Professor Natalie Sebanz, Associate Editor,

*PR*

Dear Professor Sebanz,

Thank you for giving me the opportunity to submit a revised draft of the manuscript “How does psychology progress as a science? The case of the face inversion effect” for publication in *Psychological Review*. I appreciate the time that you and your reviewer have dedicated to providing feedback on my text and am grateful for the improvements that you have helped me to make.

I have incorporated most of the reviewer’s insightful suggestions, and these changes are highlighted within the paper. Please see below for a point-by-point response to the reviewer’s comments (all page numbers refer to the revised manuscript file with tracked changes).

1. I have provided a brief description of the hypothesis testing method and shown that it is based on two acceptable and traditional procedures in experimental psychology: the hypothetico-deductive method and statistical hypothesis testing (pp. 5-6).

I have argued that the addition of two new rules, UCP and application-domain, does not stand in contradiction with the hypothesis testing method (pp. 7-8).

I have also clarified the methodological status of the “Theory of LGT” and shown that it is basically descriptive, though it also has normative and prescriptive components (p. 7).

1. The last sentence in (1) is also a response to the reviewer’s comment that the UCP and application-domain are “factual assertions”. I have pointed out that these two rules are indeed based on actual research behavior, but can also be conceived of as normative and prescriptive viewpoints.

Since these two new rules are based on actual behavior, they should be evaluated from the realistic vs. instrumentalist viewpoint. I draw the reader’s attention to the fact that I have considered aspects of realism in the Discussion (p. 9).

In Note (1) I have responded to the reviewer’s recommendation about the concept of laws of nature: The purpose of bringing in these examples – the laws of nature and Hempel’s D-N model of explanation – is not to enter into the debate about whether empirical generalizations in biology or psychology can be perceived as laws of nature, but to show that their basic research goal is to get closer to the UCP. After that, I have briefly addressed the question of whether there are laws of nature in biology and psychology, including the Mitchell (1997) article recommended by the reviewer (p. 34).

1. After a short description of the work of Bechtel & Richardson (1993), I have briefly described the relevance of their work to the concept of the UCP (pp. 12-13).
2. In Note (2) I have replied to the reviewer’s concern about the concepts of data vs. observation. I have also discussed very briefly the distinction between theoretical vs. observational concepts, explaining why it is practically convenient to continue using this distinction (pp. 35-36).

I thank the reviewer for drawing my attention to the work of Haig (2014). I found his book very interesting and useful, and I have referred to it in other places in the revision.

1. In accordance with the reviewer’s request, I have briefly discussed the question about the assumption that scientific research seeks the truth. I have put forward the argument that it is not possible to understand the use of a control group without the assumption about the search for the truth (pp. 11-12).
2. The reviewer believes that the empirical example of the FIE is not sufficient for illustrating the wealth of the Theory of LGT. I respectfully disagree. The main reason why I chose the FIE is that it demonstrates the following fundamental properties of LGT: First, research in FIE has reached a general consensus that H/C theory is able to deal with a large number of empirical observations; second, the UCP explains very well the persistence of FIE researchers who seek the real explanation for the phenomenon under study (and their research has increasingly focused on the H/C theory); third, the Theory of LGT explains why the H/C theory is a limited theory by using the concept of application-domain, which in the present case contains all the experimental variations related to the main manipulation, namely the rotation of the image of the face and its parts by 180 degrees (pp. 25-26).
3. In accordance with the reviewer’s comments, I have added the appropriate sentences from Nola and Sankey (2007). Furthermore, I have referred to the distinction between global realism and local realism according to Haig (2014) who followed Mäki (p. 27).
4. The reviewer believes that in the personal case where I was thinking about the real UCP to explain the FIE problem, I should have used the abduction method. I respectfully disagree. I have argued that there are two important differences between the approach I have developed in the article and the abductive approach: a difference in the motivation for conducting research, and a difference in conducting empirical experiments, that is, in using experimental manipulations (pp. 28-30).
5. The reviewer commented on my use of references. I will explain this matter with regard to three cases.

First, the aim of using Neal and Liebert’s (1986) book was simply to draw the reader’s attention to the fact that the hypothesis testing method is routinely taught in BA-level psychology courses. (As far as I can remember, Kuhn used a similar technique in his famous book on scientific revolutions.)

Second, the literature summaries that appear in the Stanford Encyclopedia were useful to me because such literature reviews are difficult to find in standard journals, and because these reviews were written by first-rate researchers, such as, for example, the review on ‘scientific reduction’ by van Riedl & van Gulick. In my view, these reviews are excellent; they give the reader an up-to-date overview of the topic and provide a clear introduction to the studied field, thus sparing me the need to summarize these areas in the body text.

Third, I used several old sources (such as Hilgard & Bower, 1966) because they excellently summarize several general and broad theories that were developed in previous periods in psychology (e.g., behaviorism). These theories were severely criticized and later disappeared from the scientific stage. I have added my own recent review of the topic (Rakover, 2020), and I have included a reference to Eronen & Bringmann (2021), as suggested by the reviewer, at the beginning of the introduction.

1. I have briefly explained the concept of theoretical reduction and suggested that this method has not yet been applied in psychology with regard to research in face perception and recognition (my area of expertise) (p. 33).

Diverse research subjects (such as perception, memory, learning, etc.) are common to *Psychological Review* and a number of other journals. The difference, as I understand it, is that *PR* attempts to publish articles that present major innovations in their field. Indeed, I believe that the present article offers a valuable contribution to the field and raises a new and important question: How does psychology develop? A long time has passed since Newell’s famous article (1973) predicted a gloomy prospect for psychology. In the current paper, I present a new methodological theory that explains how psychology develops: on the one hand, it is not stuck in the hopeless gloom proposed by Newell; yet at the same time, neither has psychology produced any groundbreaking theories of the same magnitude as those that have emerged in other sciences.