The Effect of Peer Mentors on Student Participation: Disentangling the Role of Self-Disclosure, Trust, and Anxious Attachment Style

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PSB3E-BT15: Bachelor Thesis

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June 30, 2022

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Abstract

Research has shown that peer mentors have a positive impact on student participation. In this study, a mediating effect of trust on the relationship between peer mentor self-disclosure and student classroom participation was predicted. Based on Basic Needs Theory within the framework of self-determination theory, it was proposed that peer mentor self-disclosure fulfils students' need for relatedness and makes them therefore more likely to participate in class. It was further predicted that an anxious attachment style would moderate the effect of peer mentor self-disclosure on trust, such that with increasing levels of anxious attachment students would experience less trust in response to the self-disclosure from their peer mentor. The sample consisted of 98 first-year Psychology students at the RUG. An online questionnaire using Qualtrics (Qualtrics, 2022) measured the following concepts: peer mentor self-disclosure, student-mentor trust, student participation, and anxious attachment. A bootstrap analysis using PROCESS (Hayes, 2013) failed to support the hypothesized model. This study showed that neither the amount of personal information a mentor discloses nor the level of trust experienced by students play a role with regard to student participation. Instead, it seems to be more important that peer mentors disclose information that is relevant to the course content when wanting to increase both trust and student participation. With regard to student-mentor trust, it is beneficial to focus on disclosing more positive experiences as compared to negative ones. An anxious attachment style was shown to negatively influence students' participation. Theoretical and practical implications are discussed.

Keywords: peer mentoring, self-disclosure, anxious attachment, trust, student participation

The Effect of Peer Mentors on Student Participation: Disentangling the Role of Self-Disclosure, Trust, and Anxious Attachment Style

In the Netherlands, the average person spends about 18.5 years of their lifetime in education (Human Development Reports). The majority of this time is spent in the classroom, an environment that is meant to stimulate learning through active engagement. Student engagement is an important predictor of student achievement and performance (Bekkering & Ward, 2020; Carini et al., 2006; Handelsman et al., 2005; Schnitzler et al., 2020) and should therefore be the focus of an effective learning environment. However, not every classroom is able to live up to this expectation and high levels of student engagement are not the standard. Instead, it is usually only a handful of students who participate in the classroom (Fritschner, 2000; Howard & Henney, 1998; Karp & Yoels, 1976). How can students be motivated to engage more in the classroom and consequently become more effective learners? Past research has shown that peer mentors have a positive effect on several student outcomes, including academic performance (Asgari & Carter, 2016, Pilot et al., 2021), motivation, and study behaviors (Hardt et al., 2020). There is however still a lack of understanding about the underlying processes of this relationship. The present research aims to fill this gap by specifically focusing on the effect of peer mentor self-disclosure on student participation and by introducing trust as a mediator of this relationship. It is further hypothesized that an anxious attachment style moderates the relationship between self-disclosure and trust.

Student engagement is a multidimensional construct (Handelsman et al., 2005; Schnitzler et al., 2020) and refers to "the extent to which students employ and express themselves behaviorally, cognitively, and emotionally in learning activities" (Schnitzler et al., 2020, p. 629). Within the framework of this research, the focus will lie on the behavioral dimension of student engagement, more specifically on the aspect of student classroom participation. Student engagement has important implications for the success of students.

Research has shown that students who show higher levels of participation earn better grades (Handelsman et al., 2005), show better critical thinking skills, and learn more (Carini et al., 2006). Unsurprisingly, student engagement in class is not solely rooted within the students themselves. Teachers play an important role in promoting students' in-class participation (Fritschner, 2000; Karp & Yoels, 1976).

Amongst a number of other teaching behaviors (for a review see Rocca, 2010), it has been shown that instructor self-disclosure is positively related to student classroom participation (Cayanus et al., 2009; Fritschner, 2000; Goldstein & Benassi, 1994). Teacher self-disclosure can be defined as "a teacher's sharing of personal and professional information about himself or herself in a believable way" (Goldstein & Benassi, 1994, p. 212). Self-disclosure is a multidimensional construct and researchers most often differentiate between three different dimensions of self-disclosure: negativity, amount, and relevance (Cayanus & Martin, 2008). The amount dimension simply refers to how often a teacher discloses personal information. The negativity dimension describes the valence of the self-disclosure, which can be either positive or negative. The relevance dimension refers to whether the disclosed information is relevant to the course content. This study solely focuses on the amount of self-disclosure, which specifically has been found to be positively correlated with the amount of classroom participation (Cayanus et al., 2003, as cited in Jebbour & Mouaid, 2018). At this point, it is important to note that past research focused on the effects of self-disclosure from teachers. This study will investigate the role of self-disclosure coming from a peer mentor – a senior university student teaching first-year students in an introductory course (Asgari & Carter, 2016).

What, however, may account for the relationship between instructor self-disclosure and students' in-class participation? Goldstein & Benassi (1994) found that the reciprocity effect – the notion that self-disclosure from one person produces self-disclosure from the

other person – can also be observed in the classroom. In this context, students would reciprocate self-disclosure from an instructor by actively engaging in class. This effect may be explained by the Trust model (Cozby, 1973; Jourard; 1959), according to which "Person A's initial disclosure to Person B makes B feel liked and trusted by A. This induces B to like A and to want to reciprocate disclosure as a sign of liking and trust for A" (Wetzel & Wright-Buckley, 1988, pp. 277-278). Based on this theory, it can be expected that the more a peer mentor self-discloses, the more likely students are to perceive the peer mentor as trustworthy and the more likely they are to reciprocate the self-disclosure in the form of classroom participation. Even though research has shown that self-disclosure and trust are moderately positively related (Schrodt, 2013; Wheeless & Grotz, 1977), research findings regarding the direction of the relationship are rather ambiguous. Most often it has been argued that self-disclosure follows trust (Jourard, 1971; Mellinger, 1956). However, some research findings also point towards the possibility that self-disclosure produces trust (Wheeless & Grotz, 1977). In the proposed model, it was assumed that self-disclosure would increase student-mentor trust; causality can however not be assumed.

According to self-determination theory (SDT; Ryan & Deci, 2000), we have an innate tendency to move towards growth, which is facilitated by three psychological needs: need for autonomy, need for competence, and need for relatedness. Basic Needs Theory – one of the five sub-theories of SDT – specifically relates these needs to high-quality classroom engagement (Reeve, 2012). Central to the proposed model is a person's need for relatedness, which is the need to form close relationships with others (Reeve, 2012). According to Basic Needs Theory, students that feel a sense of belonging (i.e., fulfilling the need for relatedness) in the classroom are more likely to participate. It has further been shown that teacher-student trust promotes a sense of belonging and thereby facilitates student engagement (Keyes, 2019).

This suggests that the higher the teacher-student trust, the more likely students feel like they belong and, consequently, the more likely they are to participate in class.

According to Attachment Theory (Bowlby, 1969), children develop different attachment styles depending on their caregiver's behavior during infancy (Cassidy et al., 2013), which can have a lasting impact on behavior throughout life (Young et al., 2017). Attachment is a "lasting psychological connectedness between human beings "(Bowlby, 1969, p. 194). Three fundamental attachment domains have been identified for adults: secure attachment, anxious attachment, and avoidant attachment (Iwanaga et al., 2017). Even though adult attachment styles are not necessarily the same as those observed in infancy, early attachments can have a serious impact on relationships formed later in life (Young et al., 2017). Central to the proposed model, attachment styles affect whether someone perceives another individual as trustworthy or untrustworthy (Wilson et al., 2013). Individuals with an anxious attachment style (i.e., anxious-preoccupied attachment) – a form of insecure attachment – generally experience less trust in their interpersonal relationships compared to those who are securely attached (Pistole, 1993; Simpson, 1990). Therefore, it was proposed that with increasing levels of anxious attachment, students would be less trusting in response to the peer mentor's self-disclosure, reducing the positive effect between self-disclosure and trust. Applied to the entire model, this would mean that an anxious attachment style negatively influences the relationship between peer mentor self-disclosure and student participation through the mediating variable trust.

To summarize, a model was proposed in which trust mediates the relationship between self-disclosure from a peer mentor and students' participation in class (see Figure 1). Higher amounts of self-disclosure were expected to increase levels of student-mentor trust, and in turn student in-class participation. Therefore, both the direct effect of self-disclosure on student in-class participation as well as the mediating role of trust in this relationship were

examined. Additionally, a moderating role of an anxious attachment style on the relationship

between self-disclosure and trust was predicted. In other words, it was expected that with

increasing levels of anxious attachment, students would report lower levels of trust in

response to the peer mentor's self-disclosure. Based on the presented literature and theory, the

following hypotheses are formulated:

H1: Trust mediates the relationship between students' perceptions of the frequency

with which their peer mentor discloses personal information and students' perceptions of their

level of participation in class.

H2: An anxious attachment style moderates the relationship between students'

perceptions of the frequency of their peer mentor's self-disclosure and their trust in their peer

mentor.

The present research gives insights into how peer mentors can be deployed in order to

effectively motivate students to be more engaged in the classroom and therefore has important

implications for how both learning environment and learning outcomes may be optimized.

Figure 1.

Proposed moderated mediation model
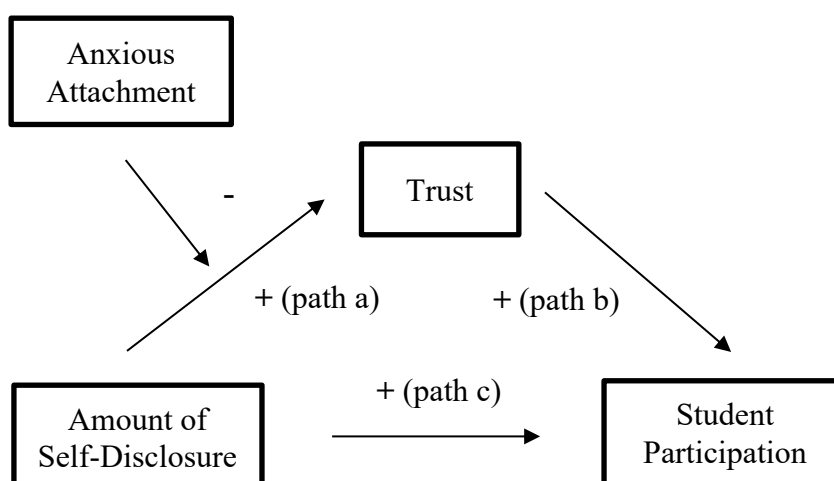
Method

Participants

98 first-year students (24 males; 73 females; 1 other), taking the Academic Skills course in the Bachelor Psychology program at the University of Groningen took part in this study. The participants' ages ranged from 18 to 34 with a mean of 20.42. Participants were recruited through advertising; no compensation was given for participation.

Study Design and Procedure

A cross-sectional research design was used to test the proposed moderated mediation model. Information was gathered with means of an online survey via Qualtrics (Qualtrics, Provo, UT). The nature of the study was observational in that levels of self-disclosure in peer mentors were not modified or influenced by the study design directly. The present study was part of a larger research project conducted for the bachelor thesis. Ethical approval was obtained by the faculty ethics committee. The survey took approximately 20 to 30 minutes to complete. Participants first had to indicate whether they were first-year Psychology students taking the Academic Skills course, since this was a major requirement of participation. Only students who fulfilled this criterion were allowed to continue. They were given an introduction to the study stating its content and procedure. Subsequently, an informed consent form was provided. After having agreed to take part in the study, all participants underwent the same order and set of questionnaires. Participants were allowed to take as much time as needed and drop out of the study at any given time. A dropout resulted in the exclusion of their data. After completion of the survey, participants were thanked for their participation.

Instruments

Being part of a larger research project, the survey included 18 scales in total. For simplicity reasons, only the scales relevant to this thesis are described (see Appendix). Total scores were calculated by summing the item scores on each scale across all participants.

Self-Disclosure

The Teacher Self-Disclosure Scale (Cayanus & Martin, 2008) was used to measure the amount, relevance and negativity of self-disclosure from both faculty and peer mentors. The questionnaire consists of 14 items (e.g., "My peer/faculty mentor often shares their dislikes or likes."), measured on a 7-point Likert scale ranging from *completely disagree* (1) to *completely agree* (7). All three dimensions show high internal consistency: amount (α = .80), negativity (α = .84), relevance (α = .88). Moreover, each item has been shown to have content validity (Cayanus & Martin, 2008). This paper solely focuses on the amount of peer-mentor self-disclosure. In the present sample, Cronbach's alpha for the amount of peer-mentor self-disclosure was .82.

Attachment Anxiety

In order to measure the extent to which students are anxiously attached, the anxious attachment subscale from the Attachment Style Questionnaire (ASQ-SF; Iwanaga et al., 2017) was used. The scale consists of 14 items (e.g., "I worry a lot about my relationships."), scored on a 6-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (7). The internal consistency reliability of the scale was computed to be .76 (Cronbach's alpha) and was similar to the long version of the scale. Furthermore, the scale was found to be valid (Iwanaga et al., 2017). Cronbach's alpha in the present study was .88.

Trust

The Student Trust in Faculty Scale (STF; Forsyth et al., 2012) is a 13-item instrument (e.g., "Peer/Faculty mentors care for students."), used to measure students' level of trust in their peer mentors and faculty mentors. The scale is scored along a 4-point Likert scale, ranging from *strongly disagree* (1) to *strongly agree* (4). Item 10 of the scale was reverse coded. The internal consistency of the scale has been shown to be very high (α = .90).

Moreover, there is support for construct, concurrent as well as predictive validity (Forsyth et al., 2012). In the current sample, Cronbach's alpha was .87.

In-Class Participation

The Student Course Engagement Questionnaire (SCEQ; Handelsman et al., 2005) was used to assess the extent to which students were engaged in the course. Since the current research focuses on behavioral engagement, solely the subscale participation/interaction engagement was included in the questionnaire. Moreover, one of the six items (i.e., "I go to the instructor's office hours to review assignments or tests or to ask questions.") was excluded, as it was not relevant to the sample. The scale used in this study consequently consisted of five items (e.g., "I raise my hand in class.") measured on a 5-point Likert that ranged from 1 (*not at all characteristic of me*) to 5 (*very characteristic of me*). The scale has been shown to have high internal consistency ($\alpha = .79$; Handelsman et al., 2005). Cronbach's alpha in the current study was .64.

Data Analysis

The data analysis was performed using IBM SPSS software (version 27). The moderated mediation model was tested using the PROCESS macro model number 7 which uses a bootstrapping approach (i.e., a form of resampling) to model testing (Hayes, 2013). Following Hayes' model, the mediation and moderation effect were first investigated independently. Then, a moderated mediation analysis was conducted, using 5000 bootstrap re-samples for each analysis. The significance of results was determined by 95% bias corrected confidence intervals. When the bootstrapped confidence interval did not include zero, it indicated that the parameter was statistically significant. The tested models included self-disclosure as the independent variable, anxious attachment as a moderator, trust as a mediator, and student participation as the outcome variable.

Data Preparation

In total, 168 students were recruited to participate in the study. However, a number of participants had to be excluded from the sample because they either did not meet the requirement of being a first-year student taking the Academic Skills course or did not complete at least one of the measures relevant to this study. As indicated by case wise diagnostics there was one outlier, which was consequently removed. The final sample consisted of 98 participants (Figure 2).

Figure 2.

Participant Flowchart

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┌─────────────────────┐
│ 168 participants    │
│ were recruited      │
└─────────────────────┘
          │        ┌────────────────────────────────────────┐
          ├───────►│ 13 did not fulfil the requirement for  │
          │        │ participation: taking Academic Skills  │
          │        │ course                                 │
          │        └────────────────────────────────────────┘
          │
          │        ┌────────────────────────────────────────┐
          ├───────►│ 13 did not give their consent          │
          │        └────────────────────────────────────────┘
          ▼
┌─────────────────────┐
│ 142 were included   │
│ in the study        │
└─────────────────────┘
          │        ┌────────────────────────────────────────┐
          ├───────►│ 43 did not complete at least one of the│
          │        │ following measures: SCEQ, STF, ASQ-    │
          │        │ SF, Teacher self-disclosure scale      │
          │        └────────────────────────────────────────┘
          ▼
┌─────────────────────┐  ┌────────────────────────────────────────┐
│ 99 included in the  │─►│ 1 participant was removed because of   │
│ analytical sample   │  │ being an outlier, as indicated by      │
└─────────────────────┘  │ casewise diagnostics                   │
                         └────────────────────────────────────────┘
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Ethical Considerations

Participation in the study was entirely voluntary and participants were made aware that there would be no adverse consequences upon not giving their consent. Further, participants had the possibility to withdraw from the study at any stage in case they felt like doing so. All responses were anonymous and were treated with confidentiality. Therefore, personal

opinions of students about their mentors cannot be traced back to the individuals. Any

discriminatory language was removed from the questions by using gender-neutral pronouns.

Participants were provided with the contact information of the thesis supervisors in case of

any questions regarding the research.

Results

All assumptions of the moderated mediation model were met.

Correlational Analysis

Pearson's correlations, means and standard deviations were calculated for all variables

(Table 1). As expected, in-class participation and anxious attachment were significantly

negatively correlated with each other. However, no significant correlations were found among

the remaining variables, which is in disagreement with the proposed hypotheses.

Table 1

Pearson correlations, means and standard deviations of the measured variables.

	1	2	3	4	M	SD
1. Amount of self-disclosure	-				16.02	4.69
2. Anxious attachment	-.011	-			49.91	11.65
3. Participation	-.014	-.366**	-		18.18	2.89
4. Trust	.056	.026	.182	-	38.82	4.37

Note. The unstandardized Pearson correlation coefficients are reported for each variable.
** indicates $p < .01$.

Mediation Analysis

First, a simple mediation analysis was conducted in order to examine the indirect

effect of the amount of peer mentor self-disclosure on student classroom participation through

trust. An overall non-significant model was found ($F (2, 95) = 1.521; p = 0.224$). There is no

evidence that trust mediates the relationship between amount of self-disclosure from a peer

mentor and students' in-class participation. There were no significant effects for amount of self-disclosure on student participation ($B = -0.015$, $SE = 0.075$, 95% $CI = [-0.164; 0.134]$, $p = .843$), for the amount of self-disclosure on trust ($B = 0.049$, $SE = 0.117$, 95% $CI = [-0.183; 2.82]$, $p = .973$), or for trust on student participation ($B = 0.121$, $SE = 0.070$, 95% $CI = [-0.018; 0.261]$, $p = .088$). Thus, there was no support for the first hypothesis.

H1: Trust mediates the relationship between students' perceptions of the frequency with which their peer mentor discloses personal information and students' perceptions of their level of participation in class.
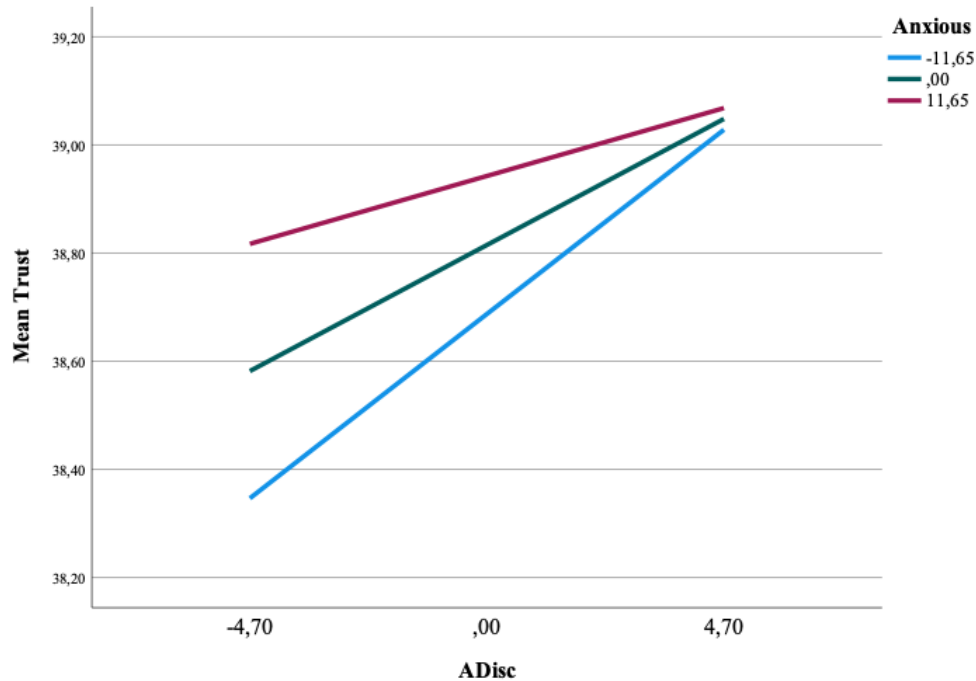
Moderation Analysis

The second analysis investigated the moderating influence of anxious attachment on the relationship between the amount of peer mentor self-disclosure and student-mentor trust. The overall model was not significant ($F (3, 94) = 0.122$; $p = .947$). No significant interaction effect could be found ($B = -0.002$, $SE = 0.009$, $t (3) = -0.226$, $p = .822$, 95% $CI = [0.019; 0.015]$) (see Figure 3). There is no evidence that anxious attachment moderates the effect of the frequency with which a peer mentor self-discloses on the trust experienced by students. These findings hence fail to support the second hypothesis.

H2: An anxious attachment style moderates the relationship between students' perceptions of the frequency of their peer mentor's self-disclosure and their trust in their peer mentor.

Figure 3.

Interaction between amount of peer mentor self-disclosure at low, average and high levels of

*anxious attachment on their relationships with student-mentor trust.*

Moderated-Mediation Analysis

The index of moderated mediation was not significant ($B = 0.0002$; $SE = 0.001$; 95%

$CI = [-0.003; 0.002]$). The conditional indirect effect of amount of self-disclosure, through

trust, was not significant at low ($-1SD$; $B = 0.009$; $SE = 0.019$; 95% $CI = [-0.018; 0.057]$),

moderate (*Mean*; $B = 0.006$; $SE = 0.015$; 95% $CI = [-0.019; 0.042]$), and high ($+1SD$; $B =$

0.003; $SE = 0.020$; 95% $CI = [-0.035; 0.047]$) levels of anxious attachment. Therefore, there

is no support for the proposed moderated mediation model in which trust would mediate the

relationship between the amount of self-disclosure and student classroom participation across

increasing levels of anxious attachment. Figure 4 portrays the moderated mediation model

with the values for the effects on each pathway, which were however all not significant.

Figure 4.

Moderated mediation model with effects for each pathway
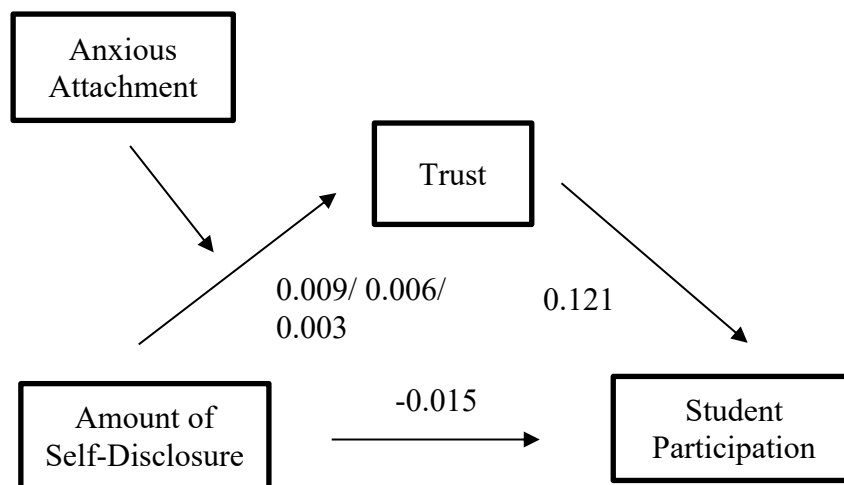
Note. The beta coefficients for each relationship are reported.

Post-Hoc Analysis

  A post-hoc analysis was performed in order to examine potential effects of the other two dimensions of self-disclosure (i.e., relevance and negativity). Pearson correlations, means and standard deviations were calculated for relevance and negativity of self-disclosure, anxious attachment, student-mentor trust, and student participation (see Table 2). Relevance of self-disclosure was significantly positively correlated with student participation and student-mentor trust. The negativity dimension of self-disclosure was significantly positively correlated with anxious attachment.

Table 2

Pearson correlations, means and standard deviations of the measured variables.

	1	2	3	4	5	M	SD
1. Relevance	-					25.112	5.181
2. Negativity	0.026	-				10.071	5.221
3. Anxious	0.084	0.383**	-			49.908	11.652
4. Participation	0.243*	-0.131	-0.366**	-		18.184	2.887
5. Trust	0.363**	-0.109	0.026	0.182	-	38.816	4.373

Note. The unstandardized Pearson correlation coefficients are reported for each variable. Relevance: Relevance of self-disclosure; Negativity: Negativity of self-disclosure; Anxious: Anxious attachment
** indicates p < .01.
* indicates p < .05.

Using PROCESS macro model 7 (Hayes, 2013), a significant direct effect of the relevance dimension of self-disclosure on both trust (*B = 0.306; SE = 0.091; 95% CI = [0.126; 0.486]*) and student participation (*B = 0.113; SE = 0.052; 95% CI = [0.011; 0.216]*) was found. Considering that anxious attachment was significantly negatively correlated with student participation, it was tested whether there is a direct relationship between the two variables. A linear regression showed that anxious attachment significantly predicted less student participation (*B = -0.091, t (96) = -3.853, p < .001*). Anxious attachment explained 13.4% of the variance in student participation (*R^2 = 0.134, F (96, 97) = 14.846, p < .001*). Moreover, there was a single significant main effect of negative self-disclosure on trust (*B = -0.162, SE = 0.077, t (3) = 0.764, p = 0.038,, 95% CI = [-0.314, -0.009]*). There was also a significant interaction effect (*B = 0.016, SE = 0.007, t (3) = 2.374, p = .020, 95% CI = [0.003, 0.030]*). These effects could however only be observed when reverse coding negativity of self-disclosure. When it was not reverse coded, no significant effects could be

found. The original model was further tested with faculty mentors instead of peer mentors. No significant direct effects could be observed between amount of self-disclosure from a faculty mentor, students' trust in their faculty mentor, and student participation. Both the moderation (F $(3, 93) = 0.161, p = .927$) and mediation model ($F$ $(2, 94) = 0.354, p = 0.703$) were not significant.

Discussion

In a sample of 98 first-year Psychology students at the University of Groningen, it was predicted that trust would mediate the relationship between the amount of peer mentor self-disclosure and student classroom participation. It was further predicted that an anxious attachment style would influence this mediation pathway, such that with increasing levels of anxious attachment, students would experience less trust in response to their peer mentor's self-disclosure. The present study did not find any support for the proposed moderated mediation model. In the following, findings concerning each pathway and their theoretical implications are reviewed.

Theoretical Implications

First, the relationship between the predictor and outcome variable is considered (path c). The amount of peer mentor self-disclosure was not significantly correlated with student participation and no significant direct effect could be found. Thus, the amount of self-disclosure from a peer mentor does not seem to play a role when it comes to promoting students' participation in the classroom. Consequently, there may be other, more influential teaching behaviors with regard to encouraging students to speak up. For instance, a qualitative study by Mustapha et al. (2010) found that students thought that their teachers' traits were the most influential factor in promoting their participation. Teachers that created a supportive environment by allowing mistakes were seen as especially influential. However, considering that past research findings positively relate the amount of self-disclosure to higher levels of

student participation (Cayanus et al., 2003, as cited in Jebbour & Mouaid, 2018; Cayanus et al., 2009), it may also be the case that self-disclosure does play a role and results differ depending on who discloses personal information – a peer mentor or a teacher. This study focused on self-disclosure from a peer mentor, whereas in previous studies the effects of self-disclosure were investigated with teachers. This may not only explain differences in results, but also suggests that there may be a difference in the effect of self-disclosure depending on whether it is a peer mentor or a teacher who discloses personal information. The post-hoc analysis however showed that the amount of self-disclosure from a faculty mentor also did not have any significant effects on students' trust perceptions or participation. Within the context of the current study, it hence does not seem to matter who is disclosing personal information, the act of self-disclosure does not appear to influence students' performance in class. Hence, it may be the case that disparities in results are simply due to methodological shortcomings. Differences in results might be traced back to differences in the operationalization and measurement of the variables of interest. When comparing the methodology of this study with previous studies that link self-disclosure to student participation, it can be observed that different instruments were used to measure either student participation or self-disclosure, or both. Different instruments are likely to be based on different definitions of either construct, which in turn influences results.

Secondly, there was no significant correlation or direct effect between the amount of peer mentor self-disclosure and the mediator variable trust (path a). This is not in agreement with past research findings that show a moderate positive correlation between the two variables (Schrodt, 2013; Wheeless & Grotz, 1977). A possible reason for these dissimilarities is again a difference in the measurement of the variables. The results of the current study suggest that the number of self-disclosures from a peer mentor seem not to influence the trust experienced by students. This challenges the Trust model, which proposes that the self-

disclosure of one person should make the other person perceive the person who discloses as more trustworthy (Cozby, 1973; Jourard; 1959). It may however be the case that the interpersonal processes that are at play in a classroom setting are different than those in a one-on-one setting. The model may therefore be less applicable to a classroom context. Further research is necessary to investigate this.

Further exploration of the data and variables showed that, in contrast to the amount of self-disclosure, the *relevance* of a peer mentor's self-disclosure was significantly correlated with both student participation and trust. Relevant self-disclosure directly influenced both variables. This suggests that the relevance of the personal information a peer mentor discloses plays a role in whether students trust in their peer mentor and participate in class. The more relevant the peer mentor's self-disclosures, the more likely students are to perceive their peer mentor as trustworthy and the more likely they are to participate in class. In combination with the findings of the main research, this suggests that it does not matter how much personal information a peer mentor discloses, but whether the information is relevant to the course. This is in line with previous research which found that an instructor's self-disclosure that is relevant to the course material has a stronger motivational effect on students to participate in the classroom compared to when the self-disclosure is irrelevant (Cayanus et al., 2009).

Furthermore, negative self-disclosure was found to be significantly correlated with anxious attachment. No significant effect of negative self-disclosure on trust or student participation was found. However, when reverse coding negative self-disclosure, a few significant results were found. Reverse coded negative self-disclosure had a significant negative effect on student-mentor trust, which suggests that the more negative the self-disclosures, the less students trusted their peer mentor. Hence, it may be more beneficial for mentors to disclose positive experiences than negative ones when wanting to gain trust from their students. However, other research shows that a mentor who discloses both positive and

negative information is perceived as more open and approachable than an instructor who solely discloses positive information (Cayanus, 2007, as cited in Cayanus et al., 2009), which may make it more likely for students to open up and participate. Further studies are necessary to investigate the optimal amount of positive and negative self-disclosures in the classroom.

Moreover, no significant correlation nor effect was found between the mediator variable trust and the outcome variable student participation (path b). These findings challenge existing theories on the relationship between trust and student participation; in particular Basic Needs Theory (sub-theory of SDT; Ryan & Deci, 2000), which links students' need for relatedness to in-class engagement. Recent research showed that teacher-student trust promotes a sense of belonging among students, which in turn makes them more likely to participate in the classroom (Keyes, 2019). The current study however suggests that student-mentor trust does not influence the level of participation in class. It appears that other factors may play a stronger role in creating a sense of belonging in the classroom. It could for instance be that students who strongly identify themselves with their mentors experience stronger feelings of belonging and therefore participate more in class. Future research could investigate this assumption by examining the role of student-mentor identification with regard to classroom participation.

Lastly, the effect of the moderating variable anxious attachment was investigated. Even though there is no support for the moderating effect of anxious attachment on the relationship between the amount of peer mentor self-disclosure and trust, a significant negative relationship was found between anxious attachment and student participation. Linear regression showed that anxious attachment significantly predicted student participation, which suggests that with increasing levels of anxious attachment, students are less likely to participate in the classroom. Since this was only part of the post-hoc analysis, this should be regarded with caution and further research needs to investigate whether this is a reliable

result. Interestingly, the hypothesis about the moderating effect on the relation between self-disclosure and trust was not supported by the data, which is in disagreement with previous research findings proposing that anxiously attached individuals are less likely to perceive others as trustworthy (Pistole, 1993; Simpson, 1990). In contrast, the findings of the present study suggest that being anxiously attached does not have an influence on how much trust students perceive in response to a peer mentor's self-disclosure. This suggests that an anxious attachment style may affect intimate relationships more than student-teacher relationships.

Overall, the results of the present study add to the debate about whether the amount of self-disclosure matters or not when wanting to improve participation in the classroom. While Goldstein & Benassi (1994) found that the amount of self-disclosure is positively related to student participation, a study by Wambach & Brothen (1997) failed to find similar results. Most recently, Cayanus et al. (2009) showed that instructor self-disclosure is positively related to students' participatory communication motive. These inconsistent findings may be partly due to the type of information an instructor discloses. For instance, a study by Myers et al. (2009) showed that students may be more likely to participate in class when they perceive their instructors to hold similar attitudes as them. Considering that trust seems to not play a role when it comes to students' in-class participation, the overall model should be reconsidered.

Limitations and Future Directions

This study provides important findings regarding the effects of peer mentors on student classroom participation. There are however some limitations that need to be addressed when considering these results, which simultaneously provide opportunities for future research directions.

First of all, the research findings are based on a cross-sectional design that makes it impossible to infer causal relationships between the variables within the model (West, 2011).

Hence, it cannot be stated that relevant peer mentor self-disclosure actually increases, or that anxious attachment actually decreases, students' participation in class. This research simply showed that the variables are either positively or negatively related to one another, but without manipulating one of the variables it is not possible to establish temporal precedence – a key factor of causality. In order to identify any causal relationships, future research could make use of an experimental design, whereby students would be randomly assigned to either a class with a peer mentor who self-discloses information relevant to the course or one who discloses irrelevant information. Furthermore, a longitudinal study could be used to help establish temporal order and explore changes in the relevant variables. Since data was collected at a single point in time, the study only focused on a snapshot of the academic year. How students perceive their mentors' self-disclosure and how much trust they experience is however likely to change over time. Hence, future research could focus on collecting data at multiple points in time throughout the course. Due to this correlational nature of the present research, there is also the possibility that potential third variables might influence the relationships between the variables. It could be that another variable – that is not included in the model – exerts influence on the relationships of interest. For instance, it could be that the relationship between the student and the mentor may affect the student's perceptions and reactions to the self-disclosures. Future research could account for such variables.

Secondly, there are some limitations within the methodology of the study. The participation subscale of the Student Course Engagement Questionnaire (Handelsman et al., 2005) had a low internal consistency reliability in the present study (alpha = 0.64). This suggests that items of the scale are not strongly correlated with one another, failing to measure the same construct. Future research could eliminate some of the items or choose a better suited scale. Since the scale had an acceptable internal reliability in previous studies, it is however likely that the low reliability is restricted to the current sample. Moreover,

variables were measured based on students' own perceptions, which are subject to biases. Students may answer in a socially acceptable way instead of being truthful. It is further difficult to assess one's own behavior accurately. Hence, future research could take into account perceptions of the mentors and other classmates as well, in order to form a more accurate understanding. Lastly, with 98 participants in total, the sample size was rather small, which increases the risk of type 2 errors (Columb & Atkinson, 2016). This study can therefore be seen as a pilot study, that needs further investigation with a larger sample.

A third limitation is that this study only focused on the amount of self-disclosure, since considering all three dimensions of self-disclosure would go beyond the scope of this thesis. As the post-hoc analysis showed, the relevance and negativity dimensions are however also relevant and worth studying. Thus, future research could investigate their roles in more detail. It could further be interesting to examine differences in the effects of peer mentor and faculty mentor self-disclosure with regard to the relevance and negativity dimension of self-disclosure.

Finally, due to convenience, the research sample is restricted to first-year Psychology students in the Bachelor program at the University of Groningen. Thus, the sample cannot be generalized to students at other faculties, universities or students who are further in their education. Future research could tackle this issue by replicating this study at other universities and in other faculties, as well as with students in higher years to see whether this would yield similar or different results.

Practical Implications

The relevance of this research was to identify how peer mentors can effectively be deployed to increase participation among students. Even though the proposed model was found to not be significant, it still provides important practical implications. These should be especially interesting to educational institutions that strive for more effective teaching

methods in order to improve student outcomes. The study showed that self-disclosure from a peer mentor can be an effective teaching behavior. However, it seems to not matter how much personal information the mentor discloses. Instead, it is important that the disclosures are relevant to the course material. When wanting to build trust, it is more effective to focus on disclosing positive experiences. Overall, students' participation in the classroom can be promoted by self-disclosing personal information that is relevant to the topic of the course and is more positive in nature.

Conclusions

The present research suggests that neither the amount of peer mentor self-disclosure nor student-mentor trust play a role in increasing student participation. Solely an anxious attachment style seems to be related to a student's level of participation. As one of the first studies to be investigating the underlying processes of the link between peer mentor self-disclosure and student participation, the findings are a valuable contribution to research in the educational field. Future research is necessary to account for limitations and to further advance the findings of this pilot study.

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Appendix

Figure 1

Teacher Self-Disclosure Scale (Cayanus & Martin, 2008)

Please indicate to what extent you agree with the following statements when considering your **peer mentor**.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
My peer-mentor often gives their opinions about current events.	○	○	○	○	○	○	○
My peer-mentor often shares their dislikes and likes.	○	○	○	○	○	○	○
My peer-mentor often presents their attitudes toward events occurring on campus.	○	○	○	○	○	○	○
My peer-mentor often gives their opinion about events in the community.	○	○	○	○	○	○	○
My peer-mentor uses personal examples to show the importance of a concept.	○	○	○	○	○	○	○
My peer-mentor uses their own experiences to introduce a concept.	○	○	○	○	○	○	○
My peer-mentor provides personal explanations that make the content relevant.	○	○	○	○	○	○	○
My peer-mentor provides personal examples which help me understand the importance of the content.	○	○	○	○	○	○	○
My peer-mentor links current course content to other areas of content through the use of personal examples.	○	○	○	○	○	○	○
My peer-mentor's disclosures, on the whole, are more negative than positive.	○	○	○	○	○	○	○
My peer-mentor normally reveals "bad" feelings they have about theirself.	○	○	○	○	○	○	○
My peer-mentor reveals undesirable things about theirself.	○	○	○	○	○	○	○
My peer-mentor usually discloses negative things about theirself.	○	○	○	○	○	○	○
My peer-mentor has told some unflattering stories about theirself.	○	○	○	○	○	○	○

Figure 2

Attachment Style Questionnaire – short form (ASQ-SF; Iwanaga et al., 2017): Anxious

attachment subscale

Please indicate to what extent you agree with the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
It's important that others like me.	○	○	○	○	○	○
It's important to me to avoid doing things that others won't like.	○	○	○	○	○	○
I find it hard to make a decision unless I know what other people think.	○	○	○	○	○	○
Sometimes I think I am no good at all.	○	○	○	○	○	○
I find that others are reluctant to get as close as I would like.	○	○	○	○	○	○
I worry that others won't care about me as much as I care about them.	○	○	○	○	○	○
I worry that I won't measure up to other people.	○	○	○	○	○	○
It's very important to me to have a close relationship.	○	○	○	○	○	○
I worry a lot about my relationships.	○	○	○	○	○	○
I wonder how I would cope without someone to love me.	○	○	○	○	○	○
I often feel left out or alone.	○	○	○	○	○	○
When I talk over my problems with others, I generally feel ashamed or foolish.	○	○	○	○	○	○
I get frustrated when others are not available when I need them.	○	○	○	○	○	○
Other people often disappoint me.	○	○	○	○	○	○

Figure 3

Student Trust in Faculty Scale (STF; Forsyth et al., 2012)

Please indicate to what extent you agree with each of the following statements, considering your **faculty mentor**.

	Strongly disagree	Disagree	Agree	Strongly agree
1. Faculty mentors are always ready to help.	○	○	○	○
2. Faculty mentors are easy to talk to.	○	○	○	○
3. Faculty mentors care for students.	○	○	○	○
4. Faculty mentors always do what they are supposed to.	○	○	○	○
5. Faculty mentors really listen to students.	○	○	○	○
6. Faculty mentors are always honest with me.	○	○	○	○
7. Faculty mentors do a terrific job.	○	○	○	○
8. Faculty mentors are good at teaching.	○	○	○	○
9. Faculty mentors have high expectations for all students.	○	○	○	○
10. Faculty mentors DO NOT care about students.	○	○	○	○
11. Students can believe what faculty mentors tell them.	○	○	○	○
12. Students learn a lot from faculty mentors.	○	○	○	○
13. Students at this school can depend on faculty mentors for help.	○	○	○	○

Figure 4

Student Course Engagement Questionnaire (SCEQ; Handelsman et al., 2005):

Participation/interaction engagement subscale

To what extent do the following behaviors describe you in the Academic Skills class?

	Not at all characteristic of me	Not really characteristic of me	Moderately characteristic of me	Characteristic of me	Very characteristic of me
I ask questions when I don't understand the mentor.	○	○	○	○	○
I have fun in class.	○	○	○	○	○
I participate actively in small-group discussions.	○	○	○	○	○
I raise my hand in class.	○	○	○	○	○
I help fellow students.	○	○	○	○	○