The Mediating Effect of Mentor Identification: Investigating the Relationship of Mentor

Self-Disclosure on Student Participation and Self-Efficacy

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Abstract

The study investigated the relationship between mentor-self-disclosure and student outcomes (participation and self-efficacy), mediated by mentor identification. Mentoring was investigated through peer mentoring and classical mentoring (faculty mentoring). It was hypothesized, that identification would mediate the relationship between peer-and faculty mentor self-disclosure and both student outcomes. When investigating peer mentoring, the model was expected to be more predictive for self-efficacy than participation. Lastly, peer mentoring was hypothesized to be a stronger predictor than faculty mentoring. An online survey study was conducted, using a sample of 107 university students, that took part in an academic skills course as part of their psychology program. The data was examined by carrying out mediation analyses, using model 4 of Hayes' PROCESS macro (Hayes, 2013). Results showed no mediating effects of identification on the relationship between mentor self-disclosure and student outcome. A positive significant effect was found between relevant peer mentor self-disclosure and self-efficacy, as well between peer mentor identification and in-class participation. Moreover, a significant effect was found between relevant faculty mentor self-disclosure and identification with the faculty mentor. The findings extend earlier literature by suggesting that identification does not play a predicting role in the proposed model. Peer mentor self-disclosure seems to be a stronger predictor of self-efficacy than participation. Self-disclosure relevance seems to be more important than its quantity. Findings can potentially be transferred to peer mentoring programmes, teaching the applications that have the largest effect on positive student outcomes.

Keywords: mentoring, mentor-identification, self-disclosure, in-class participation, student self-efficacy

The Mediating Effect of Mentor Identification: Investigating the Relationship of Mentor Self-Disclosure on Student Participation and Self-Efficacy

Recently, peer mentoring has been identified as an influential practice improving student outcomes, including academic improvements, as well as psychosocial developments (Alonso et al., 2010). One variable that seems to influence the efficacy of a good mentoring relationship is the degree to which the mentor self-discloses to the students. Allen (2009) noted that self-disclosure is an important factor in the establishment of a student-mentor relationship. This holds not only in classical mentoring (i.e., a more experienced, higher rank individual mentoring lower rank individuals) but also in peer mentoring practices (i.e., one student mentoring one-or multiple students). However, peer mentoring and classical mentoring practices might lead to different student outcomes (Colvin & Ashman, 2010; Leidenfrost et al., 2011).

One reason for these effects might be the discrepancies in mentoring styles, that often differ between classical mentoring, and peer mentoring. This suggests that the underlying processes resulting in the success of the different mentoring strategies, differentiate (Leidenfrost et al., 2011). Pilot et al. (2021) found that peer mentors are generally seen as more approachable, accessible, and relatable. Moreover, students participating in peer mentoring practices usually not only benefit from the other students' experiences, but can also apply gained knowledge more easily to themselves and their personal circumstances since mentor and mentee are at a similar point in life. Consequently, the possibility of living through more comparable situations is therefore more likely (Colvin & Ashman, 2010; Pilot et al., 2021).

While differences between peer mentoring and classical mentoring practices have been recorded, the underlying factors for the relationship between mentor self-disclosure and positive student outcomes have not yet been discussed much. To find these underlying mechanisms and to further investigate the differences between mentoring practices, it is

crucial to find mediating factors in the relationship between self-disclosure and student outcomes.

Self-Disclosure

Self-disclosure in the context of teaching, is defined as the process of voluntarily sharing thoughts, feelings, or experiences with someone else (Zardeckaite-Matulaitiene & Paluckaite, 2013). The content of the disclosure may be situationally dependent and does not necessarily relate to the topics discussed in class (Goodboy et a., 2014). Moreover, it can vary in positivity, length, accuracy (the level to which information is correct), and intimacy (Allen, 2009). According to Cayanus and Martin (2008), teacher self-disclosure has multiple dimensions. The most important ones are amount, relevance, and negativity. Amount describes the quantity and the frequency of the disclosure happening. Relevance describes the degree to which the disclosed information is relevant to the discussion followed in class. Negativity is the dimension of disclosing negative information to students. This could entail negative experiences as well as immoral behaviour or other undesirable information. All elements positively predict student academic outcomes in terms of affective learning and student motivation. Since negativity has often been shown to negatively correlate with student outcome, the current research will focus on the facets of amount and relevance when investigating self-disclosure (Cayanus & Martin, 2008). Teacher self-disclosure creates reciprocity between the two parties and causes students to benefit from increased confidence, acceptance, and ability to freely discuss (Zardeckaite-Matulaitiene & Paluckaite, 2013). Through the shared information, students gain insights about their instructor, which establishes a more informal atmosphere, making the teacher more likeable and relatable (Zardeckaite-Matulaitiene & Paluckaite, 2013).

Peer Mentor Self-Disclosure

While the research on self-disclosure among peer mentors is not as broad as for classical mentoring and teaching, research suggests that the incorporation of mentor self-

disclosure is as essential for peer mentoring as it is for classical mentoring (Allen, 2009). Peer Mentoring can be defined as a more advanced student helping and guiding lower-class students (Colvin & Ashman, 2010; Alonso et al., 2010). Mentor and mentee are usually the same age and have the same status within an institution. Peer mentoring may take place in individual or group settings. Thereby, group settings usually not only facilitate the benefits coming from the mentor him or herself, but also the benefits gained through group discussions and further group members (Alonso et al., 2010).

` Overall, peer mentoring has been associated with increased academic achievement, self-learning, and better transitions to new university settings (Husband & Jacobs 2009). The benefits of peer mentoring are broad and cover a wide range of areas. One explanation for the positive influence that peer mentoring has on student outcomes, might be the underlying principle of self-disclosure (Cayanus & Martin, 2008; Cayanus et al., 2009). Thereby, self-disclosure varies in depth and breadth. Breadth is the variety of information that is being disclosed (Goodboy et al., 2014). Due to the less formal relationships between peer mentors and mentees, self-disclosure among peers might have more breadth and might therefore be more influential (Vijayakumar & Pfeifer, 2020).

According to previous literature, self-disclosure fosters student advancement through two functions, namely the career development function, and the psychosocial function (Alonso et al., 2010; Leidenfrost et al., 2011). The career development function includes the facilitation of academic help, training, or challenges through the mentor, leading the student to improve their academic success or course satisfaction. The psychosocial function covers interpersonal aspects involving the student-mentor relationship. This might lead to improvements in self-esteem, confidence, or self-efficacy (Alonso et al., 2010; Leidenfrost et al., 2011). Research shows, that peer mentoring includes the psychosocial function more strongly compared to classical mentoring, which facilitates the career development function

more strongly (Ensher et al., 2001; Leidenfrost et al., 2011). Consequently, peer mentors are more likely to improve the mentees' social and psychological well-being.

Student Outcomes

To investigate the potential difference between peer mentoring and classical mentoring, and to get a full picture of how mentor self-disclosure influences students leaning achievements, it is important to look at student outcomes reflecting the psychosocial function as-well as the career-development function. Career development might take place through academic help, training, or challenges, and will lead to increased academic achievements (Leidenfrost et al., 2011). In previous literature, improvements are most often investigated through performance measures (Alonso et al., 2010). The current study will therefore explore student performance through the level of in-class participation. In-class participation thereby reflects the amount of participation a student engages in during class (Alonso et al., 2010). Previous literature shows, that in-class participation can be used as a predictor of graduation success (Kern et al., 2019). Thereby, it can be seen as a reflection of the improvement of the students' learning strategies (Meltzer et al., 2020). Moreover, research not only proposes that academic improvements are reflected in class participation (Handelsman et al., 2005), but also demonstrates that the favourable effects of mentoring on participation are dependent on the student-teacher relationship (Kern et al. 2019; Meltzer et al., 2020). This proposes, that specific relationship variables between mentor and mentee are essential in order to achieve positive academic and psychological outcomes.

Psychosocial development can be measured through self-efficacy. According to Bandura and Adams (1977), self-efficacy is defined as a person's trust in his-or her abilities. The stronger a person's feeling of self-efficacy, the more likely the person is to succeed at a task (Nasa, 2014). On the other hand, a poor feeling of self-efficacy correlates negatively with success in the given field. Self-efficacy is closely related to a person's experiences as well as their perceived level of confidence (Landino & Owen, 1988). Rhodes (2008) discusses how

mentoring has advantageous effects on students' educational confidence, showing that self-efficacy beliefs are positively influenced through classical mentoring and peer mentoring. Moreover, previous research shows self-efficacy to be a factor that crucially improves through the implementation of self-disclosure in mentoring-and peer mentoring practices (Clevinger et al., 2019). This leaves open to discussion how mentor self-disclosure leads to these improved student outcomes and what variables might be responsible for these effects.

Mentor Identification

As mentioned above, one reason for the positive effect that self-disclosure has on Student outcomes is the idea, that it increases the mentee's ability to get to know the mentor, and therefore relate to him or her (Vijayakumar & Pfeifer, 2020). Henry and Thorsen (2021) explained how important interaction is when building a relationship, and how self-disclosure influences the quality of a relationship. Building upon this, we find the importance of identification with the mentor to be a sustaining factor for a good mentoring relationship, suggesting that identification might be an important relational part of self-disclosure and relationship development (Humbret & Rouse 2016). According to upwards social comparison theory, comparison with superiors leads to specifically good outcomes if the higher rank individual is not too different from the learner (Dijkstra et al., 2008). This also means, that the more similarities are shared through self-disclosure, and the more one can relate to and identify with their mentor, the more likely that person is to experience positive educational results from the mentoring intervention. Since we find differences in the effects of self-disclosure between peer mentors and classical mentors (Leidenfrost et al., 2011), the degree to which a mentee can identify with the mentor might play a mediating role in the effectiveness of self-disclosure interventions in mentoring, explaining the relationship between self-disclosure and student outcome.

One identifies with another individual, when recognizing own characteristics in someone else (Gibson, 2004). Originally, identification had been defined as a behavioural

process in which the subordinate is modeling the actions of the leader that one wants to be alike (Kagan, 1958). While originally, this form of imitation was seen as a behavioural response to protect one's self-esteem, identification has been shown to be a main reason for interpersonal attraction, as well as for the influence that the mentor can have on the protegee (Bowen, 1986). The form of identification that defines the degree to which mentor and mentee identify with one another, is defined as personal identification (Ashforth et al., 2016). According to Humbret and Rouse (2016), it is an essential part of mentoring relationships that defines the extent to which the two parties of the relationship overlap. Moreover, literature shows that when considering mentoring, the quality of identification has an effect on the degree to which identification positively influences the behaviour of the mentee. Thereby, the most optimal amount of identification has the most positive effects (Humbret & Rouse, 2016). Due to the importance that earlier research results attribute to the concept of identification in the cultivation and maintenance of a beneficial mentoring relationship, as well as the differences in identification between peer mentoring and classical mentoring, we suspect that identification could have a mediating effect on the relation between mentor self-disclosure and student outcome (self-efficacy and in-class participation). We also suspect that due to an increased identifiability between student and peer mentor, this effect could be stronger than for classical mentoring.

In the current study we will therefore investigate the underlying causes of the relationship between mentor self-disclosure and student outcomes. Identification with the mentor will be investigated as a mediating factor, suspected to play an explanatory part in this relationship. Mentor self-disclosure will be explored by comparing peer mentoring to classical mentoring. For the current model, the term 'faculty mentoring' (a higher order individual of the university faculty, for example a professor) will be used, referring to a classical group-mentoring intervention. Student outcome will be investigated through in-class participation

(career developmental function), as well as student self-efficacy (psychosocial function). We therefore hypothesize that

H1: Peer mentor identification mediates the relationship between peer mentor self-disclosure (amount and relevance) and student outcome (in-class participation and self-efficacy).

According to previous findings, suggesting that differences exist between peer mentoring and faculty mentoring, and the notion that peer mentoring is associated with higher psychosocial improvements than career-developmental improvements, we hypothesize that

H2: The mediated relationship between peer mentor self-disclosure (amount and relevance) and self-efficacy, is stronger than the mediated relationship between peer-mentor self-disclosure and in-class participation.

H3: Faculty mentor identification mediates the relationship between faculty mentor self-disclosure (amount and relevance) and student outcome (in-class participation and self-efficacy).

H4: The mediating effects will be stronger for peer mentoring than for faculty mentoring.

Figure 1

Proposed mediation model
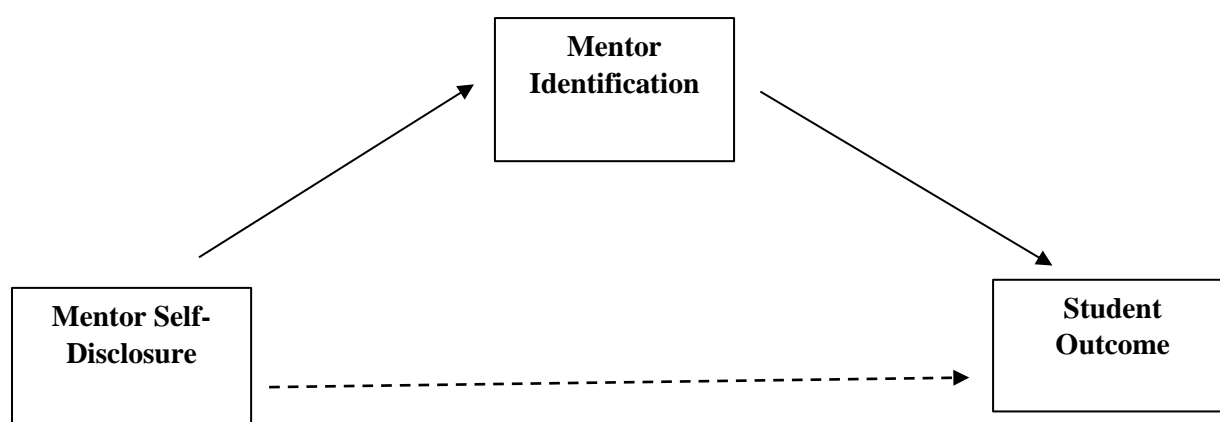
Method

Participants

Participants included a sample of first-year psychology students from the University of Groningen (Netherlands), taking part in an Academic Skills course. Dutch students (26%) and international students (German = 47%; other =31%) were recruited via WhatsApp, E-Mail, in person, or through an instructor. Of the 168 respondents, 61 were excluded from the analysis due to missing consent or incompleteness, leaving a total of 107 participants. The sample was made up of 78 female, 26 male, and 3 participants that identified differently. The mean age of the participants was 20.64 (SD = 2.62).

Measures

Cayanus and Martin's (2008) Teacher Self-Disclosure Scale was used to measure mentor self-disclosure in the academic skills course. The 14-item measure asked the students to report their impressions of their teacher's use of self-disclosure. On a seven-point Likert scale, participants rated each item on how well it applies to their teacher. The response-continuum ranged from (1) completely disagree to (7) completely agree. Further, the scale allows to differentiate between three aspects of self-disclosure: amount, relevance, and negativity. Negativity was not investigated in the current study. Sample items were for instance "My peer/student-mentor often shares his/her dislikes and likes" (amount), "My peer/student-mentor uses his/her own experiences to introduce a concept" (relevance). The Cronbach's alphas for the dimensions in peer mentoring were $\alpha = .826$ for amount and $\alpha = .883$ for relevance. For faculty mentoring we found $\alpha = .897$ for amount and $\alpha = .936$ for relevance.

To gain insight into the extent to which the students identified with their mentors, Ybema and Buunk's (1995) ´identification scale´ was used. The scale consisted of four questions ($\alpha = .85$), which the participants answered twice; once about their peer mentor and once about their faculty mentor. The participants were instructed to keep in mind 'how well the statements described their experience' with the specific mentor. To measure this, a 7-point

Likert scale was used (1 = not at all; 7 = very much). Cronbach's alphas for the current study were α = .903 for faculty mentoring and α = .877 for peer mentoring.

Student in-class participation was measured through the Participation subscale from the In-Class Engagement Questionnaire by Handelsman et al. (2005). The measure included 6 statements, measured on a five-point Likert scale (1 = "not at all characteristic of me"; 5 = "very much characteristic of me"). The Cronbach's alpha for the questionnaire was α = .79. In the current study, the Cronbach's alpha was α = .639

Student self-efficacy was measured using the Self-Efficacy in Discipline scale (Imperial College London, n.d.). For the current study, the questionnaire had a Cronbach's alpha of α =.802. The measure consisted of five items rated on a 5-point Likert scale. The rating ranged from 1 = Not at all confident to 5 = Extremely confident. The wording of the questions was adapted, measuring self-efficacy in the setting of the academic skills course.

Procedure

Ethical approval for the current study was obtained by the faculty's ethics committee. The study was part of a larger research project, designed as a bachelor thesis project. Participants took part in an online survey study that was carried out on Qualtrics. There, participants had to indicate whether they were first year psychology students currently taking part in the 'Academic Skills' course. General information about the study was provided, and informed consent was obtained. After asking about the demographics, the survey measured self-disclosure, mentor identification, in-class participation and self-efficacy. The questionnaires, investigating self-disclosure and mentor identification, were presented twice each, measuring the variables for peer mentoring and faculty mentoring individually.

Design

A mediation analysis was planned, that was carried out as a correlational survey study. Identification was used as a mediator to investigate the relationship between self-disclosure (independent variable) and student outcome (dependent variable). Self-disclosure and

identification were assessed on two levels, namely peer mentoring and faculty mentoring. Student outcome was measured through two dependent variables (in-class participation and self-efficacy). When filling in the questionnaire, students were asked to think about their peer mentor or their faculty mentor. The data was investigated, using Hayes' PROCESS macro (2013) for SPSS. Model 4 was used to carry out a total number of eight mediation analyses. Thereby, a separation was made between the amount and the relevance of peer mentor and faculty mentor self-disclosure, as well as for peer mentor and faculty mentor identification. The statistical analysis made use of the bootstrapping method, which is included in PROCESS, using 5000 re-samples.

Results

Assumption Checks

In order to carry out the simple mediation analysis, following PROCESS macro by Hayes (2013), assumption checks for normality, linearity, and homoscedasticity were carried out. Normality was given through the nature of the analysis, since PROCESS allows for bootstrapping, which makes use of a re-sampling method (Preacher et al., 2007). Residual plots were used to assess the linearity of the model, as well as homoscedasticity (see Appendix). The relations between the variables did not differentiate from linear relations. Variances across the sample were approximately equally spread.

Correlations and Descriptive Statistics

The analysis was started by calculating the zero-order correlations, as well as the descriptive statistics of the variables, portrayed in Table 1 and Table 2.

Table 1

Descriptive Statistics and Correlations for Peer Mentorship

	1	2	3	4	5	Mean	SD
1. Peer mentor self-disclosure (Amount)	-					16.02	4.71
2. Peer mentor self-disclosure (Relevance)	.278**	-				25.02	5.22
3. Peer mentor identification	-.058	.147	-			18.04	4.66
4. Participation	.008	.209*	.246*	-		18.05	2.94
5. Self- efficacy	.008	.284*	.068	.467**	-	18.34	3.36

p < .05. **p < .01.

Table 2

Descriptive Statistics and Correlations for Faculty Mentorship

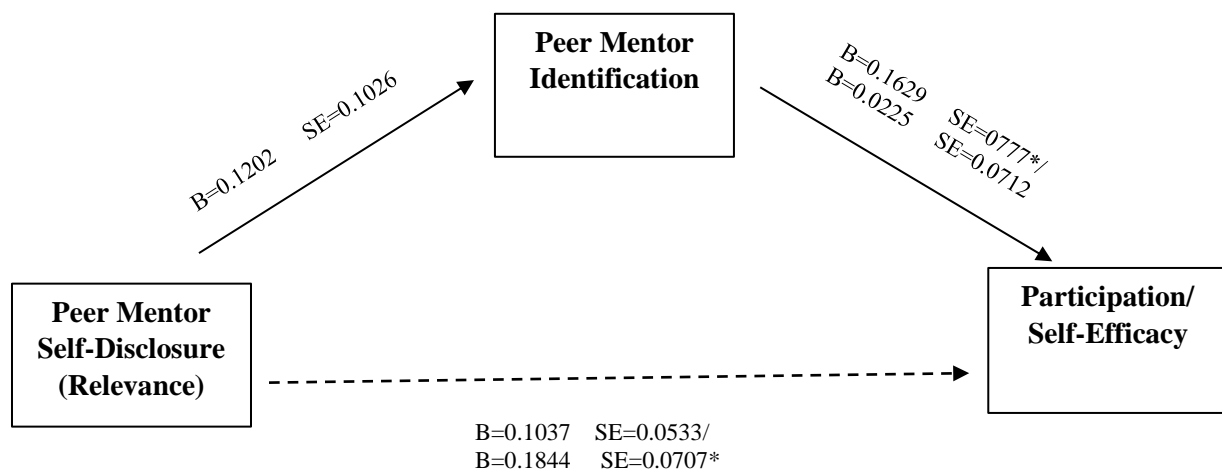|	1	2	3	4	5	Mean	SD
1. Faculty mentor self-disclosure (Amount)	-					15.04	5.48
2. Faculty mentor self-disclosure (Relevance)	.352**	-				20.07	7.05
3. Faculty mentor identification	-.026	.381**	-			15.67	5.25
4. Participation	.112	.102	.078	-		18.05	2.94
5. Self- efficacy	.117	.153	.215*	.467**	-	18.34	3.36

p < .05. **p < .01.

Using model 4 of Hayes (2013) PROCESS macro, we investigated the mediating effect that identification of peer mentoring and faculty-mentoring has on the relationship between self-disclosure (amount and relevance) and student outcomes (student-participation and self-efficacy). Overall, eight mediation analyses were carried out, none of which was statistically significant. In relation to peer mentoring, effects showed 95% CI [-0.0176, 0.0545] for peer mentor self-disclosure (relevance) on participation and 95% CI [-0.0238, 0.0241] on self-efficacy. Effects of the amount of self-disclosure in peer mentoring, showed

95% CI [-0.0517, 0.0204] on student participation and 95% CI [-0.0170, 0.0164] on self-efficacy. The model investigating faculty mentoring indicated effects of 95% CI [-0.0348, 0.0351 of relevant faculty mentor self-disclosure on participation and 95% CI [-0.0151, 0.0862] of relevant faculty-mentor self-disclosure on self-efficacy. Amount of self-disclosure produced effects of 95% CI [-0.0097, 0.0186] when investigating its relation to participation, and 95% CI [-0.0274, 0.0334] on the effect related to self-efficacy.

Significant direct effects were observed in peer mentoring and faculty mentoring, in relation to self-disclosure relevance. Effects are indicated in Figure 2 and Figure 3.
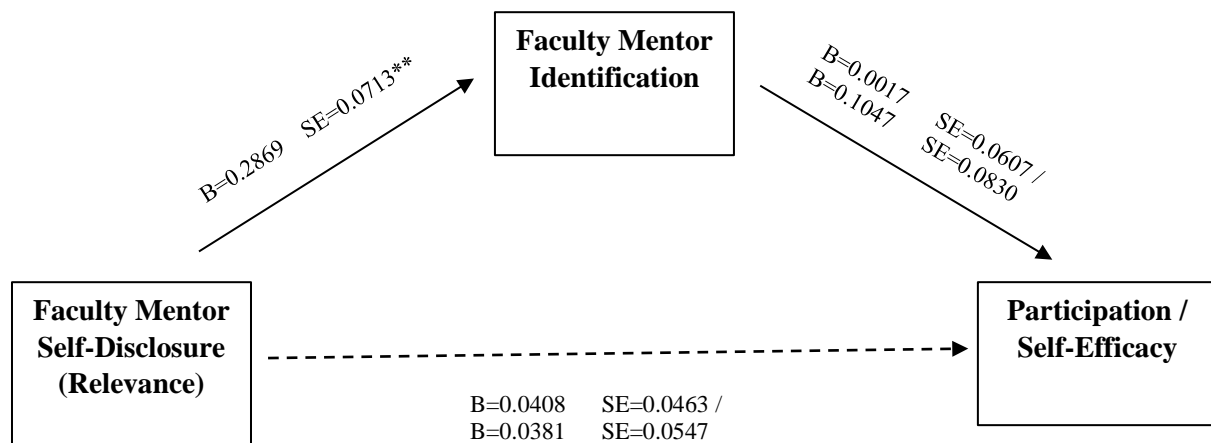
Figure 2

Mediation Model Peer Mentor Self-Disclosure (Relevance)

Note. The levels of significance are indicated by * p = < .05 and ** p = < .01.

Figure 3

Mediation Model Faculty Mentor Self-Disclosure (Relevance)

Note. The levels of significance are indicated by * p = < .05 and ** p = < .01.

Discussion

The current study aimed to investigate the mediating effect, that mentor identification has on the relationship between mentor self-disclosure (amount and relevance) and student outcome (in-class participation and self-efficacy). This was assessed in the context of two different mentoring practices, namely peer mentoring and faculty mentoring. We hypothesized that both peer mentor identification and faculty mentor identification would play an explanatory role in the effect between both types of mentor self-disclosure and the investigated student outcomes. Based on previous literature, we expected mentor identification to be a stronger predictor when investigating peer mentoring. Moreover, we hypothesized that peer mentor identification would have a stronger mediating effect on the relation between self-disclosure and self-efficacy than on self-disclosure and student participation.

Subsequently, eight mediation analyses were carried out. Results showed that the hypothesized mediating effects of peer mentor identification on the relation between mentor self-disclosure (amount and relevance) and both student outcomes (in-class participation and self-efficacy) were not supported (H1). H2 was partially supported. While the mediating

effect was not stronger when investigating the relationship between peer mentor self-disclosure and self-efficacy compared to in-class participation, a direct effect was found between the relevance of peer mentor self-disclosure and student self-efficacy. Since this effect did not appear for in-class participation, self-disclosure (relevance) seems to be a stronger predictor of self-efficacy than of participation. Moreover, a direct effect was found between peer mentor identification and in-class participation, meaning that students who identified more with their peer mentor, participated more in class.

When investigating the mediation effects concerning faculty mentoring, the expected mediating effect of faculty mentor identification on the relationship between faculty-mentor self-disclosure (amount and relevance) and student outcomes (in-class participation and self-efficacy) was not supported (H3). A significant direct effect was found between faculty-mentor self-disclosure (relevance) and faculty-mentor identification. This means, that the disclosure of more course-related information, seems to lead to increased identification with one's faculty mentor. Due to the overall mediation effects not being significant, H4 was not supported; identification did not have stronger mediating effects on the relation between peer mentor self-disclosure and student outcomes.

The first mediation analysis of identification on the predicted relationship between peer mentor self-disclosure and student outcome was not significant. This suggests that identification does not play an explanatory role in this model. This would imply that students do not need to feel similar to their mentor in order to achieve positive results. As suggested by Henry and Thorsen (2021), the relationship quality between mentor and mentee has often been shown to positively influence the mentee's development and might be improved through increased identification. In contrast, our results suggest that relationship quality might be less important when predicting student outcome than expected. Other mediating variables might have an influence on the relationship between mentor self-disclosure and student outcomes.

However, a direct effect was found for peer mentor identification on in-class participation. Thereby, higher levels of identification are associated with increased in-class participation. Since identification did not play a role when predicting student-self efficacy, the results suggest that identification plays a larger role in a student's career-developmental improvements than the psychosocial improvements. Moreover, it reflects the impact that peer mentor identification has on behavioural changes, rather than on psychosocial development. This seems to align with previous research on social comparison theory, which states, that identification increases student outcomes through the notion that the subordinate tries to mirror the behaviour of the leader (Dijkstra et al., 2008). This alignment of behaviour might be more likely to happen with observable behaviours since the subordinate is less likely to mirror a psychological state of a mentor. This could suggest that identification generally has a larger effect on observable student improvements.

As noted by Humbret and Rouse (2016), previous literature on identification research suggests that identification is established through the perception of similarity between two people. The relation between peer mentor identification on participation could have been established through a reciprocal effect, due to shared similarities between mentor and mentee. Williams (1980) suggests that higher achieving students tend to identify more with their teachers. Moreover, peer mentors might be likely to come across as outgoing since they have to lead and guide a group through active communication. Students sharing the same perceived trait of an outgoing personality, might identify more with their peer mentor due to the shared similarities. In this case, identification with one's peer mentor might rather be a cause of in-class participation, than an effect.

This shows, that while identification does not seem to play a predicting role for the overall model, it still seems to be a considerable part when fostering students' academic improvements. Further research could investigate whether the current results hold, as well as

the underlying mechanisms that are involved in the effect that peer mentor identification seems to have on career developmental student improvements.

The significant direct effect that was found between the relevance of peer mentor self-disclosure and self-efficacy indicates that self-disclosure does seem to play a role in predicting student outcomes. This effect is present only for the measured relevance of self-disclosure, suggesting a highlighted importance of this aspect of disclosed information over the amount of disclosed information. This is in line with previous literature (Wanberg et al., 2007), pointing out, that for information to be perceived as self-disclosing information by the receptive individual, the content of the disclosed information needs to be relevant to the context or to the individual. We also find that an increased amount of disclosed information cannot substitute for its content. In line with previous findings, these results suggest that peer mentor self-disclosure is more predictive of psychosocial processes in peer mentoring (Leidenfrost et al., 2011). Our findings suggest a specification of these mechanisms, by limiting the positive effect to relevant self-disclosure. Alonso et al. (2010) shows, that career developmental student outcomes are mainly fostered through academic training or help. For self-disclosure to be predictive of career developmental student outcomes, the disclosed information might need to be specific in facilitating knowledge or advice about a current topic of relevance. Future research could follow up on this notion, by testing whether specifically educative self-disclosure would be more predictive in facilitating academic improvements.

Our second mediation analysis explored the relationship between faculty-mentor self-disclosure and student outcomes through identification. Similar to peer mentoring, identification does not seem to play an explanatory role in this model. However, the significant effect that was observed between the relevance of faculty mentor self-disclosure and faculty mentor identification, suggests that sharing class-related information makes the faculty mentor more identifiable. As in peer mentoring, identification seems to play a role in the current model. Equally, the relevance of self-disclosure seems to play a larger predictive

role than the amount of self-disclosure. This suggests that self-disclosure operates similarly in both mentoring practices. Nonetheless, the current findings are not in line with previous literature, which suggests that amount as well as relevance play important predictive roles for several student outcomes, involving psychosocial improvements as well as career developmental changes (Cayanus & Martin, 2008). In contrast to peer mentoring, no changes seem to exist in the predictability between career-developmental and psychosocial student outcomes.

In contrast to previous literature, the current model cannot provide support for the predicted relationship between faculty mentor self-disclosure and student outcome (Clevinger et al., 2019). This might suggest that the assumed relationship is not as strong as we expected it to be. Comparing our model to previous findings, one reason for the low effect could be the differing mentoring practice that was investigated in the present study. While much research sets the focus on dyad mentoring (one-on-one mentoring), the current study investigated mentoring in a group setting. As shown by Colvin and Ashman (2010), also group mentoring has positive outcomes on students' academic and psychological evolvements, yet, the process of self-disclosure might differentiate between dyad and group mentoring settings, decreasing the effects of self-disclosure on student outcomes in the current model. Moreover, the students involved in the investigated academic skills course experienced formal mentoring, meaning mentors were formally assigned to the students (Humbret & Rouse, 2016). Some research points out, that identification might play a larger role in informal mentoring (mentor and mentee develop a relationship naturally), since the process of relationship formation already involves identification as a central factor (Bowen, 1986). These issues could be addressed by further research, investigating the differences between dyad and group mentoring dynamics as well as the importance of self-disclosure and identification in mentor relationships and how they potentially differ.

Theoretical and Practical Implications

Considering the outcomes in relation to the different mentoring types, our study poses several theoretical and practical implications. Primarily, the findings suggest that identification does not mediate the relationship between mentor self-disclosure and student outcome. This points out the necessity, to explore different mediating variables that might help to understand the relationship between mentor self-disclosure and student outcome. The significant effects found for relevant self-disclosure underline the importance this variable plays, in comparison to the quantity of self-disclosure. Moreover, the findings show a need to replicate this study in a longitudinal setting, in order to find out more about the possible cause and effect relationships of the outcomes that were observed, as well as whether the results hold in different settings. In contrast to previous literature (Clevinger et al., 2019), the current study cannot provide much support for the relations between faculty-mentor self-disclosure and student outcomes. Reasons responsible for the low effects could be investigated in a longitudinal design. Moreover, there is a need to explore whether peer mentor self-disclosure serves as a stronger predictor of psychosocial student outcomes, as our findings suggests. Lastly, we observed that findings about self-disclosure in dyad mentoring can be partially applied to group mentoring settings.

Recently, peer mentoring has been increasingly applied to university programs, in order to facilitate academic, as well as psychological help (Allen, 2009). These programs are, compared to classical mentoring relationships, not dyadic and are more often carried out in groups. The current study finds support for the usefulness of peer mentor programs in university settings. Moreover, positive effects can be attributed to specific aspects of mentoring. Thereby, peer mentor self-disclosure can be used to help induce positive effects in the perception of self-efficacy in students. For this to be carried out most successfully, peer mentors should aim to disclose relevant information. Moreover, faculty mentors might be able to strengthen a relationship through relevant self-disclosure since it increases the extent to which a student identifies with the mentor. Novice peer mentors usually attend training

programs, teaching how to successfully fulfil their mentor role. The current findings can be utilized and implemented in these courses, to sufficiently train the mentors in accordance with the mentees' needs. Implementing the current findings might have positive effects on the effectiveness of mentoring groups in university settings.

Limitations

Several limitations need to be taken into consideration when evaluating the current investigation and the insignificant mediation effects. The insignificant effects of the mediation analyses may partly be caused by multiple sources, stemming from methodological reasons. Except from the direct effect that the relevance of peer mentor self-disclosure had on self-efficacy, the effects that previous literature had shown to exist between self-disclosure and student outcomes could not be replicated (Cayanus et al., 2009). The missing relation between mentor self-disclosure and student outcomes might be one reason for the missing mediating effect. It needs to be established whether the non-significant effects in the current model were due to a general lack of effect between these variables, or whether it was caused by methodological difficulties in the current design.

It needs to be considered, that the current design was a survey study, including a one-time measure. Consequently, long-term effects could not be observed. Changes in the student's perception of self-disclosure and in their feelings of identification with their mentor might fluctuate throughout the time of the course (Humbret & Rouse, 2016). Moreover, the development of learning outcomes could not be taken into consideration, due to a one-time measure at the end of the academic year. One way in which this might have influenced the outcome is through a natural decrease in student motivations over the course of the semester. Darby et al., (2013) point out, that the drop in motivation might be reduced when the level of communication between parties stays high. Since an evaluation of the changes in communication and self-disclosure is not possible with the current design, more longitudinal

explorations should investigate the model, to shed light on potential effects in a time-related investigation.

Moreover, the current analysis investigated mentoring practices at a Dutch university. While our sample included a broad range of international students and mentors, there might still be cross-cultural differences in the perception of the appropriateness of disclosed information. This could therefore have influenced the disclosed information and its interpretation by the students (Chen & Nakazawa, 2009).

Conclusions

The current study aimed to increase our understanding of how student outcomes can be improved through mentor self-disclosure and whether mentor identification mediated the relationship between the two variables. Findings did not support the hypothesis of a mediating effect of identification, neither for peer-nor for faculty mentoring. However, we found that relevant self-disclosure is positively related to self-efficacy in peer mentoring, while peer mentor identification seems to be positively related to student participation. Faculty mentor self-disclosure (relevance) appears to be positively related to identification. The observed findings might have direct consequences on mentoring intervention, in suggesting that sharing information, which is related to the classroom as well as to the student's needs (relevance), has the largest effect on student's improvements. The current research proposes that a focus on the promotion of relevant self-disclosure in mentor training programs and its application, could potentially have a positive effect on students educational and psychological development.

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Appendix

Figure A1

P-P Plot of Standardized Residuals on Self-Efficacy
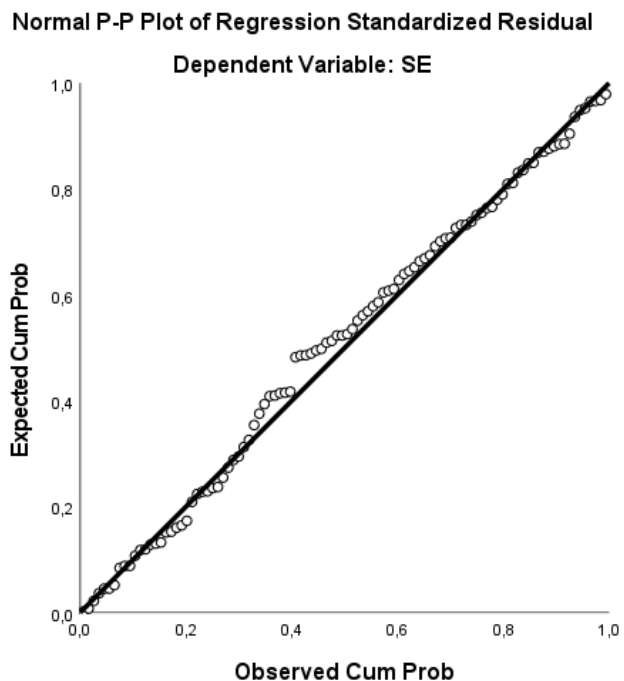

Figure A2

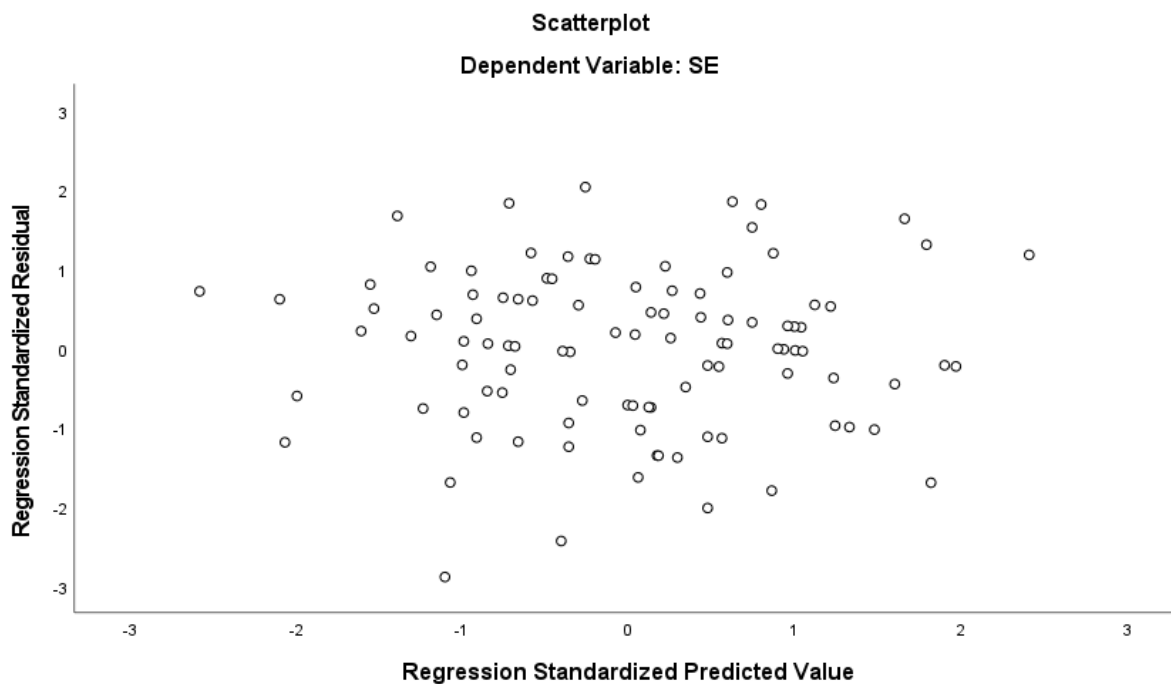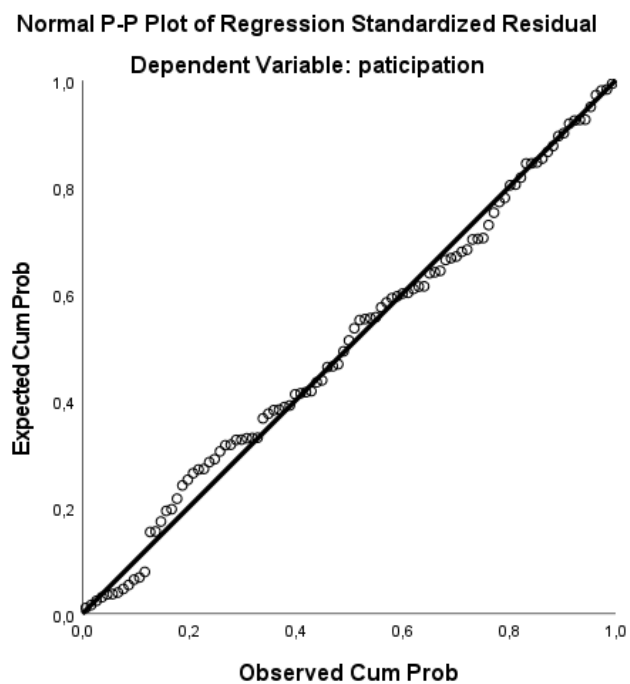*Scatterplot Residuals vs. Predicted on Self-Efficacy*

Figure A3

P-P Plot of Standardized Residuals on Participation

Figure A4

Scatterplot Residuals vs. Predicted on Participation