

SOUTH-WEST UNIVERSITY "NEOFIT RILSKI"

FACULTY OF PUBLIC HEALTH, HEALTH CARE AND SPORT

Logopedics Department

REVIEW

OF

DESSERTATION THESIS

for awarding the PhD Degree in the scientific field of 7. "Health and sport", professional area of 7.4.

Public Health, Department of Logopedics, on the topic: "Behavioral, social and emotional impact of online learning on children with autism spectrum disorder "

by **Alexandros Proedrou**

Supervisor: **Margarita Stankova**, New Bulgarian University, Department of Health Care and Social Work

Reviewer: Associate Professor Elka Goranova, PhD

1. Summary data on the candidate's scientific output and activity.

Alexandros Proedrou graduated with a Bachelor's Degree in Economics - Department of Economics - Athens University of Economics and Business Major: Business Economics and Finance in 2014. From 2014 to 2016 he studied in the Master's Programme in Economic and Business Strategy - Department of Economics - University of Piraeus. From 2018 to 2020 he was in the Inter-institutional - Interdepartmental Postgraduate Programme organized by 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: Master Specialization in ICT and Special Education: Psychopedagogy of Inclusion. In 2020 he started his PhD studies at the Department of Health Care and Social Work - New

Bulgarian University. Parallel to this, since 2021 he has started a Bachelor Programme in Educational Studies - National and Kapodisrian University of Athens - School of Philosophy. In recent years he has participated in a number of professional development activities such as certified training programmes. Currently he has been working for the Ministry of Education, Religious Affairs and Sports as an Associate Professor Economist at Special Vocational Education and Training Laboratory, teaching children with ASD, Down Syndrome and mentally disabled.

2. Significance of the research problem in scientific and applied terms.

The International Classification of Functioning, Disability and Health in Children and Adolescents (ICF-CY) in the context of inclusive education is used to assess the functioning and need for additional support of children and students with special educational needs and/or chronic conditions in various domains such as mobility, communication, learning and participation in social and community life. The ICF-CY for children and adolescents was published in October 2007 (WHO, 2007) and has exactly the same structure as the ICF. As a result of the research and use of the ICF-CY with children and adolescents, it is clear that assessing their situation requires more different aspects than the ones with adults, namely to indicate the stages in their personal development, their dependence on others and their living conditions. In the children's version of the ICF-CY environmental factors need to be taken into particular consideration as they reflect on all aspects of child development, especially in terms of the educational environment. The focus is on elements that address the need to assess children and adolescents in an educational context, namely the mental functions of attention, memory and perception, as well as activities involving play, learning, family life and education in different domains. In this context the doctoral dissertation of Alexandros Proedrou submitted for reviewing appears to be a relevant and scientifically significant work according to ICF-CY, namely that it addresses the behavioural, social, emotional and cognitive impact of online learning on children with autism. Teachers are responsible for the functioning and participation of students in their school environment, and for their educational outcomes. And parents are the ones who provide information about all of these components and opportunities to work with children, and collaborate among the various professionals involved in working with children.

3. Degree of knowledge of the state of the problem and relevance of the literature used.

Citing data from the Centers for Disease Control and Prevention (CDC, 2020) and based on data from the Autism and Developmental Disabilities Monitoring Network (ADDM), in 2016, in the Introduction the PhD student provides an answer for his motivation for focusing on the dissertation topic and its significance. The Introduction justifies the need to develop the dissertation topic and concisely presents the essence of the research: purpose, research participants, methods for collecting empirical data, main results and contributions. By extensively examining the published literature on the topic, the author makes a strong claim for in-depth knowledge of the issue of the effectiveness of online learning for children with ASD. Since any kind of learning is at least a two-way process, the development of this paper is a very good attempt to represent more than two parties involved in online learning and therapeutic interventions for children with ASD-teachers, parents, and children with ASD themselves. In the end 2024 approximately 1 in 54 children were projected to have an ASD, which constitutes an almost threefold increase from the levels observed in the year 2000 (1 in 150 children). About 1 in 36 (2.8%) 8-year-old children were identified with ASD in 2020. Some reasons for this increase however may not relate to an actual rise in ASD cases but rather on a heightened awareness regarding the existence of autistic spectrum disorders, improved measurement, classification and diagnosis of ASD, as well as the provision of better reports regarding ASD on a country and global scale (WHO, 2019). Particularly after COVID 19 most of the studies report that it is not autism, but Electronic Screen Syndrome, which overlaps the symptomatology of children with autism. However, it is an undeniable fact that more and more children are demonstrating deficits in learning, communication, behaviour, and socialization in society.

4. Correctness in citing a representative number of authors.

It is evident that Alexandros Proedrou has high skills in dealing with scientific literature, selecting and correctly citing scientific sources. As a positive fact I consider the citation of works and authors published in refereed international journals. Moreover, individual articles as well as systematic reviews and meta-analyses are considered. Not only authors who support the author's thesis are presented, but also those whose results do not fit the general trend or require a larger representative sample to objectively prove the hypotheses. Such an example can be given with authors cited who do not prove that skills learned in interactive computer environments and virtual reality can indeed transfer to real-life situations (Iradah & Rabiah,

2011). The bibliographic reference includes 292 sources in Latin, dominated by sources from refereed scientific databases such as Web of Science and Scopus. No appendices are presented with this dissertation.

5. Availability of a substantiated and developed theoretical model of the study.

The theoretical model fully correlates with the dissertation topic. In a comprehensive and very detailed manner the author has studied and presented a conceptual basis of his research, synthesizing the main achievements in the research area he has outlined. The literature review included questions containing rich and complexly collated scientific information such as Autism: Definitions, classifications, symptoms; Interventions and treatment for ASD and Online learning. Behavioral, social and emotional impact of online learning on children with autism; Cognitive impact of online learning on children with autism are then thoroughly described. In the theoretical part, special attention is paid to the issue of Online learning in Section 2.3., Behavioral, social and emotional impact of online learning on children with autism in Section 2.4. Cognitive impact of online learning on children with autism in Section 2.5. and Virtual reality and cognitive interventions. Overall, the theoretical part is readable, precise, up-to-date, thorough and systematic. The PhD student is familiar with the major classical and contemporary works on issues for Interventions and treatment for ASD, demonstrating an intelligent interpretation of the main postulates delineated in the 5 sections of the thesis. My only remark with this section is the author's lack of a position at the end of each of the main points regarding the literature so well interpreted. There is only one made at the end of the theoretical review.

6. Compatibility of the chosen methodology and research methodology with the stated aim and objectives of the dissertation.

Methodology of the research is built on the principle of Empiricism, positivism and social constructionism, which are the cornerstones of any scientific research of this type. The aim of the study was to investigate the attitudes of teachers and parents towards the use of computers in the educational process and online learning: how confident they are in their own computer skills, whether they have a positive attitude towards the use of computers and what is their self-efficacy. The objective thus formulated ranks both main research questions, namely: to prove that online learning is appropriate from the perspective of teachers, and the second part: what are the views of parents of children with ASD about online learning. The present study consists

of two compiled surveys that include: teachers who work in primary and secondary general and specialized education (Study 1), and parents of children with ASD (Study 2). The four research questions (RQs) and the resulting 7 hypotheses (Hs) stated in Study 1 are clearly and precisely formulated. The hypotheses were chosen in line with the purpose of Study 1, which includes teachers' competent use of computers, the Internet, and digital technologies and applications to supplement effective teaching of children with autism. The toolkit developed for Study 1 is a generic questionnaire that includes three adapted subtests in Greek with 63 questions. Each of these tests contains a separate procedure. The author's decision to compile exactly these three subtests and combine them into a common questionnaire shows an excellent knowledge of the available tools. In Study 1, the study contingent included 705 teachers working with children with ASD (N = 705). The number of subjects is large enough for the study to have statistical significance and to draw conclusions about the entire population of elementary and secondary teachers. Results with statistically significant values are detailed in 16 tables. To conduct Study 2, the author posed 3 new research questions logically formulated into 4 hypotheses. The instrument includes a 48-item questionnaire, which has been validated and translated bilaterally by an independent translator (as it is required in such cases according to the procedure) specially for the research. The questionnaire concerns the family experience and quality of life of a family with a child/children with autism and its relationship to online tutoring and interventions.

Again, the number of respondents was sufficiently large (107 parents of children with ASD, mostly mothers) to guarantee statistically significant results, also detailed in Table 16. The inclusion criteria for the study stated that eligible parents must have one or more children with autism aged 3-12 years where the diagnosis was made by a child psychiatrist or trained clinical psychologist in Greece. Data collected on participant demographics (specifically: gender and parental residence; total number of children and number of children with autism in the family; annual family income; parental education level; child's current education level and type of school; child's sleep hours; and child's participation in extracurricular activities) has not provided a clear view of the severity of disorders or specific deficits in children with ASD who were being educated online. According to ICD-11 which was officially introduced in 2022, where these disorders are part of the Mental, Behavioral, and Neurodevelopmental Disorders (06), the Neurodevelopmental Disorders subcategory and the Autism Spectrum Disorders category (ICD-11, 2018), a severity of impairment in intellectual functioning and functional language abilities is now introduced, thus encompassing the full range of autism spectrum disorder presentations.

Following the arguments set out above, I would mention that a description of the contingent examined is absent and their grouping by severity of impairment or by type of deficits the child's current educational level and type of school.

7. Availability of own input in the collection and analysis of empirical data.

The empirical data is presented and analysed in Chapter 4: Research Part. This part of the thesis is impressive in both its volume and content. The statistical processing is presented in 33 tables that give a clear picture of the vast number of quantitative parameters of the results and create clarity. The guiding principle in data analysis is the application of a series of descriptive and statistical methods selected according to the compilation of the questionnaires: descriptive analysis by frequencies and percentages, means and standard deviations, Cronbach's alpha reliability, Kolmogorov-Smirnov normality test, Spearman non-parametric correlations, Mann-Whitney and Kruskal-Wallis tests. Regarding this part of the dissertation it is evident that the actual research has been carried out according to the required regulations, and the results obtained have been subjected to precise quantitative and qualitative analysis. Credible facts and patterns are established, which testify that the purpose of the study has been realized in the manner intended in the research design. The data were processed using robust mathematical and statistical methods to account for the statistically significant parameters of the evidence contained in the study participants' responses. The analysis of the results demonstrates the doctoral student's ability to record, measure, document and comment on empirical data, tracking multiple variables and accounting for their significance, without getting "lost" in the scientific factualism and deviating from the purpose of the study. In my opinion for this part of the dissertation no remark should be made.

8. Conclusions and contributions of the study.

A logical final section emerges from the study. The conclusion provides a summary of the results with a focus on the information that the exhaustive statistical procedures bring in terms of correctly discussing the hypotheses and confirming or rejecting them. 5 reliable conclusions were drawn, which summarise the results of Study 1 and Study 2. There is a discussion of own results with those of similar studies. For Study 1 such a comparison is made with 8 other publications whose results and conclusions are confirmed by the present study. The 6 contributions described here are the logical conclusion of the interpretation from the abundant data base and put emphasis on: 1)The online learning opportunities provided to

children with ASD are beneficial for their social, behavioral, and emotional development; 2) The importance of teacher self-efficacy in computer use and parental involvement lead to positive attitudes toward child participation in online learning; 3) Different interventions need to be designed and implemented according to each child's needs and family characteristics, and that different teachers need different levels of training; 4) A Greek version of the AFEQ questionnaire was administered, which showed good psychometric properties and could be considered in future studies for standardization and use in the Greek population; 5) Through studies 1 and 2, the topic of online learning, teachers' attitudes and abilities, and parents' attitudes towards technological educational applications is raised. This is a relatively new method of teaching and learning in schools and merits continued research and development of a research-based theory; 6) The information gathered along with other independent research may provide insight into how ASD children perceive all that occurs in online learning. The recommendations correctly mention that more comprehensive research studies should be conducted in the future that include the "voices" of children with ASD themselves, along with school administrators and policy makers.

9. Evaluation of the compliance of the abstract with the main points and publications of the thesis.

The abstract of the dissertation consists of 31 pages and is formatted according to the requirements in structural, content and technical aspects. It presents the main components of the thesis and the most important results of the research in a sufficiently comprehensive form. The abstract adequately reflects the dissertation content and allows the scientific community to briefly familiarize themselves with the most important aspects of the work.

The PhD student participated in a total of 7 publications related to the topic of the dissertation in English, where in 1 he is the first author and in the remaining 6 he is co-authored. The titles and contents of the publications show good skills in presenting scientific theses and active participation in scientific forums related to the researched issues. This publication activity fully satisfies Alexandros Proedrou's need for scientific appearances and meets the requirements for PhD studies.

10. Conclusion.

Alexandros Proedrou's dissertation is a well-conceived, properly structured and adequately implemented scientific work of scientific, practical and societal relevance. In it, he

has researched, verified and summarized information important for theory and practice. The qualities of the dissertation show that the PhD student has mastered the methodology of scientific research and can independently conduct them as well as he has the perspective to develop his research in the scientific field. On the basis of my overall positive evaluation I recommend the Honourable Specialized Scientific Jury to award Alexandros Proedrou the PhD degree in Education and Science in the professional field of 7.4 Public Health, Department of Logopedics.

Date: June 22, 2024

Signature:

Assoc.Prof. Elka Goranova, PhD