

Critical review of henkel (2014)



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Review of “ Point and shoot memories: The influence of taking photos on memory for a museum tour” by Henkel

Introduction

In psychology, it is important to review literature critically. Questions require to be asked of all research, both prior and subsequent to publishing. Matters such as justification for the research, the approach taken to carry out the research, the results of the research and its generalizability all require to be examined in order to establish whether the findings are worthwhile and reliable. This essay will take such an approach and critically analyse a recent study carried out by Henkel (2014). The article, published in Psychological Science, will be reviewed with any shortcomings addressed and suggestions made for improvement.

Overview of paper

Henkel (2014) suggests that photography is a common pastime, with more than three billion photographs having been taken in 2012. Citing a variety of evidence, Henkel (2014) suggests that the review of photographs can assist with the retrieval and activation of memories. This applies to both healthy individuals (Hodges, Berry, & Wood, 2011) as well as people with specific pathologies (Berry et al., 2007; Loveday & Conway, 2011). With the foregoing in mind, it is proposed that research to date has not elucidated how the conscious taking of a photograph affects the subsequent memory of what has been captured. The hypothesis proposed is two-tailed and suggests that memory performance following the taking of a photograph will either be improved, or impaired. In order to investigate this question, Henkel carried

out two relatively simple experiments in which participants were required to carry out a visit to a museum.

In the first experiment, participants were divided into two separate groups and requested to either view or take photographs of specific objects in the museum, such that all objects were both viewed and photographed once. Subsequent to the visit, participants were given an assessment of their memory for both the location of the objects and the objects themselves by means of a free recall test, followed by a recall test based on a list of object names. In addition to the object name recall test, participants were required to indicate their confidence in the accuracy of their responses. Finally, a recall test was administered to participants based on photographs of objects. Across all recall tests, participants were required to indicate whether the object in question had been observed, photographed or had not been part of the tour. Results suggest that photographing an object has a negative impact on a person's memory for that object, although participants could remember whether an object had been photographed or viewed at better than chance levels. Participants were, however, better at remembering objects from a photographic cue, as opposed to a name cue. Following the first experiment, some further questions were raised in connection with the procedure and a second experiment took place with a view to clarifying these.

The procedure in the second experiment was broadly similar, although objects on the tour were split into three groups requiring them to be photographed in full, in part, or viewed, such that all objects were photographed in full, in part and viewed once. The post-visit memory tests

administered to participants were similar, with the exception that participants did not participate in the free recall test. In the name recall test, participants were required to answer two questions about the object and in the event that a specific part of the object had been photographed, a question was asked about that part, as well as a more general question about the object. Results replicated those of the first experiment, in that there was an impairment effect of taking a photograph generally, as well as the previous observation that memory for whether an object had been photographed or viewed was better than chance. In contrast, when an object had a specific part photographed, memory for that part, as well as the object more generally, was improved.

Methodological comments

Participants

In experiment 1, it is noted that two thirds of participants had indicated a previous visit to the museum in question, although not within the month prior to the experiment. No such note is made in respect of the participants in experiment 2. This may be an oversight, or it may be that all of the participants in experiment 2 are, in fact, naïve participants. In the event that this is an oversight, the simplest resolution would have been to insert a line in the original manuscript to identify how many participants in experiment 2 had previously visited the museum. In the event that all participants in experiment 2 were naïve, it may prove problematic when comparing the two experiments. Ideally, all participants in this sort of experiment should be naïve, as a previous visit to the museum may give those participants a

memory advantage over those who have not visited. It is unclear how this may have affected the results of the experiments, but future experiments of this nature may look to deal with participants with a previous experience by using a quasi-experimental design (Bryman, 2008). Such a design would allow for participants' previous experience to be catered for, although the negative impact of such a design is that causality cannot be fully inferred from the results (Bryman, 2008).

Method of recording accuracy of memory recall

When recording participants' responses in experiment 1, a free recall test was used initially, followed by tests to measure recall prompted by a name or a photograph. The photograph prompt recall task is well explained in the paper and does not require attention here. Unfortunately, detail relating to the free recall task is slightly less clear. Participants were requested to recall the names of objects on the museum tour, indicating whether they had been observed or photographed. Where an object name could not be remembered, participants were requested to write a brief description of the object. The major issue with this particular aspect of the experiment is that no detail is provided in respect of how the descriptive element of this task was assessed. In the circumstances, it may have been a better option to have only graded responses dichotomously, ensuring that responses where the participant cannot remember the object are graded as such. This appears to be how the data has been coded here, although no information is provided in respect of a cut off point for remembered or forgotten where the name cannot be remembered by the participant. In respect of the named recall task, there appears to be no requirement for participants to grade their

confidence in the accuracy of their responses, as this data is neither referred to anywhere else in the paper, nor statistically analysed. It is unclear why this particular task was required as the paper makes no reference to participants' confidence in their memories. As the task does not appear to be completed in experiment 2, one could ponder whether it was actually necessary for experiment 1.

Suitability of statistical tests

It is well documented that the ANOVA omnibus test is not suitable for data which are proportional in nature due to the fact that the data is restricted by fixed boundaries of 0 and 1 and the error does not follow a normal distribution, amongst other reasons (Crawley, 2005; Field, 2009). In Henkel's (2014) study, the data in both experiments is measured by way of response frequency which is subsequently converted to proportions. It would appear that an ANOVA is therefore not the most appropriate statistical test. In order to rectify this issue, there are three possibilities. The first possibility is to transform the data, using a procedure such as the arc sine transformation, which has the effect of normalising the error distribution (Crawley, 2005). Transforming the data makes it more appropriate for use in an ANOVA, although care still requires to be taken with interpretation of results. It is not clear from Henkel's (2014) article whether a transformation has been carried out on the data and on the basis that it is not noted in the article, it must be assumed that no such transformation has been completed. In the event that a transformation has been carried out on the data, the article should have a note to this effect in order to avoid confusion for the reader.

A second proposal to deal with the data would be to carry out a logistic regression, which is a suitable method to use on binomially distributed data, such as proportional data (Crawley, 2005; Field, 2009). Using a logistic regression would allow the researcher to make predictions about the impact of taking photographs on subsequent memory, however it would not allow inferences of causality to be drawn. In addition, problems with generalisability of results would also arise, as a logistic regression is not assumed to be valid for predictions which do not apply to the dataset (Crawley, 2005; Field, 2009). The final suggestion for rectification of the problems with statistical procedure is to avoid using proportional data altogether and measure simple response frequencies. This would require a change in the statistical test used for the experiments to the chi-squared test for independence (Pearson, 1900). Again, the main issue with this course of action is that it would no longer be possible for the experiment to indicate causality, as the chi-squared test is correlational in nature. Nonetheless, this may be an appropriate course of action with a view to prompting further research in relation to memory for items which have been photographed and the causal effect of taking such photographs.

General comments

Introduction

The introduction is concise and follows a clear, coherent structure. The reasons for the research question and subsequent experiment are clearly detailed.

Experiment 1

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Aside from the issues identified in the previous section, the methods section is clear, coherent and concise. Whilst not everything required for a replication is included, with some minor additions, the relevant information would be available. At the foot of the results and discussion section (p. 398), results of a Source x Retrieval Cue ANOVA are reported without any statistics quoted. The statistics are reported in respect of an interaction, but not for the main effects. It may be that the main effects are not statistically significant, however, for the purposes of clarity, it would be better for them to be reported here.

Experiment 2

The rationale behind experiment 2 follows on from experiment 1. The background is clearly and concisely laid out and seems logical. Other than the issues noted previously in respect of methodology, no further problems are noted in respect of the methods applied in the experiment.

General discussion

In the final paragraph of the general discussion (p. 401) the results are discussed outwith the parameters of the experiments in, one would assume, an attempt to generalise the results more widely. The final sentence appears to make a claim relating to interacting with photos and the effect of interaction on memory. Whilst previous evidence is referred to, it is not clear how this assertion can be made from the results of this experiment, as no attempts were made to show the effect of interaction with photographs on memory. It may be that this conclusion should be revised in order to make a better fit with the results of the experiment.

Conclusion

In summary, this study appears to be novel and timely, following from and adding to recent research findings. There is a defined gap in the literature in relation to the focus of the study which could be addressed by it. In addition the study may provoke future research into photographs and memory in the social environment, outwith the scenario of a museum visit, which will allow further generalisation of the findings. Despite the issues identified in relation to methodology, the article is well written and the research generally well designed. With a few minor tweaks in relation to statistical tests and provision of further information for the purposes of replication, the article could be improved further. Nonetheless, this series of experiments is novel, appropriate, timely, and adds to the current understanding of memory in relation to photographs more generally.

References

- Berry, E., Kapur, N., Williams, L., Hodges, S., Watson, P., Smyth, G., ... Wood, K. (2007). The use of a wearable camera, SenseCam, as a pictorial diary to improve autobiographical memory in a patient with limbic encephalitis: A preliminary report. *Neuropsychological Rehabilitation* , 17 , 582-601.
- Bryman, A. (2008). *Social Research Methods* (3rd Ed.). Oxford: Oxford University Press.
- Crawley, M. J. (2005). *Statistics: An Introduction Using R* . Chichester: Wiley.
- Field, A. (2009). *Discovering Statistics Using SPSS* (3rd Ed.). London: Sage.

Henkel, L. A. (2014). Point-and-shoot memories: the influence of taking photos on memory for a museum tour. *Psychological Science* , 25 , 396–402.

Hodges, S., Berry, E., & Wood, K. (2011). SenseCam•: A wearable camera which stimulates and rehabilitates autobiographical memory. *Memory* , 19 , 685–696.

Loveday, C., & Conway, M. A. (2011). Using SenseCam with an amnesic patient: Accessing inaccessible everyday memories. *Memory* , 19 , 697–704.

Pearson, K. (1900). On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *Philosophical Magazine* , 50 (5), 157–175.