# Review of: "The End of Objectivity and Subjectivity in Education Sciences"

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Potential competing interests: No potential competing interests to declare.

I am honored to be involved in reviewing such an interesting journal article in Qeios, which adopts the post-publication peer review system. In the field of Education Science, the treatment of the dichotomy between objectivity and subjectivity is not only an important issue from the perspective of the philosophy of science but also a widely debated topic that is crucial for advancing research in this domain. As a teacher/researcher actively engaged in research in mathematics education, I found this paper fascinating and thought-provoking. It is commendable that the paper attempts to comprehensively examine the significant literature in the philosophy of science and reach a conclusive summary. However, given the vast scope of the topic, there may be a need for more sufficient preparation for the discussion.

The main issue with this paper is the lack of definition for "Education Science" and "knowledge." I am aware of writing research papers in Education Science, but I would like to know whether my research area is encompassed within the scope of Education Science as defined in this paper. Furthermore, it is unclear whether the "knowledge" in my research area fits with the author's concept of "knowledge."

Let's consider another scenario. Suppose there is a research paper that records the mathematics classroom interactions of a student who showed difficulties in understanding the concept of functions. The research paper provides a detailed analysis of the student's interactions with other students. Would this type of case study be considered part of Education Science? Additionally, would the knowledge derived from such a study align with the author's concept of "knowledge"?

When addressing the dichotomy between objectivity and subjectivity, the authors must summarize primary philosophical debates by providing concrete examples of scientific practice and knowledge. In particular, Education Science is a research field with numerous unique aspects, even compared to other social sciences. While this science requires empirical evidence to avoid falling into empty speculation, it faces challenges in acquiring knowledge of high universality, as it primarily focuses on human behavior in social environments rather than on universally applicable principles like physics or mathematics. Feasible experiments are often constrained by research ethics considerations. Many issues can be methodologically explored only through case studies, which pose challenges in terms of generalization. Moreover, there is a question of whether Education Science needs to be as rigorous as other sciences, as the knowledge that teachers require may only sometimes align with such standards (Of course, it can be controversial to think that exploring the knowledge that teachers need is the role of Education Science).

I appreciate the author's efforts to transcend objectivity and subjectivity. It is challenging to establish validity criteria in

Education Science using the same standards as other scientific research domains. Indeed, precisely because of this, several methodological studies aim to discuss the validity of Education Science using criteria beyond simple objectivity (e.g., Clair, 2008; Schoenfeld, 2008). The author should consider referencing philosophical literature in education on these methodological issues to engage in a comprehensive discussion.

Thus, I strongly encourage the author to appropriately define "Education Science" and "knowledge" and provide concrete examples. With clarity in these aspects, engaging in a meaningful discussion regarding the validity of the author's claims becomes easier.

## References

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