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PERSONALITY TRAITS OF STUDENTS FROM DIFFERENT UNIVERSITY FACULTIES

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Abstract:
The article presents a comparative study of the personality traits of students from two different university faculties. A sample of 301 Greek undergraduate students in Education (Department of Primary Education (DPE)) and the Polytechnic Faculty (Department of Computer Engineering (CE)). Students completed the International Personality Items Pool and answered socio-demographic questions. Results showed the DPE students have statistically significant scores on the Agreeableness ($t(299) = 4.106$, p-value <0.001, sample mean = 4.32) and on the Conscientiousness ($t(299) = 3.336$, p-value <0.001, sample mean = 3.67) in contrast with the CE students (Sample means 4.03 and 3.36, respectively). Overall, Computer Science students showed a tendency toward difficult social relationships and lower Conscientiousness. These findings suggest that personality traits may influence social behavior and psychological well-being. The study advocates for educational interventions within university curricula to address and improve students' personality traits, enhancing their interpersonal and academic competencies.

Keywords: BFF traits personality; undergraduate students; social behavior; socio-emotional intervention

1. Introduction

In the past, a number of studies have highlighted the usefulness of the BFF/ Big Five Factors model in assessing the effect of personality on work (Barrick & Mount, 1991). Subsequently, it was shown that personality traits influence teaching and learning effectiveness more than cognitive factors and intelligence index (Ziegler *et al.*, 2010).

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Contemporary, several researchers have investigated the relationship between personality and academic achievement (Cuadrado *et al.*, 2021) and learning motivation (Muhid *et al.*, 2021). More specifically, the investigation, in greater depth indicatively could be mentioned, showed that conscientiousness, openness, cheerfulness, and motivation for self-regulation are mostly responsible for mediating academic success and act as protective factors against procrastination (Ljubin-Golub *et al.*, 2019). Additionally, studies with a different focus have highlighted the correlation between agreeableness and mental resilience (Cuadrado *et al.*, 2021). Also, data demonstrates that agreeableness predicts cognitive and emotional empathy (Song & Shi, 2017).

In recent years, studies have discussed the personality traits of students from different university faculties (Cárdenas Moren *et al.*, 2020; Vedel, 2015; de la Fuente-Mella *et al.*, 2020; Kell, 2019; Roloff Henoch *et al.*, 2015). Nowadays, the challenge in research in this field poses personality as a key competence determined by personality traits. The analysis in recent years studies discuss the personality traits of students from different university faculties (faculties (Cárdenas Moren *et al.*, 2020; Vedel, 2015; de la Fuente-Mella *et al.*, 2020; Kell, 2019; Roloff Henoch *et al.*, 2015). Nowadays, the challenge in research in this field poses personality as a key competence determined by personality traits. The analysis of these can describe in a concrete way the allowable improvement of people in the environment in which they work and live (de la Fuente-Mella *et al.*, 2020). In particular, the new challenge can start from higher education, where this perspective could be exploited in a curriculum that aims to develop not only knowledge but also the social, emotional, communicative and interpersonal skills of students that allow them to adapt to the environment, be satisfied and succeed in their work (Cárdenas Moren *et al.*, 2020; Pertegal-Felices *et al.*, 2017).

The first application of this idea is described in a contemporary research study by Pertegal-Felices *et al.* (2017), which focused on the effectiveness of emotional intelligence interventions in a selected sample of students from the same university faculties, PDE and CE. It aimed to highlight, through the multidisciplinary sample, whether students' emotional abilities can be improved at this age stage by adding an intervention without reducing their time away from core subjects in the discipline of study. Post-intervention evaluation showed that the intervention improved the interdisciplinary working group's emotional abilities without reducing their academic performance. Additionally, in the same direction with a different focus, the very recent study by Fantozzi *et al*. (2024) studied personality traits in a sample of students from different faculties, Engineering and Management, using the same questionnaire as the present study, the IPIP. According to the research results, it was found that the implementation of innovative methods of modern teaching improves personality traits and critical competencies in students' professional profiles and sense of satisfaction (Fantozzi *et al.*, 2014; Backmann *et al.*, 2019). In addition, it is well known that the period of early adulthood is crucial because, in emerging adulthood, the dimensional characteristics of personality have not yet stabilized. During this period, structural factors and personality characteristics are established, and one's personality profile acquires a more permanent form; therefore, targeted interventions can have key effects (McCrae & Costa, 1991; Backmann *et al.*, 2019).

However, there are still no empirical studies in the literature that deliberately and clearly examine the relationship between diametrically opposed and different academic fields of study and student personality in higher education. Based on their research findings, similarities and differences could be identified, which could serve as predictors with the potential for policy recommendations in higher education.

So far, research studies focusing on the differences in personality traits of students from two different university faculties are limited, and those that exist refer to different faculties of the same discipline. (Vedel, 2015; de la Fuente-Mella *et al.*, 2020; Kell, 2019). Also, studies that have investigated the personality traits of university student teachers across broad disciplines have not found differences (Roloff Henoch *et al.*, 2015). A recent systematic review (Vedel, 2015) confirms the presence of different personality traits among undergraduate students from different, broader scientific fields of university faculties, such as the humanities. In particular, the same study showed that students in the humanities showed high Agreeableness. More specifically for students studying to become teachers, the most recent study by Hartmann & Ertl (2023), showed that they exhibit differences in personality traits as compared to students teachers of other disciplines from different schools. In fact, the results showed that students/future e-professional teachers had high Extraversion.

Theoretically, regarding the difference in personality traits of students from different disciplines and faculties, several past studies confirmed that there is a two-way interaction between personality and environment in the development of the individual. This is increasingly documented nowadays, as it tends to be a commonplace of agreement among scholars that different personalities lead to different, pre-professional choices in selecting a specific university/school, and these choices seem to be driven by personality traits and broader personality structural dimensions (Hartmann & Ertl, 2023). On the other hand, the Adaptation theory in the Person-Environment interaction relationship (Backmann *et al.*, 2019) interprets how the individual adapts to a specific field of study or profession by harmonizing personality traits. This is where the great benefit of this type of study is identified, contributing to the design of appropriate personality development programs in the context of pre-professional development and student success (Hartmann & Ertl, 2023). The recent related Hartman, 2021 study focused on the personality traits that could potentially constitute the "good traits" of the educator and mentions "Extraversion", which motivates social interaction and which the educator should be aware of and should furthermore teach to students especially in primary education, as well as Conscientiousness, Openness and Emotional Stability (Barrick & Mount, 1991; Mount *et al.*, 1998; Roloff Henoch *et al.*, 2015).

As far as the specific scientific field/faculty of computer engineering is concerned, in modern times, it is a field with a very high interest in professional employment for many young people. Faced with the challenges of modern, highly developed digital technology, human beings are the focus of social humanities. A recent study by Pertegal-Felices *et al.* (2014)), studied the personality traits of students in computer engineering schools. The starting point of the research project was the fundamental view that personality traits and emotional intelligence are important ingredients for the successful

practice of their profession. They then investigated the personality traits and emotional intelligence of undergraduate computer engineering students and student teachers. The findings of the study indicated significant differences between the personality traits of computer engineering students and student teachers, who, respectively, came from different faculties. Specifically, significant evidence emerged that computer engineering students showed a deficit in social interaction skills. Therefore, the researchers suggest designing appropriate curricula focusing on the improvement and development of social and emotional pre-personality characteristics that promote emotional intelligence.

While, as mentioned, very few research studies have assessed Computer Engineering undergraduate students' personality traits (Rogers & Farson, 2021), relevant research findings indicate that Computer Engineers score low on Agreeableness, Conscientiousness and Openness, show moderate Extraversion and their predominant characteristic is Neuroticism. The effect of their focus on learning programming languages, as well as the intricacies of engineering, i.e., reducing a whole into individual pieces, is discussed. It seems that these students lack the ability to think on a deeper level, resulting in superficial learning and non-critical thinking (English *et al.*, 2017).

This article aims to comparatively investigate the personality traits of university students in two different faculties from two completely different scientific fields and highlight similarities and differences. Our study sample included undergraduate students from the Faculty of Education, Department of Primary Education (DPE) and the Polytechnic School's Department of Computer Engineering (CE). The present study aims to contribute to the discussion of the personality characteristics of students from different faculties and scientific fields, where the comparative study of the two samples may reveal significant correlations and conclusions. The students are future employees pursuing individual professional success and individual psychological well-being. Adequate personality-focused interventions/courses that can be integrated into the university curriculum can contribute to the achievement of this goal.

2. Material and Methods

Prior to discussing the method, it is important to provide some necessary clarifications. The research data presented in this article are part of a larger research project entitled "Investigating behavioral similarities and differences in the personality of university students from different university faculties". Part of the preliminary results of this larger research project were published in two previous studies: (i) "Undergraduate Student Personality Traits: Relationship with Students' Gender and Parental Socioeconomic Factors" (..), and (ii) "Personality Study of Undergraduate Students from Different Academic Disciplines by Adapting the International Personality Item Pool (IPIP) Instrument" (..). This article presents the main results of the research project. As such, the larger research project used the same research method, sample, procedure, pilot study, and materials, as reported jointly in the two published articles and herein.

The purpose of the study is to highlight individual personality traits (BFFM) similarities and differences among undergraduate students enrolled in two different

faculties, i.e., the Faculty of Education and the Polytechnic School. The emerging research question is, therefore, two-fold: Between the students of the two groups:

a) Are there similarities in terms of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness?
b) Are there any differences in terms of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness?

2.1 Participation

The survey was conducted in May 2021. The research sample consisted of 301 undergraduate students in their second and third year of study, registered at the University of Greece in the 2020-2021 academic year. The first group consisted of DPE students N = 237 (78,7%), 45 men, 192 women and the second group of CE students N = 64 (21,3%), 34 men, 30 women, with a total participation of 223 (74,1%) female students and 78 (25,9%) male students. The choice of studying university students from the Department of Primary Education and Computer Engineering is a purposeful choice in this comparative study of personality traits with a research sample of students from two completely different disciplines, one coming from the broader field of Humanities-Social studies and the other from the field of Science-Computer Engineering. Moreover, this kind of broader sampling strategy can extend the predictive validity of the Big Five Factors model (BFFM) (Vedel, 2015). The secretariats of the two departments sent the invitation and voluntary questionnaire completion, along with a link to an electronic form, to the personal emails of all the students of the two faculties.

2.2 Measures and Procedure

The Big Five Factors Model (BFFM) is organized into the big five factors / dimensional structures, which contain individual features/aspects (Di Fabio & Saklofske, 2021). These individual features are the fixed, permanent patterns of behavior, thinking and emotions that constitute and co-form the fundamental elements in the dimensional structures of the personality. The questionnaire IPIP-50 items (International Personality Items Pool (IPIP-50 item, Goldberg, 1999) of the five personality factors model (Extraversion, Agreeableness, Conscientiousness, Neuroticism/Emotional Stability, Intellect/Openness) was used in the study. The IPIP-50 was translated into Greek (Bakola, Tsaousis, Georgiadis - http://ipip.ori.org) and has been weighted, and its validity was tested in the Greek population (Ypofanti *et al.*, 2015). The IPIP-50 items had been adapted to meet the objectives of the research questions). The adaptation procedures included double translation, weighting, and cultural adaptation (Gkatsa, 2021).

During the adaptation of the tool (IPIP-50 item), a few language changes were applied to the translated version into Greek (Bakola *et al.*, as showed in ipip.ori.org), in order to adapt it to the needs of the study (Gkatsa, 2021).

2.2.1 Detailed adaptation process

We treated the questionnaire from the beginning with a double translation and then it was given for reverse translation to a native speaker of English. A discussion followed

on the final form of the questions. The final form of the questions was transferred electronically to Google Forms. Each factor is evaluated by ten elements/aspects. The five-point Likert rating scale from 1 to 5 was used (Strongly Disagree - Strongly Agree). The pilot application of the questionnaire was given to twenty students from the research sample. No difficulties were identified at this stage, and no changes were made. Subsequently, a control was implemented by comparative contrasting of the three questionnaires:

a) the revised version that resulted from the changes made by the research team to meet the needs, objective, research questions and research sample of the undergraduate students of the present study,
b) the original in English (IPIP-50 item) and iii) the translated version in Greek available on the questionnaire website (Bakola *et al.*, as available at http://ipip.ori.org).

In the final version that we kept for the present study, we kept important changes that we had made in order to accurately convey the psychological texture of the concepts in questions: A1-A6-A9, N10, and O9. Also, the six modified phrases were retained for the same reasons (Gkatsa, 2021).

2.3 Pilot Test

For the pilot application, a random sample of 5% of the total research sample of the study, aged 18-40 years, was surveyed. Hence, fifteen students completed the questionnaire at two different time points T1, T2, with a time interval of ten days between them. It was found that the respondents gave exactly the same responses at both the time points T1, T2. At the end of the completion, the respondents were asked for their opinion on the IPIP-50 item questionnaire and answered that it was understandable, easy, and enjoyable to complete. After the successful pilot test, the questionnaire was considered sufficient to provide to the wider survey. Before analyzing the research data, the direction and type of questions were reversed (Gkatsa, 2021).

The final draft of questionnaire IPIP-50, was distributed through Google Forms. Each factor was assessed by 10 items using a five-point Likert Scale of 1 to 5 (Very inaccurate to Very accurate), which has been widely used by the international research community. The higher score indicates a more intense trend.

2.4 Method

The IBM SPSS Statistics 26 was used to perform the statistical analysis. The aim of the study is to investigate if there is a statistically significant difference in the characteristics of the five big factors/personality scales of the undergraduate students coming from two different academic departments: 1) Pedagogical Department of Primary Education and 2) Department of Computer Engineering. The reliability of each scale was assessed by Cronbach's alpha index, according to which all scales had values above 0.7. Therefore, it was considered that all scales were reliable. Subsequently, to test whether there was a statistically significant difference between the two populations in the mean values of the aforementioned scales, the parametric t-test was applied. The parametric test was chosen

to be used over the non-parametric test (Mann-Whitney test) because the normality hypothesis holds asymptotically as the sample size is greater than thirty for each of the two populations in the research sample. The application of the t-test was preceded by Levine's F-test, which aimed to control for population variances in order to decide whether to use the t-test with equal or unequal population variances. In addition, additional statistical analysis was performed using the chi-square test on each of the questions separately to check whether there were any individual statistically significant differences between the two groups of the research sample.

3. Results and Discussion

All the results will be considered as a whole sample without gender division, due to the absence of significant differences.

All scales consisted of 10 questions answered on a 5-point Likert scale. The Cronbach's alpha reliability coefficient of the scales was quite satisfactory (ranging from 0.746 to 0.854, Cronbach's Alpha: E: .821, A: .821, C: .816, N: .854, O: .746), (Di Fabio & Saklofske, 2021).

There is no statistically significant difference in the mean value of the Extraversion Scale with respect to the faculty (t (299) = 1,577, p-value = 0.116) nor in the mean value of the Neuroticism scale (t (88.758) = -1.759, p-value = 0.082) or the mean value of the Openness scale (t (299) = -0.487, p-value = 0.626). On the other hand, DPE students scored a statistically significantly higher value on the Agreeableness scale (t (299) = 4.106, p-value <0.001) and on the Conscientiousness scale (t (299) = 3.336, p-value <0.001) compared to CE students (Table 1).

Table 1: Group Statistics: Personality Traits according to DPE vs. CE Students

	University Department	**N**	**Mean**	**Std. Deviation**	**Std.Error Mean**
Average Agreeableness	Department of Primary Education (DPE)	237	4.32	.46	.03
	Computer Engineering (CE)	64	4.03	.59	.07
Average Conscientiousness	Department of Primary Education (DPE)	237	3.67	.67	.044
	Computer Engineering (CE)	64	3.36	.61	.08

Table 2: Independent Samples Test Levine's Test for Equality of Variances

	F	**Sig.**	**T**	**Df**	**Sig. (2-tailed)**
Average Agreeableness	3.733	.054	4.106	299	**<.001**
Average Conscientiousness	.527	.469	3.336	299	**.001**

The additional analysis on one of the variables showed that there is a statistically significant difference between the two populations at significance level 5%=0,05 on the A4 item (sympathize with others' feelings, Fisher's Exact test 23.246, p-value=0.003), the A9 (feel others' emotions, Fisher's Exact test 23.246, p-value=0.002) as well as items C8 (I don't shirk on my duties, Fisher's Exact test 23.246, p-value=0.039) and E5 (Start

conversations, Fisher's Exact test 16.687, p-value=0.023) (Table 3). Results related to the other items are available upon request.

Table 3: Crosstabs- Personality Traits and Group Students

Chi-Square Tests		
Fishers Exact Test (Analyze Cells observed, respective)	**Value**	**Exact Sig. (2 sided)**
A4: Sympathize with others' feelings * University Department	23.246	**.003**
A9: I feel other's emotions * University Department	24.163	**.002**
C8: I don't shirk my duties * University Department	9.793	**.039**
E5: Start conversations * University Department	16.687	**.023**

A more specific (an in-depth) Crosstabs analysis shows that two independent samples showed significant differences in the scale Agreeableness, Conscientiousness, and Extraversion, in particular in the special characteristics:

- A4 (sympathize with others feelings), DPE: Very inaccurate (VI): 0,0%, Moderately inaccurate (MI): 2,5%, Neither accurate nor inaccurate (NAN)I: 13,5%, Moderately accurate (MA): 43%, Very accurate (VA): 40.9% vs CE: Very inaccurate (VI): 1,6%, Moderately inaccurate (MI): 9,4%, Neither accurate nor inaccurate (NANI): 21,9%, Moderately accurate (MA): 45,3%, Very accurate (VA): 21,9%),
- A9 (feel others emotions), DPE: Very inaccurate (VI): 0,0%, Moderately inaccurate (MI): 1,3%, Neither accurate nor inaccurate (NANI): 16,9%, Moderately accurate (MA): 43,0%, Very inaccurate (VA): 38,8% vs CE: Very inaccurate (VI): 1,6%, Moderately inaccurate (MI): 7,8%, NANI: 23,4%, Moderately accurate (MA): 46,9%, Very accurate (VA): 20,3%),
- C8 (I do not shirk my duties), DPE: Very inaccurate (VI): 1,7%, Moderately inaccurate (MI): 8,0%, Neither accurate nor inaccurate (NANI): 17,3 %, Moderately accurate (MA): 32,1%, Very accurate (VA): 40,9% vs CE: Very inaccurate (VI): 6,3%, Moderately inaccurate (MI): 10,9%, Neither accurate nor inaccurate (NANI): 15,6%, Moderately accurate (MA): 50,0%, Very accurate (VA): 17,2%),
- E5 (Start conversations), DPE: Very inaccurate (VI): 0,8 %, Moderately inaccurate (MI): 6,8%, Neither accurate nor inaccurate (NANI): 25,3%, Moderately accurate (MA): 37,6%, Very accurate (VA): 29,5% vs CE: Very inaccurate (VI): 6,3%, Moderately inaccurate (MI): 14,1%, Neither accurate nor inaccurate (NANI): 25,0%, Moderately accurate (MA): 35,9%, Very accurate (VA): 18,8 %), (Table 4).

Table 4: Crosstabs- Personality Traits and Group Students

University Department and *A4, *A9, *C8, *E5							
		Very inaccurate (VI)	**Moderately inaccurate (MA)**	**Neither accurate nor inaccurate (NANI)**	**Moderately accurate (MA)**	**Very accurate (VA)**	**Total**
A4: Sympathize with others' feelings	DPE	0,0%	2,5%	13,5%	43,0%	40,9%	100,0%
	CE	1,6%	9,4%	21,9%	45,3%	21,9%	100,0%
A9: Feel other's emotions	DPE	0,0%	1,3%	16,9%	43,0%	38,8%	100,0%
	CE	1,6%	7,8%	23,4%	46,9%	20,3%	100,0%
C8: I don't shirk my duties	DPE	1,7%	8,0%	17,3%	32,1%	40,9%	100,0%
	CE	6,3%	10,9%	15,6%	50,0%	17,2%	100,0%
E5: Start conversations	DPE	0,8%	6,8%	25,3%	37,6%	29,5%	100,0%
	CE	6,3%	14,1%	25,0%	35,9%	18,8%	100,0%

With respect to gender results, it is worth mentioning that in the research results of the same study, in the same research sample, a statistically significant difference in personality traits between the two genders was found. Women showed higher value in Agreeableness scale and men in Emotional Stability. These results, as reported in the related published article, are consistent with the findings of studies in Western developed countries (Gkatsa, 2023; Gkatsa, 2024).

5. Discussion

The results confirm the study's research questions and hypotheses. The two groups of university students (DPE, CE) showed no differences in Openness and Neuroticism. Of particular importance is the fact that CE students scored lower on the scale of Agreeableness, Conscientiousness and on one trait on the Extraversion scale. More particularly, on the Agreeableness scale, in addition to the trait (A4): "Sympathy for the feelings of others", the DPE students appeared to be 'Very accurate' at a percentage of 40,9% while the CE students were at 21,9%. Respectively, the DPE students at the same rate in trait A9: "I feel others' emotions" appeared to be 'Very accurate' at a percentage of 38,8% while the CE students were at 20,3%. The two sample groups differ marginally on the Conscientiousness scale, but in addition, a difference emerged in trait C8: "I don't shirk my duties", as the DPE students presented very accurate 40.9% and the CE students 17.2%. Additionally, the two groups of the sample differ in only one characteristic of the extraversion scale, E5: "I start a conversation", in which the DPE students presented very accurately at a rate of 29.5% and the CE students at 18.8%, respectively.

Regarding Neuroticism and Openness, the results of one study conducted with high school students in Indonesia showed that Emotional Stability and Openness are the most powerful predictors of academic achievement (Panayiotou *et al.*, 2020).

As for the extraversion scale, it is worth mentioning that the two groups have a strong tendency to be energetic, sociable, enthusiastic, and optimistic. However, they differ significantly in trait E5: "I start a conversation".

Regarding differences between the two groups, the DPE students scored higher on the whole Agreeableness scale compared to the CE students, specifically on two items i) Sympathy for the feelings of others (A4), ii) I feel others' emotions (A9). The comparison was marginal on the conscientiousness scale. However, the team of the pedagogical department scored more on characteristic C8: I don't shirk my duties.

Initial considerations reflect the question of whether the sample of CE students exhibits a tendency toward having difficulty in interpersonal relationships with others. The lower CE student scores on both Agreeableness, Conscientiousness, and one trait of extraversion, which seem to attribute a type of concealed difficulty at the social and interpersonal level, revealing a need to further regulate possible emotional difficulties.

Agreeableness-The Agreeableness scale is described as a predictor of emotional self-regulation and thus a key component in regulating social relations. Agreeableness regulates and controls emotional experiences, especially negative emotions (Haas *et al.*, 2007). People with agreeableness tend to control and manage anger, irritability, and aggression. Agreeableness plays an orchestrating role in Extraversion and Neuroticism. Kindness, in turn, is an expression of Agreeableness as it exerts control over positive and negative emotions, contributes to the positive expression of negative emotions and gives way to flexible behavior (Mount *et al.*, 2018).

When further examining the differences on the Agreeableness scale, the A4 item: "Sympathize with others' feelings", - attributes one's tendency to show sympathy, to sympathize with the difficult feelings (fear, pain) of others and support them, which is also known as compassion (emotional perception and recognition) (Gu *et al.*, 2017). It has been recently argued that compassion, among other factors, has been associated with mental health and well-being (Di Fabio & Saklofske *et al.*, 2021). Individuals who are able to empathize and sympathize experience satisfaction by helping and caring for others and, therefore, develop a pro-social identity. They show higher self-esteem and self-efficacy. Also, compassion facilitates interpersonal relationships at work and increases productivity (Di Fabio & Saklofske *et al.*, 2021). At this point, the question arises as to whether the competitiveness of CE students could explain their lower scores on the Agreeableness scale. Zhang *et al.* (2021) argue that there is a tendency for compassion to be negatively correlated with competitiveness and positively correlated with kindness (Ziegler *et al.*, 2010).

Examining differences of the A9 items - Feel other's emotions: one's ability to feel the feelings of others equates to emotional empathy. Studies have shown that social skills mediate between emotion recognition and social context. Therefore, difficulty in understanding the emotions of others makes it difficult to understand the social context (Gkatsa, 2023). Researchers claim that this ability is related to the mechanisms and strategies of emotion regulation. Contrary to this, low levels of the ability to recognize and differentiate emotions have been associated with lower levels of mental health, social

anxiety, personality disorders, depression, and autism spectrum disorders. In adolescence and early adulthood, this takes its final form (Muhid *et al.*, 2021).

Extraversion-Trait E5: "I start a conversation", in the Extraversion scale, is an essential component of social behavior, one of the primary means by which human beings express intentions, beliefs, emotions, attitudes, and personalities. The difficulty in recognizing the aforementioned emotions of others in the social context, which makes it difficult to develop interpersonal relationships, is likely linked to their difficulty initiating a conversation (English *et al.*, 2017). Although the two groups of the sample (DPE, CE) differ in the entire Agreeableness scale but not in the entire Extraversion scale, except for one of its characteristics, E5, it shows that there is a possible connection between the specific characteristics (A4, A9, E5). The finding is partially substantiated and supported by the scientific literature, which argues that the Agreeableness scale is the orchestrator of Extraversion. This describes how Agreeableness facilitates and promotes Extraversion, and conversely, difficulty in Agreeableness prevents Extraversion (Mount *et al.*, 1998).

Conscientiousness-Among the two groups, we found differences on the Conscientiousness scale and in the sub-item C8: "I don't shirk my duties". In its entirety, the Conscientiousness scale shows a tendency toward reliability, diligence, order, prudence, and organization. Low scores on Self-Conscientiousness are associated with high experiential avoidance and repression, social stress, and suppression. This may play a protective role in the short term, but in the long term, it contributes to the link between alexithymia and poor mental health (McCrae *et al.*, 2009). The item C8: "I don't shirk my duties", is conceptualized into six facets (or dimensions), including in the Conscientiousness scale. The specific characteristic is included and conceptualizes the direction of 'Responsibility''. For undergraduates, the feature is negatively associated with reduced academic misconduct and positively with academic achievement and goals (Mount *et al.*, 1998). Studies among students of secondary and higher education have shown that conscientiousness is a predictor of academic performance and in fact, affects more than intelligence (Roloff *et al.*, 2015). Also, a study of young people (M.O = 20.98) showed that low conscientiousness, agreeableness, and organization were associated negatively associated with procrastination behavior (Cárdenas Moren *et al.*, 2020).

5.1 Overall Evaluation

The findings of the study align with those of previous research in the same field. Specifically, the first group of DPE students demonstrates higher scores on the overall Agreeableness scale, as well as on specific traits within the dimension. Combined with higher levels of Extroversion, it appears that DPE students and student teachers in humanities programs exhibit an enhanced capacity for social interaction (Hartmann & Ertl, 2023; Kell, 2019). Conversely, CE students show comparatively lower scores on the trait of Extraversion, the overall Agreeableness scale, and its associated traits. This pattern suggests some challenges in social interaction, which, according to the survey data, may be related to difficulties in initiating conversations and slightly lower scores in Compassion and Sensing others. These tendencies could reflect a different approach to

social behavior and interaction, which may affect emotional intelligence and psychological well-being in specific contexts (Pertegal-Felices *et al.*, 2026).

5.2 Restrictions and Benefits

The limitations of the study include the unequal representation in the survey sample regarding respondents from both schools and an imbalance in gender representation within the DPE group. Additionally, the reliance on a single source of information through a self-report questionnaire may represent a methodological constraint. However, the study offers several strengths, notably its contribution to an under-researched area. It sheds light on individual factors that influence the educational, academic progress and psychological well-being of undergraduate students.

The findings of this study reveal notable trends that enhance the scientific understanding of personality trait differences between two groups of undergraduate students from distinct academic disciplines: the humanities and polytechnic schools. By utilizing an international questionnaire that measures the five key personality factors, the study provides a systematic foundation for fostering international scientific dialogue on the subject.

6. Recommendations

Furthermore, the results can inform interventions and the design of university courses aimed at cultivating specific personality traits as competencies and skills that are integrated into higher education curricula. Future studies could build upon the current findings by utilizing larger, more balanced, and diverse samples to further validate these trends. In addition, longitudinal research could explore how personality traits develop over time during the course of undergraduate studies and how these traits influence academic and professional outcomes. Experimental designs could also be implemented to assess the impact of targeted interventions, such as specialized courses or training programs, on enhancing key personality traits like compassion, extroversion, and agreeableness. By extending the scope of this research, future studies can contribute valuable insights into the relationship between personality development, education, and psychological well-being, offering practical applications in both academic settings and personal development programs.

7. **Conclusions**

Our study identified both similarities and differences in the personality traits of undergraduate students from two groups. Specifically, students from both groups exhibited comparable levels of Emotional Stability and Openness, but notable differences emerged in Agreeableness, Conscientiousness, and a specific trait within the Extraversion scale. According to our findings, CE undergraduate students scored lower in Agreeableness, Conscientiousness, and one trait of Extraversion compared to their counterparts.

The research findings underscore a potential risk trend in the relationship between certain personality traits and the field of computer engineering in higher education. The combination of lower scores in Agreeableness and the Extraversion trait for CE students may indicate a predisposition toward challenges in interpersonal relationships and social interactions. These difficulties may stem from a degree of emotional and social unease, which warrants further exploration. Additionally, the marginally lower scores in Conscientiousness observed in CE students align with findings from other studies, which suggest that reduced Conscientiousness may negatively impact academic performance. The results of this study are particularly significant given the critical developmental stage of emerging adulthood, during which personality traits and behaviors are still maturing. This is especially relevant in the context of contemporary educational and professional demands, where CE students are expected to excel in highly technical and collaborative environments related to digital technology.

Finally, the findings provide valuable insights and a foundation for future research in the field. Further studies could focus on developing and testing targeted intervention programs designed to enhance individual personality traits associated with interpersonal skills and academic success. Such programs could help students adjust more effectively to their academic environment, promoting both educational advancement and psychological well-being.

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Conflict of Interest Statement
The authors declare no conflicts of interest.

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