Erratum

Correction to Schmidt and De Houwer (2012)

https://doi.org/10.1027/1618-3169/a000141

In Schmidt and De Houwer (2012b), we reported a series of experiments investigating evaluative conditioning within a variant of the color–word contingency learning paradigm. In our Experiment 2 (pp. 178–180), in addition to our main analyses on response time, error rate, and explicit rating data, we also included analyses with measures of subjective awareness, objective awareness, and confidence in objective awareness guesses. Recently, however, collaborators of ours discovered a coding error for the objective awareness measure while preparing follow-up work (Gast, Richter, & Ruszpel, 2018). In particular, responses should have been coded as correct if the participant indicated the valence that the nonword prime was initially trained with (i.e., positive for nonwords that were paired most often with positive targets and negative for nonwords that were paired most often with negative targets). Instead, all positive responses were coded as correct (and negative responses as incorrect). Here, we report the corrected tests relating to objective awareness. Note that all other tests (e.g., related to subjective awareness) still hold. We also report two-tailed tests, rather than one-tailed tests (unlike the original report), given that one-tailed tests are generally regarded as inappropriate in any research in which an effect in the unexpected direction could be informative, which is generally always the case in cognition research (Lombardi & Hurlbert, 2009; Ruxton & Neuhauser, 2010).

Objective awareness was not significantly above chance (i.e., 50%), $t(38) = 1.707$, $SE = 5.6$, $p = .096$, $\eta^2 = .07$, though was higher (59.6%) than initially reported (51.9%) and trending (p. 179). Objective awareness was not significantly greater than chance for the subjectively aware (66.1%), $t(13) = 1.505$, $SE = 10.7$, $p = .156$, $\eta^2 = .15$, or unaware participants (56.0%), $t(24) = 0.923$, $SE = 6.5$, $p = .365$, $\eta^2 = .03$. It is noteworthy that there was a hint of an effect for subjectively aware participants, though they were few in number and subjective and objective awareness did not correlate significantly, $\rho(37) = .176$, $p = .285$.

Objective awareness was not correlated with the response time contingency effect, $\rho(37) = .105$, $p = .523$, but was correlated with the error rate effect, $\rho(37) = .460$, $p = .003$, and explicit rating effect, $\rho(37) = .560$, $p < .001$. Thus, there was some evidence that awareness moderated the magnitude of the contingency effect (consistent with results from a non-evaluative version of the paradigm; Schmidt & De Houwer, 2012a, 2012c). However, the contingency effect regression intercept (see Greenwald, Klinger, & Schuh, 1995) at chance guessing (.5) was robustly above zero for response times (26 ms), $t(37) = 5.172$, $SE = 5$, $p < .001$, errors (2.3%), $t(37) = 2.259$, $SE = 1.013$, $p = .030$, and explicit ratings (1.06), $t(37) = 3.167$, $SE = 0.33$, $p = .003$, consistent with implicit learning.

For item-level awareness (p. 180), the critical interaction between contingency (high vs. low) and objective awareness (correct vs. incorrect guess) was not significant for response times, $F(1, 21) = 1.992$, $MSE = 339$, $p = .173$, $\eta^2_p = .09$, or errors, $F(1, 21) = 3.055$, $MSE = 16.0$, $p = .095$, $\eta^2_p = .13$. The interaction between conditioned valence (positive vs. negative) and awareness (correct vs. incorrect guess) was also not significant, $F(1, 6) = 5.629$, $MSE = 3.65$, $p = .055$, $\eta^2_p = .48$, though note that very few participants had observations in all cells and the interaction did trend in the correct direction (3.43). Finally, participants were no more confident in correct (2.71) than in incorrect objective ratings (2.56), $t(21) = 0.745$, $SE = .20$, $p = 0.465$, $\eta^2 = .03$ (p. 180). Globally, some influence of objective awareness was observed, with some tests significant and others suggestive. However, the results for the corrected objective awareness measure (along with the originally-reported findings for subjective awareness) still suggest that the learning effects emerge even in the absence of contingency awareness.

References

Gast, A., Richter, J., & Ruszpel, B. (2018). *Is there evidence for unaware evaluative conditioning in a valence contingency learning task?* Manuscript submitted for publication.

Greenwald, A. G., Klinger, M. R., & Schuh, E. S. (1995). Activation by marginally perceptible ("subliminal") stimuli: Dissociation of unconscious from conscious cognition. *Journal of Experimental Psychology: General, 124*, 22–24. https://doi.org/10.1037/0096-3445.124.1.22

Lombardi, C. M., & Hurlbert, S. H. (2009). Misprescription and misuse of one-tailed tests. *Austral Ecology, 34*, 447–468. https://doi.org/10.1111/j.1442-9993.2009.01946.x

Ruxton, G. D., & Neuhauser, M. (2010). When should we use one-tailed hypothesis testing? *Methods in Ecology and Evolution, 1*, 114–117. https://doi.org/10.1111/j.2041-210X.2010.00014.x

Schmidt, J. R., & De Houwer, J. (2012a). Adding the goal to learn strengthens learning in an unintentional learning task. *Psychonomic Bulletin & Review, 19*, 723–728. https://doi.org/10.3758/s13423-012-0255-5

Schmidt, J. R., & De Houwer, J. (2012b). Contingency learning with evaluative stimuli: Testing the generality of contingency learning in a performance paradigm. *Experimental Psychology, 59*, 175–182. https://doi.org/10.1027/1618-3169/a000141

Schmidt, J. R., & De Houwer, J. (2012c). Learning, awareness, and instruction: Subjective contingency awareness does matter in the color-word contingency learning paradigm. *Consciousness and Cognition, 21*, 1754–1768. https://doi.org/10.1016/j.concog.2012.10.006

History
Received April 24, 2019
Published online July 2, 2019

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