

Are Personality Characteristics of Students Related to the Study Subject? Insights from a Survey Study

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Field of Study: Psychology

The present study aimed to investigate whether psychology and law students differed in terms of the Big Five personality characteristics. The participants were students from law (n=50, 40 female) and psychology (n=50, 40 female) faculties at the University of Bremen, Germany. The Big Five were assessed using the NEO-FFI questionnaire. Psychology students scored significantly higher in agreeableness ($p < .01$) and openness to experience ($p < .01$). Law students scored significantly higher in neuroticism ($p < .05$). These differences could be explained within the context of future occupational fields. Openness and agreeableness qualities may be essential for psychologists; whereas, lawyers may benefit more from scepticism and assertiveness, which are qualities associated with low levels of agreeableness. If personality characteristics and the choice of study subject are related, then this could be useful for the counselling of students in order to optimize the choice of future study subjects.

Keywords: Big Five; personality characteristics; decision science; choice of study subject

1 Background

Previous research suggests that the personality characteristics of students play an important role in their choice of study subject (Vedel & Thomsen, 2017). In this research approach, the Big Five personality characteristics have established themselves as prominent analytic tools. The Big Five includes the dimensions of *agreeableness*, *conscientiousness*, *openness to experience*, *extraversion* and *neuroticism*. In this study, the relation between the Big Five personality characteristics and the study subject of undergraduate students from two different faculties (law and psychology) at the University of Bremen (Germany) was investigated. The law and psychology faculties were chosen, because both degree programs prepare students to work with people, but in different contexts.

Why is this topic important? Recent findings suggest a relation between the characteristics of the Big Five, motivation and academic performance (Komarraju, Karau, & Schmeck, 2009; Zhou, 2015). Additionally, a few studies found group-specific differences in the characteristics of the Big Five among students from different subjects (Rubinstein, 2005; Vedel, Thomsen, & Larsen, 2015; Vedel, 2016; Vedel & Thomsen, 2017). These results provide a variety of perspectives for improving the counselling of students especially in their choice of study subject. It is also possible to use the findings to better the study environment. Thus, further research could provide a resourceful perspective in this matter.



The group-specific difference between psychology and law students on the levels of *agreeableness* is described as stable in previous studies. Anna Vedel (2016) published a systematic review based on 12 studies with the focus on group-specific differences in the Big Five characteristics of students from different degree programs. Psychology students consistently showed high scores of *openness to experience*, *neuroticism*, and *agreeableness* whereas law students consistently achieved lower scores of *agreeableness* (Vedel, 2016, p. 7). In another study, Vedel et al. (2015) compared Big Five scores of students immediately after enrolment and after six and a half years. Similarly, they showed a significant group-specific difference between psychology and law students in terms of *agreeableness* - psychology students had higher scores.

The description of Big Five characteristics is based on the interpretation of Borkenau and Ostendorf (2008). Each characteristic is seen as a scale; therefore, the personality of each person consists of all five characteristics, but in different degrees of expressions. For example, a high score in *openness to experience* implies a strong expression of that characteristic; meanwhile a low score implies a weak one. The expressions are listed in the table below (Table 1). It is important to note here that the NEO-FFI scale does not operate on a pathological diagnosis basis.

Table 1: Expressions of Big Five Personality Characteristics

| Personality characteristics | high score | low score |
|-----------------------------|---|---|
| Agreeableness | altruistic, caring, helpful | sceptical, competitive |
| Conscientiousness | efficient, organized | easy-going, relaxed |
| Openness for experience | inventive, curious | consistent, careful |
| Extraversion | outgoing, energetic | cautious, independent |
| Neuroticism | less emotionally stable, sensitive, nervous | emotionally stable, secure, confident |

Taking the previous findings into consideration, the aim of this study was to investigate whether psychology and law students show different degrees of Big Five personality characteristics.



2 Methods

Exclusion criterion for the subjects and the control variables was determined in order to ensure comparability of the groups. The exclusion criterion was the subject of study: only law and psychology students were included in the sample. The variables, 1) study subject (equal number of students from both subjects), 2) gender (same sex ratio) and 3) study semester, were controlled.

2.1 Sample description

The sample for the present study is a convenience sample. The subjects were recruited during the ongoing lectures of psychology and law faculties. The lectures were chosen using the online study portal "StudIP" of University of Bremen. The focus was on lectures within the fourth semester. Using a standardized text, the lecturers of the selected lectures were contacted and inquired about an opportunity to conduct a survey during the lecture. The surveying of students took place in the lectures whose lecturers agreed to it. Due to two short notice cancellations, students in the cafeteria of the law faculty were also interviewed (18 surveys). A total of 151 participants were recruited in the survey, including 53 psychology students and 75 law students. The remaining 23 surveys were either from students from other study subjects or the study subject question was left blank. The students who left the question blank and the students from irrelevant study subjects were excluded from the study. Subsequently, a randomized sample was drawn based on the controlled variables of study subject and gender. The resulting sample had 100 participants, of which 50 were law and 50 were psychology students, with a gender ratio of 10 male to 40 female students. Regarding the age distribution, a significant difference was found between the groups. The age range of psychology students were from 19 to 33 ($M = 23.56$, $SD = 3.80$). They were on average significantly older than law students, whose age range was from 19 to 42 ($M = 21.50$, $SD = 3.48$). This significant difference in age could be explained by the educational background of the participants. While only 8% of law students completed their professional training or another degree prior to their current studies, this number rises to 32% in the case of psychology students.

All students in the sample had a general university entrance qualification (German Abitur). The participants were full time students in their field of study with the aim of obtaining a first academic degree (Bachelor or First State Exam). The majority of the sample (34 psychology and 45 law students) did not possess a professional vocational qualification. There was no significant difference between the subjects regarding their study semester.

2.2 Data collection

In German-speaking countries, the German version of the NEO-FFI (NEO Five-Factor Inventory) by Costa and McCrae (Borkenau & Ostendorf, 2008) has proven to be a valid survey tool for the Big Five, so this questionnaire was used for the study. The NEO-FFI is a



questionnaire constructed by factor analysis (a statistical technique which reduces a large number of variables into less number of factors) and it uses 60 items (12 per characteristic) to measure the Big Five personality characteristics (*agreeableness, conscientiousness, openness to experience, extraversion* and *neuroticism*) (Borkenau & Ostendorf, p. 7). In addition to that, a questionnaire with eight items, which aimed to collect socio-demographic information (e.g. study subject, gender, semester) from the participants was used.

The survey mainly took place in the lectures of the two study programs. Questionnaires and informed consent forms were handed out to the present students. Then a brief explanation of the research project and the task instruction were carried out on the basis of a standardized text. A small thank-you gift was offered at the end of the participation. The consent forms were collected independently from the questionnaires to ensure anonymity and data security. The execution time of the survey was 5-10 minutes. The participants were provided with contact information so that they could inquire about the results if they so wished.

2.3 Statistical methods

The evaluation of the NEO-FFI was carried in accordance with the manual in four steps (Borkenau & Ostendorf, 2008): 1) determination of the sum values for the five personality characteristics, 2) determination of the sum of the answered items per scale, 3) determination of the mean values for the five personality characteristics and 4) determination of the test values for the five personality characteristics. The information from the socio-demographic questionnaire was also coded. A two-tailed t-test (a statistical test that calculates how significant the differences between two groups are) was used for the statistical data analysis with SPSS. The effect size was calculated with *Cohen's d* (a measure that determines how large the significant difference between the groups is).

3 Results

The mean values and the standard deviations of the Big Five personality characteristics are shown in Table 2 below.

Table 2: Means and standard deviations of Big Five Personality Characteristics.
Note. Mean (SD)

| Personality characteristics | Psychology | Law | Total |
|-----------------------------|--------------|--------------|--------------|
| Agreeableness | 33.38 (5.97) | 28.60 (5.74) | 30.99 (6.30) |
| Conscientiousness | 31.66 (8.06) | 33.44 (7.16) | 32.55 (7.64) |
| Openness for experience | 33.58 (7.32) | 28.05 (6.91) | 30.82 (7.61) |
| Extraversion | 29.64 (6.68) | 27.18 (7.07) | 28.41 (6.96) |



| | | | |
|-------------|--------------|--------------|--------------|
| Neuroticism | 19.84 (8.12) | 23.88 (8.88) | 21.86 (8.71) |
|-------------|--------------|--------------|--------------|

All of the Big Five characteristics have a normal distribution within the subject-specific groups.

The characteristics *agreeableness*, *openness to experience* and *neuroticism* had a statistically significant group-specific difference. The results are shown in Table 3.

Table 3: t-Test, effect size (Cohen's d) and power of the test for determining the group-specific differences in the Big Five Personality characters

| Personality characteristics | p | d | β |
|-----------------------------|--------|------|---------|
| Agreeableness | < .01 | 0.82 | - |
| Conscientiousness | .244 | - | .31 |
| Openness for experience | < .001 | 0.78 | - |
| Extraversion | .077 | - | .55 |
| Neuroticism | .020 | 0.48 | - |

Since the subjects of the two groups differed significantly in age, it had to be checked whether age is related to the respective personality traits of the Big Five. Pearson correlation coefficient (a statistical tool that measure the statistical relationship between two variables) was calculated for the subject-specific groups as well as the whole sample. There were no statistically significant correlations between age and personality traits in either the subject-specific groups or the entire sample. This leads to the conclusion that age is not a significant confounding variable for the present sample.

4 Discussion

The results suggest that law and psychology students differ in their Big Five personality characteristics (Table 3). Psychology students scored higher on *agreeableness* and *openness to experience* than law students. Law students got higher scores on *neuroticism* (Table 3).

These differences may be attributed to their professional fields. Qualities associated with *openness to experience* and *agreeableness*; such as benevolence, compassion and helpfulness may be seen as essential qualities of psychologists. Whereas, prospective lawyers may benefit from scepticism and assertiveness, qualities which are associated with lower levels of agreeableness.

The dimension of *agreeableness* primarily describes intrapersonal behaviour, with altruism as a central characteristic in persons with higher scores (Borkenau & Ostendorf, 2008, p.



41). These people treat their fellow human beings with benevolence, compassion and helpfulness; furthermore, they are convinced that other people would behave in the same way (Borkenau & Ostendorf, 2008, p. 41). They also tend to trust other people, are resilient and have a distinct need for harmony (Borkenau & Ostendorf, 2008, p. 41). On the other hand, persons with lower scores on *agreeableness* are described as antagonistic, self-centred and distrustful of other people's intentions (Borkenau & Ostendorf, 2008, p. 41). They are considered sceptical, persistent and they tend to be more competitive (Borkenau & Ostendorf, 2008, p. 41). The dimension of compatibility can be seen as socially desirable (Borkenau & Ostendorf, 2008, p. 41). The fact that law students scored lower in *agreeableness* underlines how crucial standing up for one's own interests (being competitive and sceptical) can be in the professional setting (Borkenau & Ostendorf, 2008, p. 41). For example, scepticism and mistrust are highly important in the courtroom or in the scientific community (Borkenau & Ostendorf, 2008, p. 41).

The psychology students also showed comparably higher scores of *openness to experience* and lower scores of *neuroticism*. The dimension *openness for experience* describes the extent of interest and occupation with new experiences and impressions (Borkenau & Ostendorf, 2008, p. 40). People with high scores describe themselves as imaginative, eager to experiment, curious and intellectually and artistically inclined (Borkenau & Ostendorf, 2008, p. 40). They are interested in being involved in many public and personal processes and experience their feelings (both positive and negative) in an accentuated way (Borkenau & Ostendorf, 2008, p. 40). Thus, they are more willing to question existing norms and to respond to other/new values. They show independence in their assessment, behave unconventionally and are open to trying new behaviours (Borkenau & Ostendorf, 2008, p. 40). Persons with lower scores, on the other hand, tend to be more conventional and conservative (Borkenau & Ostendorf, 2008, p. 40). They usually prefer the proven to the new and react more emotionally subdued (Borkenau & Ostendorf, 2008, p. 40).

Neuroticism as a dimension describes individual differences in emotional stability. The main aspect of this dimension is how people experience their negative emotions (Borkenau & Ostendorf, 2008, p. 40). Persons with high scores state that they are more likely to be emotionally out of balance (Borkenau & Ostendorf, 2008, p. 40). They report experiencing negative emotional states more often than emotionally stable persons (Borkenau & Ostendorf, 2008, p. 40). Also, they are less in control of their needs (Borkenau & Ostendorf, 2008, p. 40). In contrast, people with a low level of *neuroticism* are more emotionally stable. They describe themselves as calm, balanced and carefree (Borkenau & Ostendorf, 2008, p. 40).

The typical professional fields of psychologists include counselling, adult education, child psychology, organizational consulting or economics and marketing. With an appropriate master's degree and consequent training, they are also allowed to work as psychotherapists. Combining the results of this study with the occupational fields, a coherent picture emerges. Benevolence, compassion and helpfulness are just as necessary as the interest in public and personal processes as well as the differentiated experience of emotions, in the



field of psychological counselling and psychotherapy. A lower score in *neuroticism* and the associated emotional stability is also an advantage in this area.

On the other hand, the occupational fields for law students include working as a judge, prosecutor, attorney or in legal advice. Working as a lawyer or judge or being involved in the corporate life requires scepticism, distrust and the ambition to prevail. A more emotionally subdued reaction and the tendency to stick to existing (legal) norms maybe beneficial as well. The higher score of *neuroticism* does not neatly fit in with the occupational field itself. The law students' higher score in *neuroticism* may be tied to their having a more competitive study environment than psychology students in the University of Bremen. However, in previous studies psychology students showed higher scores on *neuroticism* compared with law students (Vedel, Thomsen, & Larsen, 2015, p.72; Vedel, 2016, p. 7; Vedel & Thomsen, 2017, p. 89). Therefore, the discrepancy in the levels in *neuroticism* is open to interpretation.

Recapitulating, the different scores in *agreeableness* and *openness to experience* between the psychology and law students are in alignment with previous studies. However, the scores in *neuroticism* are in contrast with earlier studies. The results should be interpreted cautiously. It is also important to keep in mind that the results are a statistical generalisation and should not be understood as an individual assessment.

5 Limitations

The participating students were mainly recruited in lectures or seminars. Due to the absence of mandatory attendance policy at the University of Bremen, the students who were absent in the lectures were automatically excluded. The non-attending students may have differed in their personality profile.

Gender and the cultural background of the participants were not taken into account, which may be an aspect that requires further research. Furthermore, psychology students in particular may have been familiar with the NEO-FFI questionnaire. Social desirability effect (the tendency of the participants to respond in a way that is viewed as favourable by others) needs to be considered as a possible influence. The results of the study should therefore be confirmed in larger and more representative samples of students.

6 Conclusion

Law and psychology students differ in their Big Five personality characteristics. If there is a relation between the Big Five and the choice of study subject, it could be useful for optimizing the study choice in advance and therefore be helpful in the counselling of students in the future.



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