

**This paper is “in press” (International Journal of Teaching and Learning)**

**Title**

Peer mentoring for first-year students: Evaluating mentee academic performance in dependence of different mentoring styles

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## **Title**

Peer mentoring for first-year students: Evaluating mentee academic performance in dependence of different mentoring styles

## **Abstract**

Universities often offer support programs to assist first-year students with the transition from school to university. The purpose of this study was to examine the effects of different mentoring styles on mentee academic performance after one year and two years of study. Participants consisted of 828 psychology students who started their course of study in winter term 2006/07 or 2007/08 at the University of Vienna. 328 students from winter term 2007/08 participated in the peer mentoring program *Cascaded Blended Mentoring* (Leidenfrost ...), in which they were supported by 48 student mentors (advanced students) in small groups. The mentoring groups were classified according to one of three mentoring styles described by Leidenfrost, Strassnig, Schabmann, Carbon, and Spiel (2011): motivating master mentoring, informatory standard mentoring, and negative minimalist mentoring. Our data suggest that participants in the mentoring program performed better in their studies. Mentees from winter term 2007/08 achieved better average grades than non-mentees from winter term 2007/08. They passed a higher number of courses than non-mentees from winter term 2007/08 and students from winter term 2006/07. There was, however, no specific impact of the different mentoring styles on mentee academic performance.

## **Keywords**

mentoring styles, mentees, first-year students, academic performance, self-selection bias

## **Introduction**

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, adjust to the requirements of university styles of learning and teaching (Pascarella & Terenzini, 2005), and thus get to know the so-called hidden curriculum of studying at university (Bergenhengouwen, 1987) beyond the formal curriculum of their course of study. Some students fail to make this transition to 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 often offer support programs to assist first-year students in adapting from school to university culture and learning what is expected in university studies. These programmatic interventions can have diverse content and be structured quite differently: as 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 they increase study success and decrease drop-out rates among participating students (Robbins, Oh, Le, & Button, 2009). Especially first-year seminars and mentoring programs are shown to be very effective in supporting first-year students (Crisp & Cruz, 2009; Jacobi, 1991; Pascarella & Terenzini, 2005). For example, mentoring programs have shown positive effects like better academic performance, reduced drop-out rates, or better social integration (Allen, McManus, & Russell, 1999; Campbell, & Campbell, 1997; Leidenfrost, Strassnig, Schabmann, Carbon, & Spiel, 2011).

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 one year and two years of study.

### **Academic performance and social integration**

Study success is frequently operationalized in terms of grade point average (GPA) or persistence; length of study is also used as an indicator of study success (Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). Specific student characteristics like achievement motivation or self-efficacy, social integration of the student, and competences in study skills, but also specific socio-demographic characteristics (e. g. age, nationality) can be used as predictors of study success according to models of academic performance and social integration (e. g. Cantwell, Archer, and Bourke, 2001; Le, Casillas, Robbins, and Langley, 2005; Robbins et al., 2004; Tinto, 1975).

In the literature, social integration is mentioned as a condition for the successful transition to university, which again leads to better academic performance (Pascarella & Terenzini, 2005; Tinto, 1975). Building new social networks and friendships on the one side and having contact with academic staff members on the other side is part of social integration (Tinto, 1975). For example, 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 to academic staff members beyond lectures predicted GPA and length of study. One way to increase social integration is to take part in programmatic interventions implemented by the universities, e. g. advising and mentoring programs.

### **Different forms and outcomes of mentoring (programs)**

Mentoring – as a special form of social support – is mainly found in three different areas: workplace mentoring, mentoring in higher education, and youth mentoring (Allen & Eby, 2007b). Although a consistent definition of mentoring is missing (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). It is also possible for peers who are more similar in age and hierarchy to act as mentors, especially in the context of higher education (Crisp & Cruz, 2009; Hixenbaugh, Dewart, Drees, & Williams, 2004; Jacobi, 1991).

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. For example, Folger, Carter, and Chase (2004) evaluated a program which 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 university among participating first-year students.

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. For example, mentoring relationships can be differentiated as informal or formal mentoring relationships (Chao, Walz, & Gardner, 1992). Informal mentoring relationships are spontaneous and grow out of informal interactions between mentor and mentee. Formal mentoring relationships are specified by the goals and the structure of a mentoring program, and the mentee is assigned to the mentor. Furthermore, mentoring relationships are roughly characterized by providing two dimensions of mentoring functions for mentees: career-related mentoring functions (e. g. coaching) and 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).

Another approach to differentiate between different forms of mentoring is to look at different types of mentoring styles, which means looking at 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. Leidenfrost et al. (2011) examined the quantity and quality of online mentoring activities and questioned the mentees about their mentor. They identified three different peer mentoring styles in a higher education setting. *Motivating master* mentoring was characterised 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 characterised by a high percentage of negative online mentoring activities like giving incorrect answers to questions or ignoring messages. 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. 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 present 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 one year and two 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 in comparison to non-mentees after one year and two years of study.

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

## **Method**

### **Participants**

Participants consisted of 828 psychology students of the University of Vienna, Austria from winter terms 2006/07 and 2007/08, who were in their 2<sup>nd</sup> studying year. In winter term 2006/07, 491 students registered as psychology major students. After two years of study, 411 students still were studying psychology. In winter term 2007/08, 494 students registered as psychology major students. All of these students 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 three months. Advanced students were trained to support a group of first-year students as peer mentors. There were online mentoring activities carried out in message boards in an online learning environment and five face-to-face meetings. 376 of the first-year students from winter term 2007/08 (76%) participated in the peer mentoring program. Those mentees were divided into 48 groups of about eight students and assigned to one student mentor (= advanced student). After two years of study, 417 students still were studying psychology (328 mentees, 89 non-mentees). For our analysis, non-mentees from winter term 2007/08 who chose not to participate in the peer mentoring program served as a control group to a self-selection bias (Allen & Eby, 2007a; Pascarella & Terenzini, 2005). Moreover, students from winter term 2006/07, who did not have the possibility to participate in the peer mentoring program yet, served as a control group to a potential cohort effect.

Of our sample, 536 students (290 mentees, 33 non-mentees, 213 students from winter term 2006/07) filled in an online questionnaire as part of the evaluation of the peer mentoring program. Socio-demographic information from this questionnaire is reported in Table 1. There were no statistically significant differences between mentees, non-mentees and students from winter term 2006/07 concerning the distribution of gender, age and nationality.

Table 1.

*Distribution of gender, age and nationality among mentees from winter term 2007/08, non-mentees from winter term 2007/08, and students from winter term 2006/07*

	Gender	Age	Nationality
Mentees from winter term 2007/08	79 % female, 21 % male	<i>Md</i> = 19.9 ys	64 % Austria, 31 % Germany, 5 % other
Non-mentees from	70 % female,	<i>Md</i> = 20.9	76 % Austria, 21 %

winter term 2007/08	30 % male		Germany, 3 % other
Students from	77 % female,	$Md = 20.2$	64 % Austria, 29 %
winter term 2006/07	23 % male		Germany, 7 % other
Total	78 % female,	$Md = 20.1$	64 % Austria, 30 %
	22 % male	Welch $F(2,533) =$	Germany, 6 % other
	$\chi^2 = 1.22, p = .46,$	$2.26, p = .11, n.s.$	$\chi^2 = 2.57, p = .63,$
	<i>n.s.</i>		<i>n.s.</i>

### Measures

Two different types of measures were used: mentoring style of the student mentor and academic performance of the students. In this section, we also included some background information on the design of the Austrian course of study in psychology.

#### *Mentoring style of the student mentor*

Forty-eight student mentors were classified as belonging to one of the three mentoring styles described by Leidenfrost et al. (2011). There were 14 motivating master mentoring groups with 102 mentees, 30 inforatory standard mentoring groups with 201 mentees, and four negative minimalist mentoring groups with 25 mentees.

Leidenfrost et al. (2011) identified the mentoring styles through cluster analysis on the basis of eight specified indicators. These resulted from a mentee questionnaire (Mentor Functions Scale, see Noe, 1988, assessment of student mentor quality), from online behavior data of the student mentor (total number of online sessions, number of posted messages, median length of messages posted on a general message board), and from the quality of online mentoring activities of the student mentor (percentage of positive motivational aspects, percentage of positive informational aspects, and percentage of negative online mentoring activities). The detailed coding scheme used for the analysis of the quality of online mentoring activities is described in the study of Leidenfrost et al. (2011).

### *Academic performance among students*

When the students started studying psychology in winter term 2006/07 or 2007/08, the psychology major at the University of Vienna was a five-year course of study terminating with an Austrian Diploma degree (comparable to a Masters 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)<sup>1</sup>. The course of study was subdivided into two periods. The first period lasted for two years; the second period lasted for three years. In each period of the course of study, 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 two years, it was recommended to pass roughly seven to eight courses per term. In Austria, students may repeat a failed course up to three times.

### *Average grade*

The grading system utilized in Austrian schools and universities consists of five numerical levels from 1 to 5: 1 = *excellent*, 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.

The average grade was  $M = 2.64$  ( $SD = 0.70$ ) after one year of study and  $M = 2.66$  ( $SD = 0.67$ ) after two years of study. All passing and failing grades were considered for this calculation.

### *Number of courses passed*

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<sup>1</sup> Starting in the winter term 2010/11, the psychology course of study design at the University of Vienna changed to a three-year Bachelor degree course of study followed by a two-year Master degree course of study.

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

The average number of courses passed was  $M = 10.18$  ( $SD = 4.42$ ) after one year of study and  $M = 21.63$  ( $SD = 8.61$ ) after two years of study. The number of courses failed was not considered for this calculation.

### **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 (type of course, name of course, date of examination, grade achieved). Data were retrieved at the beginning of winter term 2009/10 and included all examination data from the beginning of winter term 2006/07 until the end of summer term 2009 for all psychology students who started their course of study in winter terms 2006/07 and 2007/08. For each student, two different indicators of academic performance (average grade, number of courses passed) were calculated; each after one year and after two years of study.

### **Data analysis**

To examine the effects of the different mentoring styles on academic performance (average grade, number of courses passed), analyses of variance (ANOVA) were computed in SPSS 15.0. In a first step, we compared the following three groups of students: all mentees from winter term 2007/08, non-mentees from winter term 2007/08, and (non-mentee) students from winter term 2006/07. In a second step, we compared the three mentoring styles: mentees in motivating master mentoring groups, mentees in informatory standard mentoring groups, and mentees in negative minimalist mentoring groups. Where variances were unequal,  $F$ -

values from the Welch test were used. To analyze which of the groups differed from one another, Scheffé (post hoc) tests were calculated.

## Results

### *Impact of the peer mentoring program*

Comparing mentees from winter term 2007/08, non-mentees from winter term 2007/08, and students from winter term 2006/07, there were statistically significant differences within all indicators of academic performance (see Table 2 for means, standard deviations, and detailed results).

Table 2.

*Means, standard deviations, and detailed results of comparison of academic performance among mentees from winter term 2007/08, non-mentees from winter term 2007/08, and students from winter term 2006/07*

	Average grade		Number of courses passed	
	After one year of study	After two years of study	After one year of study	After two years of study
Mentees from winter term 2007/08	2.66 <sub>a</sub> (0.61)	2.65 <sub>a</sub> (0.63)	10.90 <sub>a</sub> (3.88)	23.43 <sub>a</sub> (7.59)
Non-mentees from winter term 2007/08	2.94 <sub>b</sub> (0.83)	2.88 <sub>b</sub> (0.80)	8.47 <sub>b</sub> (5.05)	17.57 <sub>b</sub> (10.02)
Students from winter term 2006/07	2.55 <sub>a</sub> (0.71)	2.61 <sub>a</sub> (0.66)	9.97 <sub>c</sub> (4.57)	21.07 <sub>c</sub> (8.69)
$F(2, 825), p$ $(\eta^2)$	9.17*), < .001 (.022)	6.02, .003 (.015)	10.72*), < .001 (.026)	16.82*), < .001 (.041)

*Note:*  $F$  values refer to ANOVA comparisons based on  $N= 828$ . Common subscripts (a, b, or c) denote homogenous subgroups according to the Scheffé test with a critical value of  $p < .05$ .  
\*) Where variances were unequal,  $F$ -values from the Welch test were used.

After one year of study, students from winter term 2006/07 had the best average grades ( $M = 2.55$ ), followed by mentees from winter term 2007/08 ( $M = 2.66$ ). Non-mentees from winter term 2007/08 had the worst average grades ( $M = 2.94$ ). Post hoc analyses showed that non-mentees from winter term 2007/08 achieved worse average grades than mentees from winter term 2007/08 ( $p = .003$ ) and students from winter term 2006/07 ( $p < .001$ ), but mentees from winter term 2007/08 did not differ significantly from students from winter term 2006/07 ( $p = .097$ ).

After two years of study, the ranking of the groups was the same, but the range of average grades decreased (students from winter term 2006/07:  $M = 2.61$ , mentees from winter term 2007/08:  $M = 2.65$ , non-mentees from winter term 2007/08:  $M = 2.88$ ). Post hoc analyses showed that non-mentees from winter term 2007/08 still achieved worse average grades than mentees from winter term 2007/08 ( $p = .015$ ) and students from winter term 2006/07 ( $p = .003$ ), but that mentees from winter term 2007/08 did not differ from students from winter term 2006/07 ( $p = .731$ ).

The results for number of courses passed differed from the results for average grades. After one year of study, mentees from winter term 2007/08 passed the highest number of courses ( $M = 10.90$ ), followed by students from winter term 2006/07 ( $M = 9.97$ ). Non-mentees from winter term 2007/08 passed the lowest number of courses ( $M = 8.47$ ). Post hoc analyses showed that mentees from winter term 2007/08 passed a higher number of courses than non-mentees from winter term 2007/08 ( $p < .001$ ) and students from winter term 2006/07 ( $p = .017$ ). Students from winter term 2006/07 also passed a higher number of courses than non-mentees from winter term 2007/08 ( $p = .014$ ).

After two years of study, the results were even more distinct. Post hoc analyses showed that mentees from winter term 2007/08 passed a higher number of courses than non-mentees from winter term 2007/08 ( $p < .001$ ) and students from winter term 2006/07 ( $p = .001$ ). Students from winter term 2006/07 also passed a higher number of courses than non-mentees from winter term 2007/08 ( $p = .002$ ).

### ***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 informatory 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 3.

*Means, standard deviations, and detailed results of comparison of academic performance among mentees in three groups of mentoring styles from winter term 2007/08*

	Average grade		Number of courses passed	
	After one year of study	After two years of study	After one year of study	After two years of study
Motivating master mentoring groups	2.68 (0.53)	2.68 (0.54)	10.38 (3.91)	23.00 (7.44)
Informatory standard mentoring groups	2.64 (0.65)	2.63 (0.66)	11.24 (3.83)	23.74 (7.55)
Negative minimalist mentoring groups	2.79 (0.66)	2.73 (0.68)	10.20 (4.00)	22.76 (8.70)

$F(2, 325), p$	0.71, .493	0.37, .694	2.12, .122	0.42, .656
$(\eta^2)$	(.004)	(.002)	(.013)	(.003)

*Note:*  $F$  values refer to ANOVA comparisons based on  $N= 328$ .

## Discussion

The goal of the present study was to examine the general effect of a peer mentoring program and, in detail, the impact of different mentoring styles on two indicators of mentee academic performance (average grade, number of courses passed) after one year and two years of study. Participants consisted of two first-year student cohorts of psychology students at the University of Vienna: students from winter term 2007/08 who could voluntarily participate in a peer mentoring program during their first term and students from winter term 2006/07 who did not have this opportunity. Data for the indicators of academic performance were gathered from an examination database maintained by the Faculty of Psychology. The mentoring groups from winter term 2007/08 were classified as belonging to one of three mentoring styles described by Leidenfrost et al. (2011): motivating master mentoring, informatory standard mentoring, and negative minimalist mentoring.

Our data suggest that participants in the mentoring program performed better in their studies. Mentees from winter term 2007/08 achieved better average grades and passed a higher number of courses after one year and two years of study than non-mentees from winter term 2007/08. We found that mentees from winter term 2007/08 had better academic performance in terms of the number of courses passed than students from winter term 2006/07 after one year and two years of study. Concerning average grades, the results were different. After one year and two years of study, students from winter term 2006/07 achieved the best average grades followed by mentees from winter term 2007/08; mentees from winter term 2007/08 achieved better average grades than non-mentees from winter term 2007/08. We could not find any specific impact of the different mentoring styles on mentee academic

performance, although, descriptively seen, mentees in informatory 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 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 non-mentees from winter term 2007/08 and to students from winter term 2006/07. Although students from winter term 2006/07 achieved slightly better average grades, they passed fewer courses during a comparable amount of time. Admittedly, we have to be aware of a self-selection bias (Allen & Eby, 2007a; Pascarella & Terenzini, 2005) in the light of the results. A self-selection bias means that participants in a voluntary program could generally be more motivated than non-participants (Larose, Cyrenne, Garceau, Harvey, Guay, & Deschênes, 2009). So it could be that not the peer mentoring program itself had a positive impact on academic performance, but that the self-selection of participating in the mentoring program explains the overall differences in average grades and number of courses passed. Unfortunately, it was not possible to collect sufficient data from the mentees and non-mentees from winter term 2007/08 to find out why they did or did not participate in the mentoring program.

Looking at the results in terms of average grades, a cohort effect might interfere with the results because students from winter term 2006/07 achieved better average grades than students from winter term 2007/08. Still, mentees from winter term 2007/08 clearly achieved better average grades than non-mentees from winter term 2007/08. In general, students are very insecure at the beginning of their course of study and often arrive at the university with incorrect expectations (Gibney, Moore, Murphy, & O'Sullivan, 2010; Jackson, Pancer, Pratt,

& Hunsberger, 2000; Pancer et al., 2000). This makes it reasonable that students 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. During the years 2006/07 and 2007/08, several minor changes in the psychology curriculum occurred at the University of Vienna: a substantial portion of examinations, especially those taken during the first period of study, changed from a format with open questions to a multiple-choice format. In accordance with these changes, there were also several new lecturers who differed in their teaching styles. These differences of circumstances between the study years 2006/07 and 2007/08 might lead to a cohort effect. This might be an explanation why, descriptively seen, students from winter term 2006/07 achieved slightly better average grades ( $M = 2.55$  after one year of study;  $M = 2.61$  after two years of study) than mentees from winter term 2007/08 ( $M = 2.66$  after one year of study;  $M = 2.65$  after two years of study) even though they had no additional support during their first term, e. g. in form of a peer mentoring program.

There are no statistically significant differences in mentee study success depending on the experienced mentoring style in their mentoring group. We have to reject our assumption that academic performance among mentees who experienced a negative minimalist mentoring style would be worse than academic performance among mentees who experienced a motivating master or an informatory standard mentoring style. A possible reason for this result 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. They also got obligatory support concerning some important topics. For example, it was an obligatory task for the student 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 student 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).

Another reason could be that the online mentoring was only one component of the mentoring program. All mentees received face-to-face mentoring as well and met their student mentor several times. One of the major concerns reported on mentoring is that it is time consuming (Ehrich, Hansford, & Tennent, 2004; Long, 1997). All student mentors had to meet their mentees five times during the mentoring program, whereas the online mentoring activities were dependent on their own time commitment. Maybe, those student 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.

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, as so many students study psychology there. So, the University of Vienna can be clearly 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: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 and about 750 students in the Bachelor degree program), but a low number of academic staff member 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 student mentor. We did not

consider the reverse side, namely personal characteristics like achievement motivation or competences 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 student mentor, these factors should not vary too systematically from group to group. Third, the model of mentoring styles as described by Leidenfrost et al. (2011) mainly refers to online mentoring activities. In the light of the results, the influence of the face-to-face mentoring activities should have been included 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.

### **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 one year and two 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 one year and two years of study, the motivational master mentoring style did not differ from the other mentoring styles. We could show that the negative minimalist mentoring style did not have a negative effect on academic performance in the long term. Overall, our data suggested that any mentoring (style) was better than no mentoring at all.

Our present findings have 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 university. The support need not be given by the faculty; it is also sufficient – probably even more helpful – for first-year students when peers (advanced students, similar in age and hierarchical level) are assigned to support programs. In the long term, accrued costs for such support programs would be balanced by a more efficient study progress of the supported students.

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