Big-Five Personality Traits and Cognitive Skills in Higher Education in the Pandemic Context

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Abstract: The SARS-Cov-2 pandemic created a severe psychosocial and medical shock all over the world. For more than a year, humanity struggled with adjusting to different measures that governments imposed on the population worldwide. Educational systems all over the world were forced to comply with the new conditions of activity. In this context, different reactions emerged, and skills were used and developed. The coronavirus pandemic was and still is a stressful worldwide event that disrupted, among numerous other things, the everyday life of professional activities and the manner of their deployment. This study aims to investigate the relationship between variables like: analytical reasoning, text comprehension, detail perception, conscientiousness, emotional stability and autonomy. A sample of 327 students from Ovidius University of Constanta, aged between 19 and 50 years, were assessed using Cognitrom Assessment System. Results show that: (1) there is a positive correlation between analytical reasoning, text comprehension and detail perception; (2) analytical reasoning positively correlates with conscientiousness and emotional stability; (3) text comprehension correlates with emotional stability; and (4) detail perception has no significant correlation with any of the studied personality traits. Results are interpreted and discussed in the end of the article, in relationship with the use of these intellectual skills and personality traits in the context of the Covid-19 pandemic, especially by certain population categories which had to use the online environment for their regular professional activities.

Keywords: *Analytical reasoning, text comprehension, detail perception, Big-Five personality traits.*

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1. Introduction

On March 11th 2020, the coronavirus (COVID-19) disease was declared as a pandemic (Cuccinotta & Vanelli, 2020). Almost one year later, people around the world are still fighting and coping with the COVID-19 pandemic: globally, on 17th of February 2021, WHO reported 109,068,745 confirmed cases of COVID-19, including 2,409,011 deaths.

It is easy to acknowledge that the COVID-19 pandemic created the optimal conditions for persistent emotional distress (Besser, Flett, Nepon & Zeigler-Hill, 2020) and the most severe economic meltdown in a century (Jeronimus, 2020).

Although all fields of activity were severely disrupted by the pandemic, this article is especially preoccupied with higher education and the incorporation of online opportunities in the educational process.

The impact of E-learning on education has been a theme of interest for many researchers in the changing postmodern approach, mainly because more and more educational institutions rapidly incorporate different online opportunities (Collins & Zacharakis, 2010). This fact raises, on one hand, the challenge of creating a quality learning experience for students. On the other hand, for a successful learning process, not only the educational framework is important, but also the skills of the learners in the online context. Thus, for a better understanding of the context we shall discuss, in the following sections, the main points of interest for this study.

2. The COVID-19 pandemic and its emotional effects. A brief description

The COVID-19 pandemic and the resulting economic recession have negatively affected many people's mental health (Panchal, Kamal, Cox & Garfield, 2021). During this on-going health crisis, people affected by emotional, behavioural and psychiatric disorders seem to be even more numerous than those affected by COVID-19 (Pedrosa, Bitencourt, Fontoura Fróes, Barreto Cazumbá, Campos, Camilo Soares de Brito, & Simões e Silva, 2020).

Particularly vulnerable groups appear to be frontline healthcare workers, elderly people, children, college students, the LGBTQ+ community, homeless individuals and those in economic vulnerability, rural community, foreigners and psychiatric patients (Holmes, O'Connor, Perry, Tracey, Wessely, Arseneault, Ballard, Christensen, Cohen Silver, Everall, Ford, John, Kabir, King, Madan, Michie, Przybyliski, Shafran, Sweeney, Worthman, Yardley, Cowan, Cope, Hotopf & Bullmore, 2020).

There are many factors that can be asserted of having a connection with the causes of the psychological distress during the pandemic. Specific governmental rules and recommendations (like social distancing, frequent disinfection of the hands, and lesser use of public transportation, avoiding meetings with family and friends or larger crowds), financial losses or feeling less secure in public spaces are distressful factors, but their consequences in terms of emotional, cognitive and social reactions may vary depending of people's personality traits (Asselmann, Borghans, Montizaan & Seegers, 2020).

Liu, Lithopoulos, Zhang, Garcia-Barrera & Rhodes (2020) discovered that higher neuroticism and extroversion were associated with higher levels of stress during the pandemic. Their findings highlighted that personality traits could be an important factor in identifying stress-prone individuals during a pandemic and that stress management interventions need to be personality specific.

Guo, Sims, Qin & Yang (2021) discovered that female gender, not being married, practicing social distancing, the amount of time spent on social media in search of COVID-19 information, the number of confirmed cases in the city of residence, friends, family or acquaintances confirmed or suspected of COVID-19 are positively associated with psychological distress. Having homes with no outdoor spaces, poor perception of health, the number of symptoms, having been in contact with contaminated people or material are also related with psychological distress, as well as working away from home or being self-employed (Ruiz-Frutos, Ortega-Moreno, Allande-Cussó, Domínguez-Salas, Dias & Gómez-Salgado, 2021).

The emotional consequences of these stressors can be seen in many scientific studies, many of them very recently conducted in countries all around the globe: anxiety and depression (Wang, Palanichamy Kala, & Jafar, 2020), restlessness, fearfulness, anxiety, worry and sadness (Gautam, Adhikari, Gupta, Shrestha, Koirala & Koirala, 2020), insomnia, denial, stigma, anger and fear (Karpenco, Syunyakov, Kulygina, Pavlichenko, Chetkina & Andrushchenko, 2020).

3. The COVID-19 pandemic and its effects on Higher Education

The COVID-19 pandemic, as we all know, does not only affect the global health system and services, but also has severe impacts on human and social life, including employment, education, agriculture and the other spheres of the world economy (Bania & Banerjee, 2020). Last year, in March, UNESCO stated that over 850 million children and youth had to stay away from schools and universities (UNESCO, 2020a). One month

later, on the 29th of April, the same organization increased the number of learners still affected by school or university closures to 1.3 billion (UNESCO, 2020b).

Although University campuses are places of proximity and professional activity, true cultural hubs where people are brought together for learning, sharing experiences and best practices, the COVID-19 pandemic has seriously affected this ecosystem all around the world.

Governments were forced to cancel classes and to switch the entire activity in the online environment, situation which is a long-term disruption to the higher education system. Universities across Romania have adjusted their programs in response to the spread of the coronavirus, but I have to admit that moving all programs online proved to be a challenging endeavour. The challenges the educational system had to face regard pedagogical tensions, the discourse of online teaching or issues of social justice (Bania & Banerjee, 2020). Furthermore, this shift from face-to-face classes to online learning systems brings to focus the use of eLearning tools and platforms for effective student engagement which may have limitations of accessibility and affordability for many students (Rashid & Yadav, 2020). An IAU Global Survey Report (Marinoni, van't Land & Jensen, 2020) also emphasized that the main challenges of this shift to online education are access to technical infrastructure, competences and pedagogies for distance learning and the requirements of specific fields of study. There have never been so many students and staff exposed to online learning and teaching (EUA, 2020). Thus, we can suppose that this may be an opportunity to make a major leap in terms of digital take-up, as well as a general transformation of learning and teaching. For the Romanian educational system, it surely was, given the fact that in our schools and universities, a traditional approach of the learning process and management still unfolds. Furthermore, The Romanian National Council for the Financing of Higher Education statistics show there were 459,899 Romanian students for the 2019/2020 academic year (Edelhauser & Lupu-Dima, 2020). All these students were introduced to online teaching and learning, initially as a recommendation in March 2020, and afterwards, in April 2020 it became compulsory for the educational system to ensure continuity of learning during the outbreak (CEDEFOP, 2020).

Furthermore, the Romanian Ministry of Education and Research launched an online platform, digitaleducared.ro, providing a digital space for teachers willing to use the new digital technologies in their activity. Online workshops, training sessions, learning materials and tutorials were provided

in order for teachers to be trained and to support them in design, implement and manage these technology-assisted activities.

As it can be seen, projecting an educational context that in some way replicates the spirit of the curriculum paradigm in the context of the new technologies requires the finding of suitable and sustainable solutions for all the particular challenges of these new technologies (Soare, 2013). The author suggests that the challenges mainly refer to the problem of efficiency and pedagogical value of the methods and contents of the eLearning paradigm.

It has been suggested that the rise of eLearning technologies in all sectors of education have a series of benefits, like accelerating global competition, increasing the quality of learning experiences, removing situational barriers and being more cost effective (Hanuka, 2008).

Curricular design of the educational context, management of eLearning instruments, structure of contents and didactic strategies, delivery methods, teacher's competences or specific traits of the learners and the characteristics of the learning process specific of eLearning should be taken into account.

Thus, it has been previously suggested that the implementation of these new technologies in the educational process has not always been complemented by the increase of effective professional development for teaching staff (Beastall, 2006) and further solutions to the gaps in the professional development are needed.

In the context of the new situation imposed by the COVID-19 pandemic, Ovidius University of Constanta also implemented online platforms (like Zoom, Cisco Webex Meetings, Moodle, etc.) and tried to make sure that both teachers and students were provided with the support and counselling of the IT departments in order for the entire activity to be conducted appropriately. The beginning of the new university year proved to be as challenging. The University approached an online admission process for the candidates, and Microsoft Teams platform was implemented for all our students. This required new sessions of training for both teachers and students, tutorials and consistent reading and discovering of the platform's options. This process put a lot of pressure on both students and teachers, especially students over 30 years of age and teachers over 50. The biggest challenge was the development of the digital skills needed for operating with MS Teams.

4. Cognitive skills and Big-Five personality traits

As a successor of the industrial society, the information society of the 21st century implies significant social transformation and new skills and

competencies from its citizens (Tejedor, Cervi, Pérez-Escoda & Jumbo, 2020). Universities developed innovative programs, but only the introduction of the new educational technologies is not enough to improve teaching and learning outcomes (Jonas-Dweyer & Pospisil, 2004). Technical competences for using information and communication technologies are needed for achieving success in the digital age (Martin, 2006).

There are opinions that suggest there is a gap between higher education and 21st century skills (Prensky, 2001) and thus, adaptations are needed. Prensky's paper highlights how students today think and process information fundamentally differently from their predecessors, as a result of being surrounded by new technology. This is one of the main reasons for choosing a particular set of cognitive skills for this research. The digital skills required by the information society include critical thinking and reasoning, selection, creation, collaborative learning, self-regulated learning, analysing evidence, active engagement, communication, problem solving (Tejedor et al., 2020).

Some of the skills that these digital competences are based on are the analytic reasoning, text comprehension and detail perception.

When someone concludes something from a set of premises, based on logic, this task involves reasoning. Reasoning is thus included in decision making, and it is a procedure through which new information is obtained, based on the combination of other existing information (Sternberg, 1977). Analytical reasoning is the capacity of an individual to discover new rules and to use these rules to solve problems. Analytical tasks are highly related to intelligence (Lee, Huggins & Therriault, 2014).

Analytical reasoning consists in both inductive and deductive reasoning (Miclea, Porumb, Cotârlea & Albu, 2009). Inductive reasoning implies selective encoding (distinguishing between relevant and irrelevant information), selective comparison (the decision regarding which of the pieces of information the person holds are relevant for solving a problem) and selective merge (mixing up the encoded pieces of information). Deductive reasoning is based on mental models that a person elaborates in order to predict behaviour (Johnson-Laird, 1999). The important process in deductive reasoning is the identification of the way in which the selective merge can be made.

Text comprehension is the skill to derive the adequate meaning of words or expressions from read texts and to combine the information into inferences (Miclea et al., 2009). Thus, comprehension is related to the reader's skills, to the active processing of the information and to the systematic integration of the linguistic elements into the text as a whole.

Thus, text comprehension is the result of a vast network of inferences that the reader produces while reading a text.

Detail perception is the ability of perceiving pertinent details from objects or graphic materials (Miclea et al. 2009).

Conscientiousness is defined as the propensity to follow socially prescribed norms for impulse control, to be goal directed, to plan, and to be able to delay gratification (Roberts, Jackson, Fayard, Edmonds & Meints, 2009). These authors also state that, in a more general approach, conscientiousness is the tendency to think, feel, and behave in a relatively enduring and consistent fashion across time in trait-affording situations. Conscientiousness refers to the level of organisational skills, persistence, and an individual's motivation in goal-oriented actions (Costa & McCrae, 1992). I selected this trait for the study because, in academic context, conscientiousness is often found to predict academic outcomes (MacCann, Lee Duckworth & Roberts, 2009).

Emotional stability is understood as an individual's lack of susceptibility to experiencing negative emotional states, such as fear, anger, irritation, or guilt (Pollak, Dobrowolska, Timofiejczuk & Paliga, 2020). I felt important to study this trait in relationship with the other personality dimensions that I mentioned before because reading and watching TV news during the pandemic I witnessed a lot of reports about people literally freaking out during the isolation period and afterwards, because of the different types of restrictions they had to adjust to. A study conducted by Flesia, Monaro, Mazza, Fietta, Colicino, Segatto & Roma (2020) showed that higher rates of emotional stability (alongside self-control, a positive coping style and internal locus of control), emerged as a protective factor during the pandemic.

And last but not least, autonomy was and still is one of the most heavily eroded personality traits during the pandemic, because of the social distancing policies and the restrictive measures undertaken by governments. Qualitative studies consistently report that older adults value cognitive autonomy, functional independence and meaningful engagement in community activities (Ho & Neo, 2021; van Leeuwen, van Loon, van Nes, Bosmans, de Vet, Ket, Widdershoven & Ostelo, 2019). Thus, autonomy is an important part of the perceived quality of life, which expresses a certain degree of freedom and uninfluenced decision making capacity (Șchiopu, 1997). In other words, autonomy is someone's the self-governing skill in terms of psychological, moral, behavioural and cognitive reactions.

5. Objectives and Hypotheses

This is a correlational study and its main objective is the identification of the relationship between the assumed variables: analytical reasoning, text comprehension, detail perception, conscientiousness, emotional stability and autonomy.

The hypotheses I tried to statistically validate are:

H1: We presume there is a significant correlation between cognitive skills (analytical reasoning, text comprehension and detail perception).

H2: We presume there is a significant correlation between cognitive skills and personality traits (conscientiousness, emotional stability and autonomy).

6. Sample and Instruments

The sample consisted in 327 students from Ovidius University of Constanta, aged between 19 and 50 years. 29.66% (97 subjects) were male, and 70.33% (230 subjects) were female, 84.40% (276 subjects) are residents of urban areas and 15.59% (51 subjects) are residents of the rural areas in Constanta County. As it can be seen, I used a heterogeneous sample.

Convenience sampling and online self-reporting were used, since the assessment was conducted in March-August, 2020. All the instruments were sent via Google Forms. Ethical aspects of the research were covered by the fact that all subjects gave their consent to participate in this study.

I used Cognitrom Assessment System (CAS++), the tests for analytical reasoning, text comprehension and detail perception (general ability of learning), and Five-Factor Personality Inventory (FFPI) for the personality traits.

7. Results

The first hypothesis presumed there is a significant correlation between cognitive skills (analytical reasoning, text comprehension and detail perception). The statistical analysis made in SPSS 2.0 showed the following results:

Table 1. Spearman's rho correlations between cognitive skills

Cognitive skill	Analytical reasoning	Text comprehension	Detail perception	N	Sig.(2-tailed)
Analytical reasoning	1.000	.295**	.425**	327	.000
Text comprehension	.295**	1.000	.215**	327	.000
Detail perception	.425**	.215**	1.000	327	.000

The results from Table 1 sustain the statistical confirmation of the hypothesis, for $p=.001$.

The second hypothesis presumed there is a significant correlation between cognitive skills and personality traits. The statistical analysis made in SPSS 2.0 showed the following results:

Table 2. Spearman's rho correlations between cognitive skills and personality traits

Personality traits/ Cognitive skill	Conscientiousness	Emotional stability	Autonomy	N
Analytical reasoning	.194**	.137*	.091	327
Text comprehension	.083	.224*	.096	327
Detail perception	.095	-.023	-.040	327

The results from Table 2 show that analytic reasoning positively and significantly correlates with conscientiousness ($p=.000$) and emotional stability ($p=.013$), text comprehension positively and significantly correlates with emotional stability ($p=.000$), and no significant statistical correlation was found between detail perception and any of the studied personality traits.

8. Discussion

The context of this research was provided by the fact that the second term of last year occurred under strict lockdown rules and with a very sudden shift from face-to-face activities to online learning platforms. It was a stressful period, for both students and teachers, in which all of us had to adjust to remote education. A survey I conducted then showed that our students were dealing with anxiety regarding the ending of the academic year and had difficulties in adjusting to the online platforms we had to use, because of the lack of digital skills (Sălceanu, 2020). They also stated that they felt that a very large part of the learning management passed from their teachers in their own responsibility, and many faced the challenge of self-managing their learning time and materials. Although we provided bibliography, the courses, different video materials and extensive support in using the online platforms (by tutorials and trainings), this was a difficult time, since not all students reported confidence in applying this new knowledge in their activity.

The quantity of homework increased in almost every field of study, under the pressure of having to prove the activities were conducted as normal as it was possible, and this put another pressure on both students and teachers. This triggered the resentment of our students and was a dissatisfaction factor. It was a pretty chaotic and stressful period for all of us, since many of the information sent to students came via written materials. Many of our students are also working and because they were not always able to participate in every online class, they had to understand the requirements in almost every discipline from the written documents they received. This new context put to the test their cognitive skills and endurance.

I already stated that analytical reasoning is part of critical thinking and inference-making processes (Limbach & Waugh, 2010). Reasoning process is based on the way the schemes organize knowledge about people, places, events, processes and concepts (Aloqaili, 2012). The schemes are used in interactive approaches of learning materials in which students use different techniques for processing the text they're reading and make decisions, inferences and activate prior knowledge (Orbea & Villabeita, 2010). In other words, the comprehension of a text implies constant interactions between what the reader knows from previous experience and information and what he currently reads. The two cognitive skills sustain one

another in different tasks that an individual has to solve. Thus, text comprehension involves both basic and higher cognitive processes (Fletcher, Lyon, Fuchs & Barnes, 2009) from decoding and understanding the meaning of the word syntax to metacognitive strategies, sensitivity to the text structure and inference. Studies show that students with strong textual understanding, critical thinking and analytical reasoning skills have a better academic performance (Polvani Trassi, de Oliveira & Monteiro Inácio, 2019).

Detail perception is a cognitive skill that our students use in the process of comparing, identifying resemblances or differences in graphic materials or images. Again, due to the fact that during the state of emergency, students very often received written materials with recommendations, and sometimes, the same document had multiple versions, this skill proved to be used on a daily basis in the learning activity. Thus, analytical reasoning is based, among others, on an accurate perception of details. Critical thinking depends on the individual being taught to pay attention and to notice details, fact that in some fields of work proves to be a crucial professional skill (Benner, Hughes & Sutphen, 2008). Of course, the usefulness of this skill is not limited to the analysis of different documents that students receive, but I observed better its use during the remote education period.

Detail perception has a close relationship with the use of the right hemisphere of the brain, which is in charge of understanding spatial relations among objects, recognition and processing of complex visual patterns, precise perception, memory and recognition of abstract forms (Mildner, 2010). The author emphasizes that analytical reasoning has connections with the left cerebral hemisphere, which operates in a more logical way, analysing the stimulus sequentially, extracting relevant details and giving them verbal labels. Thus, the two skills support one another in a task of decision making or problem solving. While the right hemisphere is capable of storing and producing drawings and patterns that are acceptable as a whole, but lack in details (Mildner, 2010), the left hemisphere is the one that provides those details, but without these details making any sense as a whole.

The third significant correlation I obtained involves text comprehension and perception of details. By definition, perception allows the organization, identification and interpretation of sensory information, in order for an individual to represent and understand the environment (Tourimpampa, Drigas, Economou & Roussos, 2018). The authors state that

cognitive perception affects text comprehension. One parameter they describe is the mental model formed by the human brain in the process of understanding a discourse or a text. This model is based on mental representation in relation with the information contained in the text (Zwaan, 2016). Zwaan, Langston & Graesser (1995) also state that readers create an event indexing model. In the authors' opinion, events are basic points in the model, connected to time, space, protagonist, causality and intentionality.

Our results are also supported by a study conducted by Çayır (2017) in which a positive relation between visual perception skills and reading levels was found. Students with better scores in reading speed and reading comprehension also had higher scores in perception skills. Furthermore, it has been shown that reading is heavily text-driven for young readers (Jian, 2016), while strategy instructions for reading illustrated texts promote reading comprehension and change learning processes for older readers (Jian, 2018).

Regarding the correlation between cognitive skills and personality traits, I discovered that analytical reasoning positively correlates with conscientiousness and emotional stability, and text comprehension with emotional stability.

Conscientiousness was important for me to study, in relationship with cognitive skills because of a study that I found, that suggested that when exposed to a report about coronavirus, people (especially men) become less attentive to the task (Karwowski, Groyecka-Bernard, Kolaw & Sorokowski, 2020). By not putting enough cognitive effort into completing the task, by opting to give any reasonable answer to the problem, this suggests that people may be less capable of finding the right solution to the problem. The authors state that this may very well be related to the motivation of engaging the thinking process, but it still makes the point that people tend to become more ignorant of the task by perceiving it as less important. In my teaching practice during the pandemic I observed that sometimes students tend to be distressed by the extent to which the great number and simultaneity of online activities invaded or lives since last March. This distress or, maybe sometimes even boredom, was obvious from time to time in the homework they uploaded on the platforms or in their attitudes in online classes.

Conscientiousness has been found to correlate positively with verbal reasoning (crystallized intelligence), and significantly negatively with abstract reasoning (fluid intelligence), according to Moutafi, Furnham & Paltiel

(2004). While fluid intelligence is the ability to solve novel reasoning problems and is correlated with skills such as comprehension, problem solving, and learning (Unsworth, Fukuda, Awh & Vogel, 2014), crystallized intelligence involves the ability to deduce secondary relational abstractions by applying previously learned primary relational abstractions (Cattell, 1987). Other studies that provide statistical and electroencephalographic evidence show that academic performance can be predicted by conscientiousness (Wang, Zhao, Li, Wang, Luo & Gong, 2019). Very interestingly, studies show that careful, organized, hardworking, persevering and achievement-oriented students may also have lower intellectual ability, which suggests that individuals increase their conscientiousness in competitive academic settings to compensate for the relatively lower fluid intelligence (Furnham, Chamorro-Premuzic & McDougall, 2003).

My results show that people who respect norms and rules, which are organized and plan their actions, who strive to do things right and are trustworthy are also able to identify logical regularities and to apply those rules in problematic situations. They also show the easiness of combining information from different premises in order to achieve a valid conclusion.

The psychological assessment I made was based on a test that measured both inductive and deductive approach in reasoning. My results show a significant but weak correlation between conscientiousness and analytical reasoning and are supported by other studies, like the one conducted by Kretzschmar, Spengler, Schubert, Steinmayr & Ziegler (2018) which shows similar statistical results. The differences between different results presented by different other studies suggest that there is no single personality-intelligence relation and that the magnitude of personality-intelligence associations varies across different levels of these hierarchical constructs.

The relationship between analytical reasoning and emotional stability may be explained through arguments like the fact that components of wisdom, like reasoning and emotional homeostasis require an interaction of both cognitive and emotional abilities (Williams & Nusbaum, 2016). Basically, emotional regulation, and thus emotional stability, involves a cognitive regulation of emotional appraisal.

It is widely recognized that emotions influence decision making and reasoning. If people think positively, are optimistic and regulate their emotions, and have trust in their own possibilities, are also capable of identifying causalities and logical connections in solving different problems.

An experiment conducted by Jung, Wranke, Hamburger & Knauff (2014) argued that emotions have a clear effect on reasoning performance. Participants in negative mood performed worse than participants in positive mood, but both groups were outperformed by the neutral mood subjects in logical reasoning tasks. Further evidence is brought by Oaksford, Morris, Grainger & Williams (1996) who state that the effect of emotion on reasoning might be due to the fact that emotion results in representations in working memory that occupy the same subsystems that are also needed for reasoning.

It was important for me to make this correlation because of all the well-documented psychological reactions to the coronavirus pandemic that emotional distress, anxiety behaviours, sleeping disorders, fear, anger, depression, health concerns, a sense of powerlessness, and uncertainty (Flesia et al., 2020).

The last significant correlation has been between text comprehension and emotional stability, which means that optimistic, self-confident and self-regulated people are able to detect logical relationships between different elements of the text and to generate an adequate volume of inferences that prove a very good representation and comprehension of a written text.

My results are supported by other experiments showing that interest-enjoyment and task involvement are positively associated with perceived comprehension text recall, while ego-involvement, shame, and hostility are negatively related to these same variables (Ryan, Connell & Plant, 1990).

Autonomy didn't correlate with any cognitive skill and further investigation of the scores obtained in this scale showed mostly medium and high scores at this variable, which means that the subjects are perfectly capable of making their own decisions, are not easily influenced by others, has confidence in his/her own abilities. Autonomous people are assertive; they express their feelings even when they differ from those of others. It came as a surprise that this variable showed no significant correlation with cognitive skills, especially because autonomy has four dimensions, out of which, cognitive autonomy and the independence of decision making and choices is the most important in the context of this study. Further investigation is needed with respect to this variable.

9. Limits of the research

The limits of the research are based on the convenience sampling method used, the fact that due to restrictions and social distancing the

assessment took place by using Google Forms. And, in the end, regarding the research itself, I did not take into account any facets of the factors of the Big Five personality model, especially because of the instrument I used, which only assesses the super-factors. Further investigation should be conducted regarding autonomy and cognitive skills.

10. Conclusion

The study successfully identified the correlations between cognitive skills (analytical reasoning, text comprehension and detail perception) and personality traits (conscientiousness, emotional stability and autonomy), thus ensuring the confirmation of the main objective.

I identified the following results: all assumed cognitive skills positively correlate with one another; analytical reasoning and text comprehension correlate with conscientiousness and emotional stability, text comprehension correlates with emotional stability, and autonomy is not related to any cognitive skills I investigated.

The importance of these skills in the pandemic context described in this article was stressed in many occasions. One of the main sources of inspiration for this study was the empirical observations made during the online classes.

After one year of isolation, social distancing and online classes I observed that more and more negative emotions emerge in both my students and colleagues.

The online and remote education imposed on us the necessity of digital skills and training, in which all these cognitive skills were largely exercised by students. The online activity broadly engaged visual perception skills and implicitly perception of details. The more and more written information that students are provided with engaged text comprehension skills. And, last but not least, analytical reasoning, one of the bases of critical thinking, has been largely put to use both inside and outside of the University in the pandemic context.

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