The impact of Perceived Dissimilarity and Self-Esteem on Perceived Academic Performance

through a Sense of Belonging

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Abstract

Perceived academic performance regarding how well one perceives to be doing academically has not been a traditional focus of interest in the academic settings. In this study, we wanted to investigate, which factors may contribute perceived academic performance. Specifically, whether deep-level dissimilarity has a more negative impact on perceived academic performance than surface-level dissimilarity (H1), whether high self-esteem has a positive impact on perceived academic performance (H2), whether sense of belonging positively mediates the relationship between perceived dissimilarity and perceived academic performance (H3), whether sense of belonging positively mediates the relationship between self-esteem and perceived academic performance (H4) and whether institutional commitment to diversity positively moderates the relationship between sense of belonging and perceived academic performance (H5). We conducted an online questionnaire including statements on a 5-point Likert-scale. The sample consisted of 128 bachelor psychology students at the University of Groningen. Our findings fully supported Hypothesis 2 and 4, suggesting that students' self-esteem has important implications on their perceived academic performance – both directly and through their sense of belonging.

Keywords: perceived academic performance, perceived dissimilarity, deep-level dissimilarity, surface-level dissimilarity, self-esteem, sense of belonging, institutional commitment to diversity

The impact of Perceived Dissimilarity and Self-Esteem on Perceived Academic Performance through a Sense of Belonging

Performing well has been considered widely important in various contexts throughout one's life, such as at a workplace and educational settings. In the academic context, good performance can be seen as objective outcomes, referring to achievements that can be observed by others, such as one's grades (Lane & Gibbons, 2007). On the contrary, performance based on subjective outcomes focuses on individual's perceptions regarding how well they think they are doing academically. Both types of academic performance (objective and subjective) may be dependent on how students perceive themselves in relation to their peers. Namely, three factors have been suggested to contribute to students' academic performance. First, perceived dissimilarity, referring to subjectively experienced differences to others, has been negatively associated with subsequent academic and work behaviors, such as quitting one's study or job (Lane & Gibbons, 2007; Sahin et al., 2019). In comparison to perceived dissimilarity, actual dissimilarity to others in terms of objectively noticeable differences has been found to be correlated with one's performance outcomes to a weaker extent (Hobman et al., 2004). Second, self-esteem, referring to one's perception of their overall worth, has been positively associated with academic performance (Li et al., 2018). For instance, students with high self-esteem have been found to invest more effort in their studies if they think that their wished academic outcomes are attainable for them (Li et al., 2018). Thus, one's self-esteem can function as a motivator to reach a higher level of academic performance. Third, sense of belonging, referring to a need to stay connected to other people, has been positively related to students' academic performance (Glass & Westmont, 2014). For example, students with high sense of belonging have been found to get better exam results

and be more likely to attend to school classes compared to students with low sense of belonging

(Schachner et al., 2019).

Performing well may not be dependent only on individual's abilities to reach successful

outcomes, but also their institutions' efforts to facilitate this process. Specifically, institutional

commitment to diversity in terms of attitudes and behaviors that value diversity, has been found to be

positively related to one's sense of belonging and performance outcomes (Brannon & Lin, 2021). In the

work context, this might be seen in terms of practices that do not favor certain employees unfairly over

others and in considering individual differences as an asset rather than a complication to the company

(Sahin et al., 2019).

In this research, our goal is to examine different factors that contribute to students' perceived

academic performance at a university. Specifically, we will investigate, whether students' high

perceived dissimilarity (IV) will reduce their perceived academic performance (DV), and whether their

high self-esteem (IV) will improve their perceived academic performance. Next, we will examine,

whether these relationships are positively mediated by sense of belonging. Finally, we will investigate,

whether the relationship between students' sense of belonging and perceived academic performance is

positively moderated by institutional commitment. Our research question is "How does students'

perceived dissimilarity and self-esteem influence their perceived academic performance through a

sense of belonging?"

Literature review

Perceived Dissimilarity and Perceived Academic Performance

Perceived dissimilarity to others can be distinguished as surface- and deep-level dissimilarity. Surface-level dissimilarity refers to characteristics that are relatively noticeable by others, such as one's physical appearance, whereas deep-level dissimilarity refers to characteristics that underlie these surface-level characteristics in terms of less noticeable attributes, such as one's values (Sahin et al., 2019). Both types of dissimilarity have been anchored in self-categorization and social identification processes, in which one defines themselves as part of the same (in-group) or a different social group (out-group) based on the perceived degree of similarity to others (Hobman et al., 2004). These processes occur without cognitive effort and have further been associated with group-specific biases in terms of perceiving the out-group in more negative terms compared to the in-group. In practice this might be seen as others being less reliable and less willing to work together (Hobman et al., 2004). Even though perceived surface-level and deep-level dissimilarity may operate the same way (through self-categorization and social identification processes), their impact on one's performance has been debated. On one hand, both perceived surface-level and deep-level dissimilarity have been negatively associated with one's work outcomes in terms of commitment, helping others and quitting one's job (Sahin et al., 2019). On the other hand, surface-level dissimilarity in the work context has also been positively associated with one's work outcomes in terms of willingness to commit to their career (Sahin et al., 2019). This may be due to an increased tendency to shift one's focus from the surface-level dissimilarity to the work at hand. This inconsistency was not found for the relationship between deep-level dissimilarity and performance outcomes. Therefore, we expect deep-level dissimilarity to have a more negative impact on one's perceived academic performance over surface-level dissimilarity.

Hypothesis 1. High perceived deep-level dissimilarity has a stronger negative effect on perceived academic performance than high perceived surface-level dissimilarity.

Self-Esteem and Perceived Academic Performance

High self-esteem has been positively linked to academic performance (Li et al., 2018). Specifically, compared to students with low self-esteem, students with high self-esteem are suggested to be more likely to keep putting effort in their performance in failure situations (e.g. failing an exam; Li et al., 2018). Therefore, students with high self-esteem have been suggested to be less prone to give up in situations, in which goal-attainment seems difficult. Consequently, these attitudes and behaviors have been associated with higher grades and thus, higher academic performance (Li et al., 2018). In contrast to this positive relation between high self-esteem and academic performance, low self-esteem has been negatively associated with academic performance (Schwinger et al., 2021). Specifically, students with low self-esteem have been suggested to be more likely to engage in academic self-handicapping, referring to behaviors that hamper their academic performance (Fairlamb, 2020). Examples of academic self-handicapping include using little time or effort on studying, which can occur when one expects to perform poorly. For example, in a study by Fairlamb (2020), students with high self-esteem were found to invest more effort in practicing for a difficult exam over an easy one, whereas students with low self-esteem did the opposite. This suggests that when students with low self-esteem would doubt their abilities to pass an exam, they were more likely to engage in academic self-handicapping. Based on these findings, we expect that high self-esteem has a positive effect on perceived academic performance.

Hypothesis 2. High self-esteem has a positive effect on perceived academic performance.

Sense of Belonging as a mediator between Perceived Dissimilarity and Perceived Academic Performance

High perceived dissimilarity has been negatively associated with sense of belonging (Hobman et al., 2004). Specifically, when people perceive themselves as highly dissimilar to others at a workplace, they are less likely to be included in different work-related interactions that elicit sense of belonging, such as exchanging information or being part of a decision-making process (Hobman et al., 2004). This negative relation between perceived dissimilarity and sense of belonging has been explained by an in-group bias toward people with high perceived similarity (Sahin et al., 2019). That is, highly dissimilarly perceived individuals are often associated with more negative traits compared to those who are perceived as highly similar (e.g. share similar attributes). Consequently, this in-group bias toward similarity is suggested to lead similarly perceived people to discriminate the dissimilarly perceived ones, leading them to feel a lower sense of belonging (Sahin et al., 2019). Furthermore, high sense of belonging has been positively associated with work performance (Chen & Tang, 2018). For example, when employees perceive that that they are recognized for their abilities at their workplace and have positive relationships with other co-workers, they are more likely to perform well at their work team. According to Sahin et al. (2019), sense of belonging has not only been found to positively relate to work performance, but also to alter the negative relation between perceived dissimilarity and work performance. Specifically, the negative relation between perceived dissimilarity and work performance has been found to be weaker when one would experience high sense of belonging at their workplace (Sahin et al., 2019). Similarly, we expect to find a positive mediation between perceived dissimilarity and perceived academic performance.

Hypothesis 3. Sense of belonging positively mediates the relationship between perceived dissimilarity and perceived academic performance.

Sense of Belonging as a mediator between Self-Esteem and Perceived Academic Performance

High self-esteem has been positively associated with sense of belonging (Hamilton & DeHart, 2017). Specifically, compared to people with low self-esteem, people with high self-esteem have been found to be less vulnerable to a plausible rejection by others and to have less concerns regarding sense of belonging. Namely, people with high self-esteem have been found to be able to ignore their belonging-related insecurities by trusting that others accept them as they are, whereas people with low self-esteem have been found to be able to do this to a lesser extent, leading them to have a lower sense of belonging (Hamilton & DeHart, 2017). In the academic context, the positive relation between high self-esteem and sense of belonging can be seen as a better ability to connect with others. That is, compared to students with low self-esteem, students with high self-esteem are suggested to have more self-confidence, which is associated with better capability to communicate effectively with others (Phan & Ngu, 2018). Furthermore, high sense of belonging has been positively associated with academic performance (Phan & Ngu, 2018). For example, when students experience that they belong to their academic environment by having meaningful relationships with others at school, they are more likely to be able to deal effectively with school-related challenges. That is, with high sense of belonging, students are likely to feel comfortable to seek and receive help from others to academic-related issues. According to Phan & Ngu (2018), sense of belonging has not only been found to positively relate to academic performance, but to also mediate the positive relation between self-esteem and academic performance. Similarly, we expect to find a positive mediation between self-esteem and perceived academic performance.

Hypothesis 4. Sense of belonging positively mediates the relationship between self-esteem and perceived academic performance.

Institutional Commitment to Diversity as a moderator between Sense of Belonging and Perceived Academic Performance

Institutional commitment to diversity (attitudes and behaviors that value diversity) has been positively associated with sense of belonging (Schachner et al., 2019). In the academic context, when students know that the values they hold are also considered important by the university, they are more likely to feel belonging to the university environment. For example, multicultural education (e.g. becoming more aware of different minority groups and their history) and experiencing that problems related to prejudice are being taken seriously, have been positively associated with students' sense of belonging (Schachner et al., 2019). Furthermore, institutional commitment to diversity has been present in various work contexts. Specifically, when employees experience that their organization is being transparent in how they are treating others (e.g. valuing everyone regardless their background), they are likely to engage in positive work behaviors (Kim et al., 2016). For example, employees are more likely to try actively find new ways to enhance their work performance, when they experience that their organization is committed to value diversity. Moreover, sense of belonging has been positively associated with an outcome performance when institutional commitment to diversity has been present (Kim et al., 2016). Specifically, the stronger the impact of institutional commitment to diversity has been experienced, the stronger the relation between sense of belonging and work performance has been. Similarly, we expect to institutional commitment to diversity to moderate the relationship between sense of belonging and perceived academic performance.

Hypothesis 5. Institutional commitment to diversity positively moderates the relationship between sense of belonging and perceived academic performance.
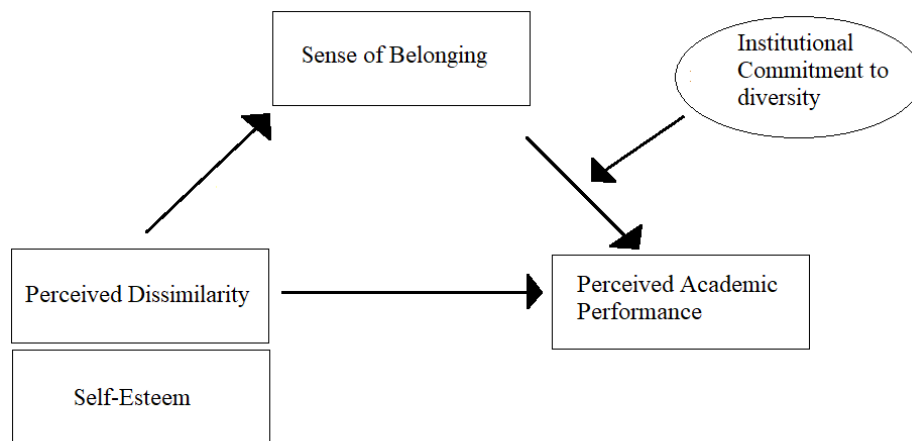

Figure 1: *Conceptual model of the hypothesized relationship between all relevant variables*

Method

Participants

In the final data, in total 128 participants (104 females, 23 males, 1 who prefers not to say) took part in this study *(M*age = 20.05, *SD* = 2.03). 84 of the participants were Dutch, 24 German and 20 others. The selection criteria was to be currently enrolled in the bachelor psychology program in the University of Groningen and of age 16 or older. 79 participants were enrolled in the Dutch track and 49 participants in the English track. There were 93 first year students, 20 second year students and 14 third or final year students.

Procedure

We obtained ethical approval for this research from the Ethical Committee of Psychology of the University of Groningen. Participants were recruited both through the technique of snowballing through researchers' social networks and through the SONA system - an online platform that grants compensation in the form of a course credit for first year students. Before completing the online questionnaire, participants indicated in an informed consent that they understood the purpose of the study and would take part voluntarily in it. Filling in the questionnaire took approximately five minutes.

Design

In this study, the relationship between perceived dissimilarity (PD) and perceived academic performance (PAP) was measured. Perceived dissimilarity included both surface-level (SPD) and deep-level (DPD) constructs. Additionally, I assessed self-esteem. Sense of belonging (SoB) was included as a mediating construct in the relation between PD and PAP, and in the relation between SE and PAP. Institutional commitment to diversity (IctD) was included as a moderating construct on the relation between SoB and PAP.

Measures

Perceived Dissimilarity

We assessed participants' surface-level and deep-level perceived dissimilarity with items adapted from Sahin et al (2019). To assess perceived ***surface-level dissimilarity,*** participants were asked to indicate to what extent they agreed with the statement "In terms of visible characteristics (e.g. appearance, gender, nationality), I am different than most students in the psychology program" on a 5-

point Likert scale ranging from definitely not (1) to definitely yes (5). To assess perceived ***deep-level***

dissimilarity participants were asked to indicate to what extent they agreed with the statement "In terms

of invisible characteristics I am different than most others in the psychology program" on a 5-point

Likert scale ranging from definitely not (1) to definitely yes (5). An example item is "In terms of

principles that guide my work in the psychology program, I am different than most others in the

psychology program." ($r = .50, p < .001$)

Self-Esteem

We assessed participants' self-esteem with 2 items adapted from Whitesell et al (2009). To

assess ***self-esteem,*** participants were asked to indicate to what extent they agreed with the statements

on a 5-point Likert scale ranging from definitely false (1) to definitely true (5). An example item is "I

feel that I have many good qualities." ($r = .57, p < .001$)

Perceived Academic Performance

We assessed participants' perceived academic performance with 4 items adapted from Ching-

Ter Chang et al (2019). To assess ***perceived academic performance,*** participants were asked to indicate

to what extent they agreed with the statements on a 5-point Likert scale ranging from definitely false

(1) to definitely true (5). An example item is "I do well at the university." *(*$\alpha = .86$)

Sense of Belonging

We assessed participants' sense of belonging with 5 items adapted from Williams et al (2020).

To assess ***sense of belonging,*** participants were asked to indicate to what extent they agreed with the

statements on a 5-point Likert scale ranging from definitely false (1) to definitely true (5). An example

item is "I feel safe being part of the psychology program." ($\alpha = .74$)

Institutional Commitment to Diversity

We assessed participants' institutional commitment to diversity with 5 items adapted from

Skorupski et al (2013). To assess *institutional commitment to diversity,* participants were asked to

indicate to what extent they agreed with the statements on a 5-point Likert scale ranging from strongly

disagree (1) to strongly agree (5). An example item is "My faculty peers are receptive to diversity

issues." ($\alpha = .74$)

Results

Analysis Plan

For Hypothesis 1 we planned to conduct a multiple linear regression analysis. For Hypothesis 2

we planned to conduct a simple linear regression analysis. For Hypothesis 3 we planned to conduct a

correlation analysis between PD, SoB and PAP. If all the correlations would be significant, we would

conduct a mediation analysis with SPSS PROCESS. For Hypothesis 4 we planned to conduct a

correlation analysis between SE, SoB and PAP. If all the correlations would be significant, we would

conduct a mediation analysis with SPSS PROCESS. For Hypothesis 5 we planned to conduct a

moderation analysis.

Assumption Checks

For our analyses, several assumptions had to be met. These assumptions were the absence of

strong multicollinearity, normality, linearity, homoscedasticity, uncorrelatedness of residuals and

independence of observations (see Appendix). For the absence of strong multicollinearity, the variance

inflation factor (VIF) was applied (highest VIF = 1.20; see table 6). For normality, the P-P-plot was

applied (see figure 2). For linearity and homoscedasticity, the scatterplot of standardized residuals and

standardized predictive values was applied (see figure 3). For uncorrelatedness of residuals, the

Durbin-Watson scale was applied (value = 2.08). Furthermore, in Casewise Diagnostics, case number

95 was detected as an outlier. However, we did not remove it as it did not significantly change our

findings. All our remaining assumptions were met.

Preliminary data

Tables 1 provides an overview of the means, standard deviations and correlation of all study

variables. Participants expressed relatively high levels of sense of belonging ($M = 3.96$, $SD = .56$),

perceived dissimilarity ($M = 2.60$, $SD = .78$), perceived academic performance ($M = 3.68$, $SD = .82$),

institutional commitment to diversity ($M = 3.66$, $SD = .58$) and self-esteem ($M = 3.91$, $SD = .82$). The

variable age was included as well, however as it was not correlated with the variables of interest, we

ran the analyses without age (see table 1).

Table 1

Descriptive Statistics and Correlations of all variables of interest

Variables	n	M	SD	1	2	3	4	5
1 PD	128	2.60	.78	-				
2 SE	128	3.91	.82	-.03	-			
3 SoB	127	3.96	.56	-.20*	.24**	-		
4 PAP	125	3.68	.82	-.03	.54**	.33**	-	
5 IctD	124	3.66	.58	-.02	.20*	.34**	.32**	-
6 Age	128	20.05	2.03	.20*	.04	-.08	.04	.02

Note. * Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Perceived Deep-Level Dissimilarity and Perceived Academic performance

We conducted a multiple linear regression analysis to investigate, whether high perceived deep-

level dissimilarity would have a stronger negative effect on perceived academic performance than

perceived surface-level dissimilarity (H1). As shown in the table 2 (see Appendix), the model did not

significantly predict perceived academic performance ($R^2 = .01$ $F(2, 122) = .88$, $p = .42$). Thus, our first

hypothesis (H1) was not supported.

Self-Esteem and Perceived Academic Performance

We conducted a simple linear regression analysis to investigate, whether high self-esteem has a

negative effect on perceived academic performance (H2). As shown in the table 3 (see Appendix), high

self-esteem was found to significantly predict perceived academic performance ($R^2 = .29$, $F(1, 123) =$

49.70, $p < .001$). Thus, our second hypothesis (H2) was supported.

Sense of Belonging as a mediator between Perceived Dissimilarity and Perceived Academic Performance

We planned to conduct a mediation analysis with SPSS PROCESS to investigate, whether a

sense of belonging positively mediates the relationship between perceived dissimilarity and perceived

academic performance (H3). As shown in the table 1, we did not find a significant correlation between

perceived dissimilarity and sense of belonging (r (123) = -.20, $p = .02$), nor between perceived

dissimilarity and perceived academic performance (r (123) = -.08, $p = .39$). However, we did find a

significant correlation between sense of belonging and perceived academic performance (r (123) = .35,

$p < .001$). Since not all of the above-mentioned relationships were significantly correlated, we could

not further conduct a mediation analysis. Thus, our third hypothesis (H3) was not supported.

Sense of Belonging as a mediator between Self-Esteem and Perceived Academic Performance

We planned to conduct a mediation analysis with SPSS PROCESS to investigate, whether a

sense of belonging positively mediates the relationship between self-esteem and perceived academic

performance (H4). As shown in the table 1, we found a significant correlation between self-esteem and sense of belonging (r (123) = .24, p = .01), between self-esteem and perceived academic performance (r (123) = .61, p < .001) and between sense of belonging and perceived academic performance (r (123) = .35, p < .001). Since all of the above-mentioned relationships were positively correlated, we could further conduct a mediation analysis. As shown in the table 4 (see Appendix), the relationship between self-esteem and perceived academic performance, was significant (b = .31, t(123) = 2.73, p = .01), between self-esteem and sense of belonging was found significant (b = .16, t(123) = 2.74, p .01). The relationship between sense of belonging and perceived academic performance, when controlling for deep-level self-esteem was found significant (b = .48, t(123) = 6.35, p < .00). Furthermore, 33% of the variance in PAP was accounted for by the predictors (R^2 = .33). The indirect effect was tested using a percentile bootstrap estimation approach with 5000 samples implemented with the PROCESS macro Version 4. These results indicated the indirect coefficient was significant, B = .05, SE = .03, 95%CI[.01,.11], Completely standardized β = .05. SE was associated with PAP scores that were approximately .33 points higher as mediated by SoB. Thus, our fourth hypothesis (H4) was supported.

Institutional Commitment to Diversity as a moderator between Sense of Belonging and Perceived Academic Performance

We conducted a moderation analysis to investigate, whether institutional commitment to diversity positively moderates the relationship between sense of belonging and perceived academic performance (H5). As shown in the table 3 (see Appendix), we found a negative interaction effect instead of a positive one (b = .-42, t(119) = -2.08, p = .04), with small effect size (d = -.17) Thus, our fifth hypothesis (H5) was partly supported.

Discussion

The aim of this study was to gain a better understanding of the impact of students' perceived dissimilarity and self-esteem on their perceived academic performance through a sense of belonging. Perceived deep-level dissimilarity has been associated with negative work outcomes (e.g. quitting a job), while surface-level dissimilarity has also been associated with positive work outcomes (e.g. increased work commitment; Sahin et al., 2019). Thus, we hypothesized that deep-level dissimilarity has a stronger negative impact on perceived academic performance than surface-level dissimilarity (H1). In contrast, while deep-level dissimilarity has been associated with negative performance outcome, high self-esteem has been associated with positive performance outcome, for example by not being as likely to give up in difficult situations compared to people with low self-esteem (Li et al., 2018). Thus, we hypothesized that high self-esteem has a positive effect on perceived academic performance (H2). Furthermore, feeling connected to others through a sense of belonging (e.g. having meaningful relationships with others at school) has been positively associated with academic performance. (Phan & Ngu, 2018). Relatedly, employees with high sense of belonging have been found to have a weaker negative relation between perceived dissimilarity and work performance (Sahin et al., 2019). Thus, we hypothesized that sense of belonging positively mediates the relationship between perceived dissimilarity and perceived academic performance (H3). High self-esteem has also been found to improve perceived academic performance through sense of belonging (Phan & Ngu, 2018). Thus, we hypothesized that sense of belonging positively mediates the relationship between self-esteem and perceived academic performance (H4). Lastly, institutional commitment to diversity (e.g. through policies that consider individual differences valuable) has been positively associated with sense of belonging and work performance (Sahin et al., 2019). Furthermore, employees' sense of belonging has been positively associated with their work performance when they have experienced high institutional

commitment to diversity to be present (Kim et al., 2016). Thus, we hypothesized that institutional commitment to diversity positively moderates the relationship between sense of belonging and perceived academic performance (H5).

The results we gathered from our study did not indicate support for our Hypothesis 1. Namely, neither perceived surface- nor deep-level dissimilarity was found to significantly predict perceived academic performance, suggesting that neither type of subjective dissimilarity based on appearance nor values do have a negative influence on perceived academic performance. This may be explained by previous literature on gender dissimilarity, which suggests that dissimilarity to others may have stronger negative impact on men than women (Jansen et al., 2017). Relatedly, the gender distribution in our study was highly uneven toward women (104 females, 23 males), which may have reduced the impact of perceived dissimilarity on perceived academic performance.

The results indicated support for our Hypothesis 2. Namely, self-esteem was found to significantly predict perceived academic performance, suggesting that positive self-perceptions have a positive influence on perceived academic performance. This finding is in line with the previous literature on self-esteem, demonstrating that students with high self-esteem (compared to low self-esteem) are likely to invest more effort on their studies if they believe that this helps them to perform well academically (Li et al., 2018).

The results did not indicate support for our Hypothesis 3. Namely, perceived dissimilarity was not found significantly correlated neither with sense of belonging, nor with perceived academic performance. Thus, we were unable to conduct a mediation analysis. Furthermore, our findings suggest that neither surface- or deep-level dissimilarity (H1), nor both of them combined (H3) are negatively related to perceived academic performance. These findings may be explained by potential variability of

interpretations regarding perceived dissimilarity as a construct. Namely, we did not ask the participants to indicate at any point of the questionnaire how they would define perceived dissimilarity. As such, the meaning of this construct may have been open for interpretation and correspondingly, influence participants' responds on the items related to it.

The results indicated support for our Hypothesis 4. Namely, we found sense of belonging to positively mediate the relation between self-esteem and perceived academic performance. This finding is in line with the previous literature by Phan and Ngu (2018), suggesting that positive self-perceptions are positively associated with one's connection to their academic environment. Consequently, this relation between self-esteem and sense of belonging is further positively related to their academic-related behaviors.

Lastly, the results indicated partial support for our Hypothesis 5. Namely, we found institutional commitment to diversity to moderate the relationship between sense of belonging and perceived academic performance. However, this moderation was found to be negative, whereas we expected it to be positive. Thus, the higher the institutional commitment to diversity, the more negative the relation between sense of belonging and perceived academic performance. This finding may be explained by the literature focusing on the link between experienced discrimination and institutional commitment to diversity in the context of sense of belonging and academic performance (Brannon & Lin, 2021). Specifically, students' experiences on policies that value diversity are often studied among those who experience discrimination based on their ethnicity. Relatedly, it may be that including participants' ethnicity in our moderation analysis could have yield a positive moderation effect.

Limitations and Future Directions

There are at least three potential limitations regarding the results of this study. A first limitation concerns an unanticipated obstacle that emerged during our research process. Namely, as stated earlier, the gender distribution was found highly uneven toward women (104 females, 23 males), which may have reduced the impact of perceived dissimilarity on perceived academic performance. Future research may consider to investigate, whether high perceived dissimilarity has a negative impact on perceived academic performance, when there is an equal amount of both genders present.

Our second limitation considers our overall research design. Namely, perceived dissimilarity has been studied to a larger extent in the work settings (e.g. Sahin et al., 2019), rather than in academic settings, which our study is focused on. Thus, it may be that the negative impact of perceived dissimilarity on performance outcome is more likely to occur in the work environment over other types of contexts. Future research may consider to investigate, whether high perceived dissimilarity has a negative impact on perceived academic performance, when there is a control condition present for work performance as an outcome variable.

Our third limitation considers a specific methodological choice in our study. Namely, we did not ask the participants to indicate at any point of the questionnaire how they would define perceived dissimilarity. As such, the meaning of this construct may have been open for interpretation and correspondingly, influence participants' responds on the items related to it. Future research may consider to investigate, whether high perceived dissimilarity has a negative impact on academic performance, when participants are explicitly asked to indicate in the beginning of the study how they would define perceived dissimilarity.

Theoretical and Practical Implications

Our study has important theoretical and practical implications. Considering the theoretical

implications, our study provides new evidence on the subjective facet of academic performance.

Namely, in the academic settings, objective outcomes (e.g. grades) are commonly the subject of interest

(Lane & Gibbons, 2007). However, subjective outcomes (how well one perceives themselves to be

performing academically) has not been that extensively studied. Our findings demonstrate that

perceptual factors, such as self-esteem and sense of belonging contribute to perceived academic

performance. These findings are in line with the research on objective academic performance (Phan &

Ngu, 2018). Furthermore, our findings on perceived dissimilarity did not contribute to perceived

academic performance. Specifically, perceived dissimilarity remains as a complex construct, which is a

subject to various interpretations. That is, even though it is generally understood in terms of surface-

and deep-level characteristics, these definitions may overlap. For example, one's sexuality (e.g. being

bisexual) can be perceived as both surface- and deep-level dissimilarity (Sahin et al., 2019). Thus, it

may be due to this lack of clear conceptualization regarding perceived dissimilarity that yield us non-

significant results in relation to sense of belonging and perceived academic performance. Furthermore,

institutional commitment to diversity may include the same problem as perceived dissimilarity

regarding conceptualization. Specifically, as institutional commitment to diversity can be understood as

various ways regarding how one approaches diversity-related matters (Brannon & Lin, 2021), it may be

more challenging to study its impact on perceived academic performance.

Considering the practical implications, it may be beneficial to focus on improving methods

that improve students' self-esteem, which may further improve their perceived academic performance.

Namely, as low self-esteem is associated with academic self-handicapping (e.g. procrastination;

Fairlamb 2020), high self-esteem is associated with positive academic performance (e.g. not giving up easily on a difficult situation; Li et al., 2018). Thus, through positive experiences at school, such as taking students' opinions into consideration in decision-making and encouraging them to sharing over competition with each other, one's self-esteem is likely to improve (Humphrey, 2004). Consequently, these positive experiences at school are likely to improve one sense of belonging and furthermore, perceived academic performance (Phan & Ngu, 2018).

Conclusion

Good performance in various contexts is commonly considered as an important goal to aim for. For many this may be increasingly challenging, as they may perceive themselves different from others. While this may not directly influence one's performance outcome, it is nonetheless likely to be negatively related to their mental well-being. Other aspects related to one's subjective well-being however, such as feeling positive about oneself and their relationships to others are likely to contribute their performance outcome. Furthermore, institutions, such as universities may be able to promote students' well-being in terms of making people feel more included in their academic environment.

References

Brannon, T. N., & Lin, A. (2021). "Pride and prejudice" pathways to belonging: Implications for

inclusive diversity practices within mainstream institutions. *The American Psychologist*, *76*(3),

488–501. doi: 10.1037/amp0000643

Chang, C.-T., Tu, C.-S., & Hajiyev, J. (2019). Integrating academic type of social media activity with

perceived academic performance: A role of task-related and non-task-related compulsive

Internet use. *Computers & Education*, *139*, 157–172. https://doi-org.proxy-

ub.rug.nl/10.1016/j.compedu.2019.05.011

Chen, C., & Tang, N. (2018). Does perceived inclusion matter in the workplace? *Journal of*

Managerial Psychology, *33*(1), 43–57. https://doi-org.proxy-ub.rug.nl/10.1108/JMP-02-2017-

0078

Cheryan, S., Plaut, V. C., Davies, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical

cues impact gender participation in computer science. *Journal of Personality and Social*

Psychology, *97*(6), 1045–1060. https://doi-org.proxy-ub.rug.nl/10.1037/a0016239

Fairlamb, S. (2020). We need to talk about self-esteem: The effect of contingent self-worth on student

achievement and well-being. *Scholarship of Teaching and Learning in Psychology*. https://doi-

org.proxy-ub.rug.nl/10.1037/stl0000205

Glass, C. R., & Westmont, C. M. (2014). Comparative effects of belongingness on the academic

success and cross-cultural interactions of domestic and international students. *International*

Journal of Intercultural Relations, 38, 106–119. https://doi-org.proxy-

ub.rug.nl/10.1016/j.ijintrel.2013.04.004

Hamilton, H. R., & DeHart, T. (2017). Drinking to belong: The effect of a friendship threat and self-esteem on college student drinking. *Self and Identity*, *16*(1), 1–15. https://doi-org.proxy-ub.rug.nl/10.1080/15298868.2016.1210539

Hobman, E. V., Bordia, P., & Gallois, C. (2004). Perceived dissimilarity and work group involvement: The moderating effects of group openness to diversity. *Group & Organization Management, 29*(5), 560–587. https://doi-org.proxy-ub.rug.nl/10.1177/1059601103254269

Humphrey, N. (2004). The Death of the Feel-Good Factor? Self-Esteem in the Educational Context. *School Psychology International*, *25*(3), 347–360. https://doi-org.proxy-ub.rug.nl/10.1177/0143034304046906

Jansen, W. S., Otten, S., van der Zee, K. I., & Jans, L. (2014). Inclusion: Conceptualization and measurement. *European Journal of Social Psychology*, *44*(4), 370–385. https://doi-org.proxy-ub.rug.nl/10.1002/ejsp.2011

Jansen, W. S., Otten, S., & van der Zee, K. I. (2017). Being different at work: How gender dissimilarity relates to social inclusion and absenteeism. *Group Processes & Intergroup Relations*, *20*(6), 879–893. https://doi-org.proxy-ub.rug.nl/10.1177/1368430215625783

Kim, K. Y., Eisenberger, R., & Baik, K. (2016). Perceived organizational support and affective organizational commitment: Moderating influence of perceived organizational competence. *Journal of Organizational Behavior*, *37*(4), 558–583. https://doi-org.proxy-ub.rug.nl/10.1002/job.2081

Lane, D. J., & Gibbons, F. X. (2007). Am I the typical student? Perceived similarity to student

   prototypes predicts success. *Personality and Social Psychology Bulletin, 33*(10), 1380–1391.

   https://doi-org.proxy-ub.rug.nl/10.1177/0146167207304789

Li, J., Han, X., Wang, W., Sun, G., & Cheng, Z. (2018). How social support influences university

   students' academic achievement and emotional exhaustion: The mediating role of self-

   esteem. *Learning and Individual Differences, 61*, 120–126. https://doi-org.proxy-

   ub.rug.nl/10.1016/j.lindif.2017.11.016

Ng, J., Skorupski, W., Frey, B., & Wolf-Wendel, L. (2013). ACES: The Development of a Reliable and

   Valid Instrument to Assess Faculty Support of Diversity Goals in the United States. *Research

   and Practice in Assessment, 8*(2), 29–41.

Phan, H. P., & Ngu, B. H. (2018). An examination of social and psychological influences on academic

   learning: A focus on self-esteem, social relationships, and personal interest. *Social Psychology

   of Education: An International Journal*, *21*(1), 51–73. https://doi-org.proxy-

   ub.rug.nl/10.1007/s11218-   017-9407-9

Sahin, O., van der Toorn, J., Jansen, W.S., Boezeman, E.J., & Ellemers, N. (2019) Looking Beyond

   Our Similarities: How Perceived (In)Visible Dissimilarity Relates to Feelings of Inclusion at

   Work. *Frontiers in Psychology, 10*(575). doi: 10.3389/fpsyg.2019.00575

Schwinger, M., Trautner, M., Pütz, N., Fabianek, S., Lemmer, G., Lauermann, F., & Wirthwein, L.

   (2021). Why do students use strategies that hurt their chances of academic success? A meta-

   analysis of antecedents of academic self-handicapping. *Journal of Educational Psychology*.

   https://doi-org.proxy-ub.rug.nl/10.1037/edu0000706.supp (Supplemental)

Whitesell, N. R., Mitchell, C. M., & Spicer, P. (2009). A longitudinal study of self-esteem, cultural

identity, and academic success among American Indian adolescents. *Cultural Diversity and

Ethnic Minority Psychology*, *15*(1), 38–50. https://doi-org.proxy-ub.rug.nl/10.1037/a0013456

Williams, C. L., Hirschi, Q., Sublett, K. V., Hulleman, C. S., & Wilson, T. D. (2020). A brief social

belonging intervention improves academic outcomes for minoritized high school students.

Motivation Science, *6*(4), 423–437. https://doi-org.proxy-ub.rug.nl/10.1037/mot0000175

Appendix

Table 2

Multiple Linear Regression Output: SPD, DPD and PAP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.12a	.01	-.00	.82	2.14

Note. a Predictors: (Constant), SPD, DPD
b Dependent Variable: PAP

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.18	2	.59	.88	.42b
	Residual	81.84	122	.67		
	Total	83.02	124			

Note. a Dependent Variable: PAP
b Predictors: (Constant), SPD, DPD

Table 3

Simple Linear Regression Output: SE and PAP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.54a	.29	.28	.69	2.14

a Predictors: (Constant), SE
b Dependent Variable: PAP

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.89	1	23.89	49.70	<.001b
	Residual	59.13	123	.48		
	Total	83.01	124			

Note. a Dependent Variable: PAP
b Predictors: (Constant), SE

Table 4

Mediation Output: SE, SoB and PAP

R	R-sq	MSE	F	df1	df2	P
.24	.06	.30	7.50	1.00	122.00	.01

Model

	coeff	se	t	p	LLCI	UCLI
constant	3.32	.24	13.92	.00	2.85	3.79
SE	.16	.06	2.74	.01	.05	.28

Note. Outcome variable SoB

Standardized coefficients

	coeff
SE	.24

Model Summary

R	R-sq	MSE	F	df1	df2	P
.57	.33	.46	29.79	2.00	121.00	.0000

Model

	coeff	se	t	p	LLCI	UCLI
constant	.58	.48	1.22	.22	-.36	1.52
SE	.48	.08	6.35	.00	.33	.64
SoB	.31	.11	2.73	.01	.08	.53

Note. Outcome variable PAP

Standardized coefficients

	coeff
SE	.49
SoB	.21

Direct effect of SE on PAP

Effect	se	t	p	LLCI	ULCI
.48	.08	6.35	.00	.33	.64

Indirect effect of SE on PAP

	Effect	BootSE	BootLLCI	BootULCI
SoB	.05	.03	.01	.11

Completely standardized Indirect effect of SE on PAP

	Effect	BootSE	BootLLCI	BootULCI
SoB	.05	.03	.01	.11

Table 5

Moderation Output: SoB, IctD and PAP

Model		Unstandardized Coefficients		Standardized Coefficients				Correlations		
		B	Std. Error	Beta		t	Sig.	Zero-order	Partial	Part
1	(Constant)	3.74	.07			52.49	<.001			
	SoB Centered	.31	.13	.21		2.30	.02	.33	.21	.19
	IC Centered	.36	.12	.26		2.90	.00	.32	.26	.24
	SoB*IC Centered	-.42	.20	-.18		-2.08	.04	-.20	-.19	-.17

Note. a Dependent Variable: PAP

Table 6

VIF for the absence of strong multicollinearity: SoB, SE, IctD and PD

Model		Collinearity Statistics	
		Tolerance	VIF
1	SoB	.83	1.20
	SE	.93	1.07
	IctD	.86	1.16
	PD	.96	1.04

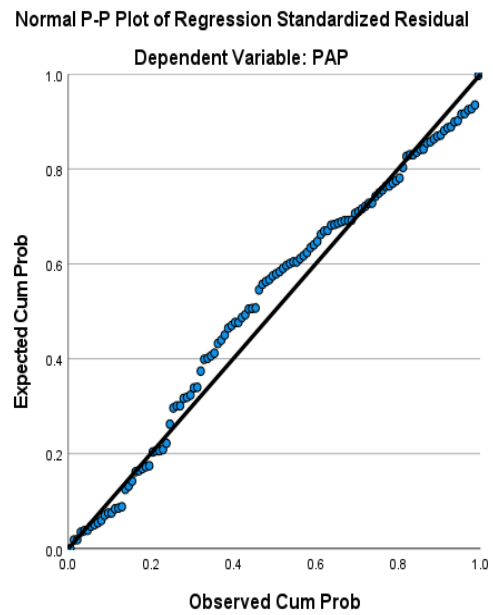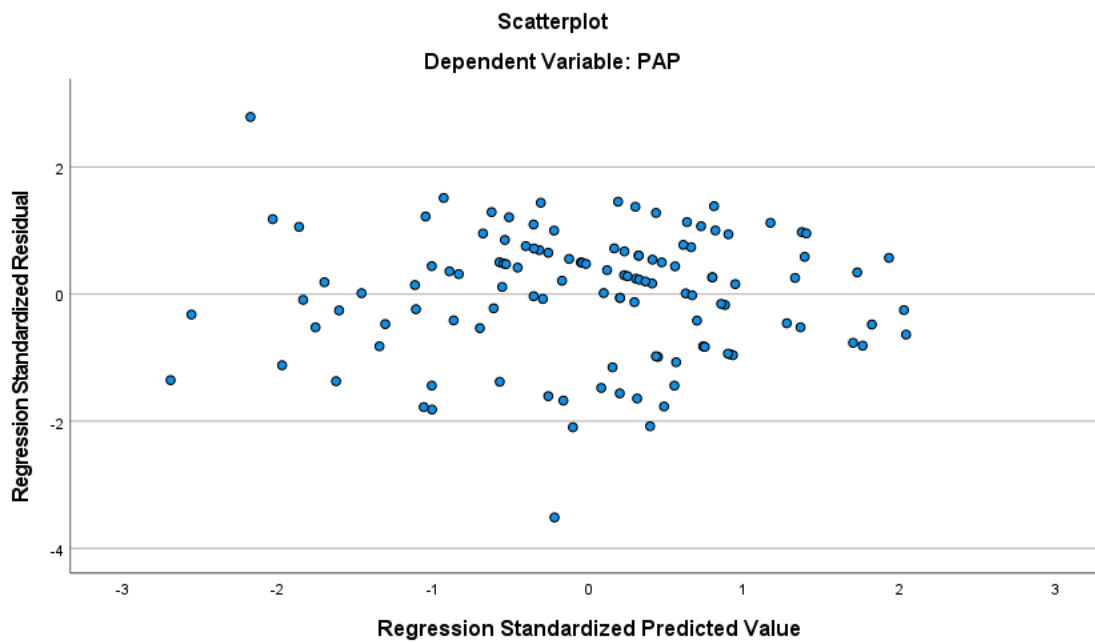*Note.* a Dependent Variable: PAP

Figure 2. P-P-plot for normality

Figure 3. Scatterplot for Linearity and Homoscedasticity