Review

of the *member* of the dissertation council for the dissertation of Momotenko Darya on the topic: «Pshychophysioligical features of executive functions during typing on a computer», submitted for the degree of *candidate* of Psychologycal sciences in scientific speciality 5.3.2. Psychophysiology.

Thanks for inviting me to be part of Darya's dissertation committee at the Psychology Ph.D. Program of St. Petersburg State University. I understand that I am reading an English translation of the work originally written in Russian. If this translation was produced only for my understanding, it suffices as it is. If a definitive English version is necessary for graduation, I would recommend proofreading it. Below, I will also recommend some clarifications that might be needed in the original manuscript, depending on the judgment of the reviewers who are Russian native speakers.

Next, I will present my recommendations for each one of the Dissertation chapters.

Chapter 1, entitled "Psychophysiology of executive functions during on a computer", summarizes the main theoretical underpinnings of this dissertation work. The main strength of the section is that it integrates literature on executive functions and working memory. This integration is appropriate and shows an adequate grasp of the literature. There is a good balance between conventional cognitive work and neurophysiological work. Therefore, the section is a good introduction to the dissertation work.

Given the topic of the dissertation, it would have been good to report on how these models relate to the most influential cognitive models of writing (see, for example, the chapters dealing with the models of writing in the collection edited by Grigorenko, Mambrino and Preiss, "Writing: A mosaic of perspectives"). Also, because of the nature of the topic and the age sample (16-18-year-old students), it would have been interesting to consider some developmental literature. High schoolers or entry-level university students are still not expert writers. Although the task is simple, developmental differences in text generation or even procedural skill might matter. Virginia Berninger has extensively published on the development of writing and its brain bases, so I recommend checking her work, which might be informative. Although they are more than a decade old, these two good edited collections might have useful chapters "Translation of Thought to Written Text While Composing" by Fayol, Alamargot and Berninger and "Past, present and future contributions of cognitive writing research to cognitive psychology" by Berninger.

I missed at the end of Chapter 1 a summary section with the main goals and research questions of the empirical part of the dissertation, specifically how they relate to the reviewed theories and how this specific work is an original contribution to that literature.

Chapter 2 and 3 present the research methods and results. The main goal of the section is to present neurophysiological correlates of executive functions during typing. The description of the study is adequate. The instruments are adequately presented. I would recommend explaining in more detail the connection between the instruments used and the theoretical rationale presented in Chapter 1, specifically the cognitive ones. Also, a larger theoretical explanation of the rationale behind the experimental block is needed and how it relates to questions opened by the reviewed literature. The description of results is appropriate, although an explanation of how the data analytic strategies relate to the research questions is missing. The main argument of the dissertation is lost in the presentation of tables and graphs. It is important to remind the reader what is the rationale behind the data analytic strategies.

Finally, the conclusions make a good work summarizing the main results of the study. My recommendations are as follows. First, please try to connect the results with the theory behind the results. Conclusions should go significantly beyond the description of the results. Also, please put the physiological results in a psychological context. What do they say about the writing process? The association between the psychological and physiological measures during the experimental tasks is very interesting and, probably, the most attractive result of the empirical work presented. Please, try to make these results accessible for a general readership. What do they say about the process of writing? Finally, there has been recently a discussion about the differences between handwriting and typing in writing and its impact on other variables, especially learning. I am aware that this dissertation does not measure handwriting, but I wonder whether anything can be extracted from its findings to that scientific discussion.

In summary, this is a very interesting dissertation, which deals with a very important activity (typing, writing). I just would like to see a better presentation of the overall rationale of the study across the chapters, putting the study in the context of the cognitive literature on writing, and a presentation of results and conclusions that reaches a broader audience, so the potential impact of this work in the discipline is amplified. The technical aspect of the dissertation is presented in a very detailed and complete way but "we can't see the forest for the trees". There is a need to go beyond the technical aspect and explain to the reader what is the theory that is being tested and what

is the main contribution of this work to the literature. This dissertation is very good work, I just think it only requires to be packaged in a more meaningful way to a broader readership.

Considering the above, I believe that Momotenko Darya's dissertation on the topic: «Pshychophysioligical features of executive functions during typing on a computer» meets the requirements of speciality 5.3.2. Psychophysiology;

The dissertation is a scientific qualification work that resolves a scientific problem important for the development of the relevant field of science *or* provides new science-based technical, technological or other solutions and developments vital for the national development.

No violations of paragraphs 9 and 11 of the Order No.11181/1 as of November 19, 2021 "On the Procedure for Awarding Academic Degrees at St. Petersburg State University" have been detected.

The dissertation meets the criteria of dissertations for the academic degree of candidate of science established by the specified Order. The dissertation is recommended for the defense at St. Petersburg State University.

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