

Investigating Classroom Dynamics: Examining Predictors of Student Motivation

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PSB3E-BT15: Bachelor Thesis

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June 29th, 2025

Abstract

This study examines the direct and indirect effects of mentor immediacy and students' feelings of belongingness to the group on motivation, in the first year of university. Drawing on Social Identity Theory (Tajfel & Turner, 1979) and previous literature, we hypothesized that students' group identification and social dynamic would predict their motivation as part of in-group behaviors. Immediacy refers to verbal and non-verbal behaviors aimed at increasing psychological closeness between the mentor and student. We used a cross-sectional design, and our sample consisted of 103 first-year psychology students at the University of Groningen (M = 20 years old). Students completed an online questionnaire at the end of the first semester. None of the hypothesized effects, immediacy, belongingness, or the interaction, significantly predicted motivation. However, we conducted an exploratory analysis by using academic passion as a mediator between belongingness and motivation. This analysis revealed a significant direct relationship between belongingness and motivation, while the mediation effect was not significant. These results highlight the importance of fostering a supportive learning environment in the classroom, and viewing motivation as a complex, time-sensitive process. This research offers practical insights for peer-mentoring programs. Future research should explore other possible mediators in the academic context, such as self-efficacy.

Keywords: immediacy, feelings of belongingness to the group, academic passion, student motivation and behavioral engagement

Investigating Classroom Dynamics: Examining Predictors of Student Motivation

Education is a complex domain, with numerous methods and strategies continuously influencing the relationships between teachers and students. Specifically, the impact of motivation on academic achievement has gained more focus in recent times. Motivation plays a vital role in a student's capacity to connect with their learning environment, and it greatly affects their academic results (Kilic et al., 2020). Motivation can be broadly understood as the individual's readiness to put in effort toward achieving a goal (APA, 2020), and within classroom contexts, this is often expressed through behavioral engagement (Reeve, 2012). A crucial element of motivation is academic engagement, which reflects students' emotional and behavioral participation in classroom activities. Goodenow (1993) posits that natural shifts in peer relationships are likely connected to academic motivation, indicating that students' feelings about their peers and their sense of belonging can significantly influence their level of classroom engagement. Furthermore, as engagement is a multifaceted construct, it is important to comprehend how both teacher attributes and teaching methodologies contribute to this phenomenon. Studies have indicated that the quality of teacher-student interactions can either enhance or hinder student engagement, making it a key factor in educational achievement (Monteiro et al., 2021).

In light of this context, this research intends to investigate the nature of mentor-student interactions and their impact on student motivation, especially through the perspectives of immediacy and a sense of belonging. By examining the elements that influence engagement, we aim to suggest strategies for interventions that can enhance the quality of mentor-student interactions, creating environments that more effectively support students' academic achievements. Building upon existing research concerning the connection between immediacy and student motivation (Frymier, 1994), we aspire to enhance our comprehension of how

these interactions affect academic engagement. Still, there has been limited exploration of the influence of social identity and academic passion on motivation. Utilizing Social Identity Theory (Tajfel & Turner, 1979), this study aims to explore how students' feelings of belonging, mentor immediacy, and passion for academics affect their engagement behavior in class.

In our faculty, peer mentors are upperclassmen who guide first-year students and assume teaching responsibilities. In two specific courses offered by the psychology programme, namely Academic Skills and Theoretical introduction to research methods, older students have the opportunity to become peer mentors to first-year students. This process takes place in the context of the course Teaching and Mentoring in Psychology, where the mentors receive thorough training in order to effectively develop certain skills and strategies. The goals of this course is to create collaborative learning communities, a motivated and self-regulated approach to learning, and enhance critical thinking skills. Lastly, this course aims to form knowledgeable and involved peer mentors. Thus, our research project intends to gain insight into the experience of students with these peer mentors, and in the long run improve the implemented training and mentoring.

If we can observe the anticipated effects, we could develop and implement new training interventions for mentors. Comprehensive training aimed at creating a community-like environment in the classroom to strengthen students' connections with one another might result in improved student outcomes. Our study builds on already existing literature, with promising findings regarding the relationship between immediacy and student motivation; we seek to provide deeper insights into these relationships (Frymier, 1994).

Immediacy

The concept of immediacy was initially created by Mehrabian in 1969, and he defined it in terms of non-verbal communication behaviors that bring closeness to one another. In

1979, Andersen transposed the concept of immediacy to educational environments. He adjusted the definition of immediacy to behaviors aimed at improving communication between teachers and students, that aid with increasing the physical and/or psychological closeness between teachers and students (Andersen, 1979). It is traditionally distinguished between two types of immediacy behaviors, namely verbal and nonverbal immediacy (Avertbeck, et al., 2006). Immediacy in the classroom is a subject that has received plenty of attention in scientific literature, especially concerning students' motivation (Liu, 2021). We have operationalized verbal immediacy through the use of the singular plural form of pronouns ("we/our"), praising students in the class and use of humor, and non-verbal immediacy through smiling, tone of voice, and level of eye contact. For the context of this study, it was considered appropriate to cluster the two types of immediacy together and consider them as a singular variable. Rodriguez, Plax, and Kearney (1996) contend that the closeness of the relationship due to verbal and nonverbal immediacy tools has a substantial influence on the inclusion of the shared experiences the class has produced.

From the perspective of Social Identity Theory (SIT) (Tajfel & Turner, 1978), we suppose that mentor immediacy will foster an in-group feeling for the students. An increase in psychological closeness may lead to students viewing the mentor as part of the group or as someone fostering a cohesive relationship due to immediacy techniques (Rodriguez, Plax, and Kearney, 1996). Moreover, it was found that immediacy has a direct effect on students motivation; warmth behaviors displayed by mentors can invigorate and engage students (Ding & Wang, 2025). Liu (2021) found that immediacy can have numerous positive effects on both teacher's attitudes in the classroom, as well as on students. Lastly, low levels of teacher immediacy were associated with decrease in affect and motivation in students (Pogue & Ahyun, 2006). Taking these findings into consideration, we predict that there will be a notable relationship between displayed immediacy behaviors and classroom engagement.

H1: We predict there will be a significant relationship between the mentors' immediacy behaviors and students' motivation.

Belongingness to The Group

Students' feelings of belongingness to the group do not only regard the extent to which they feel integrated in the group. We define it as how connected they feel to the rest of their peers, if they consider their contributions significant for the larger group, and whether or not they feel that being part of the group creates a greater, shared identity with the rest of the members. Our definition of group belongingness falls in line with Social Identity Theory. Social Identity Theory (SIT) was established by Tajfel & Turner in 1978 and concerns how individuals will define themselves based on their group belongingness. To quantify the students' feelings of belongingness to the group we used statements like asking about whether they feel the group members like and support each other if it feels like a family, or if the students experience feeling connected to the rest of the group.

The desire for connection with peers among students is a critical need for setting academic goals and facilitating motivation (Kaufman & Dodge, 2008). Natural changes in the development of relationships between peers are likely linked with academic motivation, specifically behavioral engagement (Goodenow, 1993). Support among peers and positive group dynamics are known to be central to fostering motivation (Zhou et al., 2023). Students who feel comfortable and accepted in their classroom groups find the materials more useful and engaging than peers with weaker senses of membership (Zumbrunn et al., 2014). Taking cues from prior research, we presume that individuals who experience group membership will actively participate in the classroom discussions by asking more questions, sharing ideas and interacting with the materials.

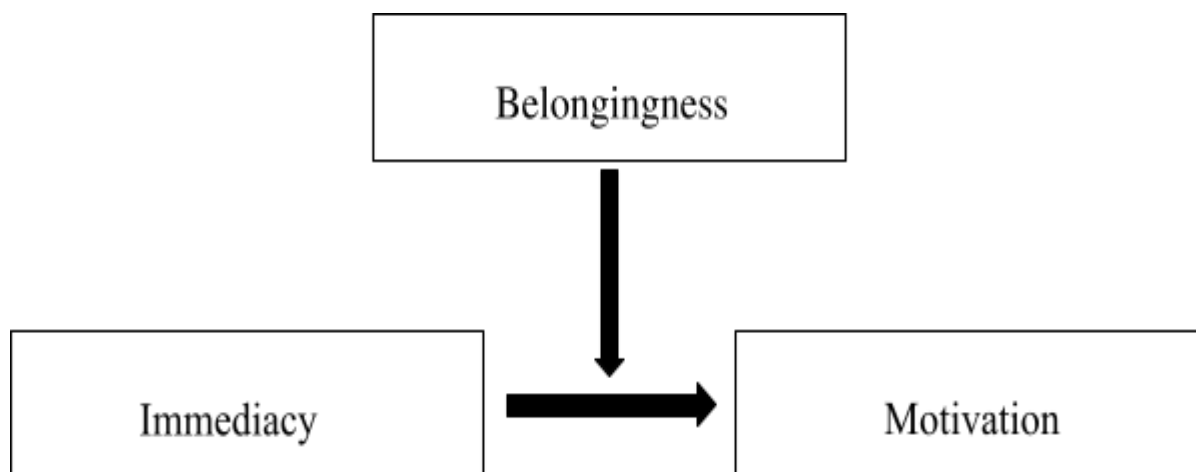
H2: We expect to see a positive relationship between students' feelings of belongingness to the group and students' motivation.

Motivation

Motivation has been conceptualized by the American Psychological Association (2020) as: “a person’s willingness to exert physical or mental effort in pursuit of a goal or outcome”. In the academic context, an appropriate measure of motivation is through behavioral engagement. Student engagement is defined as students' active participation in their learning activities (Reeve, 2012). This is a significant aspect as it reflects involvement not only with academic tasks but with classroom interactions as well. Students’ motivation is a topic that received great attention from the scientific community, especially in educational and psychological research. Prior studies concerning predictors of student motivation have found strong support for both verbal and non-verbal immediacy as an accurate indicator of students' motivation (Christophel, 1990; Liu, 2021). In a post COVID-19 study, the role of social support from peers and teachers was found to be directly related to student motivation (Camacho et al., 2021). In a nutshell, the climate of the classroom, both how learning is structured by the instructor, and the group dynamics are high-impact factors when observing students’ engagement with the materials and topics (Zhou et al., 2023).

Students' motivation and behavioral engagement in class could be influenced by their sense of belonging to the academic group, following the principle of in-group collaboration of SIT (Tajfel & Turner, 1979) . Subsequently, findings suggest that feelings of cohesion within the group and social support, could make academic materials more approachable to students and increase their engagement in class (Capella et al., 2013; Wentzel and Wigfield 1998). Hence, we hypothesize that a strong sense of belonging within the classroom community can enhance students’ willingness to engage actively in class activities, as they internalize group norms and feel socially supported in their learning efforts.

H3: We anticipate that students' feelings of belongingness to the group will moderate the relationship between mentor immediacy and students’ motivation.



Academic Passion

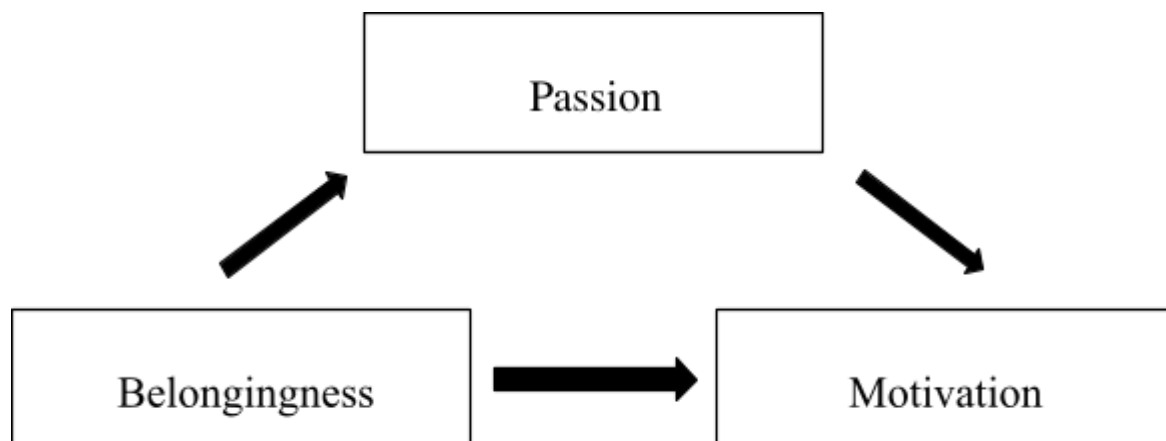
Passion is characterized by a great affinity for certain activities that individuals enjoy and consider important to invest time and energy into (Vallerand et al., 2003). In the academic context, passion refers to how valuable it is for students to invest personal resources in school-related activities and classes (Chen & Zhao, 2024). Students' academic functioning and involvement is highly dependent on their levels of passion for their studies (Bélanger & Ratelle, 2020).

Stoeber et al., 2011, found that academic passion was positively correlated with academic engagement and negatively correlated with academic burnout. Moreover, their findings show unique links between academic passion and central traits of behavioral engagement, like vigour and dedication (Stoeber et al., 2011). Later, it was found that academic passion is not only correlated with, but a strong predictor of academic engagement (Zhao et al., 2021). However, the literature concerning academic passion as a mediating variable is scarce. In line with these findings, we suppose that the student's relationship with the peers and mentor will be mediated by the level of passion of students.

Looking at these relationships through the lense of SIT, it is likely that the students' identification with their peers and institution will be linked with academic passion

(Korpershoek et al., 2019; Tajfel and Turners, 1979). We presume that academic passion plays an important role in the relationship between immediacy/belongingness to the group and motivation, through the principle of feeling valued and part of the academic community; hence enhancing their dedication and likeliness to class-related activities.

H4: We assume academic passion will mediate the relationship between students' feelings of belongingness to the group and motivation.



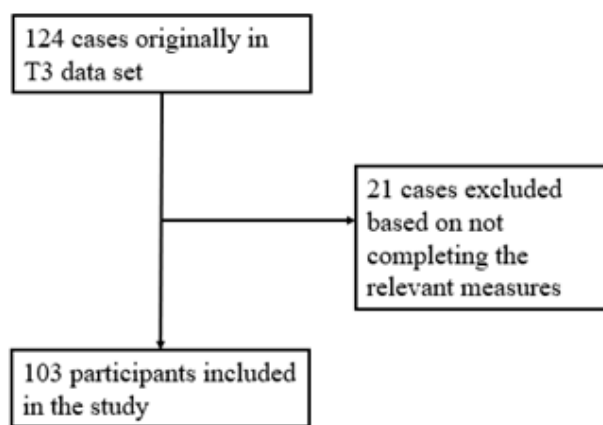
Methods

Procedure

The current cross-sectional study was conducted through an online survey via Qualtrics (Qualtrics, Provo, UT) and was approved by the Ethics Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen (ECP #PSY-2425-S-0013). The sample consisted of first-year Psychology students at the University of Groningen. Participants were recruited through the SONA system (Sona Systems, n.d.), with study credits awarded upon completion of the study. Registration was voluntary. To participate in the study, students were required to be enrolled in the first-year course "Academic Skills." Prior to the study, potential participants were informed about the study's purpose, procedure, and expected time commitment. They then signed a form granting informed consent for

participation in the study. The processing of personal data and other data from this study was subject to the General Data Protection Regulation (GDPR). To ensure participants' anonymity and privacy, their identity was linked to a self-chosen identification code. If a participant withdrew or did not meet the inclusion criteria, their corresponding data were excluded, as shown in Table 1. The final sample consisted of 103 participants.

Flowchar Participant



Sample Characteristics

After cleaning the data set (see figure 1), the final sample consisted of 103 participants. Of these, 90 (87.4%) were female, 12 (11.7%) were male, and 1 (1%) identified as other. Ages ranged from 17 to 28, with an average age of 20. Of all participants, 56 (54.4%) were Dutch, 11 (10.7%) were German, and 36 (35%) had other nationalities.

Measurement Instruments

All variables in this study were measured using a composite questionnaire, composed of carefully selected items from various measurement instruments. For each variable, multiple questions were chosen that best aligned with the objectives of the current study. Each variable was measured using a 5-point Likert scale, where 1 indicated "strongly disagree" and 5

indicated "strongly agree." The measurements took place over a period of five months, with three time points: T1 in October 2024 before the first exam period, T2 in December after the first exam period 2024, and T3 in January 2025 after the second exam period. These measurements were taken in order to allow the use of a longitudinal design. However, we opted for a cross-sectional design.

Immediacy

The immediacy of the student mentors was indirectly assessed by students using an existing questionnaire developed by Kwitonda (2017), consisting of 23 items, of which 10 relevant items were used in this study. These items evaluated the non-verbal behaviors (e.g., smiling and a relaxed posture) and verbal behaviors (e.g., addressing students by name and giving compliments) of the student mentor. The reliability of the questionnaire was determined using Cronbach's Alpha ($\alpha = 0.159$), along with the corresponding mean and standard deviation ($M = 3.823$, $SD = 0.468$).

Feeling of Belongingness

The feeling of belongingness was measured using the Classroom Community Scale (Rovai, 2002). This scale assesses the extent to which a student feels connected to their group, with items such as: "This group feels like family" and "I feel that I can trust the group." From the original 20 items, 8 relevant items were selected. The reliability of the questionnaire was determined using Cronbach's Alpha ($\alpha = 0.159$), along with the corresponding mean and standard deviation ($M = 3.03$, $SD = 0.483$).

Motivation

Students' motivation was measured using the Student Course Engagement Questionnaire (SCEQ; Handelsman et al., 2005). The questionnaire evaluates student motivation by assessing their active participation during lessons, with items such as: "I listen attentively to my mentor during class" and "I do my best regarding my responsibilities in

class.” From the originally 25 items, 6 were used in this questionnaire. The reliability of the questionnaire was determined using Cronbach’s Alpha ($\alpha = 0.159$), with a corresponding mean and standard deviation ($M = 5.83$, $SD = 1.009$).

Passion About the University

To measure students’ passion for their studies, the passion scale developed by (Vallerand et al., 2003) was used. The original version consists of 34 items, of which seven were used in this study. Sample items include: “My studies are in harmony with the other activities in my life” and “My studies reflect the qualities I like about myself.” Cronbach’s Alpha ($\alpha = 0.159$) was used to assess the reliability of the questionnaire, complemented by the mean and standard deviation ($M = 3.070$, $SD = 1.228$).

Data Analyses

The data was analyzed using IBM SPSS software (version 28). Hayes’ PROCESS macro for modeling mediation was then applied to the current data (Hayes, 2013). Model 7 – a moderated mediation effect on motivation to the mediating variable – was used in the analysis. This model is based on regression analysis and their assumptions, using a bootstrapping approach. As per the model, the mediating and moderating variables were examined independently, followed by a moderated-mediation analysis. The analysis used a 95% confidence interval to determine the significance of the results. When the confidence interval included non-zero values, the variable was statistically significant. The variables used in the 13 model included immediacy as the independent variable, belongingness to the group as the moderating variable, academic passion as the mediating variable, and student motivation as the dependent variable. Lastly, we have checked the five necessary assumptions needed for a regression analysis also using IBM SPSS software (version 28), the assumptions can be found in Appendix A.

Results

The following section presents the results of the statistical analysis conducted in order to investigate the relationship between mentor immediacy, feelings of belongingness and student motivation. While our hypotheses were largely not supported, we found a significant direct effect between belongingness and motivation within the mediation analysis. To ensure stricter control for Type I Errors, we have tested all hypotheses at a significance level of $p < 0.05$. Descriptive statistics and correlations were computed (see Table 1), followed by a multiple regression analysis to test the direct and interaction effect. Lastly, the mediation effect highlighted by our exploratory hypothesis was conducted.

Table 1

Descriptive statistics & Correlations

Variable	Immediacy	Belongingness	Motivation	N	M	SD
Immediacy				103	3.81	0.461
Belongingness	0.28			103	3.03	0.483
Motivation	0.21	0.21		103	5.82	1.009

Main Effects (H1&H2)

This study aimed to assess the direct and indirect effect of mentor immediacy and students' belongingness to the group on motivation. In order to test the first and second hypothesis of our study, a regression model was run using SPSS, Table 2 summarises the results. The overall model was significant ($F(2, 100) = 3.56, p = .032$), explaining 6.6% of the variance ($R^2 = .066$, Adjusted $R^2 = .048$). Together, mentor immediacy and student's belongingness to the group partially predict student motivation. However, both predictors failed to reach statistical significance individually. These findings suggest partial support for

H1 and H2; while both predictors showed positive trends, neither reached individual significance when entered into the model.

Table 2

Regression analysis

Predictor	B	SE	β	t(100)	p
Constant	3.5	0.88	-	3.97	0.001
Immediacy	0.34	0.21	0.16	1.60	0.114
Belongingness	0.34	0.21	0.21	1.60	0.113

Moderation Effect (H3)

A moderation analysis (Model 1 in PROCESS) was run in order to test whether or not belongingness to the group moderated the relationship between mentor immediacy and motivation (H3). The overall model was marginally significant ($F(3, 99) = 3.17, p = .082$), and explains 8.8% of the variance ($R^2 = .088$), these findings are summarised in Table 3. Nonetheless, the interaction term (Immediacy x Belongingness) was not statistically significant ($p = 0.082$), hence H3 is not supported.

Table 3

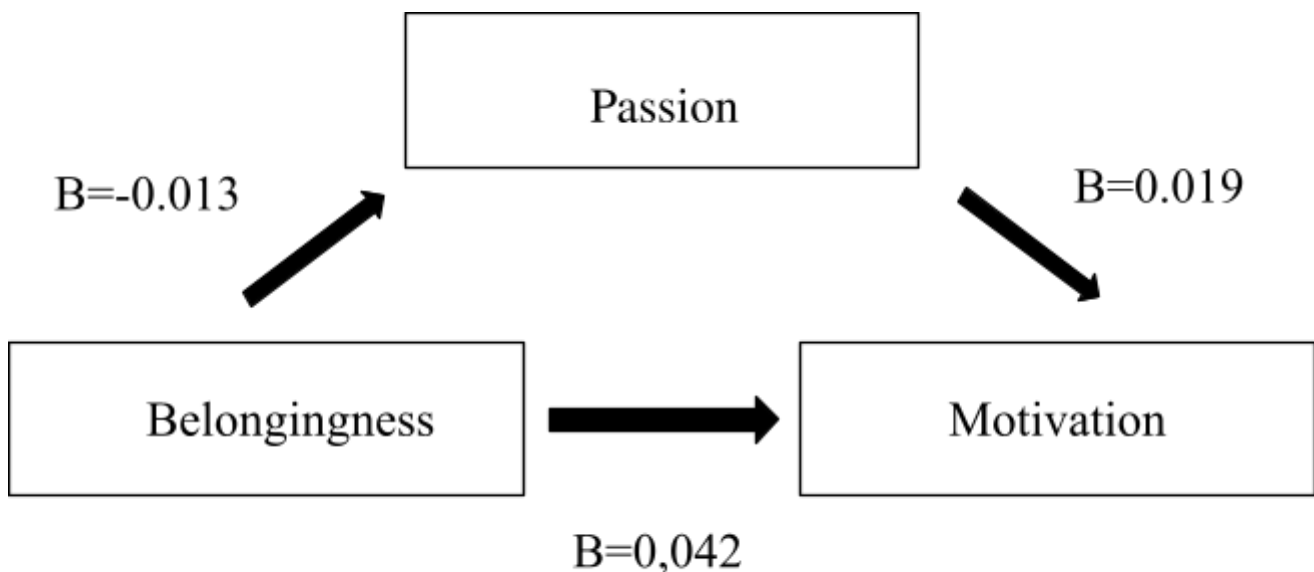
Moderation Analysis

Predictor	B	SE	t	p
Immediacy	0.26	0.22	1.21	0.23
Belongingness	-0.33	0.21	-1.55	0.12
Immediacy x Belongingness	-0.65	0.43	-1.51	0.13
Model Summary				
$R^2 = .088, F(3, 99) = 3.17, p = .082$				

Mediation Effect (H4)

The mediation analysis was run in PROCESS (Model 4) in order to assess the mediating effect of academic passion between students' feelings of belongingness to the group and students' motivation.

For H4, the indirect effect was not significant due to the confidence interval including zero. However, the direct path between belongingness and motivation was statistically significant ($B = 0.424, p = .042$). This suggests that belongingness could potentially predict motivation in a less thorough analysis, in contrast with a regression analysis. Yet, the path between belongingness and academic passion was not significant ($B = -0.013, p = 0.877$). Similarly, the path between passion and student motivation was also not significant ($B = 0.019, p = 0.709$). Hence, H4 is not supported.



Discussion

This research attempted to determine the direct and indirect effects of mentor immediacy and students feelings of belongingness to the group on motivation. In order to observe that, we have collected data from first year university students regarding their

experience with their student mentors and their overall experience in the class through a questionnaire.

First, this study examined the direct effect of immediacy on motivation. Our results indicate that while the overall model constructed is significantly predicting student motivation (See Table 2), neither predictors showed significance on their own. Therefore, our first hypothesis (H1) was not supported. Unlike previous studies (Frymier, 1993; Frymier, 1994), which have demonstrated a consistent association between immediacy and motivation, our results suggest that this relationship may be more context-dependent than previously assumed. Allen et al. (2006) tested a causal model of motivation predictors and found a similarly weak relationship between immediacy, motivation, and affective learning. It was then argued that the process of immediacy may be a cumulative one, that increases affect and student engagement over time, hence being better highlighted in a longitudinal model (Allen et al., 2006). In addition, it was found that students' motivation at the beginning of the academic semester was a stronger predictor of motivation later on in the semester than teacher immediacy (Frymier et al., 1993). Moreover, Frymier (1993) also found that students who experienced low motivation at the beginning of the academic year did not improve even with immediate mentors. This is an interesting perspective to observe classroom dynamics from, as it shows motivation is harder to influence than anticipated. Focusing on building rapport between the mentors and students, rather than increasing psychological closeness, may be more effective in fostering behavioral engagement (Estepp & Robberts, 2015). Consequently, mentors should not cease to implement verbal or non-verbal immediacy in the classroom, but in turn try to make use of these techniques as part of a broader effort in creating rapport and a supportive learning atmosphere that may yield motivational improvements over time.

Next, we sought to examine the effect of students' feelings of belongingness on their motivation. As previously mentioned, belongingness to the group did not reach statistical

significance by itself, thus our second hypothesis (H2) was not supported. Based on the principles of Social Identity Theory (Tajfel & Turner, 1979), students experience higher levels of engagement through group identification and shared common goals. Our findings reflect that students may not see their academic peer groups as salient identity sources as soon as the first semester of university. Additionally, it is worth taking into account the possibility that belongingness displays stronger impacts on emotional and psychological well-being. Previous research illustrates that the effects of belongingness are a vast network of intertwined traits and characteristics, its effects spreading from student's self-efficacy and self-concept to directing students towards mastery goals (Kopershoek et al., 2019).

The latter half of our research question concerns the interaction effect between immediacy and feelings of belongingness on academic motivation. The interaction consisted of analyzing the moderation effect of feelings of belongingness on the relationship between mentor immediacy and student motivation. This hypothesis was not supported (H3) as the model failed to reach statistical significance. What our results may reflect is that the effects of immediacy on student motivation are not influenced by the individual student's sense of belongingness. El-Hawari (2023) found that social congruence moderated the relationship between immediacy and motivation at a faculty mentor level but not at peer-mentor level. Perhaps peer mentors do not hold the same authority over students, combined with a lack of a long-term relationship with the students, do not activate the motivational mechanisms that make belongingness a meaningful moderator. Furthermore, it is feasible that immediacy and feelings of belongingness do not exert their effects through similar motivational pathways, causing these two relationships to not interact.

Lastly, we set out to conduct an exploratory analysis testing the mediation effect of academic passion on each of the main effects. We did not find a mediating effect of academic passion did mediate the relationship between feelings of belongingness and motivation (H4).

Previous studies found that passion plays a role in students' willingness to engage (Vallerad et al., 2003; Zhao et al., 2021). Nonetheless, literature on the underlying mechanisms that passion plays in the engagement branch of motivation brings novel perspectives on this relationship. Ho and Astakhova (2017), revealed that in work settings, passion may not always translate into observable behavior, as for example when controlling for satisfaction. What is notable is that, while the indirect pathway between belongingness and motivation - when including motivation - was not significant, the direct pathway did reach statistical significance in the mediator analysis. These findings may unveil a direct path between feelings of belongingness and student motivation, that is only detectable when a mediator accounts for unrelated variance. A recommendation would be to further investigate the direct pathway between belongingness and motivation when accounting for different confounding variables, like perhaps learning atmosphere and self efficacy.

Theoretical Implications

All things considered, our study greatly contributes to the vast body of knowledge surrounding classroom dynamic and motivational predictors. First, these findings contribute to the ongoing debate about the limitations of the principles of Social Identity Theory (Tajfel & Turner, 1979). It seems that the properties of in-group identification in the context of academic classrooms may be an effect that unravels in time. On the other hand, while previous literature places an emphasis on the the positive relationships between immediacy, belongingness to the group and motivation (Goodenow, 1993; Korpershoek et al., 2019; Frymier, 1994), our results show that these dynamic may be more complex, and difficult to observe so early in the students' academic journey. On top of that, the findings from our study, contribute to the idea that immediacy may be a process that develops over time, and is context-dependent either on mentor or individual differences among students (Allen et al., 2006; Frymier, 1993). While passion and behavioral engagement have been linked before

(Vallerd et al., 2003; Chen & Zhao, 2024) the lack of mediating power in the current study, suggests that it functions vigorously as an independent predictor of motivation, but does not act through the same pathway as the motivational properties of immediacy. As we observed, the positive relationship brought out by the mediation effect on the relationship between belongingness and motivation, could reshape our understanding of this complex dynamic.

Practical Implications

The conclusions from our study carry substantial practical implications for peer mentoring in higher education settings. To begin with, findings suggest that relational strategies aimed at improving motivation may not be sufficient on their own. Based on our findings, we propose that merging relational strategies with trust and rapport building techniques could magnify the positive effects of traditional mentor training (El-Hawari, 2023; Estep & Roberts, 2015). In previous research it was revealed that students tend to view peers as valuable for emotional support (Camacho et al., 2021) and benefit in terms of motivation and academic passion when there is developmental feedback given to the mentor (Zhao et al., 2021). With these, and our findings, a practical step forward could be peer mentors aiming to foster an emotionally safe environment for the students, where feedback is welcomed and students are encouraged to form support networks within the classroom. Taken altogether, our study contributes to mentoring programs focusing on a prosperous environment in the classroom. Additionally, our results show that mentors should prioritize innovating and updating existing teaching strategies to optimize students' academic involvement.

Limitations and Future Research

Our study explored classroom dynamics through the direct and indirect relationships between mentor immediacy, feelings of belongingness to the group and motivation. However, the present study is not free from limitations. First and foremost, the fact that it is a cross-sectional design limits our ability to observe the full effects of our variables. This

interpretation supports the notion suggested by William et al. (2019), who revealed that in the beginning of the academic year there is close to zero meaningful integration among students. Future research should consider the use of a longitudinal design to better capture the mechanisms under which immediacy and belongingness can impact student motivation. Secondly, our sample was limited to first-year psychology study from the University of Groningen. Ideally, further research should aim for the use of a more representative sample, perhaps from multiple universities and different disciplines within the country. The use of a more varied sample could reveal whether these dynamics apply in other settings, or if they function differently in other study domains. Third, while the use of questionnaires is time and cost effective, we believe future researchers would benefit from conducting an experimental design where they design certain classroom situations aimed at eliciting motivation, and then later observe how the factors interact in a natural environment. Last but not least, since academic passion did not prove a useful mediator, it would be appropriate to investigate these relationships with diverse mediators that proved to play a role in student motivation, for example social congruence, self-efficacy or even academic achievement.

Conclusion

In conclusion, our study aimed to examine the direct and indirect effects of mentor immediacy and students' feelings of belongingness on motivation. Contrary to our initial expectations, none of our hypotheses are supported. Our findings suggest that student motivation is a complex and largely non-malleable trait. Nonetheless, our mediation analysis positions academic passion as a contributing factor in the direct relationship between belongingness and motivation. Yet, our results have practical implications for mentoring programs and the view on classroom dynamics. Mentoring programs could redirect their focus towards fostering a supportive learning environment for students, adopting a time-sensitive approach to building rapport and psychological closeness. We encourage future researchers to

explore multiple academic constructs associated with motivation, as investigating the predictors of motivation is a crucial part of optimizing peer-mentor training.

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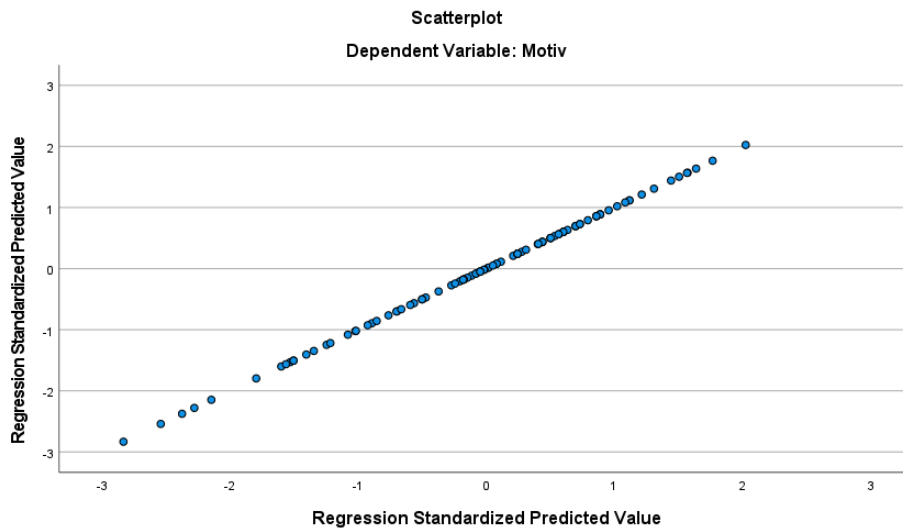
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Appendix A

Assumptions check

Figure 1.1

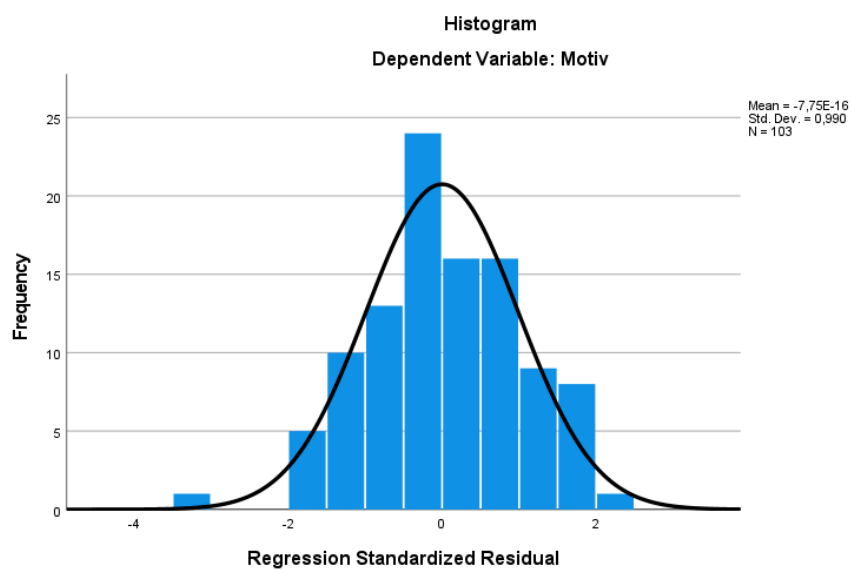
Assumption of linearity



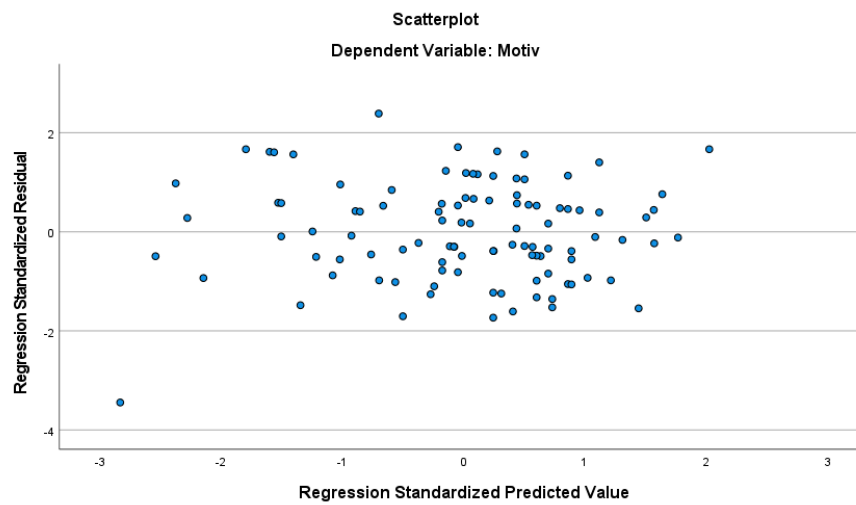
Note: Assumption of linearity is met.

Figure 1.2

Assumption of normality



Note: Assumption of normality is met.

Figure 1.3*Assumption of homogeneity**Note: Assumption of homogeneity is met.***Figure 1.4***Assumption of independence of observations*

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,258 ^a	,066	,048	,99034	1,903

a. Predictors: (Constant), Immed, Belong

b. Dependent Variable: Motiv

*Note: Assumption of independence of observations is met.***Figure 1.5***Assumption of multicollinearity*

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Belong	Immed
1	1	2,977	1,000	,00	,00	,00
	2	,015	13,878	,06	,94	,25
	3	,008	19,711	,94	,06	,74

a. Dependent Variable: Motiv

Note: Assumption of multicollinearity is met.