

The Impact of Peer Mentoring on Mentee Academic Performance: Is Any Mentoring Style Better than No Mentoring at All?

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Universities frequently offer support programs to assist first-year students with the transition from school to the university. The purpose of this study was to examine the effects of different mentoring styles on mentee academic performance after 1 year and 2 years of study. Participants consisted of 417 psychology students who started their course of study in the 2007/2008 winter term at the University of Vienna. Three hundred twenty-eight students participated voluntarily in the peer mentoring program, Cascaded Blended Mentoring, in which they were supported by 48 peer mentors (advanced students) in small groups. Eighty-nine students did not participate in the mentoring program. The mentoring groups were classified according to one of three mentoring styles described by Leidenfrost, Strassnig, Schabmann, Carbon, and Spiel (2011): (a) motivating master mentoring, (b) informatory standard mentoring, and (c) negative minimalist mentoring. Our data suggest that participants in the mentoring program performed better in their studies than students who did not participate in terms of average grade and number of courses passed. There was, however, no specific impact of the different mentoring styles on mentee academic performance.

The transition from school to university is a challenging life situation for young adults, as it involves many changes. First-year students have to organize their own learning, manage their new study and social schedules, build new social networks and friendships, and adjust to the requirements of university styles of learning and teaching (Pascarella & Terenzini, 2005). They have to get to know the so-called hidden curriculum of studying at a university (Bergenhengouwen, 1987) beyond the formal curriculum of their course of study. Some students fail to make this transition to a university because of incorrect expectations about university life and its requirements and finally drop out of their course of study (Lowe & Cook, 2003; Pancer, Hunsberger, Pratt, & Alisat, 2000).

Nowadays, universities frequently offer support programs to assist first-year students in adapting from school to university culture. These programmatic interventions have diverse content and are structured quite differently (e.g., first-year seminars, courses in academic skills, advising and mentoring programs, or general support services). In general, a positive effect of such support programs is that study success is increased and drop-out rates among participating students are decreased (Robbins, Oh, Le, & Button, 2009). First-year seminars and mentoring programs are shown to be especially effective in supporting first-year students (Crisp & Cruz, 2009; Jacobi, 1991; Pascarella & Terenzini, 2005). Similarly, mentoring programs have shown positive effects including academic performance, reduced drop-out rates and better social integration (Allen, McManus, & Russell, 1999; Campbell & Campbell, 1997; Leidenfrost et al., 2011). So far, research has suggested that being a mentee improves academic performance, but little is

known if differences in realizing mentoring affect mentee academic performance in different ways.

The aim of our present study was to look at the improvement of academic performance through a peer mentoring program and to examine how individual differences in realizing mentoring affected mentee academic performance after 1 year and 2 years of study.

Social Integration and Academic Performance

Social integration is mentioned as a condition for the successful transition to a university (Pascarella & Terenzini, 2005; Tinto, 1975). Building new social networks and friendships and having contact with academic staff members are parts of social integration (Tinto, 1975). Academic success is frequently operationalized in terms of grade point average (GPA) or persistence; length of study is also used as an indicator of academic success (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). Specific student characteristics like achievement motivation or self-efficacy, social integration of the student, competences in study skills, and also specific socio-demographic characteristics (e.g., age, nationality) are predictors of academic success according to models of academic performance and social integration (e.g., Cantwell, Archer, & Bourke, 2001; Le, Casillas, Robbins, & Langley, 2005; Robbins et al., 2004; Tinto, 1975). Fletcher and Tienda (2009) showed that taking part in a course of study together with school friends resulted in better academic performance than studying alone. Moosbrugger and Reiß (2005) demonstrated that the extent of contact with academic staff members beyond lectures predicted GPA and length of study. One way to increase social integration is to take part in

programmatically implemented by the universities (e.g., advising and mentoring programs).

Forms of Mentoring and Mentoring Programs

Mentoring—as a special form of social support—is mainly found in three different areas: (a) workplace mentoring, (b) mentoring in higher education, and (c) youth mentoring (Allen & Eby, 2007b). Although there is no consistent definition of mentoring (Crisp & Cruz, 2009; Jacobi, 1991), a traditional mentoring relationship can be characterized as a dyadic, hierarchic, and face-to-face relationship between a more experienced person and an inexperienced person in a specific field (e.g., a senior and a junior employee, faculty member and student, advanced student and first-year student). Especially in the context of higher education, peers who are more similar in age and hierarchy can act as mentors (Crisp & Cruz, 2009; Hixenbaugh, Dewart, Drees, & Williams, 2004; Jacobi, 1991). Nowadays, mentoring can also take place online, via email, chat, or online learning environments (Sinclair, 2003; Single & Muller, 2001).

In higher education, mentoring programs mostly show positive effects for mentees (e.g., better academic performance), as well as for mentors (e.g., more satisfaction) and the institution itself (e.g., reduced drop-out rates; Crisp & Cruz, 2009). Outcomes differ, depending on the aims of the mentoring programs. Folger, Carter, and Chase (2004) evaluated a program that supported first-year students and found out that participants achieved a higher GPA than non-participants. Likewise, Campbell and Campbell (1997) reported a higher GPA among mentees than among non-mentees, as well as more credits completed and reduced drop-out rates among mentees. On the other hand, Hixenbaugh et al. (2004) observed the positive effects of a peer mentoring program on social integration and satisfaction with the university among participating first-year students. In terms of online mentoring, Sinclair (2003) concluded that technology could enhance the mentoring experience, but it could not replace direct personal interaction.

Outcomes of mentoring programs do not only depend on the aims of a mentoring program, but also on the form of the relationship between mentor and mentee. Mentoring relationships can be differentiated as informal or formal (Chao, Walz, & Gardner, 1992; Zachary, 2000). Informal mentoring relationships are spontaneous, grow out of informal interactions between mentor and mentee, and are not structured. Mentor competence and mentee commitment are important characteristics for the quality of a mentoring relationship (Mullen, 2007). Formal mentoring relationships are specified by the goals and the structure of a mentoring program, and the mentee is assigned to the mentor (Zachary, 2000).

Mentoring relationships are roughly characterized by providing two dimensions of mentoring functions for mentees: (a) career-related mentoring functions (e.g., coaching) and (b) psychosocial mentoring functions (e.g., role modeling; Kram, 1985; Noe, 1988). It is easier for formal mentors and peer mentors to fulfill psychosocial mentoring functions and increase social support than to fulfill career-related mentoring functions (Chao et al., 1992; Ensher, Thomas, & Murphy, 2001). Besides, a mentoring relationship passes through four different phases: (1) initiation, (2) cultivation, (3) separation and redefinition from the mentee's perspective (Kram, 1985), and (4) preparing, negotiating, enabling, and coming to closure from the mentor's perspective (Zachary, 2000). Mentoring functions differentiate depending on the phase of the mentoring relationship, e.g., career-related functions are high in the initiation phase, and psychosocial mentoring functions are high in the initiation and redefinition phases (Bouquillon, Sosik, & Lee, 2005).

Mentors and Types of Mentoring Styles

Another approach to differentiate between different forms of mentoring is to look at different types of mentoring styles (i.e., individual differences in realizing mentoring relationships; Langhout, Rhodes, & Osborne, 2004; Leidenfrost et al., 2011). Langhout et al. (2004) examined different degrees of support, structure, and activity in mentoring relationships and identified four different mentoring styles in a traditional youth mentoring setting. *Moderate* mentors were conditionally supportive and showed moderate levels of activities and structure. *Unconditionally supportive* mentors were characterized by the highest levels of support. *Active* mentors offered the highest number of activities, but very little structure. *Low-key* mentors provided the lowest level of activity, but still high support. Looking at the outcomes of the different mentoring styles, Langhout et al. (2004) found that mentees generally benefitted most from moderate mentoring relationships with a conditional amount of support and a moderate level of activities.

Leidenfrost et al. (2011) examined the quantity and quality of online mentoring activities and questioned the mentees about their mentor, whom they also met face-to-face several times. They identified three different peer mentoring styles in a higher education setting. *Motivating master* mentoring was characterized by high commitment in online mentoring activities and many motivating messages to the mentees. *Informatory standard* mentors showed average performance in online mentoring activities, but their messages contained a large amount of information. *Negative minimalist* mentoring was characterized by a high percentage of negative online mentoring activities, such

as giving incorrect answers to questions or ignoring messages. Concerning the academic performance of mentees, Leidenfrost et al. (2011) found that motivating master mentoring showed a positive influence on the success in a peer mentoring program (which included elements of a course in academic skills) among those mentees who were characterized as poor academic performers at the beginning of the program.

The Purpose of This Study

The main aim of the present study was to examine the effects of a peer mentoring program on mentee academic performance. Our study had two objectives. First, we wanted to examine the effect of being mentored during the first term of study on academic performance (average grade, number of courses passed) after 1 year and 2 years of study. Second, we wanted to examine if there were different effects of three different mentoring styles (motivating master mentoring, informatory standard mentoring, negative minimalist mentoring; Leidenfrost et al., 2011) on mentee academic performance after 1 year and 2 years of study.

We expected the participation in the peer mentoring program to affect both the average grade and the number of courses passed in a positive way. Mentees should achieve better average grades and pass a higher number of courses after 1 year and 2 years of study than non-mentees. Furthermore, we expected the three mentoring styles to affect mentee academic performance in different ways according to the results of Leidenfrost et al. (2011). We assumed that academic performance among mentees who experienced a motivating master mentoring style would be better than academic performance among mentees who experienced an informatory standard or negative minimalist mentoring style

Method

Study Setting

In winter term 2007/2008, psychology students from the University of Vienna, Austria had the chance to participate voluntarily in the newly implemented peer mentoring program, Cascaded Blended Mentoring, which took place during their first term of study. The mentoring program lasted for 3 months. There were online mentoring activities which were carried out in message boards in an online learning environment and five face-to-face meetings. The mentees were divided into 48 groups of about eight students each and randomly assigned to one peer mentor. The peer mentors were the mentees' first point-of-contact concerning the psychology program, and they discussed and practiced basic learning skills (e.g., information

literacy, time management) online and face-to-face with the mentees.

Peer mentors chose to participate in a two-semester seminar which was part of the psychology program for advanced students (topic: educational psychology). In the summer term of 2007, advanced students were trained in mentoring skills and basic learning skills to support a group of first-year students as peer mentors. In winter term 2007/2008, the peer mentors received a manual with guidelines for the structure and content of the online mentoring activities and face-to-face meetings and were supervised during the seminar for advanced students.

Participants

Participants consisted of 417 psychology students who started their course of study in winter term 2007/2008 at the University of Vienna, Austria and who still were studying psychology after 2 years of study. In winter term 2007/2008, 494 students registered as psychology major students. Three hundred seventy-six of the first-year students from winter term 2007/2008 (76%) participated voluntarily in the peer mentoring program. After 2 years of study, 328 mentees and 89 non-mentees were still studying psychology. For our analysis, non-mentees from winter term 2007/2008 who chose not to participate in the peer mentoring program served as a control group.

Of our sample, 323 students (290 mentees, 33 non-mentees) declared socio-demographic information in an online survey at the end of winter term 2007/2008. Among mentees, 79% were female and 21% male; the median age was 19.9; the age distribution ranged from 18 to 45; and 64% came from Austria, 31% from Germany, and 5% from other countries. Among non-mentees, 70% were female and 30% male; the median age was 20.9; the age distribution ranged from 18 to 51; and 76% came from Austria, 21% from Germany and 3% from other countries.

Measures

We classified peer mentors as belonging to one of the three mentoring styles described by Leidenfrost et al. (2011). We measured academic performance among students in terms of average grade and the number of courses passed. In this section, we also give background information on the design of the Austrian psychology course of study.

Mentoring style of the peer mentor. Leidenfrost et al. (2011) identified the mentoring styles through cluster analysis on the basis of eight specified indicators. Two indicators resulted from a mentee questionnaire (Mentor Functions Scale; see Noe, 1988 for assessment of peer mentor quality) and allowed a

general evaluation of all mentoring activities (face-to-face meetings and online mentoring activities). The other six indicators resulted from online behavior data of the peer mentor (total number of online sessions, number of posted messages, and median length of messages posted on a general message board), and from the quality of online mentoring activities of the peer mentor (percentage of positive motivational aspects, percentage of positive informational aspects, and percentage of negative online mentoring activities). These six indicators only included online mentoring activities. As described by Leidenfrost et al. (2011), a content analysis was applied to 532 peer mentor messages concerning the direction of online mentoring activity (positive or negative) and content of online mentoring activity (informatory or motivational). For example, a welcome message is a positive motivational mentoring activity; giving an incorrect answer is a negative informatory mentoring activity. Two independent evaluators conducted the coding using the representation of a consistent idea as a unit of analysis. They achieved an 80% agreement rate and discussed all disagreements until a consensus was reached.

In the present study, we classified 48 peer mentors as belonging to one of the three mentoring styles described by Leidenfrost et al. (2011; see Table 1 for a detailed description of mentoring styles). There were 14 motivating master mentoring groups with 102 mentees, 30 informatory standard mentoring groups with 201 mentees, and four negative minimalist mentoring groups with 25 mentees.

Academic performance among students. When the students started studying psychology in winter term 2007/2008, the psychology major at the University of Vienna was a 5-year course of study terminating with an Austrian diploma degree

(comparable to a master’s degree, in psychology typically a MSc or MA, or historically comparable to degrees in German-speaking countries such as “dipl. psych.” in Germany or “lic. phil.” in Switzerland). The Diploma course of study was subdivided into two periods. The first period lasted for 2 years; the second period lasted for 3 years. In each period, students could organize their own schedule and thus study at their own pace. There was no fixed sequence or number of courses a psychology student was required to take per term. In order to finish the first period within 2 years, it was recommended to pass roughly seven to eight courses per term.

Average grade. The grading system utilized in Austrian schools and universities consists of five numerical levels from 1 to 5, with 1 = *excellent*, 2 = *good*, 3 = *satisfactory*, 4 = *sufficient*, 5 = *insufficient*. Students pass courses with grades from 1 to 4 and fail courses with a grade of 5. Therefore, a lower grade means higher academic performance. In Austria, students may repeat a failed course up to three times.

The average grade was $M = 2.72$ ($SD = 0.67$) after 1 year of study and $M = 2.70$ ($SD = 0.67$) after 2 years of study. All passing and failing grades from mentees and non-mentees who still were studying psychology after 2 years of study were considered for this calculation.

Number of courses passed. The number of courses passed was used as an indicator for the study progress after 1 year and 2 years of study. The more courses students passed within 1 year or 2 years of study, the better their study progress.

The average number of courses passed was $M = 10.38$ ($SD = 4.27$) after 1 year of study and $M = 22.18$ ($SD = 8.51$) after 2 years of study. The number of courses failed was not considered for this calculated.

Table 1
Description of Mentoring Styles According to Leidenfrost et al. (2011)

Style	Assessment of peer		
	mentor	Online behavior data	Quality of online mentoring activities
MM	Evaluated best	High level of online mentoring activities (e.g., twice as many online sessions)	Messages nearly as motivating as informative
IS	Evaluated average	Average length of messages comparable to motivating master mentoring	Messages twice as informative as motivating
NM	Evaluated worst	Shortest length of messages	High percentage of negative mentoring activities; informational aspects lacking

Note. MM = motivating master mentoring, IS = informatory standard mentoring, NM = negative minimalist mentoring.

Procedure

The grades analyzed in this study were gathered from an examination database maintained by the Faculty of Psychology at the University of Vienna. This database contained information about each course taken (e.g., type of course, name of course, date of examination, grade achieved). Data were retrieved at the beginning of winter term 2009/2010 and included all examination data from the beginning of winter term 2007/2008 until the end of summer term 2009 for all psychology students who started their course of study in winter term 2007/2008. For each student, two different indicators of academic performance—average grade and number of courses passed—were calculated, each after 1 year and after 2 years of study.

Data Analysis

To examine the effects of the different mentoring styles on academic performance (average grade and number of courses passed), two sample *t* tests and analyses of variance (ANOVA) were computed in SPSS 15.0. In a first step, we compared the following two groups of students: all mentees and non-mentees. In a second step, we compared the three mentoring styles: (a) mentees in motivating master mentoring groups, (b) mentees in inforamatory standard mentoring

groups, and (c) mentees in negative minimalist mentoring groups. Where variances were unequal, *t* values from the Welch-Satterthwaite test and *F* values from the Welch test were used.

Results

Impact of the Peer Mentoring Program

Comparing mentees and non-mentees, there were statistically significant differences within all indicators of academic performance (see Table 2 for means, standard deviations, and detailed results). After 1 year of study, mentees had better average grades and passed more courses than non-mentees. After 2 years of study, mentees still had better average grades and passed more courses than non-mentees.

Impact of Different Mentoring Styles

Comparing the three groups of mentoring styles, there were no statistically significant differences within any indicator of academic performance. The ranking of the groups was the same for both indicators: mentees in inforamatory standard groups were followed by mentees in motivating master groups and by mentees in negative minimalist mentoring groups (see Table 3 for means, standard deviations, and detailed results).

Table 2
Comparison of Academic Performance Among Mentees and Non-Mentees

Variable	Mentees		Non-mentees		<i>t</i> (415)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Average grade						
After 1 year	2.66	0.61	2.94	0.83	-2.96	.004
After 2 years	2.65	0.63	2.88	0.80	-2.50	.014
Number of courses passed						
After 1 year	10.90	3.88	8.47	5.05	4.20	< .001
After 2 years	23.43	7.59	17.57	10.02	5.13	< .001

Note. *t* values from the Welch-Satterthwaite test were used as variances were unequal.

Table 3
Comparison of Academic Performance Among Different Mentoring Styles

Variable	MM		IS		NM		<i>F</i> (2, 325)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Average grade								
After 1 year	2.68	0.53	2.64	0.65	2.79	0.66	0.71	.493
After 2 years	2.68	0.54	2.63	0.66	2.73	0.68	0.37	.694
Number of courses passed								
After 1 year	10.38	3.91	11.24	3.83	10.20	4.00	2.12	.122
After 2 years	23.00	7.44	23.74	7.55	22.76	8.70	0.42	.656

Note. MM = motivating master mentoring, IS = inforamatory standard mentoring, NM = negative minimalist mentoring.

Discussion

The goal of the present study was to examine the effect of a peer mentoring program and, in detail, the impact of different mentoring styles on two indicators of mentee academic performance (average grade and number of courses passed) after 1 year and 2 years of study. Participants consisted of two first-year student groups of psychology students at the University of Vienna: students from winter term 2007/2008 who did voluntarily participate in a peer mentoring program during their first term and students from winter term 2007/2008 who did not participate. Data for the indicators of academic performance were gathered from an examination database maintained by the Faculty of Psychology. The mentoring groups were classified as belonging to one of three mentoring styles described by Leidenfrost et al. (2011): (a) motivating master mentoring, (b) inforamatory standard mentoring, and (c) negative minimalist mentoring.

Our data suggest that participants in the mentoring program performed better in their studies. Mentees achieved lower average grades (which mean higher academic performance in the Austrian grading system) and passed a higher number of courses after 1 year and 2 years of study than non-mentees. We could not find any specific impact of the different mentoring styles on mentee academic performance, although, descriptively, mentees in inforamatory standard groups achieved the best academic performance.

Overall, our findings seem to be consistent with other studies on mentoring programs which observed positive effects on indicators of academic performance like GPA, study progress, drop-out rates, and/or study persistence (Campbell & Campbell, 1997; Crisp & Cruz, 2009; Jacobi, 1991). Especially, our findings on the number of courses passed suggest a positive impact of the peer mentoring program on academic performance. There seem to be advantages for the study progress of all students who participated in the peer mentoring program when we compare the number of courses passed by mentees to the number passed by non-mentees. Because students often arrive at the university with incorrect expectations (Gibney, Moore, Murphy, & O'Sullivan, 2011; Jackson, Pancer, Pratt, & Hunsberger, 2000; Pancer et al., 2000), it seems reasonable that they willingly rely on recommendations (e.g., regarding the order in which to take courses or exams). For the course of study in psychology at the University of Vienna, there were unofficial recommendations by lecturers and advanced students on which courses should be taken during the first year of study and which courses should be taken later because they build on content and knowledge from the previous courses. Additional support for these issues during the first term (e.g., in form of a peer mentoring

program) seems to have a positive influence on academic performance.

There are no statistically significant differences in mentee study success depending on the mentoring style experienced in their mentoring group. We had to reject our assumption that academic performance among mentees who experienced a motivating master mentoring style would be better than academic performance among mentees who experienced an inforamatory standard or a negative minimalist mentoring style. A reason for this result could be that the classification to a specific mentoring style mainly depended on online mentoring activities. But online mentoring was only one component of the mentoring program. All mentees received face-to-face mentoring as well and met their peer mentor several times. One of the major concerns reported on mentoring is that it is time consuming (Ehrich, Hansford, & Tennent, 2004; Long, 1997). All peer mentors had to meet their mentees five times during the mentoring program, whereas the online mentoring activities were dependent on their own time commitment. Written communication used for online mentoring activities has to be clear and complete (Sinclair, 2003), which is again time consuming. Time delays between questions and answers complicate the online mentoring activities. In contrast, more personal and on-time support is possible face-to-face (Sinclair, 2003). Because online mentoring activities and face-to-face mentoring activities were treated as a whole, mentees could not differ between online and face-to-face mentoring activities when they assessed their peer mentors. Maybe, those peer mentors who practiced the little time consuming negative minimalist mentoring style online still were "good enough" face-to-face mentors during the five obligatory meetings.

Another reason could be related to the nature of our peer mentoring program in which all mentees had to work on different obligatory tasks which were specified in the peer mentoring program. Mentees also got obligatory support concerning some important topics. For example, it was an obligatory task for the peer mentor to discuss the mentees' individual learning schedules for taking exams at the end of term, to tell their mentees about their own experiences with the psychology course of study, and to talk about the importance of developing adequate study skills like time management or learning strategies. It was suggested that the peer mentors also discuss the course of study itself or the recommended order of taking courses with their mentees to give students insight into the hidden curriculum (Bergenhengouwen, 1987).

Limitations

A few limitations to our study have to be noted. First, the present study took place at only one

university, which limits the degree of generalization of the results. Nevertheless, we should not underestimate the possibilities of conducting such a study specifically at the Faculty of Psychology of the University of Vienna with so many psychology students there. The University of Vienna can be characterized as a mass university as it is one of the largest universities in Central Europe (about 88,000 students in 2011). Especially the psychology course of study is characterized by an alarming academic staff member to student-relationship of 1:141 (Leidenfrost, Strassnig, Schabmann, & Carbon, 2009) which means a huge number of students (in 2011, about 4,000 students in the diploma degree program), but a low number of academic staff members who could potentially give support to the students (which was one of the reasons to implement a peer mentoring program for first-year psychology students).

Second, another limitation of our study might be that we considered mentoring styles which only covered individual differences in characteristics of the peer mentor. We did not consider the reverse side, namely personal characteristics like achievement motivation, competencies in study skills, or specific socio-demographic characteristics of the students themselves, which could also influence academic performance (e.g., Cantwell et al., 2001; Le et al., 2005). However, since we used a randomized allocation of the mentees to the peer mentor, these factors should not vary too systematically from group to group.

Third, we have to be aware of a self-selection bias (Allen & Eby, 2007a; Pascarella & Terenzini, 2005) in light of the results. A self-selection bias means that participants in a voluntary program could generally be more motivated than non-participants (Larose et al., 2009). The overall differences in average grades and number of courses passed could have been influenced by the self-selection of students who chose to participate in the mentoring program, rather than the peer mentoring program itself. Unfortunately, it was not possible to collect sufficient data from students from winter term 2007/2008 to find out why they did or did not participate in the mentoring program.

Last, the model of mentoring styles as described by Leidenfrost et al. (2011) mainly refers to online mentoring activities even though there were face-to-face mentoring activities. In the light of the results, the influence of the face-to-face mentoring activities should have been included independently to the analysis.

In total, additional research is needed to replicate our results in more generalizable settings and to find out more about the complex interactions among personal traits and socio-demographic student characteristics, different mentoring styles, and programmatic interventions in general, as well as their

contribution to academic performance. Future studies might look at the perceived quality of interactions from the mentor's and the mentee's perspectives and the perfect mentor-mentee fit. Other studies could control for student motivation and interest for participation in a mentoring program and could also take into account self-efficacy and commitment, variables which might help in explaining self-selection.

Implications and Conclusion

Our current study provided insight into the effect of a peer mentoring program on mentee academic performance. Mentees seemed to benefit from the peer mentoring program independently of the mentor's individual mentoring style. Mentees passed a higher number of courses and achieved better average grades after 1 year and 2 years of study than non-mentees. Leidenfrost et al. (2011) showed that a motivating master mentoring style had a positive influence on poor academic performers in a short-term measure, whether or not the mentoring program itself was successfully completed. In the long term, regarding the study progress after 1 year and 2 years of study, the motivational master mentoring style did not differ from the other mentoring styles.

Our data suggested that any mentoring (style) was better than no mentoring at all. This finding raises implications for the training and supervision of student peer mentors for ensuring a certain quality level for being a mentor. Potential mentors should reflect on their motivation and readiness for mentoring relationships (Zachary, 2000). Therefore, preparing student peer mentors for their mentoring relationships with first-year students should be done in an applied way. We recommend making peer mentors aware of different motivation and different academic performance among mentees through role plays, also to meet changing mentee requirements over the mentoring phases (Bouquillon et al., 2005). Peer mentors should practice how to impart knowledge (e.g., mentoring program goals and content). Finally, most important for peer mentors is supervision during their time of being a mentor, especially when acting as a peer mentor is part of a seminar. Student peer mentors need to talk to other peer mentors and a supervisor about being a peer mentor or quality levels for being a mentor. It is also possible to compare mentoring relationships and to learn about and discuss different mentoring approaches during supervision.

Our present findings have also potential implications for university policies. Universities should continue offering support programs, especially mentoring programs focusing on supporting first-year students and assisting them during the transition from school to the university. The support need not be

given by the faculty members; it may also be sufficient for first-year students when peers (advanced students, similar in age and hierarchical level) are assigned to support programs. A mentoring cycle could be started when, after some time, mentees could become peer mentors themselves and could pass on their study experiences and knowledge. In the long term, accrued costs for such support programs could be balanced by a more efficient study progress of the supported students.

References

- Allen, T. D., & Eby, L. T. (2007a). Common bonds: An integrative view of mentoring relationships. In T. D. Allen & L. T. Eby (Eds.), *The Blackwell handbook of mentoring: A multiple perspectives approach* (pp. 398-419). Malden, MA: Blackwell.
- Allen, T. D., & Eby, L. T. (Eds.). (2007b). *The Blackwell handbook of mentoring: A multiple perspectives approach*. Malden, MA: Blackwell.
- Allen, T. D., McManus, S. E., & Russell, J. E. A. (1999). Newcomer socialization and stress: Formal peer relationships as a source of support. *Journal of Vocational Behavior, 54*, 453-470. doi:10.1006/jvbe.1998.1674
- Bergenhengouwen, G. (1987). Hidden curriculum in the university. *Higher Education, 16*(5), 535-543. doi:10.1007/BF00128420
- Bouquillon, E. A., Sosik, J. J., & Lee, D. (2005). "It's only a phase": Examining trust, identification and mentoring functions received across the mentoring phases. *Mentoring & Tutoring: Partnership in Learning, 13*(2), 239-258. doi:10.1080/13611260500105808
- Campbell, T. A., & Campbell, D. E. (1997). Faculty/student mentor program: Effects on academic performance and retention. *Research in Higher Education, 38*(6), 727-742. doi:10.1023/A:1024911904627
- Cantwell, R., Archer, J., & Bourke, S. (2001). A comparison of the academic experiences and achievement of university students entering by traditional and non-traditional means. *Assessment & Evaluation in Higher Education, 26*(3), 221-234. doi:10.1080/02602930120052387
- Chao, G. T., Walz, P. M., & Gardner, P. D. (1992). Formal and informal mentorships—A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology, 45*(3), 619-636. doi:10.1111/j.1744-6570.1992.tb00863.x
- Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education, 50*(6), 525-545. doi:10.1007/s11162-009-9130-2
- Ehrich, L. C., Hansford, B., & Tennent, L. (2004). Formal mentoring programs in education and other professions: A review of the literature. *Educational Administration Quarterly, 40*(4), 518-540. doi:10.1177/0013161X04267118
- Ensher, E. A., Thomas, C., & Murphy, S. E. (2001). Comparison of traditional, step-ahead, and peer mentoring on proteges' support, satisfaction, and perceptions of career success: A social exchange perspective. *Journal of Business and Psychology, 15*(3), 419-438. doi:10.1023/A:1007870600459
- Fletcher, J. M., & Tienda, M. (2009). High school classmates and college success. *Sociology of Education, 82*(4), 287-314. doi:10.1177/003804070908200401
- Folger, W., Carter, J. A., & Chase, P. B. (2004). Supporting first generation college freshman with small group intervention. *College Student Journal, 38*(3), 472-475.
- Gibney, A., Moore, N., Murphy, F., & O'Sullivan, S. (2011). The first semester of university life: "Will I be able to manage it at all?" *Higher Education, 62*(3), 351-366. doi:10.1007/s10734-010-9392-9
- Hixenbaugh, P., Dewart, H., Drees, D., & Williams, D. (2004). Peer e-mentoring: Enhancement of the first-year experience. *Psychology Learning and Teaching, 5*(1), 8-14.
- Jackson, L. M., Pancer, S. M., Pratt, M. W., & Hunsberger, B. (2000). Great expectations: The relation between expectancies and adjustment during the transition to university. *Journal of Applied Social Psychology, 30*, 2100-2125. doi:10.1111/j.1559-1816.2000.tb02427.x
- Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research, 61*(4), 505-532. doi:10.3102/00346543061004505
- Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life*. Glenview, IL: Scott, Foresman.
- Langhout, R. D., Rhodes, J. E., & Osborne, L. N. (2004). An exploratory study of youth mentoring in an urban context: Adolescents' perceptions of relationship styles. *Journal of Youth and Adolescence, 33*(4), 293-306. doi:10.1023/B:JOYO.0000032638.85483.44
- Larose, S., Cyrenne, D., Garceau, O., Harvey, M., Guay, F., & Deschênes, C. (2009). Personal and social support factors involved in students' decision to participate in formal academic mentoring. *Journal of Vocational Behavior, 74*, 108-116. doi:10.1016/j.jvb.2008.11.002
- Le, H., Casillas, A., Robbins, S. B., & Langley, R. (2005). Motivational and skills, social, and self-management predictors of college outcomes: Constructing the student readiness inventory. *Educational and Psychological Measurement, 65*(3), 482-508. doi:10.1177/0013164404272493

- Leidenfrost, B., Strassnig, B., Schabmann, A., & Carbon, C. C. (2009). Improvement of the study situation for beginners through cascaded blended mentoring [Verbesserung der studiensituation für StudienanfängerInnen durch cascaded blended mentoring]. *Psychologische Rundschau*, *60*(2), 99-106. doi:10.1026/0033-3042.60.2.99
- Leidenfrost, B., Strassnig, B., Schabmann, A., Carbon, C. C., & Spiel, C. (2011). Peer mentoring styles and their contribution to academic success among mentees: A person-oriented study in higher education. *Mentoring & Tutoring: Partnership in Learning*, *19*(3), 347-365. doi:10.1080/13611267.2011.597122
- Long, J. (1997). The dark side of mentoring. *Australian Educational Research*, *24*(2), 115-83. doi:10.1007/BF03219650
- Lowe, H., & Cook, A. (2003). Mind the gap, are students prepared for higher education? *Journal of Further and Higher Education*, *27*(1), 53-76. doi:10.1080/03098770305629
- Moosbrugger, H., & Reiß, S. (2005). Determinanten von studiendauer und studienenerfolg im diplomstudiengang psychologie: Eine absolventenstudie [Determinants of study duration and study success in the graduate program of psychology: A graduate survey]. *Zeitschrift für Evaluation*, *2*, 177-194.
- Mullen, C. A. (2007). Naturally occurring student-faculty mentoring relationships: A literature review. In T. D. Allen & L. T. Eby (Eds.), *The Blackwell handbook of mentoring: A multiple perspectives approach* (pp. 119-138). Malden, MA: Blackwell.
- Noe, R. A. (1988). An investigation of the determinants of successful assigned mentoring relationships. *Personnel Psychology*, *41*(3), 457-479. doi:10.1111/j.1744-6570.1988.tb00638.x
- Pancer, S. M., Hunsberger, B., Pratt, M. W., & Alisat, S. (2000). Cognitive complexity of expectations and adjustment to university in the first year. *Journal of Adolescent Research*, *15*(1), 38-57. doi:10.1177/0743558400151003
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.
- Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, *130*(2), 261-288. doi:10.1037/0033-2909.130.2.261
- Robbins, S. B., Oh, I. S., Le, H., & Button, C. (2009). Intervention effects on college performance and retention as mediated by motivational, emotional, and social control factors: Integrated meta-analytic path analyses. *Journal of Applied Psychology*, *94*(5), 1163-1184. doi:10.1037/a0015738
- Sinclair, C. (2003). Mentoring online about mentoring: Possibilities and practice. *Mentoring & Tutoring: Partnership in Learning*, *11*(1), 79-94. doi:10.1080/1361126032000054826
- Single, P. B., & Muller, C. B. (2001). When email and mentoring unite: The implementation of a nationwide mentoring program—MentorNet, the national electronic industrial mentoring network for women in engineering and science. In L. K. Stromei (Ed.), *Creating mentoring and coaching programs: Twelve case studies from the real world of training* (pp. 107-122). Alexandria, VA: American Society for Training and Development.
- Tinto, V. (1975). Dropout from higher education—Theoretical synthesis of recent research. *Review of Educational Research*, *45*(1), 89-125. doi:10.3102/00346543045001089
- Zachary, L. (2000). *The mentor's guide: Facilitating effective learning relationships*. San Francisco, CA: Jossey-Bass.

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