The mediating effect of sense of belonging on the relationship between perceived

dissimilarity and academic performance

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PSB3E-BT15: Bachelor Thesis

Group number 08

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February 11, 2022

Abstract

This paper investigates the suggested effect of perceived dissimilarity on perceived academic performance and sense of belonging as a mediating factor. Furthermore, we investigate the theorized effect of institutional commitment of diversity on the relationship between sense of belonging and perceived academic performance. We used a convenience sample and provided our participants with an online questionnaire to measure the variables. We ran a correlational analysis to determine if we can continue with the mediation analysis. We also conducted a process procedure for a moderation analysis. Our main model was found to be non-significant, however institutional commitment to diversity was acted as a positive moderator on sense of belonging and perceived academic performance. Additionally, we found some significant results for our main effect with a subset of our data through an exploratory analysis. These results suggest that when a university actively encourages and supports diversity within its student body, students have an increased sense of belonging as well as perceived academic performance. Furthermore, perceived dissimilarity did have a negative effect on perceived academic performance when the year of study is taken into consideration. This implies that the focus of intervention for maximized performance and well-being should focus on lowering perceived dissimilarity and increasing sense of belonging and institutional commitment to diversity.

Keywords: perceived dissimilarity, sense of belonging, perceived academic performance, institutional commitment to diversity, student identity centrality

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As the world is becoming more globalized, people world-wide are getting the

opportunity to leave their own country for an education of their interest. This brings forth a

more diverse student body in universities. With this growing diversity, we are faced with new

challenges that focus on inclusion, integration and openness towards different cultures. While

different cultures have different norms, values and ways of communication, we as humans all

have a fundamental need to connect (Allen et. al., 2021). Joining a social group when one

feels like the odd one out (due to cultural differences, age, sexuality, et cetera), can be

challenging. It has been suggested that feeling very dissimilar to others is negatively

associated with shared values and team satisfaction (Cunningham, 2007). This means that the

more different you feel within a team, the less satisfied you are with it, and the more difficult

it is to find common values. This can negatively impact felt inclusion in social circles,

especially when a social group is diverse (Cunningham, 2007). Being connected to others is a

fundamental need for humans, how similar we perceive ourselves to be can have considerable

implication for many different facets of life, including university.

Perceived dissimilarity is the subjective difference individuals feel between

themselves and others (Hobman et. al., 2004). It refers to the subjective reality one

experiences, and not objective reality. High perceived dissimilarity is related to lower work

outcomes, decreased job attitudes, and higher turnover rates (Sahin et. al., 2019).

Additionally, it has also been associated with lower helping behaviour and higher work

withdrawal (Liao et. al., 2008). These links implicate that when one sees themselves as

different to others, particularly others in the same social or work group, it can have a negative impact on work outcomes as well as interpersonal behaviour at work. While research on these connections has mainly been conducted in the context of job settings (Sahin et. al., 2019) similar results are reported for students in the university context. Specifically, students who felt similar to others reported higher academic performance (Lane & Gibbons, 2007).

Several academic performance outcomes (Williams et. al., 2020) such as higher grades, increased motivation for academics and lower drop-out rates are related to a sense of belonging (Brooms, 2019). Sense of belonging is defined as the sense of inclusion and sense of connection to the community (Hussain & Jones, 2021). Sahin et. al. (2019) found that felt inclusion was a mediator between high perceived dissimilarity and work outcomes. Therefore, sense of belonging may also mediate the effect of perceived dissimilarity on perceived academic performance and can act as a buffer against high perceived dissimilarity.

Another aspect that has a connection to perceived dissimilarity and academic performance is student identity centrality. Student identity centrality outlines a central part of living and expressing one's identity as a student (Hinton et. al., 2021). High commitment to remain in university and low drop-out rates have been associated with student identity centrality. Furthermore, high student identity centrality has been associated with more persistence when faced with stressors or challenges and an increased academic confidence (Holmes et. al., 2019). Lane and Gibbsons (2007) found that having low perceived dissimilarity to an idealised version of a good student, is associated with increased grades (Lane & Gibbons, 2007).

Institutional commitment to diversity is associated to both sense of belonging and academic performance. When institutional commitment to diversity is positively perceived by

students, it has been linked to increased academic motivation (Brannon & Lin, 2021) and increases in graduation rates (Visser, 2016). When institutional commitment to diversity is present in universities, it can buffer against negative academic outcomes, and further boost behaviours and motivations that increase behaviours that lead to increased academic performance as well as ambition (Brannon & Lin, 2021).

In this paper we will relate perceived dissimilarity through sense of belonging with perceived academic performance in a higher-education setting. Our research question is "How do perceived dissimilarities influence student academic performance through a sense of belonging?" Additionally I will relate student identity centrality with perceived dissimilarity and academic performance, as well as consider the effect institutional commitment to diversity has on sense of belonging and academic performance in this paper.

Literature Review

Perceived dissimilarity

In psychology, inter and intrapersonal differences have often been considered through the lens of the classic self-categorization theory coined by Turner et. al. (1987). We use the similarities we have to other people to give the basis for categorizing ourselves and others into set groups. Interpersonal differences can now be considered through the new construct of perceived dissimilarity. Perceived dissimilarity (PD) refers to the perception of differences and not objective differences themselves (Cunningham, 2007). Research has found that demographical aspects have an especially high impact on perceived dissimilarity. Cunningham argues that the outward salience of race and racial stereotypes have a stronger emotional attachment than the stereotypes of less salient factors such as age. How central an aspect is to one self will influence the degree of perceived dissimilarity.

Surface and deep level dissimilarity

We can distinguish surface-level perceived dissimilarity (SLPD) and deep-level perceived dissimilarity (DLPD). While surface-level perceived dissimilarities refer to characteristics that are easily visible and outward (e.g., ethnicity, gender, age), deep-level dissimilarities are characteristics that cannot be readily seen such as values, religious beliefs and opinions (Şahin et. al., 2019). DLPD has a higher impact on work outcomes, such as lower helping behaviour, higher work withdrawal, and higher voluntary turnover (Liao et. al., 2008) than SLPD. This demonstrates that the more dissimilar you feel on a fundamental level such as your beliefs, opinions et cetera, the less connected you feel to others.

Perceived academic performance

Being socially acclimated and having steady and fulfilling social groups has been associated with increased academic performance (Rodriguez & Blaney, 2021). Academic performance can refer to objective indicators such as grades and rate of graduation and drop-outs (Rodriguez & Blaney, 2021), but also subjective indicators like self-efficacy (Wurster, et. al. 2021), improved performance, adaptability and mastery of skill (Keržič, et. al., 2021). Previous research (Chang et. al., 2019) has emphasized the importance of self-efficacy (the belief in one's own abilities to achieve things) for perceived academic performance (PAP).

Perceived dissimilarity and its association to perceived academic performance

As mentioned above, previous research showed that perceived dissimilarity is negatively associated with work outcomes (Sahin et al., 2019) and with academic performance (Lane & Gibbsons, 2007). Specifically low perceived dissimilarity is related to increased academic performance for students. Lane and Gibbson (2007) operationalized

deep-level perceived dissimilarity as how similar students see themselves to what they considered a good student to be. This low DLPD has been linked to better grades as well as low drop-out rates. As outlined, Cunningham found demographic aspects such as race to have a high impact on perceived dissimilarity. As both deep and surface level perceived dissimilarity seem relevant to the connection between perceived dissimilarity and perceived academic performance, I will include both into a general measure of perceived dissimilarity. Therefore, I expect perceived dissimilarity (deep-level and surface-level) to be negatively related to perceived academic performance.

Hypothesis 1: High PD has a negative association to PAP.

Sense of belonging as a mediator between perceived dissimilarity and perceived academic performance

Sense of Belonging (SoB) encompasses a feeling of being accepted, having value assigned to oneself and being encouraged and appreciated by others (Rodriguez & Blaney, 2021). SoB also includes feeling close and welcome to one's community (Hussain &Jones, 2021). High perceived dissimilarity has been negatively linked to group involvement in the work setting as well as a decreased willingness to complete tasks in group settings (Hobman et. al., 2004). Low group involvement can be a reflection of a lack of sense of belonging in a group.

Brooms´ (2019) research has suggested that sense of belonging is a crucial predictor of academic success and low drop-out rates in college. It is linked to better grades, more academic motivation and higher graduation rates. When one feels included and actively part of a social group, it has positive implications for overall academic performance. Additionally, when students experienced increased hope and group belonging, factors that lead to academic success and perceived academic performance, such as self-efficacy increased as well (Wurster

et. al., 2021). This offers support for the relationship between sense of belonging and perceived academic performance. Considering this, I expect SoB to positively mediate the relationship between PD and PAP.

Hypothesis 2: SoB positively mediates the relationship between PD and PAP.

Perceived dissimilarity and student identity centrality

Identity centrality encompasses the importance you assign a specific part of your identity in relation to your whole self-identity, and how big of a role it plays in self-definition (Hinton et. al., 2021). Student Identity Centrality (SIC) is how important being a student is to the definition of oneself (Holmes et. al., 2019). High Student Identity Centrality has been associated with low drop-out rates and buffered negative psychosocial outcomes. It has additionally been linked to higher perceived well-being and more academic confidence (Holmes et. al., 2019). This suggests that when student identity centrality is high, academic outcomes seem to increase. Feeling very similar to one's personal ideal of a good student (low PD), is associated with increased grades (Lane & Gibbons, 2007). Thus, when PD is low and SIC is high there should be a positive effect on PAP. Therefore, student identity centrality should act as a positive mediating factor between PD and PAP.

Hypothesis 3: SIC positively mediates the relationship between PD and PAP.

Institutional commitment to diversity as a moderator on the relationship between sense of belonging and perceived academic performance

Institutional commitment to diversity (ICtD) can be expressed in many different ways, including institutions efforts for diversity programmes, support for foreign and local students and creating a safe environment for all students and faculty members with different backgrounds (Hussain & Jones, 2021). When ICtD is present, students have reported a higher

sense of belonging in university (Hussain & Jones, 2021). When students feel support and belonging within their university, it conveys feelings of respect, value and acceptance (Allen et. al., 2021). Additionally, persistently occurring diverse interactions with peers have been suggested to have a buffering effect against instances of discrimination and an increased sense of belonging (Hussain & Jones, 2021). This would imply that when a faculty actively encourages diversity it can increase students social bonding, and decreases feelings of discrimination. Furthermore, having a positive and inclusive campus climate can increase problem solving and leadership ambition which is related to increased academic performance and ambition (Brannon & Lin, 2021). Results of well-implicated diversity programs have shown higher retention and graduation rates (Visser, 2016). Contrary, when there is a perceived hostile environment, someone that feels subjectively different can identify as a target, and actively feel uncomfortable to fully express themselves (Brannon & Lin, 2021).

Consequently, I expect a positive moderation effect from institutional commitment to diversity on the relationship between sense of belonging and perceived academic performance.

Hypothesis 4: ICtD positively moderates the relationship between SoB and PAP.

Figure 1

Theoretical model of the hypothesized relationship between PD, SoB, SIC, ICtD, and PAP

Method
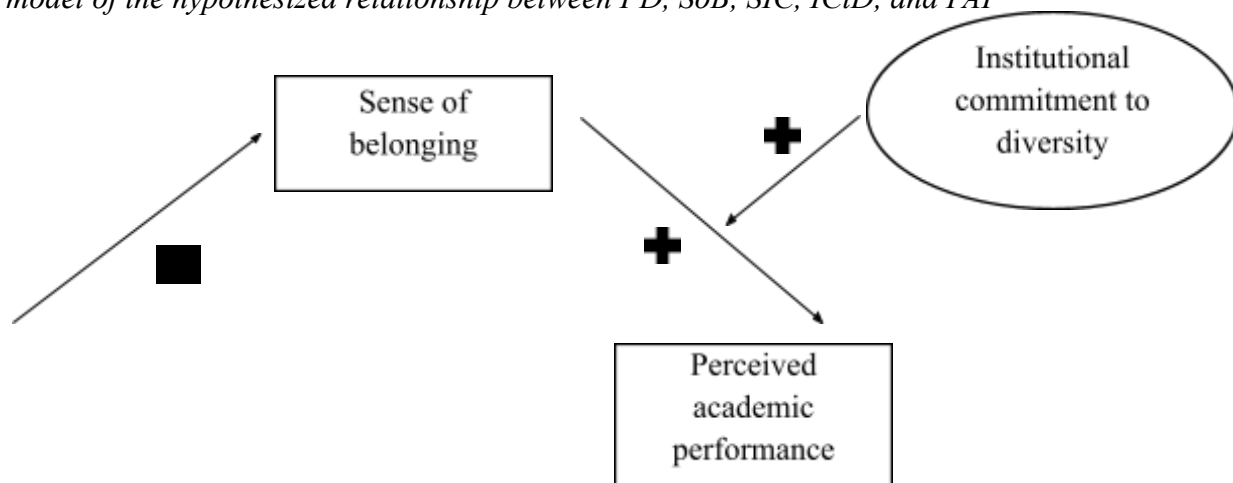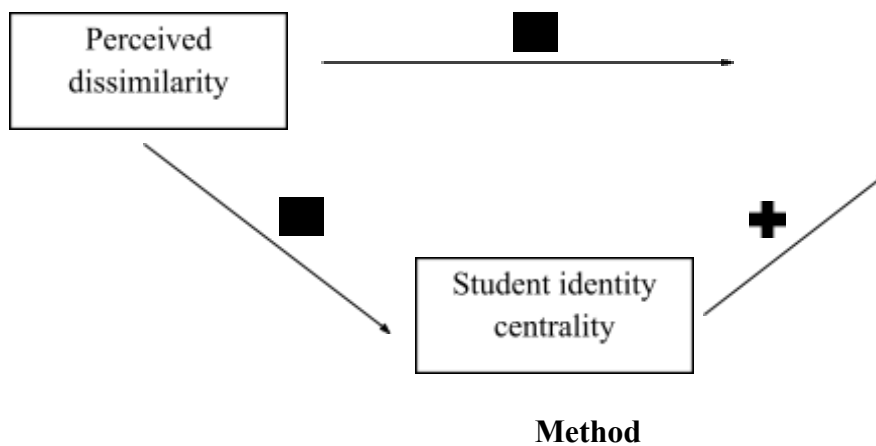
Participants

Out of a total of 143 participant we used the data of 128 participants (104 females, 23 males, 1 prefer not to say) that completed more than 70% of our survey. Ages ranged from 17 to 31 ($M = 20.05$, $SD = 2.3$). 84 of the participants were Dutch, 24 German and 20 other nationalities. All participants were students in the psychology program of the University of Groningen. 92 participants were in the first year, 20 in the second and 14 in their third or final year. Out of the 128 students 79 were in the Dutch track and 49 in the English track. 97 participants identifies as heterosexual, 5 as gay or lesbian, 15 as bisexual, 10 as other and prefer not to say.

Research Design and Procedure

We constructed an online questionnaire using Qualtrics. We obtained ethical approval for this research from the Ethical Committee of Psychology of the University of Groningen. Recruitment was done in two separate ways, namely through SONA and our own social networks. Recruitment via SONA was exclusively offered for first year students and they were compensated with course-credit. Participants were asked to give consent at the beginning of the questionnaire. It took 5 minutes to fill out the questionnaire and it was in

English. The questionnaire included questions about PD, PAP, SoB, SIC and ICtD. The data is cross-sectional and correlational.

Measures

Perceived dissimilarity

To assess the participants PD we used a 3-item scale based on the Sahin et. al. (2019) scale of perceived dissimilarity. We adjusted the wording of the original scale-items to fit our context of university students. Answers were rated on a 5 point Likert scale (1 = *Definitely not,* 5 = *Definitely Yes*). Example items for DLPD was: "In terms of invisible characteristics I am different than most others in the psychology program.". Example items for SLPD was; "In terms of visible characteristics I am different than most others in the psychology program.". We found a Cronbach's alpha of .64 for this scale.

Perceived academic performance

To assess the participants PAP we used a 4-item scale based on the Chang et. al., (2019) scale for perceived academic performance. Answers were rated on a 5 point Likert scale (1 = *Definitely False,* 5 = *Definitely True*). Example items were: "I am confident in my academic and learning abilities."; "I am confident in my ability to success at the university.". We found a Cronbach's alpha of .86 for this scale.

Sense of belonging

To assess the participants SoB we used a 5-item scale based on the Williams et. al. (2020) scale of sense of belonging. Answers were rated on a 5 point Likert scale (1 = *Definitely False,* 5 = *Definitely True*). Example items were: "I feel close or will soon become

close to the students in the psychology program."; "The lecturers in this program will treat me fairly". We found a Cronbach's alpha of .74 for this scale.

Student identity centrality

To assess the participants' sense of SIC we used a 2-item scale based on the Homes et. al. (2019) Student Identity Centrality scale. Answers were rated on a 5 point Likert scale (1 = *Strongly Disagree,* 5 = *Strongly Agree*). Example items were: "Being a student is more important to me than most other students in the psychology program."; "Being a good student is more important to me than most other students in the psychology program.". We found a correlation of .31 for this scale which was significant at the $p = <.01$ level.

Institutional commitment to diversity

To assess the participants ICtD we used a 5-item scale based on the Skorupski et. al (2013) subscale attitude to diversity. Answers were rated on a 5 point Likert scale (1 = *Strongly Disagree,* 5 = *Strongly Agree*). Example items were: "My university supports the professional needs of faculty members from other countries."; "My university upholds respect for the expression of diverse perspectives"; "My university sets a high priority to diversity.". We found a Cronbach's alpha of .74 for this scale.

Results

Analysis Plan

We planned to perform a mediational analysis. Therefore, we will first conduct a correlational analysis between variables PD, PAP, SoB, ICtD, SIC and Age. If correlations between PD, SoB, PAP and PD, SIC and PAP are significant respectively, we can conduct the planned mediation analysis with the process procedure. There are four assumption that need

to be met for our analysis. The assumption of multicollinearity is met with a maximum VIF score of 1.043. The normality and homoscedasticity assumptions are also met (refer to Appendix, Figure 1 and Figure 2.). The assumption of independence of observations is assumed. We removed one participant due to high standard residuals (= -3.198). The analysis was run with and without this participant and there were no significant changes.

Table 1 provides an overview of the means, standard deviations and correlations of all the variables of interest. Participants scores expressed high levels of SoB, PAP and ICtD, with little variability. In contrast, participants showed lower levels of PD and SIC with higher variability. The correlational output shows that there is a significant correlation between PD and SoB, as well as between SoB and PAP. PD also has a moderate correlation to SIC. However, there is no relation between PD and PAP. There is a positive significant relationship between ICtD and PAP and ICtD and SoB.

Correlation Table for PD, PAP ,SoB, ICtD, SIC and Age

Table 1

Descriptive Statistics and Correlation Coefficients for the Variables PD, PAP, SoB, ICtD and Age

Variables	M	SD		1	2	3	4	5
1. Age	20.05	2.03	*r*					
			Sig. (2-tailed)					
			N					
2. PD	2.6	0.78	*r*	.20*				
			Sig. (2-tailed)	.027				
			N	128				
3. SoB	3.96	0.56	*r*	-.08	-.20*			
			Sig. (2-tailed)	.366	.021			
			N	127	127			
4. PAP	3.68	0.82	*r*	.04	-.03	.33**		
			Sig. (2-tailed)	.674	.725	0		
			N	125	125	124		
5. ICtD	3.66	0.58	*r*	.02	-.02	.34**	.32**	

			Sig. (2-tailed)	.832	.826	0	0	
			N	124	124	123	121	
6. SIC	2.67	0.81	r	.06	.16	-.03	.09	.04
			Sig. (2-tailed)	.513	.081	.705	.317	.634
			N	127	127	126	124	123

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

PD and its association to PAP

We conducted a multiple regression to determine the relationship between PD and PAP. The results were not significant ($F = .124$, $p = .725$, $r = -.03$). This is not in line with hypothesis 1.

Mediation analyses

Our data showed that the correlational path c in the process procedure (PD to PAP) was not significant ($F = .124$, $p = .725$, $r = -.03$). Therefore we cannot conduct the planned mediation analysis to examine the relationship between PD, SoB and PAP. Similarly, our data showed that the correlational path c (PD to PAP) was not significant ($F = .124$, $r = -.03$, $p = .725$). Therefore we cannot conduct the planned mediation analysis to examine the relationship between PD, SIC and PAP.

Moderation of ICtD on the relationship between SoB and PAP

We conducted a simple moderation analysis using process procedure. PAP was the outcome variable, SoB the predictor variable and ICtD the moderator. The interaction between SoB and ICtD was found to be statistically significant, $B = -.42$, $p = .04$, $CI\ 95\% =$ [-.82, -.02] (see Table 3 in the Appendix). These results identify ICtD as a positive moderator of the relationship between SoB and PAP.

Exploratory Analysis

We conducted an exploratory analysis to determine whether the expected mediation of PD on PAP through SoB holds for a specific subset of our data. We found significant results when looking at the subgroup second and third/final year students. We conducted a correlational analysis to examine the relationships between our variables of interests SoB and PAP with the subgroup measure of PD. We found a significant negative correlation between PD for second and third/final year students ($n = 33$) and PAP (refer to Table 2). Additionally, SoB and PAP were positively correlated at the 0.01 significance level. However, the relationship between PD for second and third year students and SoB was non-significant. Therefore we could not conduct a mediation analysis.

Table 2

Correlation Coefficients, Means and Standard Deviations of the variables PAP, SoB and PDYear23

Variables	M	SD		1	2
1.PAP			r		
			Sig. (2-tailed)		
			N		
2.SoB			r	.33**	
			Sig. (2-tailed)	0	
			N	124	
3.PDYear23	2.7	0.8	r	-.41*	-.21
			Sig. (2-tailed)	.018	.244
			N	33	33

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

Discussion

The purpose of this study was to gain a better understanding of how different factors and their influence on perceived academic performance. More specifically, we set out to relate perceived dissimilarity through sense of belonging on perceived academic performance in a higher-education setting. Our research question is "How does perceived dissimilarity influence student academic performance through a sense of belonging?".

The results of the present study do not support hypothesis 1, that high perceived dissimilarity has a negative association to perceived academic performance. Additionally, hypothesis 2 and 3 which theorized positive full mediation models of perceived dissimilarity, sense of belonging and perceived academic performance as well as perceived dissimilarity, student identity centrality and perceived academic performance were also not supported by our results. However, hypothesis 4 which investigated institutional commitment to diversity as a positive moderator between sense of belonging and perceive academic performance was significant and therefore supported by our results. The pattern of results for hypothesis 4 is in line with the previous research e.g., Hussain and Jones (2021).

Perceived dissimilarity and it's association to perceived academic performance

Our findings highlight that the main effect of high perceived dissimilarity on perceived academic performance was not significant. This could be explained by some confounding factors we did not take into consideration. Different life circumstances could have an effect on how similar or non-similar students feel to others. For example, being a first generation student could have an effect on feeling very dissimilar, but not on perceived academic performance as they are supplied with extra attention as well as support from the university. Another explanation could be that students compared themselves to their own social group when thinking of feeling different, which created a bias of feeling more similar

to them, rather than comparing themselves to a random student of the student population. While our findings were not significant, the relationship between perceived dissimilarity and perceived academic performance should be investigated further in future research.

Sense of belonging as a mediator between perceived dissimilarity and perceived academic performance

As the relationship between high perceived dissimilarity and perceived academic performance was non-significant, it did not warrant grounds for a mediation analysis. However, we did find a significant relationship between sense of belonging and perceived dissimilarity and perceived academic performance. This finding suggests that the relationships are present, though different from how we may have theorized in our model. This merits an investigation about specifically sense of belonging, perceived dissimilarity and perceived academic performance and how these variables relate to each other.

Student identity centrality as a mediator between perceived dissimilarity and perceived academic performance

Similarly as above, the mediation analysis could not be run as there was no correlational basis between perceived dissimilarity and perceived academic performance. Additionally, there were no significant correlations with any variable in regards to student identity centrality. This could be due to the measure of the variable having low reliability, in which case I would suggest using a more extensive scale. Another explanation of this finding might be that the transference to online university due to Covid-19 lowered the student identity centrality for students. As there is little contact to other students and professors as well as no student life outside of classes, student identity centrality may have become more detached for the students in our sample. This is an interesting aspect for future research, to investigate the extent of student identity centrality compared between pre and post Covid-19.

Institutional commitment to diversity as a moderator on the relationship between sense of belonging and perceived academic performance

I found that institutional commitment to diversity positively moderates the relationship between sense of belonging and perceived academic performance. This implies that when students perceive their academic institution to be dedicated to integrating and welcoming diversity, the positive effect of sense of belonging on academic performance is strengthened. These results highlights institutional commitment to diversity as a key factor that can influences academic performance. This relates to previous research of Visser (2016), Hussain and Jones (2021) and Brannon and Lin (2021) that hypothesis 4 is built upon.

Exploratory analysis findings

In our exploratory analysis we found a significant negative correlation between high perceived dissimilarity and perceived academic performance when looking at the subsample of second and third year students. This outlines that when students felt more dissimilar it had a negative effect on how they viewed their academic performance. These findings are in line with previous research e.g., Sahin et. al. (2019). These results were reflected only for the subsample of second and third/final year students. In terms of future research it would be useful to investigate this relationship again with a specific focus on study years, as well as taking the pre and post Covid-19 students into consideration.

Limitations and future direction

There are three main limitations that first need to be discussed and can be taken into account for future research. The first limitation that might have affected my research is the difference of context surrounding our dependent variable perceived dissimilarity between the literature and our study. The literature we based the relation of our main effect on was mainly related to work outcomes (Sahin et. al, 2009), while we focused on students in a higher

education context. These different contexts represent two inherently different phases of life, commonly with a substantial age, lifestyle and life-experience difference. This might have had an effect on our results concerning the main effect. This seems to be the case as the relationship between sense of belonging and perceived academic performance, which was based on literature in the academic context (REF), was indeed significant. Future research should investigate the relationship between perceived dissimilarity and perceived academic performance through a sense of belonging in a university setting more extensively.

Our second limitation was the measurement of our predictor variable perceived dissimilarity. We decided not to specifically define perceived dissimilarity in the questionnaire so we could get answers of what students themselves interpreted the construct to mean. Therefore, we got equally broad answers. Leaving perceived dissimilarity undefined when it was a key aspect of our study left a lot of uncertainty in the answers. Additionally we measured perceived dissimilarity with only three items, which resulted in a relatively low reliability. For future research I would suggest to supply participants with a sheet that outlines definitions of constructs as well as examples. Additionally, I would use a more extensive scale to measure perceived dissimilarity. This would ensure data to be more reliable.

A third limitation is the rise of Covid-19. Many students, especially those that started their university programs from 2019/2020 onwards, have not experienced the normal "student experience". With many online classes and limited social contact this student experience might have been so different that it could not relate to the constructs we measured. In line with this, our results show that for first year students feeling very different from others did not have an effect on their how they viewed their academic performance. However, this relationship had an effect for second and third year students. Thus it can be inferred that

students most affected by the Covid-19 circumstances should be taken into special consideration. This might even imply a social contact measure as an important variable to predict the relationship between perceived dissimilarity and perceived academic performance. For future research I would suggest including a social contact variable and Covid-19 measure to investigate the effect of these variables.

Practical and Theoretical Implications

Despite these limitations, these results suggest several theoretical and practical implications. For example, when a university aims to improve overall academic performance two key factors should be taken into consideration. One factor is how implicated institutional commitment to diversity is at the university. The degree of how implicated diversity policies are in a university has a significant positive effect on perceived academic performance. Therefore, it can be advised to implement a mission statement that centres around emphasizing the importance and benefits of diversity (Visser, 2016). Through public commitment to diversity, students of different minorities will feel valued and belonging towards the university. This will in turn result in higher perceived academic performance which is linked to higher objective academic performance (Wurster, et. al. 2021). Additionally it can be beneficial to offer programs in multiple languages as well as having a structure in place that allows international students to make the decision to study at said university. For example, having a diverse student body has been shown to be beneficial for students' sense of belonging (Visser, 2016).

The second aspect that should be taken into consideration for higher perceived academic performance is a student's sense of belonging. Our findings are in line with previous research, e.g. Brooms et. al. (2019). Based on the previous research and our findings I would

suggest interventions focusing on a sense of belonging to increase perceived academic performance. In my view, the most important aspect of increasing sense of belonging is to target both a superficial-level as well as a deep-level of belonging. For a superficial level of belonging making the identity of belonging to the university more salient by providing students with merchandise of the university could be an intervention. To achieve an intervention for increasing belonging on a deep-level I would advise the university to actively encourage students to critically consider the alignment of the universities values (given in the mission statement mentioned above) and their own.

The exploratory analysis showed that there was a significant negative correlation between perceived dissimilarity and perceived academic performance for second and third/final year students. Considering that the current second and third year students were the "last" prior to Covid-19 regulations we will use this data as a baseline of results in normal circumstances. This association suggests that when students feel highly dissimilar to others, they will perceive their academic performance to be lower. This has practical implications for a university when they want to improve the academic performance of their students. Lowering perceived dissimilarity should be the focus of intervention. This could be implemented through offering study groups or study buddies that include frequent interaction with other students. Another intervention could be to offer an online service that groups students together based on their interests and hobbies, for activities outside of the university context. Especially in the context of Covid-19, offering opportunities to connect to other students based on shared interests can be a flexible intervention. These groups could participate in activities online as well as in real life when regulations allow for it.

Conclusion

With the rise in international students in most universities diversity and how to appropriately deal with the growing diversity is an important topic. The present research contributes to a growing body of evidence outlining the importance of factors such as sense of belonging at universities, feeling similar to other students and having an institution commit to diversity in regards to academic performance. Our research highlighted students feeling like they belong at their university with an increased perception of their academic performance. This feeling of belonging can be facilitated by an active display of commitment to diversity in the staff and student population. Additionally feeling a great amount of belonging can also positively affect how different students feel from another, which also leads to an increased perceived academic performance within students.

An overarching theme emerging from our research seems to be to address differences among people, and to work, accept and welcome them as much as possible. Therefore, to maximize academic performance as well as the well-being of students, universities should focus on implementing interventions mentioned above that focus on making students feel more similar to others, making students gain a higher sense of belonging to the university and actively committing to including and supporting a diverse student body. Despite the limitations, the present study has enhanced our understanding of the relationship between perceived dissimilarity, perceived academic performance, sense of belonging and institutional commitment to diversity. We hope that the current research will stimulate further investigation of this important area.

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Appendix

Figure 1

PP-Plot for the assumption check of normality

Normal P-P Plot of Regression Standardized Residual
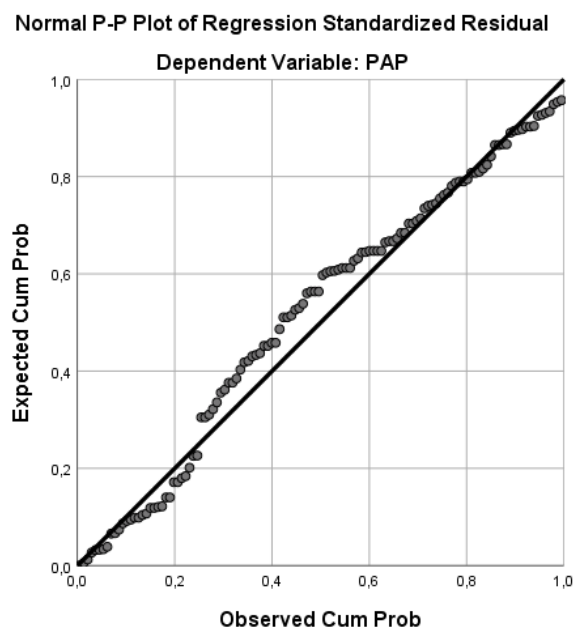Dependent Variable: PAP

Figure 2

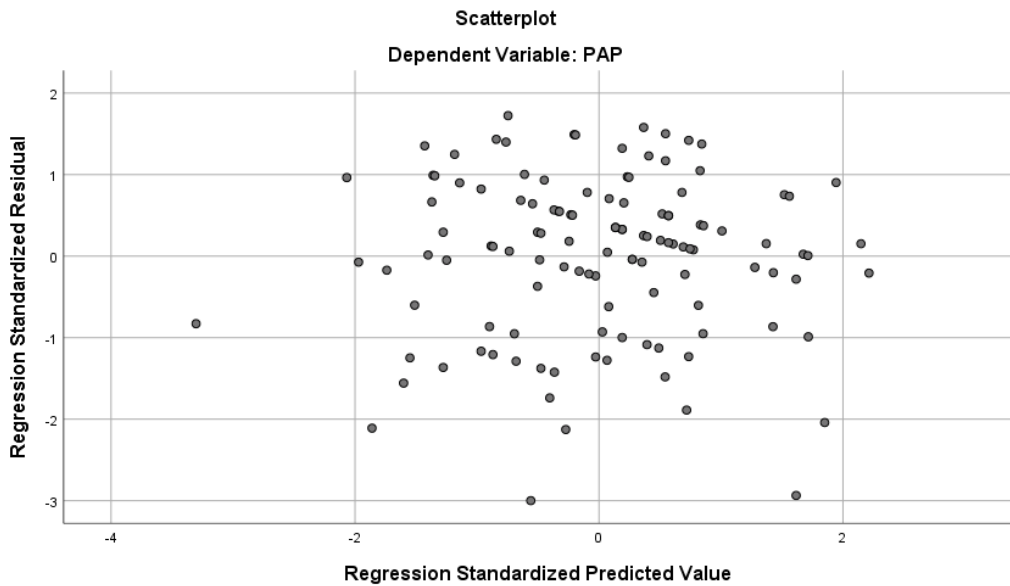*Scatterplot for the assumption of Homoscedasticity check*

Figure 3

Scatterplot of the Interaction Effect for ICtD, SoB and PAP