The Influence of Educational Level on Self-efficacy, Introversion, and Agreeableness: an Interpersonal Difference Analysis

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Abstract: This research examines the impact of educational attainment on psychological traits such as self-efficacy, introversion, and agreeableness. The primary goal of this study is to see whether there are significant variations in these traits according to the educational level of the participants and to identify relationships between educational level and psychological traits. A number of hypotheses were formulated, anticipating that self-efficacy would be higher in participants with higher levels of education, while introversion would be lower. Agreeableness was also hypothesized to be influenced by level of education, with higher means in those with higher levels of education. To test these hypotheses, a questionnaire was completed by a sample of 238 respondents, who were grouped according to their level of education. Data analysis revealed significant differences between education groups on self-efficacy, introversion, and agreeableness. The findings were explored in light of current ideas, with a focus on their theoretical and practical consequences. Finally, the study underlines the role of education in forming personality characteristics and the necessity for more research in this area. The study’s limitations were also acknowledged, and future research objectives were offered to help us better grasp this complicated link.

Keywords: level of education, psychological traits, self-efficacy, introversion, agreeableness.

Introduction

Personality formation and human behavior have long been a topic of interest in psychology and study. Bandura (1977) has highlighted how factors such as education influence personality traits. This article explores the link between educational attainment and specific personality dimensions: self-efficacy, introversion, and agreeableness, through the lens of existing theories and research.

Bandura (1977) defines self-efficacy as an individual's confidence in his capacity to arrange and execute the activities required to manage foreseeable situations is essential for motivation and performance (Bandura, 1997). Our analysis is also strengthened by the studies carried out in the field of educational psychology, which highlight an essential aspect of the impact of education on self-efficacy. Studies have shown that education can improve self-efficacy through exposure to various tasks and success in completing them, thus contributing to the development of a sense of competence (Schunk & Pajares, 2009).

Introversion, a trait characterized by directing energy toward the inner world of thoughts and feelings, as opposed to extroversion, which is directed toward the outer world and social interaction, has been examined in relation to education in various studies. Research suggests that educational environments can influence the manifestation of introversion because they provide a framework for social interaction and the development of social skills (Eysenck, 1991; Lucas & Diener, 2008).

Agreeableness, which reflects the tendency to be cooperative, warm, and friendly, is another personality dimension that has been linked to education. Research indicates that educational experiences, by promoting empathy and interpersonal understanding, can positively influence the development of agreeableness (Graziano et al., 1997). The use of an interdisciplinary framework in educational research is promoted, integrating perspectives from psychology, sociology, philosophy and ethics (Gemene et al., 2018). This approach is essential in our study, as it allows us to examine the influence of education on personality traits from multiple perspectives, providing a complex and nuanced picture of the studied phenomenon.

The relationship between education and these personality traits is complex and mediated by a variety of factors, including the social and cultural environment. Thus, understanding how education influences self-efficacy, introversion, and agreeableness requires a multidisciplinary
approach that integrates perspectives from psychology, sociology, and education (Caprara et al., 2006).

Methodology

Objectives and assumptions

Objectives:
- Evaluation of the impact of the level of education on self-efficacy, introversion and agreeableness: The primary goal of this study is to determine whether there are significant variations in self-efficacy, introversion, and agreeableness based on the participants' degree of schooling.
- Identifying the connection of the level of education and psychological traits: It aims to determine if there is an association between the level of education of individuals and the way they perceive themselves (self-efficacy), interact with others (introversion) and show kindness traits and cooperation (agreeableness).

Hypotheses:
Main Hypothesis: The mean scores on self-efficacy, introversion, and agreeableness will vary significantly by participants' level of education. People with greater levels of education are predicted to show higher means on self-efficacy and agreeableness and lower means on introversion compared to those with a lower level of education.

The Secondary hypotheses:
- Self-efficacy will be higher in participants with higher levels of education, according to the literature suggesting that education can increase self-confidence and the ability to face challenges (Bandura, 1997).
- Introversion will be lower in people with higher levels of education, given that education can promote communication and social interaction skills (Costa & McCrae, 1992).
- Agreeableness will be influenced by level of education, with higher averages in those with a higher level of education, due to the development of communication and conflict resolution skills within education (Costa & McCrae, 1992).

These assumptions are formulated based on the relevant literature and the findings presented in the analysis of the data provided. The study attempts to give a clearer knowledge of the link between the amount of education and the individual's psychological qualities with applicability in the field of education and personal development.
Participants

The questionnaire was distributed through social media and was completed by a total of 238 respondents, including 76 males, representing 31.9%, and 162 females, constituting 68.1%, based on a convenience sampling procedure. The distribution by age groups was as follows: 18-25 years (3.8%), 26-35 years (26.5%), 36-45 years (34%), 46-55 years (34%), and over 55 years (4%).

131 individuals had secondary education, representing 55% of the sample, while 107 participants, or 45%, had tertiary education.

Procedure

The recruitment of participants for this study was carried out by means of a questionnaire distributed online, addressing people over 18 years of age. The study invitation included a link explaining the purpose and objectives of the research. Before participation, each participant was informed about the conditions participated in the study and provided informed consent. This consent was obtained by specifically requesting that consent of each respondent to take part in the research. Respondents who
agreed could continue to complete the questionnaire, while those who refused were instructed to withdraw from the study.

The questionnaires were completed individually and in digital format. The research instruments were adapted for the Romanian language through the standard process of translation and retroversion, thus guaranteeing their linguistic equivalence. The variables examined in the study are the following: educational level serves as the independent variable, exerting its influence on the dependent variables of self-efficacy, introversion, and agreeableness.

**Instruments**

*Generalized Self-Efficacy Scale (SES)* (Schwarzer & Jerusalem, 1995): The instrument for measuring generalized self-efficacy, created by Matthias Jerusalem and Ralf Schwarzer and published in 1995, is a questionnaire designed to assess individual beliefs related to the effective management of stressful situations and provocative. Consisting of 10 statements, the questionnaire is completed on a four-point Likert scale. An example question might be "I am able to solve difficult problems", reflecting the ability to set and achieve goals. The scale demonstrated high reliability, evidenced by a Cronbach's alpha is 0.92, showing strong internal consistency.

*The Mowen personality test* (Mowen, 2000). The 2000 Mowen Test Assesses personality qualities using the Big Five paradigm. through a series of 15 questions, with each of the five personality dimensions represented by three questions. Using a 1 to 7 Using a Likert scale, respondents express their level of agreement or disagreement with statements such as emotional variability. The robustness of this instrument is confirmed by internal consistency coefficients Alpha Cronbach varies between .70 and .82 for the different personality dimensions.

**Results and discussions**

Table 1 displays a descriptive analysis of the collected data, presenting key statistics including the number of participants (N), mean scores (Mean), standard deviation (Std. Deviation), standard error of the mean (Std. Error), observed minimum and maximum values, and the 95 percent confidence range for the mean. These statistics are provided for each of the three dimensions measured, delineated by the educational level of the participants. In terms of educational level, group 1 stands for no gymnasia education, group 2 stands for high school education, group 3 represents participants with bachelor, group 4 represents participants with master degree and group 5 represents doctoral studies.
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Table 1. Descriptive statistics for self-efficacy, introversion, and agreeableness as a function of education level.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>95% CI for Mean</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy</td>
<td>1</td>
<td>131</td>
<td>34.40</td>
<td>5.041</td>
<td>.440</td>
<td>33.53</td>
<td>35.28</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>33</td>
<td>35.39</td>
<td>4.569</td>
<td>.795</td>
<td>33.77</td>
<td>37.01</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>14</td>
<td>35.07</td>
<td>3.174</td>
<td>.848</td>
<td>33.24</td>
<td>36.90</td>
<td>29</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>57</td>
<td>34.42</td>
<td>5.355</td>
<td>.709</td>
<td>33.00</td>
<td>35.84</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>21.00</td>
<td>12.124</td>
<td>7.000</td>
<td>33.77</td>
<td>37.01</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>238</td>
<td>34.42</td>
<td>5.269</td>
<td>.432</td>
<td>33.74</td>
<td>35.09</td>
<td>10</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Introversion</td>
<td>1</td>
<td>131</td>
<td>13.82</td>
<td>4.967</td>
<td>.434</td>
<td>12.96</td>
<td>14.68</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>33</td>
<td>12.88</td>
<td>5.661</td>
<td>.985</td>
<td>10.87</td>
<td>14.89</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>14</td>
<td>10.29</td>
<td>4.322</td>
<td>1.155</td>
<td>7.79</td>
<td>12.78</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>57</td>
<td>11.42</td>
<td>4.953</td>
<td>.656</td>
<td>10.11</td>
<td>12.74</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>11.33</td>
<td>8.083</td>
<td>4.667</td>
<td>8.75</td>
<td>13.41</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>238</td>
<td>13.82</td>
<td>5.163</td>
<td>.243</td>
<td>12.21</td>
<td>13.33</td>
<td>3</td>
<td>21</td>
<td></td>
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<tr>
<td>Agreeableness</td>
<td>1</td>
<td>131</td>
<td>18.44</td>
<td>2.779</td>
<td>.243</td>
<td>17.95</td>
<td>18.92</td>
<td>10</td>
<td>21</td>
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<tr>
<td></td>
<td>2</td>
<td>33</td>
<td>17.12</td>
<td>3.822</td>
<td>.665</td>
<td>15.77</td>
<td>18.48</td>
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<td>3</td>
<td>14</td>
<td>17.14</td>
<td>2.381</td>
<td>.636</td>
<td>15.77</td>
<td>18.52</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>57</td>
<td>17.04</td>
<td>3.515</td>
<td>.466</td>
<td>16.10</td>
<td>17.97</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>16.67</td>
<td>3.215</td>
<td>1.856</td>
<td>8.68</td>
<td>24.65</td>
<td>13</td>
<td>19</td>
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<tr>
<td>Total</td>
<td>238</td>
<td>17.82</td>
<td>3.162</td>
<td>.205</td>
<td>17.42</td>
<td>18.22</td>
<td>8</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

Note: This table displays descriptive data for self-efficacy, introversion, and agreeableness in five groups. It contains the number of participants (N), average scores, standard deviations, standard errors, 95% confidence intervals for the mean (lower and upper bounds), and the range of scores (minimum to maximum). The data illustrate the variability and distribution of scores within each construct and across different groups.

Mean scores on the self-efficacy dimension vary by level of education, with the highest means observed at levels 2 and 3 (35.39 and 35.07, respectively). We see a dramatic drop for level 5, with an average of 21.00, which is well below average compared to the other groups. However, the large standard deviation and very small sample size (N=3) at level 5 suggest that they are unrepresentative. The mean scores on the introversion dimension decrease as the level of education increases, indicating that people with a higher level of education may be less introverted. However, it is worth noting that level 5 has a similar mean to level 1, which may suggest that there is individual variability. Mean agreeableness scores are relatively constant across education levels 1–4, but decline slightly at level 5. This decline is again difficult to interpret due to the very small sample size for level 5.

Psychologically, the data suggest that there is a relationship between education level and certain personality traits or psychological dispositions. Education and the experiences associated with it can influence how people see themselves (self-efficacy), how they interact with others (introversion), and how kind and cooperative they are (agreeableness). However, without
deeper statistical analysis and more data, interpretations should be viewed with caution.

To determine whether these differences are statistically significant, we will conduct an analysis of variance (ANOVA) to analyze the differences between education levels. Table 2 provides information on the statistical significance of differences between education levels for each of the psychological dimensions assessed.

Table 2. Differences in psychological dimensions (Self-efficacy, Extraversion, Agreeableness) depending on the level of education.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-Efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>577.560</td>
<td>144.390</td>
<td>5.605</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>233</td>
<td>6002.259</td>
<td>25.761</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>237</td>
<td>6579.819</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Introversion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>337.682</td>
<td>84.420</td>
<td>3.289</td>
<td>.012</td>
</tr>
<tr>
<td>Within Groups</td>
<td>233</td>
<td>5980.537</td>
<td>25.668</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>237</td>
<td>6318.218</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Agreeableness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4</td>
<td>111.207</td>
<td>27.802</td>
<td>2.869</td>
<td>.024</td>
</tr>
<tr>
<td>Within Groups</td>
<td>233</td>
<td>2258.024</td>
<td>9.691</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>237</td>
<td>2369.231</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This table presents the results of the Analysis of Variance (ANOVA) examining the differences in self-efficacy, introversion, and agreeableness across different groups. The table includes degrees of freedom (df), sum of squares, mean square, F-value, and significance level (Sig.). Significant F-values indicate differences between groups for the respective variable.

The study found a significant difference in self-efficacy across education levels (F(4, 233) = 5.605, p < 0.001). This suggests that education level can impact self-efficacy, and the outcome is unlikely to have occurred by accident. It is worth noting that there is a significant difference in introversion between education level groups (F(4, 233) = 3.289, p = 0.012). This finding implies that an individual's level of introversion is influenced by their amount of schooling. There is a significant variation in agreeableness across educational levels (F(4, 233) = 2.869, p = 0.024).

This finding implies that people's levels of agreeableness can be influenced by their amount of schooling.

Discussions

The previously presented analysis highlights a link between education level and various psychological dimensions such as self-efficacy, introversion and agreeableness. These findings are consistent with the literature, indicating that education plays a vital role in the development and adaptation of individuals' personality traits and psychological dispositions. The observation that levels of education are associated with significant
variation in self-efficacy is consistent with Bandura's (1997) self-efficacy theories, which suggest that learning experiences and task success can influence individual perceptions of self-efficacy (Bandura, 1997). Bandura's book "Self-Efficacy: The Exercise of Control" highlights the significance of positive learning experiences in the formation of self-efficacy beliefs (Bandura, 1997). Our results are consistent with this theory, which show the highest means of self-efficacy at intermediate levels of education (2 and 3), suggesting that the accumulation of knowledge and skills can enhance self-efficacy. The decrease of introversion with increasing education level can be explained by Eysenck's theory (1991), which associates introversion with sensitivity to stimulation (Eysenck, 1991). According to this theory, education and exposure to various social and academic contexts can provide individuals with the necessary mechanisms to manage and regulate stimulation levels, thereby leading to a decrease in introversion. The results indicating a similar mean of introversion across extreme levels of education suggest that individual and contextual factors may modulate this relationship. The relative stability of agreeableness scores on education levels 1-4, followed by a slight decrease at level 5, can be interpreted in light of the work of Graziano and Eisenberg (1997), which examines the association between agreeableness and social success (Graziano et al., 1997). Advanced education may require and develop complex cognitive and social skills, which in turn may influence the behavioral expression of agreeableness. However, the small sample size for level 5 calls for caution in interpretation.

In addition to our findings, education not only shapes academic knowledge, but has a profound role in cultivating and refining social skills, such as empathy and communication, which are crucial for the manifestation of agreeableness in interpersonal relationships' (Gemene et al., 2018). This viewpoint is consistent with our findings, which show a positive relationship between education level and agreeableness, implying that educational background plays a substantial role in the development and presentation of positive personality characteristics in social and professional situations.

Conclusions and limitations

The analysis revealed a significant relationship between education level and personality traits such as self-efficacy, introversion and agreeableness. These findings emphasize the significance of education as an important aspect in the growth and adaptability of individuals personality. Education, by its multidimensional nature, provides a series of experiences and interactions that contribute to the shaping of a person's psychological dispositions. The finding that self-efficacy varies by level of education suggests that success and skills
acquired during education can strengthen an individual's conviction in himself or herself own abilities. This aspect is crucial for personal development, as high self-efficacy is associated with better psychological adjustment, resilience, and academic and professional performance. The relationship between education and introversion also provides interesting insight into how exposure to various social and academic contexts can influence introverted tendencies. Education can provide the means to manage social stimuli and encourage the development of communication and social interaction skills. Establishing a link between education and agreeableness indicates that educational environments promote the development of positive social traits such as cooperation, kindness, and empathy. These traits are essential for success in interpersonal and professional relationships.

While our research offers valuable insights into the correlation between education and personality traits, it is imperative to acknowledge certain limitations. These include the small sample size for level 5 education, potentially rendering the obtained results unrepresentative and limiting their generalizability to the broader population. Additionally, a call for more comprehensive statistical analyses arises, necessitating the inclusion of complex methods to control for potential confounding variables, ensuring a thorough understanding of the intricate relationships between education and personality traits. Moreover, the individual variability and nuances within educational contexts were not fully addressed in our study, warranting further exploration to elucidate their impact on the observed correlations. Furthermore, the cross-sectional methodology employed in this study poses challenges in establishing robust causal relationships between schooling and personality characteristics. Longitudinal research endeavors may offer a more nuanced understanding of the dynamic interplay between education and personality development over time.

Our findings highlight the fundamental role of education in shaping personality traits and underscore the need for continued research in this area. Addressing the aforementioned limitations and expanding future research can contribute to a deeper and more nuanced understanding of the impact of education on personal and social development.

Theoretical and practical implications

The findings of the study indicate a substantial correlation between education level and personality traits such as self-efficacy, introversion and agreeableness. These findings have important implications for existing psychological theories about personality development and the effects of education. In the context of self-efficacy theories, our results extend the
understanding of the mechanisms by which education influences individual beliefs about one's own competence. According to Bandura (1997), successful experiences in specific tasks can strengthen self-efficacy, and our findings suggest that this process may be mediated by educational attainment (Bandura, 1997). Regarding introversion, the results indicate that education may serve as a mitigating factor for introverted tendencies, possibly through exposure to diverse social and academic environments. This could be seen in the light of Eysenck's (1991) theory of personality, which associates introversion with sensitivity to stimulation. Education could provide coping strategies that enable individuals to better manage stimulation, thereby reducing introversion (Eysenck, 1991). The theoretical implications also extend to the understanding of agreeableness. The stability of agreeableness across education levels 1–4, followed by a decline at level 5, may suggest that educational structures promote positive social traits, but that there is an inflection point where the effects may become more complex or less predictable.

Additionally, the exploration by Watkins Jr et al. (2021) of roadblocks and remedies in developing self-efficacy research offers valuable recommendations for practice, while Viscu et al. (2017) contribute insights into the role of emotional intelligence in online learning contexts, enriching our understanding of individual differences in educational settings. Moreover, (Dughi & Ianc, 2022; Edward Watkins Jr. et al., 2022; Dughi & Bold, 2022; Nave & Roman, 2019; Rad et al., 2023) delve into students’ self-efficacy and problematic self-efficacy inferences.

These findings highlight the need of including psychological concerns into educational program design and execution. For educators and educational psychologists, understanding how different levels of education influence personality traits could improve pedagogical strategies by tailoring them to maximize students’ personal development. For example, educational programs aimed at strengthening self-efficacy could be designed with greater attention to successful experiences and positive feedback, especially at the initial levels of education. In addition, the integration of activities that promote social interaction and the development of communication skills could help alleviate introversion, especially for students at higher levels of education. In terms of agreeableness, the results suggest the need for educational environments that promote empathy, cooperation, and mutual respect, essential traits for interpersonal and professional success. This is particularly relevant in light of the slight decline in agreeableness observed at the highest level of education, which may indicate the need for adjusted pedagogical approaches to maintain and develop these positive traits.
Our research adds to the literature by investigating the association between education and personality characteristics and provides a basis for further development of educational theories and practices. It is important that future research continue to explore these complex dynamics, with particular emphasis on longitudinal designs and analyzes that can provide a deeper understanding of causality and underlying mechanisms.

References


