and identity incompatibility all describe the misalignment experienced by some students from underrepresented sociocultural backgrounds in a higher education context. These three constructs are related to each other, but have been used in different, relatively independent literatures, sometimes focusing on different groups, and in different parts of the world. Cultural congruity, as labelled by Gloria and Robinson Kurpius (1996), refers to students' overall perceived fit within the larger university environment, given differences in their cultural identity and values compared to the beliefs, values, and behaviours sanctioned by their academic institution. Ethnic minorities will perceive less alignment as their cultural background is not the majority or dominant one at academic institutions. Cultural mismatch, rooted in Bourdieu's (1986) theory on cultural capital, refers to the lack of alignment between the independent norms of a university and the interdependent values of working-class and/or first-generation students (Stephens et al, 2012). Finally, identity incompatibility, rooted in Stryker and Burke's (1980) concept of role-identity salience, suggests that when a student's academic role identity is more salient than their other role identities, they are more likely to experience positive educational outcomes. Identity (in)compatibility (Iyer et al., 2009; Matschke et al., 2015, 2022), refers to the (mis)alignment of personal and social identities with the expectations of the academic role, encompassing cultural, ethnic, racial, gender, or sexual identity. Identity incompatibility is the opposite of compatibility and focuses on misalignment in roles or identities.

These three constructs investigate students' perceived misalignment in higher education, and how this lack of fitting in affects academic outcomes, contributing to achievement gaps

between majority and underrepresented students. However, the theoretical overlap is seldom discussed and studies testing the entire mediation model from belonging to an underrepresented group, through perceptions of misalignment, to academic outcomes are relatively scarce. To bridge this gap, we first discuss the similarities and differences between the different constructs related to perceived misalignment in higher education. We then provide an integrative test by using multiple demographic indicators of belonging to an underrepresented group, multiple indicators of misalignment, and academic outcomes.

Misalignment Between Identity and Higher Education Institution

The theoretical overlap between cultural congruity, cultural mismatch, and identity incompatibility lies in the element of a lack of fit to the higher education environment, due to the social group one belongs to. All three are rooted in social identity theory (Tajfel & Turner, 1986), specifically the concept of social identity threat. Whether it is ethnic or class background, the group one belongs to is perceived as having a lower status in society, is underrepresented at higher education institutions, and the group's values or other characteristics differ from the dominant ones. In sum, one's sociocultural identity may not perfectly align with what is considered valued or dominant in higher education. We therefore use 'misalignment' as an overarching term to refer to these three constructs.

Despite these clear similarities, what are the meaningful differences? The approach of cultural mismatch is perhaps the most distinct. While also rooted in group differences and incompatibility with the dominant culture, mismatch focuses on interdependent versus independent values only, which makes its scope narrower than that of identity incompatibility or cultural congruity. Furthermore, cultural mismatch emphasises the fit to the educational context more than the other approaches, as it focuses on mismatch between students' priorities and

orientations and those emphasised by academic institutions. Cultural mismatch could therefore be seen as a form of identity incompatibility or cultural congruity, but focusing on values rather than all aspects of identity and emphasising one's fit within the institutional context.

The main difference between cultural congruity and identity incompatibility is that congruity focuses on ethnic minorities only. What this suggests, then, is that identity incompatibility is the most general approach in terms of the groups it focuses on, and the domain of misalignment. Cultural mismatch and cultural congruity can be seen as forms of, or precursors to the broader concept of identity incompatibility. That is, identity incompatibility is an internal process marked by multiple precursors (i.e. clash of values, behaviours, and expectations) such as cultural mismatch and congruity.

There are also similarities in how each construct is typically measured. This is most apparent between cultural congruity and identity incompatibility measures: the Cultural Congruity Scale (Gloria and Robinson Kurpius, 1996) is based on Ethier and Deaux's (1990) Perceived Threat Scale and most studies on identity incompatibility also use an adapted version of this scale; influential adaptations come from Iyer and colleagues (2009) and Jetten and colleagues (2008). These scales focus on self-reported perceived separation or overlap between the new university environment on the one hand, and previous identities or one's sociocultural background on the other hand.

Cultural mismatch has been measured using a different approach. Rather than relying on self-reported perceptions of misalignment, cultural mismatch is measured by asking students about their motives for attending university, distinguishing interdependent (e.g., "I started a university education in order to give back to my community") from independent motives (e.g., "I started a university education in order to explore new interests"), and comparing these with the

values of academic institutions. Some studies also measure mismatch with first-generation students' endorsement of inter-/ independent values, such as self-construals (Talavera, et al., 2018) or models of agency (Sharps & Anderson, 2021). Still, the misalignment comes from the difference between the values of the student and the institution. In sum, the specificity of measuring motives for attending university rather than self-perceived incompatibility is what distinguishes cultural mismatch.

Despite the strong theoretical overlap reviewed above, the concepts of cultural congruity, cultural mismatch, and identity incompatibility have been studied independently of each other, save for a few articles from identity incompatibility literature referencing cultural mismatch (Easterbrook & Hadden, 2021; Matschke et al., 2017; 2022). Here we offer a more integrative approach and investigate the relation of multiple indicators of misalignment with belonging to an underrepresented group and with academic outcomes.

We investigate two underrepresented groups: first-generation students and ethnic minority students. We also use subjective income as an additional indicator of parental socio-economic status. We use three indicators for misalignment: (1) a measure of independent and interdependent motives comes from the literature on cultural mismatch (Stephens et al., 2012), (2) a measure of social identity threat inspired by research on cultural incongruity and identity incompatibility, which assesses students' perceptions of how others perceive them based on their social-class background, and (3) a measure of identity compatibility more specifically, as employed in recent research in this area (Easterbrook, et al., 2022).

We expect that, compared to majority group students, students from underrepresented groups will report less perceived identity compatibility (H1), more interdependent motives for attending university (H2), more social identity threat (H3), and lower academic performance

(H4). Furthermore, we expect that the relation between belonging to an underrepresented group and academic performance will be mediated by these three indicators of misalignment (H5).

Method

Procedure

The data was collected in 2016-2017. Data collection consisted of four waves but here we use data from the first wave with the exception of subjective income which was collected in later waves. An online survey link was distributed among students, who participated in exchange for payment or partial course credit.

Participants

Participants were students from the Faculty of Behavioural and Social Sciences and the Faculty of Arts (and 4 from other faculties) at a Dutch university, for whom this was their first year at university. The final sample ($n = 558$) consisted of 126 men, 385 women, 4 respondents who identified with neither, and 43 participants who did not report their gender. Participants had a mean age of 19.47 ($SD = 1.78$). Participants reported the highest level of education achieved by either parent; 20.43% ($n = 114$) participants classified as first-generation students (neither parent had at least a bachelor's degree), 70.96% ($n = 396$) classified as continuing-generation students (at least one parent has at least a bachelor's degree), and 9.14% ($n = 48$) did not report parental education. The majority of participants ($n = 443$; 79.39%) are classified as belonging to the ethnic majority (Dutch or White/Caucasian), 12.72% ($n = 71$) are classified as ethnic minorities, and 44 participants did not report their ethnicity (7.88%). The majority of participants completed the survey in Dutch ($n = 281$); others did so in English. Analyses including university generational status and ethnicity as predictors are based on sample sizes ranging from 491 to 494 participants; for subjective income as the predictor, sample sizes range from 347 to 348

participants. The study is in accordance with the ethical principles of the declaration of Helsinki.

Data, questionnaire, and code are available at: <https://osf.io/nv8ds/>.

Materials

Academic Performance

Average grades and total ECTS credits earned were obtained via the university administration. A year normally contains 60 ECTS credits, and students following the optional honours college earn 72 ECTS. We therefore Winsorized ECTS at 80 in order to limit the influence of outliers. Grades and ECTS are highly correlated ($r = .81$).

Motives For Attending University

Interdependent and independent motives for attending university were each measured using three items (Stephens et al., 2012). The *interdependent* items were “I started a university education in order to help out my family after I finish university”, “...give back to my community”, and “...make my community proud” ($\alpha = 0.68$). The *independent* items were “I started a university education in order to expand my knowledge of the world”, “...explore new interests”, and “...explore my potential in many domains” ($\alpha = 0.75$). Participants indicated how true each statement was of themselves on a scale of 0 (not at all true of me) to 6 (very true of me).

Identity Compatibility

To measure identity compatibility, a 3-item scale was used ($\alpha = .84$). The three items were “Working hard at university fits with my social background”, “My background is compatible with someone who does well at university”, and “People with my social background usually get good grades at university” (Easterbrook, et al., 2022). Participants indicated how much they agreed with each statement on a scale of -3 (disagree strongly) to 3 (agree strongly).

Social Identity Threat¹

Social identity threat was measured with a 5-item scale ($\alpha = 0.82$). Two items were from the cultural congruity literature (Ethier & Deaux, 1990; Gloria & Kurpius, 1996) (“I feel that I have to change myself to fit in at university” and “My social background is incompatible with the new people I meet and the new things I learn here”) and a third item was essentially a reversed version of the second one (“My social background fits very well with the people that I meet at university”). We constructed the fourth and fifth items to reflect a general sense of fit and identity threat, respectively (“I feel out of place at university” and “I feel very much at home at university”). Participants indicated how much they agreed with each statement on a scale of -3 (disagree strongly) to 3 (agree strongly). Because the scale combined existing and new items, we investigated its structure. All inter-item correlations were between .39 and .59. In a factor analysis the first factor explained 59% of the variance and all factor loadings were between .63 and .78.

Demographic variables

We used participants’ gender, ethnicity, subjective income, parent education level, and the language in which they completed the survey (Dutch or English). Although the literature focuses on parental education level as an indicator of parental socio-economic status, we included subjective income to explore whether potential effects of parental education status generalise to subjective income.

To assess participants’ ethnicities, a list of eight choices was presented with the option to check “other” and specify by writing it in. The choices to select from included Dutch, White/Caucasian (not Dutch), Dutch Antilles, Surinamese, Turkish, Arab, Black/African/Afro-

¹ The study also measured student identification and stereotype threat. While not indicators of misalignment, they are related and for the sake of completeness, we report results for these measures in supplemental material.

Caribbean, and Asian. Participants who checked only Dutch or White/Caucasian were coded as ethnic majority students; participants who checked any other option (even in conjunction with checking Dutch or White/Caucasian) were coded as ethnic minority students. Thirty-nine participants wrote in their ethnicity rather than using the predefined options. Eight participants wrote in ethnicities that fit with Dutch or White/Caucasian and were thus coded as ethnic majority students. Students who wrote in their ethnicity as being from Eastern Europe, the Mediterranean/Balkans, Asia (i.e. Afghan, Persian, and Indian), or Central/South America were coded as ethnic minority students.

To assess university generational status, we used parents' education levels. Students for whom neither parent had a bachelor's degree were coded as first-generation students. Students for whom at least one parent had at least a bachelor's degree were coded as continuing-generation students.

Subjective income was measured using a 6-item scale ($\alpha = .82$; Griskevicius, et al., 2011). Three items referred to childhood wealth, two to current and one to future subjective income. Example items include "I have enough money to buy things I want" and "I felt relatively wealthy compared to the other kids in my school". Participants indicated the degree to which they agreed with each statement on a scale of -3 (disagree strongly) to 3 (strongly agree).

Results

Descriptive statistics are presented in Table I and correlations in Table II. Before testing our hypotheses, and given the overlap between identity compatibility, social identity threat, and motives highlighted in the introduction, we did an exploratory factor analysis with all items of these three scales. Results show very limited empirical overlap: all items load on their respective factor and cross-loadings are small (see Table III).

Table I: Descriptive Statistics [Tableau I: Statistiques Descriptives]

	N	Mean	SD	Min, Max	Median
Average grades	556	6.83	1.12	2.5, 9.2	7.00
Total ECTS	558	51.32	18.08	0, 80	60
Subjective Income	380	0.51	1.16	-3, 3	0.58
Social Identity Threat	520	-1.53	1.11	-3, 2.6	-1.80
Interdependent Motives	503	2.20	1.47	0, 6	2.00
Independent Motives	503	4.79	0.95	0.33, 6	5.00
Incompatibility	508	-1.08	1.20	-3, 3	-1.33

Table II: Correlations (Pearson's r) between study variables [Tableau II: Corrélations de Pearson entre variables]

	1	2	3	4	5
1. Grades	—				
2. Total ECTS	.81***	—			
3. Interdependent Motives	-.09*	-.06	—		
4. Independent Motives	.03	.05	.29***	—	

5. Identity Incompatibility	-.16***	-.15***	-.00	-.06	—
6. Social Identity Threat	-.09*	-.11*	.12**	-.11*	.20***

Note: N = 437 - 637. *p<.05, **p<.01, ***p<.001

Table III: Factor analysis with items from all indicators of misalignment [Tableau III: Analyse factorielle avec tous les items des indicateurs de désalignement]

	1	2	3	4
<i>Identity compatibility</i>				
Working hard at university fits with my social background	0.022	-0.037	0.662	0.098
My background is compatible with someone who does well at university	-0.024	0.031	0.852	-0.038
People with my social background usually get good grades at university	-0.007	0.022	0.836	-0.054
<i>Social identity threat</i>				
I feel that I have to change myself to fit in at university	-0.721	0.039	0.077	0.043
My social background is incompatible with the new people I meet and the new things I learn here	-0.602	-0.037	-0.028	0.165
I feel out of place at university	-0.807	0.035	0.056	-0.100
My social background fits very well with the people that I meet at university	0.624	0.054	0.204	-0.008
I feel very much at home at university	0.746	0.026	-0.018	0.075
<i>Motives for attending university</i>				
I started a university education in order to...-... help out my family after I finish university	-0.067	0.055	-0.149	0.534
I started a university education in order to...-... give back to my community	0.046	0.046	0.031	0.642
I started a university education in order to...-... make my community proud	-0.002	-0.022	0.125	0.752

I started a university education in order to.... expand my knowledge of the world	0.005	0.625	-0.047	0.056
I started a university education in order to.... explore new interests	-0.014	0.797	0.004	-0.078
I started a university education in order to.... explore my potential in many domains	0.017	0.685	0.048	0.057

Note. Pattern matrix of a principal axis factor analysis with direct oblimin rotation

We used mediation models to investigate the relationships between demographic indicators of having an underrepresented sociocultural background, misalignment, and academic performance. When using university generational status and ethnicity as independent variables, both were joint predictors in the model, but not subjective income because the large number of missings on this measure would reduce the sample too much. When investigating subjective income as the independent variable, we controlled for ethnicity and university generational status. Analyses were conducted separately for each of the four indicators of misalignment. All models presented below control for gender and language used to complete the survey. For a sample of $N=491$, a two-tailed test and $\alpha=.05$, we have .8 power to detect an effect of Cohen's $f^2=.016$. We used R software version 4.3.1

Contradicting H4, there is no relation between the demographic variables and average grades (c paths; subjective income $\beta=-0.005$, 95% CI [-0.115, 0.105]; university generational status $\beta=-0.022$, 95% CI [-0.110, 0.066]; ethnicity $\beta=-0.084$, 95% CI [-0.174, 0.006] or number of credits (subjective income $\beta=-0.031$, 95% CI [-0.141, 0.079]; university generational status $\beta=0.002$, 95% CI [-0.086, 0.090]; ethnicity $\beta=-0.038$, 95% CI [-0.128, 0.052]). Despite these

non-significant total effects (or c paths), it is still useful to investigate mediation by looking at the paths through the mediator (Hayes, 2013).

Next we assessed whether belonging to an underrepresented group was related to misalignment (a paths). Ethnicity, university generational status, and subjective income were used as predictors of misalignment. Both indicators of socio-economic status showed a consistent pattern. Higher subjective income was associated with higher perceptions of identity compatibility ($\beta=0.336$, $p < .001$, 95% CI [0.434, 0.238]), and less social identity threat ($\beta=-0.162$, $p=.002$, 95% CI [-0.266, -0.058]). Similarly, first-generation students perceived less identity compatibility ($\beta = -0.262$, $p < .001$, 95% CI [-0.346, -0.178]), and more social identity threat ($\beta=0.115$, $p=.009$, 95% CI [0.029, 0.201]), compared to continuing-generation students. Although in the expected direction, neither university generational status, $\beta=0.075$, $p=.087$, 95% CI [-0.011, 0.161], nor subjective income, $\beta=-0.048$, $p=.373$, 95% CI [-0.154, 0.058], was significantly related to interdependent motives. The result for generational status was not inconsistent with a small effect, but it was inconsistent with the effect size found in US samples ($\beta=-0.17$, see Stephens, Fryberg, et al., 2012; $\beta=-0.28$, see Tibbets et al. 2018). Ethnic minority students more strongly endorsed interdependent motives ($\beta=0.225$, $p<.001$, 95% CI [0.137, 0.313], and reported higher perceived social identity threat ($\beta=0.156$, $p<.001$, 95% CI [0.068, 0.244]), compared to ethnic majority students. In sum, H1 (compatibility) was supported for parental education, H2 (interdependent motives) was supported for ethnicity, and H3 (identity threat) was supported for both underrepresented groups.

Next, each indicator of misalignment was used as predictor of academic performance in a separate model (b paths, estimated in a separate model for each indicator; a model with all indicators as joint predictors is presented in Tables S4-5 in Supplemental Material). Only identity

compatibility was related to grades ($\beta=0.153$, $p=.001$, 95% CI [0.060, 0.245]), although the relations for interdependent motives ($\beta=-0.075$, $p=.107$, 95% CI [-0.167, 0.017]), and social identity threat ($\beta=-0.068$, $p=0.148$, 95% CI [-0.160, 0.024]) were in the expected direction. Similarly, two indicators showed that misalignment was related to fewer credits: identity compatibility ($\beta=0.165$, $p<0.001$, 95% CI [0.073, 0.257]), and social identity threat ($\beta=-0.102$, $p=0.029$, 95% CI [-0.194, -0.010]); again the relation for interdependent motives was as expected but not significant ($\beta=-0.052$, $p=.271$, 95% CI [-0.144, 0.040]). Interestingly, this means that interdependent motives were not significantly related to either academic performance indicator.

Given the significant a and b paths reported in the previous paragraphs, we proceeded to estimate indirect effects (Yzerbyt et al., 2018), again in separate models for each misalignment indicator. The PROCESS method (Hayes, 2013) in R provides partially standardised effects for dichotomous independent variables (i.e., ethnicity and university generational status) and completely standardised effects for continuous variables (i.e., subjective income). In each model, we used 5000 bootstraps and added gender and survey language as control variables. Models with university generational status as the independent variable also controlled for ethnicity and vice versa, but to retain as much of our sample as possible, did not include subjective income. Analyses where subjective income is the independent variable did control for ethnicity and university generational status. Indirect effects are reported in Table IV.

In partial support for H5, there is good evidence for the role of identity compatibility for socio-economic differences in achievement. All indirect effects for first-generation status and subjective income through identity compatibility were significant. As for ethnic minority status, only the indirect effect through social identity threat was significant, but only for the number of credits. In sum, many of the expected indirect effects were not significant.

Table IV: Indirect effects of underrepresented group membership, through misalignment, on academic performance [Tableau IV: Effets indirects de l'appartenance aux groupes sous-représentés, par le désalignement, sur la performance]

	Academic performance indicator	
	Average grade	Number of ECTS
<i>Ethnic minority status (Dutch or White/Caucasian, n=443 vs. others, n=71)</i>		
Identity compatibility	-0.041 [-0.104, 0.0003]	-0.043 [-0.101, 0.001]
Interdependent motives	-0.051 [-0.13, 0.019]	-0.035 [-0.114, 0.039]
Social Identity Threat	-0.032 [-0.093, 0.011]	-0.048 [-0.116, -0.002]
<i>First generation status (first-generation, n=114 vs. continuing-generation, n=396)</i>		
Identity compatibility	0.100 [0.038, 0.169]	0.104 [0.04, 0.179]
Interdependent motives	0.013 [-0.007, 0.044]	0.009 [-0.011, 0.039]
Social Identity Threat	0.019 [-0.007, 0.054]	0.028 [0.001, 0.071]
<i>Subjective income</i>		
Identity compatibility	0.057 [0.023, 0.099]	0.056 [0.021, 0.099]
Interdependent motives	0.002 [-0.007, 0.013]	0.001 [-0.009, 0.01]
Social Identity Threat	0.001 [-0.023, 0.022]	0.004 [-0.016, 0.024]

Note: Bolded indirect effects are those for whom both the a and b paths were statistically significant.

Discussion

To our surprise, we found only a very small and statistically non-significant relation between belonging to an underrepresented group at university and academic performance. For

generational status, this is consistent with other research in the Netherlands in which no relation was found (Waldring et al., 2020). This finding questions how universal the relation between students' socio-cultural background and academic performance is. There may be specific contextual factors that account for this, at either the local or national level. For example, in the institution where our sample was collected, this might stem from the existence of collaborative learning communities in the first year (Markle & Stelzriede, 2020). However, further research will need to clarify this. The fact that we only recruited students from humanities and social sciences is unlikely to be the reason for this non-significant relation given that a Belgian study (Veldman et al., 2019) did show generational status achievement gaps in six faculties, including medium-sized effects in social sciences and humanities (Veldman, personal communication).

Although the overall relation between socio-cultural background and academic performance was not significant, we did find indirect effects through misalignment that were consistent with research on cultural congruity and social identity incompatibility. The most robust indirect effect on academic performance was the one for socio-economic status through identity compatibility on performance. Being a first-generation student and having low subjective income were both related to less identity compatibility and less identity compatibility in turn was related to worse performance. This is consistent with previous research on first-generation students (Frings, et al., 2020; Matschke, et al., 2022; Veldman, et al., 2019). Given the weak relation between interdependent motives and performance, no indirect effects involving interdependent motives were found.

There were also other interesting results regarding misalignment. Students with lower socio-economic status (first-generation status and lower subjective income) experienced more identity incompatibility and more social identity threat (see also Matschke, et al., 2022; Veldman,

et al., 2019). Clearly, low socio-economic status is related to perceptions of misalignment at university. This is consistent with other research (Easterbrook, et al., 2022), but our results add to previous research in two ways. First, while most research has looked at university generation status, we find that subjective income plays a similar role. Second, the misalignment of first-generation students was unrelated to independent versus interdependent values. Indeed, our results for interdependent motives to attend university were not as expected based on the literature. Interdependent motives were not related to performance, and not related to students' socio-economic background. The relation between generational status and interdependent motives was in the expected direction and marginally significant, but the effect size was inconsistent with cultural mismatch research carried out in the US (Stephens, Fryberg, et al., 2012; Tibbetts, et al., 2018). This may be due to a difference in salience between first-generation student status and ethnic minority status in the Dutch context; first-generation students may not experience the same level of cultural incongruity, as their cultural backgrounds may not be as distinct from the values emphasised by the university as in other contexts. One relevant limitation of our study is that we did not measure institutionally endorsed values, and therefore we arguably did not fully capture student-institution misfit in alignment with Stephens et al.'s (2012) seminal study on cultural mismatch. However, the institution where we sampled students from is a high-status research-focused academic institution, not a more vocationally oriented institution where mismatch effects have been shown to be absent (Tibbetts, et al., 2018).

Ethnicity was the only demographic variable associated with endorsement of interdependent motives, which is in line with previous findings from cultural mismatch research (Vasquez-Salgado, et al., 2021). Similar to first-generation students, ethnic minority students also experienced increased social identity threat and lower identity compatibility compared to ethnic

majority students. This suggests similar experiences of misalignment for both groups, and it confirms the value of a more integrative study of how different groups of students perceive misalignment.

In conclusion, both ethnic minority students and students from a disadvantaged socio-economic background experience misalignment at a Dutch university. However, for those with a disadvantaged socio-economic background this was related to a wider range of misalignment indicators. Specifically, identity incompatibility played an important role and showed the strongest and most robust indirect effects, linking a disadvantaged socio-economic background to academic performance.

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