

REVIEW

by

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of a dissertation on:

***" BEHAVIORAL, SOCIAL AND EMOTIONAL IMPACT OF ONLINE
LEARNING ON CHILDREN WITH AUTISM SPECTRUM DISORDER "***

PhD student: Alexandros Stelios Proedrou F103266

Scientific supervisor: assoc. prof. Margarita Stankova, MD, PhD

for obtaining the degree of Ph.D. in Public Health

The review was prepared in accordance with the Law for the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulation for the Development of Academic Staff of New Bulgarian University for the award of the educational and scientific degree "Doctor".

The PhD student has submitted all the necessary documents for the dissertation defense procedure: curriculum vitae, dissertation and abstract, declaration of originality and reliability of the results and a report on the fulfillment of the scientific metrics according to the minimum national requirements, with 4 publications and a total of 42 points on Indicator D out of the required 30.

The presented text is 152 pages in length and contains an Introduction and 3 separate chapters, with a discussion of each of the two dissertation studies organized in the fourth and final chapter, followed by a conclusion, a description of the contributions, and a list of references used with a total of 292 titles.

1. Significance of the research problem

The World Health Organization describes autism spectrum disorders (ASD) as including impairments in language, communication, and social interaction, along with repetitive and idiosyncratic interests and activities (WHO, 2019). These disorders typically manifest in late childhood (Vogindroukas, Stankova, Chelas, & Proedrou, 2022), resulting in significant social and communication deficits (Vulchanova, Talcott, Vulchanov, Stankova, & Eshuis, 2012) and often persist throughout an individual's lifetime (WHO, 2019).

According to the DSM-5, clinical symptoms of ASD are associated with deficits in everyday functioning in society, the workplace, and other contexts, and they should be present during early childhood development, although they may not become fully manifest until later in life, or if they are enhanced by strategies that the individual learns and adopts later in life.

A number of studies have indicated that computer technology can help children and adults with autism to communicate and express themselves (Bölte et al., 2010), while it also offers new opportunities for interaction, socialisation, occupation and education (Grynszpan et al., 2014).

On the other hand, computer-based education and learning solutions specific to individuals with ASD have generated interest from educators and researchers (Bölte, 2004), while many children and adults with autism claim that online learning and technology are enjoyable and beneficial for them (Odom et al., 2015; Vasquez III et al., 2015).

Also, individuals with ASD may experience difficulties with face-to-face learning, which may affect their ability to cope and achieve academically, even if they are able to manage their responsibilities as students (Gelbar, Smith & Reichow, 2014). Children with autism spectrum disorder may experience distress due to their increased sensitivity to sensory stimuli, unexpected changes in their daily schedule, cancellation of appointments, and difficulties in communication and social integration (Fabri & Andrews, 2016; Jansen et al., 2018).

Online learning programs provide greater flexibility, and asynchronous learning allows learners to interact with the material at their convenience. Asynchronous online programs provide students with autism spectrum disorder (ASD) the opportunity to interact with teachers and classmates in a relaxed environment, potentially leading to reduced stress levels (Biggs & Tang, 2011).

Despite the thorough literature review, and due to the small samples used and the prevalence of pilot studies in this area, especially in Greece, further research is needed, which is what motivated Alexandros Proedrou to investigate the educational process through online technologies of children with autism spectrum disorders in order to find answers and gather the perspectives of the different individuals involved in this process. He accomplished this by undertaking an in-depth study using validated tools for extensive data collection and rigorous statistical multivariate analysis.

2. Aims and objectives of the dissertation, results

The purpose of this dissertation is to explore teachers' attitudes towards the use of computers and online learning, whether they feel confident in implementing it, whether they have positive knowledge and feelings towards the use of computers, and what their self-efficacy rating is, and in parallel the relationships between all these factors are examined. The second part of the study aimed to explore what parents of children with autism thought about online learning, how the child progressed through it and how elements of online learning affected certain factors - such as overall family functioning, perception of the parents' role, family life, the child's symptoms, and the child's development including behavioural, social and emotional status.

Alexandros Proedrou has done excellent work and used international research on the topic of his dissertation. He presents not only a profound level of expertise (especially demonstrated in Chapters 2 and 3) but also an extensive knowledge of the literature he cites. This is evident in the research's deliberate approach to addressing contentious matters in ongoing debates, and particularly in the interpretation of the acquired results. In its conception and execution, Alexandros Proedrou's dissertation is an example of serious scholarship. The introductory part of the thesis outlines its aims and justifies the need to evaluate and analyse the impact of online learning on children with autism spectrum disorders. The theoretical review (Chapter 2) is 68 pages in length and in line with the topic of the paper, initially focusing on a theoretical overview of the diagnosis of autism, including definitions, prevalence, classifications and symptoms, and the impact of autism on the lives of individuals. Direct and indirect interventions for the treatment of autism spectrum disorders are discussed, including behavioral and social-pragmatic approaches, with an emphasis on the role of parents and teachers in the therapeutic process.

The dissertation then reviews the theoretical and historical underpinnings of interventions and therapeutic models, as well as different approaches and their application. The doctoral student makes a smooth transition to online learning, comparing it to traditional learning, evaluating its effectiveness, and examining challenges and opportunities for improvement. In the last two subsections, Alexandros focuses on the preferences of children with autism, the social, emotional and behavioral impacts of online learning, and analyzes interventions for executive function and working memory, the use of virtual reality and cognitive rehabilitation. Chapter three (p. 79-82) is

devoted to the research methodology, and in the introductory section the PhD student briefly describes the theoretical underpinnings behind the research methods he will apply, namely: empiricism, positivism and social constructionism. Here the PhD student also defines the aims and research questions and describes the research design and procedures.

Chapter Four is conventionally divided into three parts, presenting the studies and their results in turn, then discussing them in a separate section where it provides general conclusions and discusses the limitations of the study and suggestions for future research.

The study's contributions are also listed.

3. Relevance of the chosen research methodology to the aims and objectives of the dissertation

Alexandros Proedru combined and analyzed the results of two studies (Chapter IV), and the primary quantitative data of the study were subjected to a strong static treatment with a large number of statistical methods: descriptive statistics, Cronbach's Alpha, Mann-Whitney test, Kruskal-Wallis test, correlation, variance, factor and regression analysis, as follows:

- 1). *Study 1:* 705 teachers from typical schools and schools for children with special needs participated and completed 2 questionnaires as follows: the Greek Computer Attitudes Scale (GCAS) by Roussos (2007) and the Greek Computer Self-Efficacy Scale (GCSES) by Kassotaki & Roussos (2006), processed with SPSS v.25. The aim of the study was to assess teachers' willingness to use technology and computers in teaching, as well as the relationship between attitudes towards computers and self-reported computer use.
4 research questions and 7 hypotheses were posed.
- 2). *Study 2:* 107 parents of children with ASD participated and completed a questionnaire on family experiences and quality of life, as well as the relationship with online tutorials and interventions, processed with SPSS v.26. The aim of the study was to assess parents' views on their family's experience and quality of life, and the impact of online tutoring on different aspects of the functioning of the child with ASD and their family.
4 research questions and 7 hypotheses were posed.

4. Scientific and applied contributions of the dissertation (description and evaluation), including original contributions to science

Alexandros Proedru conducted the two studies from 2021 to 2023. The raw data obtained were processed and analyzed by the PhD student, and the results are illustrated in 33 tables in the thesis.

Correlations and effects from Study 1:

- High positive correlation between self-reported computer use and attitudes towards computers.
- Gender, age, position and ICT training have a significant effect on attitudes and self-assessment when using computers.

Hypotheses 1-4 are confirmed.

Summaries and results of Study 2:

- 40% of children with autism interact with teachers during online learning.
- 40% of parents think their children show improvement thanks to online lessons.
- Most parents find that their children can concentrate during online lessons.
- Online tutoring/interventions for students with autism positively impact the family's experience and quality of life.

Hypotheses 1-4 are confirmed

The assessment of the dissertation's contributions can be found in the thesis itself, specifically on pages 150-151, as well as in the abstract of the work.

The dissertation takes a detailed and extensive look at the effects of online learning for children with autism and includes comments from parents and teachers, but acknowledges its limitations due to convenience sampling, which can make it difficult to generalize the results.

The AFEQ questionnaire translated into Greek showed robust psychometric properties and could potentially be used in future studies for standardization and implementation in the Greek population.

Studies 1 and 2 of this research explore educators' and parents' perspectives on technology-based educational applications for online learning.

The study highlights the lack of data from the children themselves and suggests that future research should include a wider range of participants, including children with ASD, school administrators and policy makers, as well as combining quantitative and qualitative data collection methods to improve understanding and develop effective actionable interventions.

5. Evaluation of publications on the dissertation

The abstract lists four co-authored papers related to the dissertation topic. These works are all found in SCOPUS-refereed journals and have received 24 citations. One of the publications mentioned (Vogindroukas, I., Stankova, M., Chelas, E.-N., Proedrou, A., 2022) has received 18 citations in a SCOPUS refereed journal, excluding citations from the authors themselves. Alexandros Proedrou's extensive and high-quality publications serve as evidence of his expertise as a researcher and his proficiency in collaborating with interdisciplinary teams.

6. Citations from other authors, reviews in the scientific press, etc.

The PhD student has accumulated a total of 24 citations, not including citations from their own publications, all of which are in journals indexed by SCOPUS.

7. Abstract

The abstract is 31 pages long and reflects objectively the structure and content of the thesis. Selectively cited authors are correctly formatted in an independent reference list.

8. Personal qualities of the candidate

Alexandros Proedrou started his academic education in 2009, enrolling at the Athens University of Economics and Business, where he graduated in 2014 with a Bachelor's Degree in Economics with a specialization in Business Economics and Finance. During the last year of his Bachelor's degree, 2013-2014, Alexandros participated in the Teacher Training Program at the same university.

Then, between 2014 and 2016, he continued his studies with a Master's degree in Economics and Business Strategy at the Economics Department of the University of Piraeus. In 2018, Alexandros joined an inter-institutional and inter-departmental Master's program at the Department of Greek Philology of the Democritus University of Thrace and the Institute of Informatics and Telecommunications of the Democritus National Center for Scientific Research. He is pursuing a master's degree with a specialization in information and communication technology and special education, focusing on the psychopedagogy of inclusion, graduating in 2020.

In the same year, 2020, Alexandros started his PhD studies in the Department of Health Care and Social Work at New Bulgarian University. He also continues his education in the field of Educational Sciences, being a Bachelor student at the National and Kapodistrian University of Athens, Faculty of Philosophy since 2021.

I have known Alexandros Proedrou during his PhD studies as an independent trainee in the Department of Health and Social Work since 2020. He is the first PhD student to be accepted into

and successfully finish the thesis defense process in the "Speech Therapy" Doctoral program in English at NBU.

Alexandros stands out not only for his organization, attention to detail, and accuracy, but also for his drive to gain new knowledge and abilities. Furthermore, he demonstrates a strong commitment and dedication to the research he conducts, as well as to the joint publications that result from it.

9. Opinions, recommendations and comments

My overall assessment of the dissertation presented is very high. Interesting results have been obtained that can contribute significantly to the development of online learning for children with ASD. The text is professionally written while being clear and readable. Once again, I would like to draw attention to the fact that the doctoral student has skillfully used various statistical methods to achieve the set goals.

I would recommend the PhD student to continue his research in the direction of standardizing the AFEQ questionnaire in Greece.

The thesis explores the complex and diverse nature of ASD, underscoring the significance of intervening early and implementing tailored educational methods. Examining online learning as a supplementary or substitute educational approach provides an essential understanding of its potential advantages and difficulties for children with ASD. This thesis enhances the existing discussion on improving educational outcomes and quality of life for individuals with Autism Spectrum Disorder (ASD) and their families by combining academic knowledge with practical implementations.

10. Conclusion

The presented dissertation on "*BEHAVIORAL, SOCIAL AND EMOTIONAL IMPACT OF ONLINE LEARNING ON CHILDREN WITH AUTISM SPECTRUM DISORDER*" meets all the requirements formulated in the Bulgarian legislation for awarding the educational and scientific degree "Doctor".

Based on this and on the above-mentioned merits of the presented dissertation, I will vote "for" the awarding of the educational and scientific degree "Doctor" in professional field 7.4. Public health to **Alexandros Stelios Proedrou F103266**.

June 25, 2024
Sofia city

Reviewer:.....
/Assoc. Prof. Polina Mihova, PhD/

