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Understanding the Gap Between First-Generation and Continuing-Generation Students: The Effect of Academic Talent-Focused Environments on Social Engagement

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Abstract (German)

Erstakademiker*innen, definiert als Studierende deren Eltern keinen Hochschulabschluss erworben haben, erfahren zahlreiche Benachteiligungen im akademischen Leben im Vergleich zu Nicht-Erstakademiker*innen. Einige dieser Benachteiligungen können darauf zurückzuführen sein, dass Erstakademiker*innen sich selbst als weniger begabt als andere Studierende einschätzen. Folglich, in einer Umgebung, in der Begabung als wesentlich für den Erfolg wahrgenommen wird, tendieren Erstakademiker*innen größere Benachteiligungen zu erfahren als in einer Umgebung, in der Einsatz und Anstrengung im Vordergrund stehen. Frühere Forschungsarbeiten untersuchten die Auswirkungen talent-fokussierter Umgebungen auf das Engagement von Studierenden bei der Bearbeitung herausfordernder akademischer Aufgaben und zeigten dabei ein geringeres Engagement von Erstakademiker*innen im Vergleich zu Nicht-Erstakademiker*innen. Die vorliegende Studie wurde mit Psychologie-Studierenden an der Universität Wien ($N = 201$) durchgeführt. Sie erweitert die frühere Forschung, in dem sie den Einfluss der Umgebung auf das soziale Engagement von Erstakademiker*innen untersucht, gemessen an ihrer aktiven Beteiligung an einer Gruppendiskussion über ein nicht-akademisches Thema. Entgegen den Erwartungen wurden in der talent-fokussierten Umgebung keine signifikanten Unterschiede im sozialen Engagement zwischen Erstakademiker*innen und Nicht-Erstakademiker*innen gefunden. Dieses Ergebnis deutet darauf hin, dass sich der Einfluss eines talent-fokussierten akademischen Umfelds auf das soziale Engagement von Erstakademiker*innen vom Einfluss auf ihr Engagement bei der Bearbeitung akademischer Aufgaben unterscheidet und verdeutlicht die Notwendigkeit, andere Studierendengruppen sowie alternative experimentelle Setups zu untersuchen. Dieser Befund, zusammen mit weiteren Erkenntnissen aus den zusätzlichen Analysen, leistet einen wertvollen Beitrag zum Verständnis des Verhaltens von Studierenden in Hochschulen und bietet einen Ausgangspunkt für zukünftige Forschung. Letztlich kann diese Forschung dazu beitragen, ein akademisches Umfeld zu schaffen, welches das Engagement von Erstakademiker*innen fördert und damit unterstützt, die Studienabbruchquote und spätere Nachteile auf ihrem Karriereweg zu reduzieren.

Schlüsselwörter: Erstakademiker*innen, soziales Engagement, talent-fokussierte Umgebung, motivations-fokussierte Umgebung

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Introduction

First-generation students are defined as students whose parents have not completed a college degree (Ramos-Sanchez & Nichols, 2007) or a university degree (Bauer et al., 2023). Compared to *continuing-generation students* whose parents, or at least one parent, graduated from university or college (Billson & Terry, 1982), first-generation students experience greater disadvantages in their academic life (Bui, 2002; Cataldi et al., 2018; Herrmann & Varnum, 2018). Previous research has shown that first-generation students feel less confident in their academic ability (Ramos-Sanchez & Nichols, 2007) and systematically consider themselves to be less intellectually talented than other students who perform similarly (Bauer et al., 2023). As a result, first-generation students tend to attribute academic failure to their own lack of talent (Bauer et al., 2023; Goudeau & Cimpian, 2021) and engage less in challenging academic tasks (Bauer et al., 2023) and in interactions with teaching staff and other students (Soria & Stebleton, 2012).

The present research examines the effect of academic environments that emphasize talent to be essential to succeed (Leslie et al., 2015) on first-generation students' engagement in social interactions. While prior research has investigated the effect of talent-focused environments on first-generation students' self-perceived confidence (Ausweger, 2023), on how others perceive their confidence (Ausweger, 2023; Brunner, 2023), or on their engagement in solving challenging academic tasks (Bauer et al., 2023; Gebetsberger, 2022), the current study offers a novel approach: It investigates whether a talent-focused environment has a negative effect on first-generation students' *social engagement*. Extending previous research on engagement based on self-reports (Soria & Stebleton, 2012) or on performance, using indicators of academic success, such as academic scores (Stephens et al., 2014), this study analyzes students' social engagement by observing their participation during a group discussion. While first-generation students may experience lower social engagement levels that result in lower retention rates at university (Soria & Stebleton, 2012), the completion of an academic program may contribute to improving their career prospects and consequently their economic well-being, as higher educated individuals tend to achieve higher income levels (Hamermesh & Rees, 1993). Due to the relevance of engagement in academia, this study examines the environments in which the gap between first-generation and continuing-generation students' social engagement is more pronounced and those in which it may be reduced.

Theoretical Background

The Concept of First-Generation Student

The concept of first-generation students refers to students whose parents have not completed a college or university degree and thus, they are the first-generation in their families to attend college or university (Billson & Terry, 1982). In contrast, continuing-

generation students are defined as students who have at least one parent who pursued postsecondary education (Cataldi et al., 2018), graduated from a 4-year academic program (Stephens et al., 2014), or acquired a bachelor's degree or higher (Metcalf & Wiener, 2018). In the present study, parental graduation from a university is used to distinguish between these two student groups.

First-generation students, who represent more than half (Zucha et al., 2024) to two thirds of all first-year students at Austrian universities (Unger et al., 2020), on third to roughly half of the population at certain European universities (Orr et al., 2011), and one third at US universities (Cataldi et al., 2018), have been identified as the biggest disadvantaged minority group in Western universities (Bauer et al., 2023). The substantial proportion of first-generation students in academic institutions underscores the importance of research to examine their disadvantages within the academic context. The present study seeks to investigate the circumstances in which these disadvantages are most pronounced.

First-Generation Students' Disadvantages in Academic Life

Several studies conducted in the past decades have highlighted the numerous disadvantages first-generation students experience in their academic life compared to continuing-generation students (Bauer et al., 2023; Ramos-Sanchez & Nichols, 2007). First-generation students' disadvantages may result in academic underperformance (Ramos-Sanchez & Nichols, 2007), lower grades, lower levels of enrollment in a graduate or in first professional programs (Pascarella et al., 2004), and lower retention rates compared to continuing-generation students (Soria & Stebleton, 2012).

These academic disadvantages are often associated with first-generation students' lower socioeconomic background (Bui, 2002; Bauer et al., 2023). For instance, first-generation students are more likely to come from working-class contexts, may have less prior knowledge of the academic life (Soria & Stebleton, 2012; York-Anderson & Bowman, 1991; Zalaquett, 1999), and experience a cultural mismatch with the middle-class culture of the academic environment in which they are uncertain about the appropriate way to act (Herrmann & Varnum, 2018). First-generation students' limited knowledge about higher education passed through families to children (Pascarella et al., 2004) may also result in first-generation students feeling less comfortable at university than continuing-generation students (Herrmann & Varnum, 2018). Additionally, first-generation students' lower levels of self-efficacy may be linked to poorer college adjustment (Ramos-Sanchez & Nichols, 2007).

Furthermore, there is evidence that first-generation students face multiple challenges, such as having children of their own, working full time while enrolled, and possessing certain demographic and enrollment characteristics, like belonging to an ethnic minority or speaking at home a language other than the official language of the country (Bui, 2002; Cataldi et al., 2018).

In contrast, students from more privileged socioeconomic backgrounds may benefit from their higher educational and economic standing as well as from further non-educational aspects, such as their appearance, strong communication skills, and acting in a confident manner at interviews (Ashley et al., 2015).

First-Generation Students' Social Engagement in the Academic Context

Previous research has shown that first-generation students' disadvantages may result in lower engagement levels in academic life compared to continuing-generation students (Pascarella et al., 2004; Pike & Kuh, 2005; Soria & Stebleton, 2012). In general, engagement refers to a person's behavior which comprises active involvement in a task or activity (Connell et al., 1994; Reeve, et al., 2004). In the academic context, student engagement has been described as a multidimensional construct (Appleton et al., 2006; Fredricks et al., 2004) with *academic engagement* and *behavioral engagement* identified as two of its dimensions (Appleton et al., 2006).

The dimension of academic engagement relates to efforts toward academic achievement, including time invested in academic tasks, homework completion, and earned credits (Appleton et al., 2006). In contrast, the dimension of behavioral engagement refers to students' behavior within the college or university context, such as classroom attendance, participation in class (Appleton et al., 2006), involvement in discussions by bringing up ideas and asking insightful questions, as well as interactions with teaching staff (Soria & Stebleton, 2012). Behavioral engagement also includes other forms of interactions in the academic environment connected with instructional content (Fredricks et al., 2004; Martin & Rimm-Kaufman, 2015; Rimm-Kaufman et al., 2015; Soria & Stebleton, 2012), and the participation in extracurricular and social activities (Appleton et al., 2006; Pascarella et al., 2004). In this study, social interactions that occur during task-related discussions are referred to as social engagement, an indicator of behavioral engagement (Appleton et al., 2006).

First-generation students' disadvantages connected with lower levels of social interaction in academic life may have their origin at an early age: Already in preschool, behavioral differences among children linked to their socioeconomic background may become evident, as suggested by previous research conducted by Goudeau et al. (2022). According to this research, preschoolers from middle- and high-socioeconomic backgrounds may feel more comfortable participating in oral activities than children from a lower socioeconomic background, their teachers may value their contributions more and give them more opportunities to speak than they do to children of lower socioeconomic status (Goudeau et al., 2022). Moreover, social class stereotypes that imply that children from a lower socioeconomic background possess lower intellectual ability (Croizet & Claire, 1998) may have negative effects on children's engagement in verbal exercises and their teachers' expectations.

Since this social engagement gap associated with students' economic standing and generation status may persist beyond school, research on college and university students' engagement in discussions is particularly relevant. Prior research has shown that first-generation students engage less frequently than continuing-generation students in activities that contribute to academic success (Soria & Stebleton, 2012). These activities involve studying in groups, interacting with other students and teaching staff, participating in extracurricular activities, and using university support services (Engle & Tinto, 2008; Pike & Kuh, 2005; Soria & Stebleton, 2012). Similarly, first-generation students tend to participate less and bring up fewer ideas and insightful questions during class discussions (Soria & Stebleton, 2012), behave less independently in the classroom, interact showing more deference to teaching staff (Herrmann & Varnum, 2018), and ask less frequently for support to avoid bothering the professor (Jack, 2016).

Conversely, according to previous findings, first-generation students may considerably benefit from increased social engagement in academic life (Engle & Tinto, 2008; Soria & Stebleton, 2012). There is evidence of the positive effect of interpersonal interaction with professors on first-generation students' academic scores (Stephens et al., 2014). Furthermore, engagement in extracurricular activities may enhance first-generation students' critical thinking, their sense of control over their academic success, and their preference for higher-order cognitive tasks (Pascarella et al., 2004).

While decreased engagement may result in higher dropout rates among first-generation students (Bauer et al., 2023), increased engagement may help prevent students from dropping out (Fredricks et al., 2004; Soria & Stebleton, 2012). This highlights the importance of social engagement on first-generation students' academic performance and its contribution to the successful completion of their educational career. Thus, it is crucial to identify the settings in which students from lower socioeconomic backgrounds and, specifically, those whose families have a lower educational standing, show less engagement in social interactions. Extending prior studies on first-generation students' engagement in academic tasks within talent-focused and effort-focused environments (Bauer et al., 2023), research on first-generation students' engagement in task-related group discussions may provide new insights and help identify in which academic contexts first-generation students feel most motivated to engage in interpersonal interaction.

Impact of Talent- and Effort-Focused Academic Environments on Engagement

According to previous research, first-generation student status has been found to be a good predictor of students' impaired talent self-concept (Bauer et al., 2023). Moreover, evidence suggests that the increased disadvantages observed in talent-focused environments may be explained by first-generation students' lower confidence in their abilities (Ramos-Sanchez & Nichols, 2007) and, specifically, by their self-concept of being

less talented than others (Bauer et al., 2023). This self-perception may be related to internalized stereotypes that associate intellectual talent with individuals with a higher educational standing rather than first-generation students (Ashley et al., 2015).

While prior studies have shown that first-generation students' academic performance is generally lower compared to continuing-generation students' performance (Pascarella et al., 2004; Ramos-Sanchez & Nichols, 2007), there is evidence that highlights the influence of the academic environment in either encouraging or restraining first-generation students' engagement in academic life. In academic environments that emphasize the importance of students' inherent attributes, such as talent, the gap between first-generation students and continuing-generation students is bigger than in environments that emphasize the importance of students' efforts (Bauer et al., 2023; Goudeau & Cimpian, 2021; Jury et al., 2015). Furthermore, in academic environments that are focused on selecting the best students among others, first-generation students are more concerned about failure and show poorer performance compared to continuing-generation students (Jury et al., 2015). In contrast, there is evidence that first-generation students' lower performance in academic tasks, such as solving mathematical tasks (Jury et al., 2015), and lower engagement in challenging academic tasks (Bauer et al., 2023) may be reduced in environments where effort, learning, and improvement are signaled to be key to achieve goals (Bauer et al., 2023; Goudeau & Cimpian, 2021).

The Present Research

The present study aims to investigate how the academic environment influences students' social engagement, specifically by examining whether environments that emphasize the importance of talent for academic success negatively affect the social engagement of first-generation students. While some previous studies have investigated first-generation students' social engagement regardless of the influence of the academic environment (Ramos-Sanchez & Nichols, 2007; Soria & Stebleton, 2012), other research has focused on the effect of the academic environment on first-generation students' engagement in solving challenging academic tasks (Bauer et al., 2023). However, first-generation students' engagement in social interactions in different academic environments has not been fully explored. The present study extends prior research most notably by simultaneously addressing the social facet of engagement and the impact of talent-focused versus effort-focused environments. It examines first-generation students' participation in discussions and further analyzes whether the gap in social engagement between first-generation and continuing-generation students would be reduced in environments where students feel that their effort, rather than innate talent, is needed to successfully solve a task.

Based on previous research findings (Bauer et al., 2023; Goudeau, et al., 2022; Stephens et al., 2014), I hypothesize that in a talent-focused environment, first-generation students, due to their self-perception of being less talented than others, will show lower levels of social engagement compared to continuing-generation students. In contrast, I expect that in an effort-focused environment no such difference in behavior will be observed.

Method

This study was part of a research project at the University of Vienna conducted to examine the effect of talent- and effort-focused environments on first-generation students' self-perceptions (Ausweger, 2023), on how these students are perceived by others (Ausweger, 2023; Brunner, 2023), and on their behaviors compared to continuing-generation students. The experiment took place in November 2022 at the Motivation Psychology lab of the Department of Occupational, Economic, and Social Psychology of the Faculty of Psychology of the University of Vienna, Austria.

Design

The present study was based on a laboratory task that involved the experimental manipulation of the environment. Students who signed up to participate in the study were randomly assigned to groups of three to six participants to either the experimental condition, in which they were exposed to a talent-focused environment (talent condition), or the control condition, in which they were exposed to an effort-focused environment (effort condition).

Participants

Participants were recruited through a platform used to invite students to scientific psychological studies at the University of Vienna and received course credits for their participation in the experiment. To ensure the generalizability of the study results, it was intended to recruit a high number of participants. Based on a power analysis using Monte Carlo simulations with 95% power and on an experimental design with two groups (first-generation and continuing-generation students), two conditions (talent-focused and effort-focused environment), and an estimated effect size of $f = 0.25$, it was planned to recruit 400 participants. Despite the recruitment target, in total 201 students participated in the study. Participants were split into 20 groups with a total of 87 (43.3%) students in the talent condition and 23 groups with a total of 114 (56.7%) students in the effort condition. All participants completed every part of the study.

Overall, 69.2% ($n = 139$) of the participants identified as female, 30.3% ($n = 61$) identified as male, and 0.5% ($n = 1$) as diverse. Since only one participant identified as gender diverse and no representative results were expected for this gender category, data for this participant was excluded from the gender analyses.

The mean age was 21.49 ($SD = 4.14$). Nearly all participants ($n = 199$, 99.0%) were psychology students, while merely 2 participants (1.0%) were students in other fields.

Psychology students were mostly enrolled in the bachelor program ($n = 196$, 97.5%). According to participants' responses in the survey, 32.8% ($n = 66$) of the sample were first-generation students and 67.2% ($n = 135$) were continuing-generation students. Regarding students' current year of study, 70.9% ($n = 143$) indicated to be first-year students in a bachelor program. Within this group, 31.5% ($n = 45$) of the participants reported being first-generation students.

Procedure

The experiment consisted of three parts: The first part included a survey on demographic information and self-perceptions, the second part consisted of one task, firstly to be solved individually and then collectively with the other group participants, and the third part consisted of a further survey to assess students' perceptions of the group task and collect additional demographic data.

First, after receiving general information about the study, signing the informed consent and data protection forms, participants filled in a survey on demographics and rated questions about their well-being at university and their self-perception of talent, effort, and academic success (see Appendix C for the full questionnaire in German language).

In the second part, the experimental manipulation was introduced to create either a talent- or an effort-focused environment. To do that, a member of the research team distributed the survey containing a questionnaire and written instructions for the experimental task (see Appendix D for the experimental and Appendix E for the control condition) and explained the task. In the experimental condition, the task was titled "Intellectual-Cognitive Skills Assessment", and participants were asked by the research team to solve a task to measure these skills (talent-focused environment). In the control condition, the title of the task was "Task on Readiness to Exert Effort". Accordingly, participants were told that the aim of the exercise was to measure their level of commitment and readiness to exert effort on a task (effort-focused environment). Except for the title of the task, instructions and the task itself were identical in both conditions. In each condition, participants were instructed to imagine being shipwrecked with a group of friends and were asked to choose three objects from a list that they would take with them before leaving the sinking boat and considered most helpful to survive. Before starting this task, participants were asked questions about their mindset regarding their abilities to successfully solve the task and to assess how confident, competent, and talented they felt in finding a solution to the task. Then, after working three minutes on their own, participants had a 15-minutes group discussion to finally agree as a group upon three items that they wrote down on a group answer sheet. The group discussion was video recorded and later used to analyze participants' social engagement.

Finally, participants filled in a questionnaire with several items to rate feelings and perceptions about themselves, the other participants, the group discussion, and the reached decision. Further information, such as whether participants' parents or grandparents were born in other countries than Austria, parental education level, field of study, and academic program were collected in this section (see Appendix F). After completing the survey, participants were debriefed and left the laboratory.

Measures

Generation Student Status

To assess the first-generation student status, participants were asked in the third questionnaire (see Appendix F) to inform whether they had at least one parent who had completed a university degree. Participants with at least one parent with a university degree were classified as continuing-generation students, whereas participants with none of their parents having completed a university degree were classified as first-generation students. For the analysis, continuing-generation students were coded as 1 and first-generation students were coded as 2.

Social Engagement

Social engagement was measured as the frequency of students' contributions with relevant information during the task-related group discussion. Consistent with the method applied in previous research conducted by Anderson et al. (2012), I coded the video recordings of the group discussion by counting the number of times participants provided relevant information for problem solving. Specifically, I counted each time participants made statements about which item they would choose to help them survive and the reasons for the choice (e.g., "I would take the lifeboat because it can be used by more than one person", "I would choose to take water, since you can survive many days without food but only a few days without water) or which items they would not select and the reasons for their choice (e.g., "I would not take the mobile phone because it might not get a signal"). Participants' comments that merely repeated or summarized information provided earlier in the discussion were not considered. Participants' statements consisting of an enumeration of items they would choose without providing the reasons for their choice were not counted, either.

To assess the interrater reliability, a further member of the research team who conducted the experiment rated independently the social engagement scores of 10 randomly selected groups comprising a total of 43 participants. The interrater reliability of the video coding for 43 participants was high, $ICC(3,2) = .90$.

Additional Measures

Self-Perception of Academic Success. To assess students' self-perception of success in academia, the item of the first survey "I consider myself successful in my studies"

(see Appendix C) was used. This item was scored by participants using a 6-point Likert scale.

Well-Being at University. To assess students' self-perception of their well-being at university, the item of the first survey "How comfortable do you feel in your current academic program?" was used (see Appendix C). Students rated using a 6-point Likert scale how they felt at university in a range from *not at all comfortable* to *extremely comfortable*.

Perceived Confidence. The scores for confidence perceived by the group peers were collected in the questionnaire participants filled in after the group discussion (Appendix F). Each participant rated the other group members on the item, „How confident do you consider the other persons to be?“ using a 6-point Likert scale ranging from *not at all* to *totally*. For each participant, perceived confidence was calculated as an average of the ratings received from their group peers.

Perceived Competence. The scores were collected in the questionnaire participants filled in after the group discussion (Appendix F) and consisted of an average of the scores given by the participants to the other group members by rating the question, „How competent do you consider the other persons to be?“ using a 6-point Likert scale ranging from *not at all* to *totally*.

Gender. This demographic data was collected in the first questionnaire (Appendix C). Individuals selected the categories female (coded as 1), male (coded as 2), or diverse (coded as 3).

Statistical Analysis

To test the hypothesis, the interaction effect of students' generation status (first-generation vs. continuing-generation student) and environment (talent-focused vs. effort-focused environment) on social engagement was analyzed with a two-way ANOVA using IBM SPSS Statistics (29). The condition variable was dummy coded (0 = effort condition, 1 = talent condition).

Exploratory analyses were performed to examine relationships between additional variables collected in the questionnaires related to self-perceptions and peer's perceptions. Specifically, Pearson's correlation analyses were conducted among first-generation status, social engagement, self-perception of academic success, well-being at university, perceived confidence, and perceived competence.

Furthermore, to explore whether engagement in the discussion differed between female and male participants, irrespective of the environment and student generation status, an independent samples *t*-test was conducted. In addition, the interaction effect of gender, student generation status, and environment on social engagement was analyzed using a three-way ANOVA. Simple main effects analyses were performed to explore differences in social engagement between first- and continuing-generation female and male students in the talent- and effort-focused environments.

Results

Preliminary Analyses

Prior to testing the hypothesis, preliminary tests were conducted to examine potential differences in demographic characteristics within the sample. No significant differences between the first-generation and continuing-generation students groups concerning age, gender distribution, and number of semesters of enrollment in the current academic program were observed, as shown in Table 1.

Table 1

Sample Characteristics by Student Generation Status

Variable	Student generation status		
	First-generation	Continuing-generation	t / χ^2 , p
Age in years, $M \pm SD$	22.15 $\pm$ 5.05	21.17 $\pm$ 3.60	$t(199) = -1.58$, $p = .115$
Gender, n (%)			
Female	46 (69.7)	93 (69.4)	$\chi^2(1) = 0.02$,
Male	20 (30.3)	41 (30.6)	$p = .966$
Semesters enrolled in program, $M \pm SD$	2.15 $\pm$ 2.13	1.99 $\pm$ 2.02	$t(199) = -0.54$, $p = .591$

Note. The participant who identified as gender diverse was excluded from the gender analyses due to the small subgroup size.

Furthermore, no significant differences between the experimental and the control conditions were found related to the distribution of age, gender, student generation status, and number of semesters of enrollment in the current academic program, as shown in Table 2.

Table 2
Sample Characteristics by Experimental Condition

Variable	Environment		t / χ^2 , p
	Talent-focused	Effort-focused	
Age in years, $M \pm SD$	21.36 $\pm$ 4.04	21.60 $\pm$ 4.23	$t(199) = -0.41$, $p = .685$
Gender, n (%)			
Female	64 (73.6)	75 (66.4)	$\chi^2(1) = 1.20$, $p = .273$
Male	23 (26.4)	38 (33.6)	
Student generation, n (%)			
First-generation	27 (31.0)	39 (34.2)	$\chi^2(1) = 0.23$, $p = .635$
Continuing-generation	60 (69.0)	75 (65.8)	
Female, n (%)			
First-generation	20 (31.3)	26 (34.7)	$\chi^2(1) = 0.18$, $p = .670$
Continuing-generation	44 (68.8)	49 (65.3)	
Male, n (%)			
First-generation	7 (30.4)	13 (34.2)	$\chi^2(1) = 0.09$, $p = .761$
Continuing-generation	16 (69.6)	25 (65.8)	
Semesters enrolled in program, $M \pm SD$	2.03 $\pm$ 2.16	2.04 $\pm$ 1.97	$t(199) = -0.04$, $p = .972$

Note. The participant who identified as gender diverse was excluded from the gender analyses due to the small subgroup size.

Effect of the Academic Environment on First-Generation Students' Social Engagement

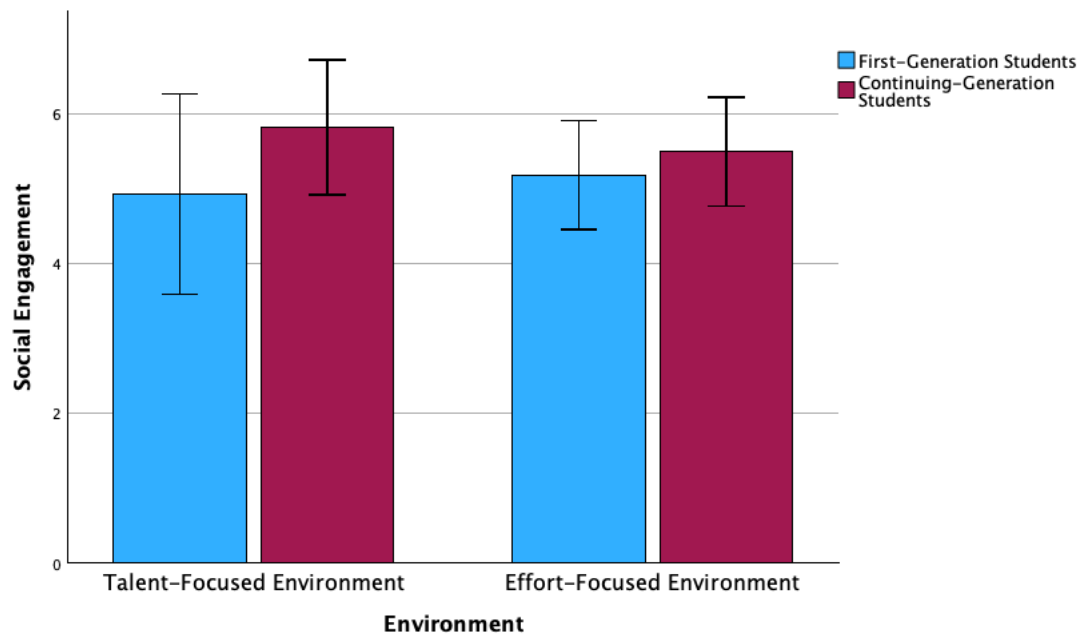
Contrary to expectations, the hypothesis that first-generation students would show lower levels of social engagement than continuing-generation students in the talent-focused environment was not supported by the results. No statistically significant two-way interaction effect of the student generation status (first- vs. continuing-generation) and the environment (talent- vs. effort-focused) on engagement in the group discussion was found, $F(1, 197) = 0.36$, $p = .547$. The analysis revealed neither a significant main effect of the experimental manipulation of environment on social engagement, $F(1, 197) = 0.01$, $p = .942$ nor a main effect of student generation status, $F(1, 197) = 1.59$, $p = .209$.

In the talent condition, no significant effect of student generation status on engagement was found, $F(1, 85) = 1.24$, $p = .270$, although descriptively, the non-significant difference in mean scores between first-generation students ($M = 4.93$, $SD = 3.39$) and continuing-generation students ($M = 5.82$, $SD = 3.49$) was in the hypothesized direction. In

the effort condition, as expected, no significant effect of the generation status on engagement was found, $F(1, 112) = 0.31, p = .582$. In this condition, first-generation students' scores for social engagement, $M = 5.18, SD = 2.25$ did not differ significantly from those of continuing-generation students, $M = 5.49, SD = 3.16$ (see Figure 1).

Figure 1

Effect of Student Generation Status and Environment on Social Engagement



Note: Social engagement was measured by the frequency of participants' contributions to a group discussion. Error bars show standard errors.

Additional Analyses

Correlations

Pearson's correlations between student generation status, engagement and variables selected for the additional analyses are reported in Table 3. While no significant Pearson's correlation between first-generation status and the rest of the analyzed variables was found, significant positive Pearson's correlations were observed among other variables. Significant moderate, positive correlations were found between social engagement and perceived confidence, $r(199) = .39, p < .001$, between perceived confidence and perceived competence, $r(199) = .47, p < .001$, as well as between self-perception of academic success and well-being at university, $r(199) = .27, p < .001$. Additionally, significant, but weak positive correlations were observed between social engagement and perceived competence, $r(199) = .17, p = .019$ and between well-being at university and perceived confidence, $r(199) = .15, p < .033$.

Table 3

Additional analyses: Correlations Between Variables

Variables	1	2	3	4	5	6
1. First-generation status						
2. Self-perception of academic success	.06					
3. Well-being at university,	.02	.27**				
4. Social engagement	-.08	-.07	.01			
5. Perceived confidence	-.07	-.02	.15*	.39**		
6. Perceived competence	-.03	-.13	.04	.17*	.47**	

Note. ** $p < .01$. * $p < 0.05$

Gender Differences

Regarding gender differences, results indicated that male participants were overall more engaged in the discussion than female participants, $t(198) = 2.71, p = .007$, since male students provided relevant information for problem solving more frequently during the discussion ($M = 6.33, SD = 2.84$) than female participants ($M = 5.04, SD = 3.18$). The means and standard deviations for social engagement split by gender, student generation, and environment are presented in Table 4.

Table 4

Means and Standard Deviations of Social Engagement Split by Gender, Student Generation Status, and Environment

Variable	Social engagement			
	First-generation students		Continuing-generation students	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Talent-focused environment				
Female	4.20	3.19	5.82	3.73
Male	7.00	3.27	5.81	2.86
Effort-focused environment				
Female	5.00	2.51	4.71	2.89
Male	5.54	1.61	6.88	3.19

Note. The participant who identified as gender diverse was excluded from the gender analyses due to the small subgroup size.

To analyze the interaction effect of gender, student generation status and environment on social engagement, a three-way ANOVA was conducted. Results showed a significant interaction effect of gender, student generation status, and environment on social engagement, $F(1, 192) = 4.59, p = .033$. A significant main effect for gender, $F(1, 192) = 7.06, p = .009$ was found, whereas results indicated no significant main effects for environment, $F(1, 192) = 0.11, p = .736$ and for student generation status, $F(1, 192) = 0.52, p = .473$. Given the significant interaction, simple main effects analyses were conducted. The analyses showed that in the talent-focused environment, first-generation male students were significantly more engaged in the discussion than first-generation female students, $F(1,192) = 4.31, p = .039$, whereas in this environment there were no differences between male and female continuing-generation students, $F(1,192) = 0.00, p = .995$. In contrast, in the effort focused environment there were no gender differences in social engagement among first-generation students, $F(1,192) = 0.27, p = .606$ but continuing-generation male students were significantly more engaged in the discussion than continuing-generation female students, $F(1,192) = 8.23, p = .005$ (see Table 5 and Figure 2).

Table 5

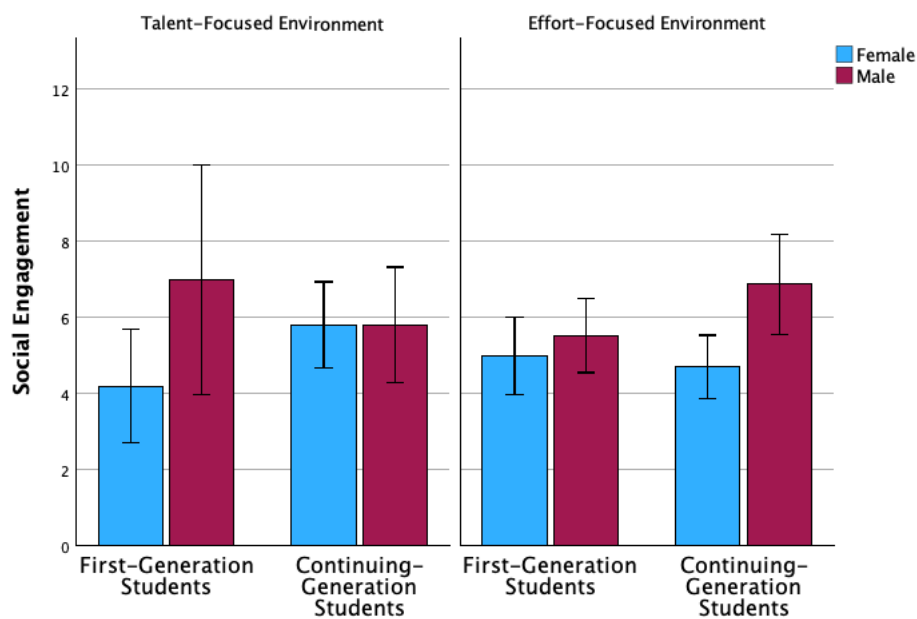
Simple Main Effects Analyses: Pairwise Comparison of Gender and Student Generation Status in Talent- and Effort-Focused Environments

Variable		Social Engagement	
		<i>F</i> (1,192)	<i>p</i>
Talent-focused environment			
First-generation	Female vs. male	4.31	.039
Continuing-generation	Female vs. male	0.00	.995
Effort-focused environment			
First-generation	Female vs. male	0.27	.606
Continuing-generation	Female vs. male	8.23	.005
Talent-focused environment			
Female	First-generation vs. continuing-generation	3.82	.052
Male	First-generation vs. continuing-generation	0.73	.395
Effort-focused environment			
Female	First-generation vs. continuing-generation	0.15	.702
Male	First-generation vs. continuing-generation	1.63	.203

Note. The participant who identified as gender diverse was excluded from the gender analyses due to the small subgroup size.

Figure 2

Gender Differences in Social Engagement within First-Generation and Continuing-Generation Students Groups Shown for Talent- and Effort-Focused Environments

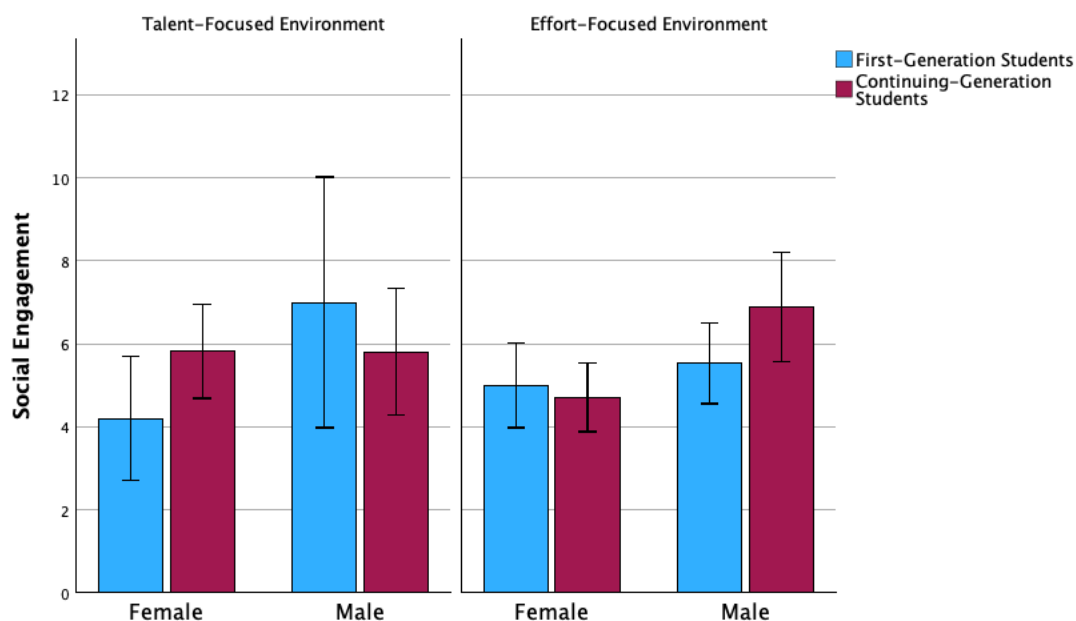


Note. Social engagement was measured by the frequency of participants' contributions to a group discussion. Error bars show standard errors.

Additionally, a simple main effects analysis showed no significant differences in social engagement between first- and continuing-generation female students in the talent-focused environment, $F(1,192) = 3.82, p = .052$. Descriptively, these non-significant mean scores differences were in the direction predicted by the hypothesis tested in the study. Furthermore, simple main effects indicated no significant difference between first- and continuing-generation male students in the talent-focused environment, $F(1,192) = 0.73, p = .395$. Descriptively, however, the non-significant mean differences were in the opposite direction of those observed for female students. Because these effects were not statistically significant, no interpretation should be drawn from this pattern. Finally, in the effort-focused environment, no significant differences in social engagement were found neither between first-generation and continuing-generation female students, $F(1,192) = 0.15, p = .702$, nor within the group of male students, $F(1,192) = 1.63, p = .203$ (see Table 5 and Figure 3).

Figure 3

Differences in Social Engagement Between First-Generation and Continuing-Generation Students Groups Shown for Talent- and Effort-Focused Environments



Note. Social engagement was measured by the frequency of participants' contributions to a group discussion. Error bars show standard errors.

Discussion

The present study aimed to gain new insights into the disadvantages experienced by first-generation students by focusing on their social engagement in academic environments that emphasize the importance of being talented. It also sought to identify whether in an effort-focused academic environment first-generation students' engagement gap may be reduced. Specifically, it examined whether a talent-focused academic environment had a negative effect on first-generation students' social engagement measured as their participation in a group discussion. In the conducted study, students engaged in a group discussion on a non-academic topic that was either presented, in the experimental condition, as an exercise to assess their talent and, in the control condition, as an exercise to assess their readiness to exert effort, emphasizing respectively the importance of talent or effort for successfully completing the task.

The hypothesis of the present study was based on previous findings that suggest that first-generation students generally show lower levels of social engagement in academia (Soria & Stebleton, 2012) and, particularly in talent focused environments, show lower levels of engagement in solving challenging tasks because of their lower talent self-concept (Bauer et al., 2023). It was expected that in the talent-focused environment, first-generation students would provide useful information for problem-solving during the group discussion less frequently than continuing-generation students. In contrast, in the effort-focused environment, no differences in social engagement were expected. Results showed however that in the talent-focused environment, first-generation students did not engage in the group conversation to a significant lower degree than continuing-generation students. Contrary to expectations, this finding suggests that first-generation students' social engagement may not have been negatively affected by the talent-focused academic environment.

There are several possible explanations for the non-significant differences. One explanation is that a talent-focused environment may not affect first-generation students' engagement in group discussions as negatively as it may affect their engagement in individually solving challenging academic tasks. This suggests that first-generation students may show different patterns of engagement during discussions as while completing academic tasks. Based on this interpretation, first-generation students may benefit from activities in which interpersonal interaction is involved, regardless of the environment. Since this finding is not consistent with previous research based on students' self-reports about their engagement in classroom discussions at a single US university, which did not however, consider potential effects of the environment (Soria & Stebleton, 2012), future research should explore how the academic environment affects first-generation students' social engagement by comparing group discussions across multiple universities.

Other possible explanations for the non-significant differences relate to

methodological limitations of the present study. First, the discussion topic used in the experiment—focused on saving lives after a shipwreck—may not have led first-generation students to perceive that talent was necessary to address the task, as it was unrelated to academic content. Second, the reduced social engagement gap between first-generation and continuing-generation students might, at least partially, be explained by the sample used in this study, which consisted mostly of first-year students in the bachelor's program of Psychology at the University of Vienna. Students enrolled in academic programs with selective admission processes, such as this one, may experience higher levels of confidence after admission than other first-generation students (Gebetsberger, 2022). Third, the unexpected non-significant differences may be attributed to the limited sample size and further methodical limitations of this study.

Beyond the main analysis, exploratory analyses were conducted to investigate relationships between further variables collected in the survey. No significant correlations were found between student generation status and any of the additionally examined variables related to students' self-perceptions, including their well-being at university and their self-perceived academic success. The non-significant results may be interpreted in a manner similar to the outcome of the hypothesis tested in this study. Future research should investigate whether these correlations might reach significant levels in more diverse samples, particularly given the homogeneity of the present sample, which consisted of mostly bachelor students in the psychology academic program of the University of Vienna (Ausweger, 2023; Gebetsberger, 2022). Correlations between student generation status and self-perceptions may potentially differ across diverse academic programs.

In contrast, additional analyses revealed several significant, but weak to moderate correlations among the additional measures examined, excluding student generation status. Consistent with previous research (Shengyao et al., 2024), a positive—yet moderate—correlation between the self-perception of academic success and well-being at university was found, irrespective of the student generation status. This suggests that both students' confidence on their academic abilities and their comfort at university are relevant factors to be considered when examining students' experiences in the academic context. Furthermore, results showed a weak, but significant positive correlation between well-being at university and perceived confidence as well as a moderate positive correlation between perceived confidence and perceived competence. Future research should investigate whether a causal relationship may exist among students' well-being at university and their peers' perceptions.

Additionally, a moderate positive correlation was observed between students' engagement during the discussion and perceived confidence by their group peers, as well as a weak positive correlation between social engagement and perceived competence by their group peers. These positive correlations may be interpreted in light of previous

research that suggests that highly self-confident individuals display behavioral cues, such as providing relevant information to a problem, which can make them appear competent to others (Anderson et al., 2012). Accordingly, individuals who consider themselves to be more competent than others—referred to as overconfident—may exhibit more competence cues (Anderson et al., 2012). Although these correlational analyses indicate relationships between variables not addressing casual directions, future research aimed at developing predictions about students' behavior, self-perceptions and peers' perceptions may build on these findings.

Regarding gender differences, exploratory analyses showed that overall, female participants engaged significantly less than male participants in the discussion. Specifically, in the talent-focused environment, first-generation female students showed significant lower levels of social engagement than first-generation male students but no significant differences between continuing-generation female and male students were found. Conversely, in the effort-focused environment, continuing-generation female students showed significant lower levels of social engagement than continuing-generation male students, but no differences were found between first-generation female and male students. In line with previous research (Caspi et al., 2008), results suggest that male students, regardless of their student generation status, engage more than female students in discussions. These disadvantages experienced by female individuals may relate to the gender gap associated with female's expectation of a threatening climate, as suggested by previous research on engagement in discussions (Caspi et al., 2008). However, female students' reduced social engagement may also be explained by either their preference for written over verbal communication (Caspi et al., 2008) or by the discussion topic about survival strategies, which may have led male students to feel more motivated to engage than female students.

In contrast, simple main effects analyses between first-generation and continuing-generation female students' social engagement within the talent-focused environment showed no significant differences. Although descriptively, the mean differences were in the predicted direction of the hypothesis tested in the study, they were not interpreted due to non-significance. Likewise, a simple main effects analysis indicated no significant differences between first-generation and continuing-generation male students' social engagement in the talent focused environment. Since the non-significant differences between first-generation and continuing-generation students are consistent with the results of the hypothesis tested in the present study, they may be interpreted accordingly. Furthermore, although the present study did not examine gender differences in how competent and confident first-generation and continuing-generation students were perceived by their peers, its findings on engagement show a pattern that is partly consistent with previous research using the same sample, which found no significant differences in peers'

perceptions among first-generation and continuing-generation female students (Brunner, 2023).

Future research should examine whether the gender differences observed in the present study are confirmed when using a larger and less unequal sample. Given the small sample size of male students in this study, specially of male first-generation students in the talent-focused environment ($n = 7$), and in general, due to the underrepresentation of male students in the psychology program (Haag et al., 2020) where female outnumber male students (Unger et al., 2020), the interpretation of results is limited. Accordingly, the present results and considerations on gender differences may not be representative of the first-generation student population in other study fields. It should be therefore investigated whether the present observations are applicable to academic programs with a more balanced gender distribution or to those in which male outnumber female students.

Limitations and Future Directions

The interpretation of the present study results may be limited by characteristics of the sample. First, the sample size represents a notable limitation of the present study. Although it was intended to include 400 participants in the study, a much lower number of participants ($N = 201$) could be recruited for the experiment. Since power decreases with smaller sample sizes (Rusticus & Lovato, 2011), the lower power of this study resulting from the reduced sample size may have limited the likelihood of detecting a difference between the groups, even if such difference exists (Christley, 2010). Additionally, the small sample size of first-generation male students may limit the reliability of the findings and their interpretation.

Second, the unequal sample sizes of first-generation students ($n = 27$) compared to that of continuing-generation students ($n = 60$) in the talent condition, as well as of first-generation students ($n = 39$) compared to the continuing-generation students' sample ($n = 75$) in the effort condition, may represent a further limitation for the analysis and interpretation of the present results. As equal sample sizes have more power than unequal sample sizes of the same total sample size and bigger sample sizes are more powerful than smaller ones (Rusticus & Lovato, 2011), future research using larger and less unequal sample sizes of first-generation and continuing-generation students may potentially deliver different results.

Third, another limitation concerns the homogeneity of the sample, since participants were mostly psychology students. There is evidence that psychology, in contrast to other study fields like science, technology, engineering and mathematics (STEM), or certain humanities like philosophy, is a discipline for which innate talent is not considered by practitioners to be a requirement to success (Leslie et al., 2015). Psychology students may

thus feel as confident about their skills as continuing-generation students, which might have led to the non-significant differences between the two student groups.

Fourth, it should be noted that the proportion of first-generation students observed in the present study's sample of 32.8% is lower than the proportion observed in average in Austrian universities where more than half (Zucha et al., 2024) to two thirds of the university population of all first-year students are first-generation students (Unger et al., 2020). Yet, the present sample with roughly one third of first-generation students might be comparable with the population of first-generation students in US (Cataldi et al., 2018) and some universities in Western Europe, other than Austria (Orr et al., 2011). A reason for the underrepresentation of first-generation students in the sample might be connected to the admission process for the bachelor program in psychology of the University of Vienna, which includes a highly selective entrance exam. As evidenced, in the study year 2022/2023, from all registered applicants for the bachelor program in psychology, 64% took the admission exam and merely 27% of the exam attendants received scores that were high enough to gain admission (Bundesministerium für Bildung, Wissenschaft und Forschung, 2024). This admission process might be especially challenging for first-generation students: Statistics from the study year 2019/2020 revealed that the representation of first-generation students among enrolled psychology students of 43% was lower than among applicants for admission (51%) for the bachelor study program in psychology (Haag et al., 2020). These figures may imply that disadvantaged first-generation students are less successful in passing the admission process than continuing-generation students and the support offered by universities to first-generation students may either not reach some disadvantaged first-generation applicants or not be sufficiently effective.

As suggested in previous research, some admission systems at universities may accentuate inequalities (Thomsen, 2018). This is also supported by the evaluation report on the admission rules in Austrian universities (Haag et al., 2020) that indicates that the lowest proportion of first-generation students is found in academic programs with entrance exams, such as the bachelor program in psychology at the University of Vienna. Instead, in programs without selective entrance exams, the proportion of first-generation students among applicants for admission and enrolled students is generally higher (Haag et al., 2020). Disadvantaged first-generation preuniversity students who were unable to complete successfully the admission process—or may not have even enrolled for or attended the exam—are not represented in the sample of the present study sample. To address this limitation, future research should be extended to include preuniversity students and applicants for admission at university.

The admission criteria at a competitive three- or four-year university academic program might put off first-generation students to proceed with their university studies.

Conversely, students who were admitted and enrolled for such programs may be more similar to their continuing-generation student fellows in terms of confidence, motivation and knowledge about academic life (Bui, 2002). First-generation students who gained admission may benefit from experiences in study groups while preparing for the exam (Gebetsberger, 2022) and the experience of successfully completing a challenging entrance process. Therefore, it is proposed to extend research by investigating potential differences in behavior between first-generation students who have and those who have not passed a selective admission process. Including in the sample students from academic programs with highly selective, less competitive, and non-selective admission processes may help identify whether differences in social engagement between continuing-generation students and certain subgroups of first-generation students become significant in talent-focused environments. Furthermore, analyzing differences within the group of first-generation students may help further describe the behavior of first-generation students who perform well in selective environments and contribute to identifying academic programs in which disadvantaged students may require additional support prior or during the admission process.

Fifth, a further methodological limitation regards the experimental manipulation. The title of the task on the questionnaire and the brief task instructions provided by the research team might not have been sufficient to create a talent or an effort-focused environment that would elicit clear differences in behavior. Future studies with stronger experimental manipulations to create more differentiated environments, resembling those experienced in academic life, might reveal different results. For instance, prior to the discussion, participants could be asked in the talent condition to read a text about the importance of innate talent, while in the control environment they might read about students who have achieved their goals through effort and perseverance.

Sixth, the discussion topic used in this study may represent another limitation, as participants' engagement might have been influenced by their areas of interest or previous knowledge of the topic. Analyzing students' social engagement in discussions across diverse academic and non-academic topics may provide new insights into differences among subgroups of first-generation students. Specially, identifying interest areas where first-generation female students are more prone to engage in social interactions may help reduce their disadvantages in the academic environment.

Conclusion

Contrary to expectations and to previous findings on engagement in solving challenging academic tasks, the present results did not support the hypothesis that in a talent-focused academic environment, first-generation students' levels of social engagement—displayed as participation in a discussion on a topic unrelated to academic

content—are lower than those of continuing-generation students. In contrast, findings of exploratory analyses suggested that first-generation female students may engage less often in a discussion than first-generation male students when exposed to a talent-focused environment. Although the generalizability of these findings may be limited to students in an academic program with selective admission, this research provides new insights and may serve as a starting point for future research on social engagement across diverse subgroups of first-generation students. Since social engagement has been evidenced to be associated with academic success, promoting certain activities in an environment that makes first-generation students feel most motivated to participate may potentially contribute to reducing inequalities in academia.

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Appendix A

Abstract

First-generation students, defined as students whose parents have not completed a college or university degree, experience numerous disadvantages in academic life compared to continuing-generation students. Some of these disadvantages may stem from first-generation students perceiving themselves as less talented than other students. Hence, in an environment that signals talent to be important for success, first-generation students' disadvantages tend to be greater than in environments that emphasize the importance of effort. Previous research has examined the effect of talent-focused environments on students' engagement in solving challenging academic tasks, revealing lower engagement levels for first-generation students compared to continuing-generation students. The present study was conducted with psychology students at the University of Vienna ($N = 201$). It extends prior research by focusing on the effect of the environment on first-generation students' social engagement, measured through their participation in a group discussion on a non-academic topic. Contrary to expectations, no significant differences between first-generation and continuing-generation students' social engagement were found in the talent-focused environment. This outcome suggests that talent-focused academic environments may influence first-generation students' social engagement differently than their engagement in completing academic tasks and underscores the need to examine other samples and alternative experimental setups. These findings, alongside further insights from additional analyses, provide a valuable contribution to understanding first-generation students' behavior in academia and serve as a foundation for future research. Ultimately, this research may contribute to shaping academic environments that foster first-generation students' engagement and help reduce dropout rates and subsequent career disadvantages.

Keywords: first-generation students, social engagement, talent-focused environment, effort-focused environment

Appendix B

Abstract (German)

Erstakademiker*innen, definiert als Studierende deren Eltern keinen Hochschulabschluss erworben haben, erfahren zahlreiche Benachteiligungen im akademischen Leben im Vergleich zu Nicht-Erstakademiker*innen. Einige dieser Benachteiligungen können darauf zurückzuführen sein, dass Erstakademiker*innen sich selbst als weniger begabt als andere Studierende einschätzen. Folglich, in einer Umgebung, in der Begabung als wesentlich für den Erfolg wahrgenommen wird, tendieren Erstakademiker*innen größere Benachteiligungen zu erfahren als in einer Umgebung, in der Einsatz und Anstrengung im Vordergrund stehen. Frühere Forschungsarbeiten untersuchten die Auswirkungen talent-fokussierter Umgebungen auf das Engagement von Studierenden bei der Bearbeitung herausfordernder akademischer Aufgaben und zeigten dabei ein geringeres Engagement von Erstakademiker*innen im Vergleich zu Nicht-Erstakademiker*innen. Die vorliegende Studie wurde mit Psychologie-Studierenden an der Universität Wien ($N = 201$) durchgeführt. Sie erweitert die frühere Forschung, in dem sie den Einfluss der Umgebung auf das soziale Engagement von Erstakademiker*innen untersucht, gemessen an ihrer aktiven Beteiligung an einer Gruppendiskussion über ein nicht-akademisches Thema. Entgegen den Erwartungen wurden in der talent-fokussierten Umgebung keine signifikanten Unterschiede im sozialen Engagement zwischen Erstakademiker*innen und Nicht-Erstakademiker*innen gefunden. Dieses Ergebnis deutet darauf hin, dass sich der Einfluss eines talent-fokussierten akademischen Umfelds auf das soziale Engagement von Erstakademiker*innen vom Einfluss auf ihr Engagement bei der Bearbeitung akademischer Aufgaben unterscheidet und verdeutlicht die Notwendigkeit, andere Studierendengruppen sowie alternative experimentelle Setups zu untersuchen. Dieser Befund, zusammen mit weiteren Erkenntnissen aus den zusätzlichen Analysen, leistet einen wertvollen Beitrag zum Verständnis des Verhaltens von Studierenden in Hochschulen und bietet einen Ausgangspunkt für zukünftige Forschung. Letztlich kann diese Forschung dazu beitragen, ein akademisches Umfeld zu schaffen, welches das Engagement von Erstakademiker*innen fördert und damit unterstützt, die Studienabbruchquote und spätere Nachteile auf ihrem Karriereweg zu reduzieren.

Schlüsselwörter: Erstakademiker*innen, soziales Engagement, talent-fokussierte Umgebung, motivations-fokussierte Umgebung

Appendix C

General Information, Data Privacy, Informed Consent, and First Questionnaire

This document was provided to participants in the observation laboratory, who were instructed to complete it individually.

VP-Code: _____

Probandeninformation (bitte auf Rückseite ankreuzen)

Titel des Projektes: *Verhalten und Wahrnehmungen von Studierenden beim Lösen von Aufgaben*

Liebe Studien-Teilnehmer/innen,
herzlich willkommen zu unserer Studie! Hier soll untersucht werden, wie sich Studierende in beim Lösen von Aufgaben verhalten und wie sie diese wahrnehmen. Die Erkenntnisse aus dieser Studie sollen dem besseren Verständnis der Thematik dienen.

Ablauf der Untersuchung

Sie werden im Rahmen der Studie an einer Aufgabe arbeiten und einige Fragen auf einem Fragebogen zu sich und ihren Wahrnehmungen beantworten.

Zeitlicher Aufwand für die Untersuchung

Der Zeitaufwand für eine Teilnahme beträgt in der Regel ca. 60 [Online-Experiment: 30] Minuten.

Vorteile der Studienteilnahme

Teilnehmende bekommen eine Versuchspersonen-Stunde [Online-Experiment: 3 Euro].

Welche Risiken sind mit der Studie verbunden?

Alle Untersuchungen, die bei Ihnen durchgeführt werden, sind nicht invasiv. Alle Aufgaben entsprechen standardisierten, vielfach publizierten Verfahren von denen kein Risiko zu erwarten ist.

Freiwilligkeit der Teilnahme, Rücktrittsrecht ohne nachteilige Folgen

Die Teilnahme an dieser Untersuchung ist freiwillig. Die Einwilligung zur Teilnahme kann jederzeit ohne Angabe von Gründen zurückgezogen werden. Es entsteht Ihnen kein Nachteil daraus. Mit einem Rücktritt werden alle von Ihnen erhobenen Daten automatisch gelöscht.

Datenschutz

Bei der Aufgabe, die sie später bearbeiten, werden Videoaufnahmen gemacht, um später die Daten genauer auswerten zu können (Siehe auch Datenschutzerklärung auf nächster Seite). Die Daten werden nicht an Personen weitergegeben, die an der Studie nicht beteiligt sind. In eine mögliche Veröffentlichung der Resultate der Untersuchung gehen die Daten anonymisiert ein. Alle erhobenen Daten werden entsprechend dem Datenschutzgesetz geschützt.

Ansprechpartner für Rückfragen:

Dr. Christina Bauer
Arbeits-, Wirtschafts- und Sozialpsychologie
Fakultät für Psychologie, Universität Wien
christina.bauer@univie.ac.at

Datenschutzerklärung der Universität Wien

Die Universität Wien ist Auftraggeberin, d.h. Verantwortliche dieser Datenverarbeitung im Sinne der Datenschutzgrundverordnung (DSGVO). In Entsprechung der die Verantwortliche treffenden Informationspflichten ersuchen wir Sie um Kenntnisnahme der nachstehenden Mitteilung:

Diese Datenverarbeitung erfolgt für nachstehende(n) Zweck(e): Organisation von Studienteilnehmenden und Durchführung von Studien

Verantwortliche dieser Datenverarbeitung ist die Universität Wien, Universitätsring 1, 1010 Wien, Ansprechperson: Christina Bauer, christina.bauer@univie.ac.at. Den Datenschutzbeauftragten der Universität Wien erreichen Sie unter der Adresse: datschutzbeauftragter@univie.ac.at

Die Universität Wien verarbeitet im Rahmen der gegenständlichen Datenverarbeitung nachstehende Kategorien personenbezogener Daten: **Video-Aufnahme**. Rechtsgrundlage(n) der Verarbeitung: Einwilligung der betroffenen Person; Zwecke des Archivwesens, der Statistik, der Forschung.

Wenn die Bereitstellung der personenbezogenen Daten für diese Datenverarbeitung gesetzlich vorgesehen, vertraglich vorgeschrieben oder für einen Vertragsabschluss erforderlich ist, kann die Nichtbereitstellung der Daten dazu führen, dass die von der Universität Wien Ihnen gegenüber zu erfüllenden Verpflichtungen nicht erfüllt werden können.

Die über Sie ermittelten Daten werden nicht an EmpfängerInnen außerhalb der Universität Wien weitergeleitet. Die Dauer der Datenspeicherung beträgt 7 Jahre.

Als Betroffene/-r der Datenverarbeitung haben Sie gegenüber der Universität Wien das Recht auf Auskunft, Berichtigung, Löschung, Einschränkung, Datenübertragbarkeit und Beendigung der weiteren Verarbeitung, wenn die Rechtsgrundlage der Verarbeitung ein überwiegendes berechtigtes Interesse des Auftraggebers/der Auftraggeberin ist oder die Daten zu wissenschaftlichen oder historischen Forschungszwecken oder statistischen Zwecken verarbeitet werden.

Sie haben darüber hinaus die Möglichkeit, eine erteilte Einwilligung für die Datenverarbeitung jederzeit ohne Angabe von Gründen zu widerrufen. Letztlich haben Sie die Möglichkeit, sich über eine Ihrer Auffassung nach unzulässige Datenverarbeitung bei der österreichischen Datenschutzbehörde (www.dsb.gv.at) zu beschweren.

Ich habe die obenstehenden Informationen gelesen und verstanden und erkläre mich mit den Teilnahmebedingungen einverstanden.

O Ja O Nein

Vielen Dank für Ihre Teilnahme!

Im Folgenden haben wir ein paar Fragen zu Ihrer Person.

Appendix D

Second Questionnaire - Task on Intellectual-Cognitive Skills (Talent Condition)

This questionnaire was handed over to participants in the experimental condition. First, participants were instructed to complete the survey and the task individually. Afterwards, they were instructed to discuss and reach a group decision to complete the task.

VP-Nummer: _____

Assessment intellektuell-kognitiver Fähigkeiten

Im Folgenden werden Sie eine intellektuell-kognitive Aufgabe bearbeiten. Wir verwenden diese Assessment-Aufgabe, um die intellektuell-kognitiven Fähigkeiten von Studierenden zu messen.

Die Aufgabe besteht aus zwei Teilen: einer Einzel- und einer Gruppenarbeit. Sie werden gebeten, eine Lösung für ein in einem Szenario beschriebenes Problem zu finden. Sie haben zunächst 3 Minuten Zeit, sich für sich allein die Aufgabe durchzulesen, über die Lösung nachzudenken und sich Notizen zu machen. Danach werden Sie die Lösung des Problems in der Gruppe weiter diskutieren und bearbeiten.

Bevor es losgeht und die Zeit läuft, bitten wir Sie noch ein paar Fragen auf den nächsten beiden Seiten zu beantworten.

Weiter auf der nächsten Seite.

Wie sehr stimmen Sie den folgenden Aussagen zu?

	Stimme gar nicht zu	Stimme nicht zu	Stimme eher nicht zu	Stimme eher zu	Stimme zu	Stimme völlig zu
Die Fähigkeiten, die man braucht, um diese Aufgabe gut zu bewältigen, kann man sich nicht wirklich aneignen - entweder man hat sie oder man hat sie nicht.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die man für diese Aufgabe braucht sind eher fest verankerte, unveränderbare Eigenschaften.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die für diese Aufgabe erforderlich sind, sind solche, die man mit Zeit und Mühe entwickeln kann.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die für diese Aufgabe erforderlich sind, sind eher formbar als festgelegt.	☐	☐	☐	☐	☐	☐
Man muss intellektuell begabt sein, um in dieser Aufgabe gut abschneiden zu können.	☐	☐	☐	☐	☐	☐
Man muss einsatzbereit sein, um in dieser Aufgabe gut abschneiden zu können.	☐	☐	☐	☐	☐	☐

Weiter auf der nächsten Seite

Wie sehr stimmen Sie den folgenden Aussagen zu?

	Stimme gar nicht zu	Stimme nicht zu	Stimme eher nicht zu	Stimme eher zu	Stimme zu	Stimme völlig zu
Ich bin sicher, dass ich herausfinden kann, wie ich diese Aufgabe lösen kann.	☐	☐	☐	☐	☐	☐
Ich kann diese Aufgabe lösen, wenn ich nicht aufgebe.	☐	☐	☐	☐	☐	☐
Ich bin sicher, dass ich die für diese Aufgabe erforderlichen Fähigkeiten beherrschen kann.	☐	☐	☐	☐	☐	☐
Ich kann diese Aufgabe erfolgreich lösen, wenn ich nicht aufhöre, es zu versuchen.	☐	☐	☐	☐	☐	☐
Ich befürchte, dass ich die Aufgabe nicht gut lösen können werde.	☐	☐	☐	☐	☐	☐

Warten Sie nun bitte auf das Signal die Versuchsleitung, welche die Zeit bei der Aufgabe stoppt. Blättern Sie erst um, wenn die Versuchsleitung das Start-Signal gibt.

Assessment intellektuell-kognitiver Fähigkeiten

Stellen Sie sich folgendes vor: Sie und Ihre Freunde machen in den Sommerferien eine entspannende Bootsfahrt auf den Bahamas. Keiner von Ihnen hat Erfahrung mit Booten, und Sie haben einen Kapitän angeheuert, der euch den Tag über herumführt. Plötzlich bricht ein Feuer aus, und Sie verlieren den Kapitän, als er versucht, das Feuer zu bekämpfen. Ein Großteil des Bootes wird zerstört, und Sie sinken schnell. Sie wissen nicht, wo Sie sind, und es ist kein Land in Sicht. Sie hoffen, dass Sie gerettet werden, wissen aber nicht, wie viel Zeit Ihnen bleibt, bevor das Boot vollständig sinkt. HILFE! Wie würden Sie sich in Sicherheit bringen? Sie müssen sich für 3 der untenstehenden Gegenstände entscheiden, die Sie wählen würden, um sich in Sicherheit zu bringen.

- Taschenlampe
- Rettungsweste
- Rettungsboot
- Mobiltelefon
- Seil
- Erste-Hilfe-Kasten
- Sonnenschutzmittel
- Streichhölzer
- Lebensmittel
- Wasser
- Fackeln
- Spiegel
- Radio
- Haiabwehrmittel
- Angelausrüstung
- Hupe

Was würden Sie tun?

Nutzen Sie die verbleibende Zeit, um sich Gedanken zur Lösung der Aufgabe zu machen.

Notieren Sie hier bitte Ihre präferierte Lösung vor Diskussionsstart:

Item 1: _____ Item 2: _____ Item 3: _____

Notizen:

Appendix E

Second Questionnaire - Task on Effort (Effort Condition)

This questionnaire was handed over to participants in the control condition. First, participants were instructed to complete the survey and the task individually. Afterwards, they were instructed to discuss and reach a group decision to complete the task.

VP-Nummer: _____

Aufgabe zur Einsatzbereitschaft

Im Folgenden werden Sie eine Einsatzbereitschafts-Aufgabe bearbeiten. Wir verwenden diese Aufgabe, um zu erfassen, wie engagiert und einsatzbereit Menschen sind.

Die Aufgabe besteht aus zwei Teilen: einer Einzel- und einer Gruppenarbeit. Sie werden gebeten, eine Lösung für ein in einem Szenario beschriebenes Problem zu finden. Sie haben zunächst 3 Minuten Zeit, sich für sich allein die Aufgabe durchzulesen, über die Lösung nachzudenken und sich Notizen zu machen. Danach werden Sie die Lösung des Problems in der Gruppe weiter diskutieren und bearbeiten.

Bevor es losgeht und die Zeit läuft, bitten wir Sie noch ein paar Fragen auf den nächsten beiden Seiten zu beantworten.

Weiter auf der nächsten Seite.

Wie sehr stimmen Sie den folgenden Aussagen zu?

	Stimme gar nicht zu	Stimme nicht zu	Stimme eher nicht zu	Stimme eher zu	Stimme zu	Stimme völlig zu
Die Fähigkeiten, die man braucht, um diese Aufgabe gut zu bewältigen, kann man sich nicht wirklich aneignen - entweder man hat sie oder man hat sie nicht.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die man für diese Aufgabe braucht sind eher fest verankerte, unveränderbare Eigenschaften.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die für diese Aufgabe erforderlich sind, sind solche, die man mit Zeit und Mühe entwickeln kann.	☐	☐	☐	☐	☐	☐
Die Fähigkeiten, die für diese Aufgabe erforderlich sind, sind eher formbar als festgelegt.	☐	☐	☐	☐	☐	☐
Man muss intellektuell begabt sein, um in dieser Aufgabe gut abschneiden zu können.	☐	☐	☐	☐	☐	☐
Man muss einsatzbereit sein, um in dieser Aufgabe gut abschneiden zu können.	☐	☐	☐	☐	☐	☐

Weiter auf der nächsten Seite.

Wie sehr stimmen Sie den folgenden Aussagen zu?

	Stimme gar nicht zu	Stimme nicht zu	Stimme eher nicht zu	Stimme eher zu	Stimme zu	Stimme völlig zu
Ich bin sicher, dass ich herausfinden kann, wie ich diese Aufgabe lösen kann.	☐	☐	☐	☐	☐	☐
Ich kann diese Aufgabe lösen, wenn ich nicht aufgebe.	☐	☐	☐	☐	☐	☐
Ich bin sicher, dass ich die für diese Aufgabe erforderlichen Fähigkeiten beherrschen kann.	☐	☐	☐	☐	☐	☐
Ich kann diese Aufgabe erfolgreich lösen, wenn ich nicht aufhöre, es zu versuchen.	☐	☐	☐	☐	☐	☐
Ich befürchte, dass ich die Aufgabe nicht gut lösen können werde.	☐	☐	☐	☐	☐	☐

Warten Sie nun bitte auf das Signal die Versuchsleitung, welche die Zeit bei der Aufgabe stoppt. Blättern Sie erst um, wenn die Versuchsleitung das Start-Signal gibt.

Aufgabe zur Einsatzbereitschaft

Stellen Sie sich folgendes vor: Sie und Ihre Freunde machen in den Sommerferien eine entspannende Bootsfahrt auf den Bahamas. Keiner von Ihnen hat Erfahrung mit Booten, und Sie haben einen Kapitän angeheuert, der euch den Tag über herumführt. Plötzlich bricht ein Feuer aus, und Sie verlieren den Kapitän, als er versucht, das Feuer zu bekämpfen. Ein Großteil des Bootes wird zerstört, und Sie sinken schnell. Sie wissen nicht, wo Sie sind, und es ist kein Land in Sicht. Sie hoffen, dass Sie gerettet werden, wissen aber nicht, wie viel Zeit Ihnen bleibt, bevor das Boot vollständig sinkt. HILFE! Wie würden Sie sich in Sicherheit bringen? Sie müssen sich für 3 der untenstehenden Gegenstände entscheiden, die Sie wählen würden, um sich in Sicherheit zu bringen.

- Taschenlampe
- Rettungsweste
- Rettungsboot
- Mobiltelefon
- Seil
- Erste-Hilfe-Kasten
- Sonnenschutzmittel
- Streichhölzer
- Lebensmittel
- Wasser
- Fackeln
- Spiegel
- Radio
- Haiabwehrmittel
- Angelausrüstung
- Hupe

Was würden Sie tun?

Nutzen Sie die verbleibende Zeit, um sich Gedanken zur Lösung der Aufgabe zu machen.

Notieren Sie hier bitte Ihre präferierte Lösung vor Diskussionsstart:

Item 1: _____ Item 2: _____ Item 3: _____

Notizen:

Appendix F

Third Questionnaire

This questionnaire was provided to participants in both conditions after having finalized the group discussion. Participants were instructed to complete it individually.

Abschließend möchten wir noch genauer wissen, wie Sie die Aufgabe erlebt haben und wie Sie sich dabei gefühlt haben. Wie sehr stimmen Sie den folgenden Aussagen zu?

	<i>stimme überhaupt nicht zu</i>	<i>stimme nicht zu</i>	<i>stimme eher nicht zu</i>	<i>stimme eher zu</i>	<i>stimme zu</i>	<i>stimme völlig zu</i>
Ich habe mich kompetent gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich inkompetent gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich selbstbewusst gefühlt.	☐	☐	☐	☐	☐	☐

	<i>gar nicht sicher</i>	<i>sehr unsicher</i>	<i>eher unsicher</i>	<i>eher sicher</i>	<i>sehr sicher</i>	<i>extrem sicher</i>
Wie sicher sind Sie sich insgesamt, dass Sie bei der Lösung der Aufgabe gute Arbeit geleistet haben?	☐	☐	☐	☐	☐	☐
Wie sicher sind Sie insgesamt, dass die Ideen, die Sie hatten, gut waren?	☐	☐	☐	☐	☐	☐
Wie sicher sind Sie insgesamt, dass Sie Ihre Ideen gut präsentiert haben?	☐	☐	☐	☐	☐	☐

Die Aufgabe wurde schon mit vielen anderen Universitätsstudierenden aus ganz Österreich durchgeführt. Was denken Sie, wie gut haben Sie im Vergleich zu den anderen Studierenden bei dieser Aufgabe abgeschnitten?

☐	☐	☐	☐	☐	☐	☐	☐	☐
10%	20%	30%	40%	50%	60%	70%	80%	90%
= besser als 10% und schlechter als 90% der Studierenden				= besser als 90% und schlechter als 10% der Studierenden				

	<i>stimme überhaupt nicht zu</i>	<i>stimme nicht zu</i>	<i>stimme eher nicht zu</i>	<i>stimme eher zu</i>	<i>stimme zu</i>	<i>stimme völlig zu</i>
Ich habe mich nervös gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich angespannt gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich eingeschüchtert gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich aufgeregt gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich entspannt gefühlt.	☐	☐	☐	☐	☐	☐
Ich war motiviert.	☐	☐	☐	☐	☐	☐
Die Aufgabe war anstrengend.	☐	☐	☐	☐	☐	☐

	<i>stimme überhaupt nicht zu</i>	<i>stimme nicht zu</i>	<i>stimme eher nicht zu</i>	<i>stimme eher zu</i>	<i>stimme zu</i>	<i>stimme völlig zu</i>
Ich konnte bei der Diskussion voll und ganz „ich selbst“ sein.	☐	☐	☐	☐	☐	☐
Ich habe mich zur Diskussionsgruppe zugehörig gefühlt.	☐	☐	☐	☐	☐	☐
Ich habe mich zur Diskussionsgruppe zugehörig gefühlt.	☐	☐	☐	☐	☐	☐

Wie schwierig war die Gruppenarbeit für Sie?

☐	☐	☐	☐	☐	☐
<i>sehr einfach</i>	<i>ziemlich einfach</i>	<i>eher einfach</i>	<i>eher schwierig</i>	<i>ziemlich schwierig</i>	<i>sehr schwierig</i>

Inwieweit würden Sie gerne eine weitere Gruppenarbeit dieser Art machen?

☐	☐	☐	☐	☐	☐
<i>sehr ungerne</i>	<i>ziemlich ungerne</i>	<i>eher ungerne</i>	<i>eher gerne</i>	<i>ziemlich gerne</i>	<i>sehr gerne</i>

Wie sympathisch sind Ihnen die anderen Personen?	<i>gar nicht</i>	<i>nicht</i>	<i>eher nicht</i>	<i>eher</i>	<i>sehr</i>	<i>total</i>
Person 1	☐	☐	☐	☐	☐	☐
Person 2	☐	☐	☐	☐	☐	☐
Person 3	☐	☐	☐	☐	☐	☐
Person 4	☐	☐	☐	☐	☐	☐
Person 5	☐	☐	☐	☐	☐	☐
Person 6	☐	☐	☐	☐	☐	☐

Stellen Sie sich vor, es gäbe ein neues Projekt, bei dem Sie mit anderen Leuten zusammenarbeiten müssten. Inwiefern würden Sie gern mit folgenden Personen zusammenarbeiten?

	<i>gar nicht</i>	<i>nicht</i>	<i>eher nicht</i>	<i>eher</i>	<i>sehr</i>	<i>total</i>
Person 1	☐	☐	☐	☐	☐	☐
Person 2	☐	☐	☐	☐	☐	☐
Person 3	☐	☐	☐	☐	☐	☐
Person 4	☐	☐	☐	☐	☐	☐
Person 5	☐	☐	☐	☐	☐	☐
Person 6	☐	☐	☐	☐	☐	☐

Inwiefern kannten Sie die folgenden Personen schon vor dieser Erhebung?

	<i>gar nicht</i>	<i>schonmal gesehen</i>	<i>Ein wenig (ein paar mal gesprachen)</i>	<i>gut</i>	<i>Sehr gut</i>
Person 1	☐	☐	☐	☐	☐
Person 2	☐	☐	☐	☐	☐
Person 3	☐	☐	☐	☐	☐
Person 4	☐	☐	☐	☐	☐
Person 5	☐	☐	☐	☐	☐
Person 6	☐	☐	☐	☐	☐

Wenn Sie darüber nachdenken, wie andere Sie in der Diskussion wahrgenommen haben:

	<i>gar nicht</i>	<i>nicht</i>	<i>eher nicht</i>	<i>eher</i>	<i>sehr</i>	<i>total</i>
Inwiefern glauben Sie, dass Sie von anderen als kompetent wahrgenommen wurden?	☐	☐	☐	☐	☐	☐
Inwiefern glauben Sie, dass Sie von anderen als sympathisch wahrgenommen wurden?	☐	☐	☐	☐	☐	☐

Nun noch ein paar generelle Fragen zu Ihnen:

	<i>stimme überhaupt nicht zu</i>	<i>stimme nicht zu</i>	<i>stimme eher nicht zu</i>	<i>stimme eher zu</i>	<i>stimme zu</i>	<i>stimme völlig zu</i>
Manche Aufgaben fühlen sich leicht an, andere schwierig. Mein Bauchgefühl sagt mir, wenn sich eine Aufgabe schwierig anfühlt, ist sie für mich unmöglich.	☐	☐	☐	☐	☐	☐
Ich weiß aus dem Bauch heraus, dass eine Aufgabe, die sich schwierig anfühlt, für mich nicht machbar ist.	☐	☐	☐	☐	☐	☐
Wenn sich eine Aufgabe schwierig anfühlt, bedeutet das, dass sie wahrscheinlich unmöglich ist.	☐	☐	☐	☐	☐	☐

Welches Fach studieren Sie? _____

Sie sind im... ☐ Bachelor. ☐ Master.

Im wievielten Semester studieren Sie? _____

Was ist Ihr momentaner Notendurchschnitt? _____

Haben Ihre Eltern einen Universitätsabschluss?

☐ Ja, mindestens ein Elternteil. ☐ Nein, keiner von beiden.

Sind Ihre Eltern oder Großeltern in einem anderen Land als Österreich geboren worden?

☐ Nein

☐ Ja, und zwar: _____