

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

**Translation: Please read the following passages and translate them into Chinese, including the titles (but not the Source parts). 100 points total (four questions total, each with different points).**

**1. Is psychology suffering from a replication crisis? What does “failure to replicate” really mean? (20 points)**

Psychology has recently been viewed as facing a replication crisis because efforts to replicate past study findings frequently do not show the same result. Often, the first study showed a statistically significant result but the replication does not. Questions then arise about whether the first study results were false positives, and whether the replication study correctly indicates that there is truly no effect after all. This article suggests these so-called failures to replicate may not be failures at all, but rather are the result of low statistical power in single replication studies, and the result of failure to appreciate the need for multiple replications in order to have enough power to identify true effects. We provide examples of these power problems and suggest some solutions using Bayesian statistics and meta-analysis. Although the need for multiple replication studies may frustrate those who would prefer quick answers to psychology’s alleged crisis, the large sample sizes typically needed to provide firm evidence will almost always require concerted efforts from multiple investigators. As a result, it remains to be seen how many of the recently claimed failures to replicate will be supported or instead may turn out to be artifacts of inadequate sample sizes and single study replications.

Source:

Maxwell, S. E., Lau, M. Y., & Howard, G. S. (2015). Is psychology suffering from a replication crisis? What does “failure to replicate” really mean?. *American Psychologist*, 70(6), 487.

**2. Reconstructing and deconstructing the self: cognitive mechanisms in meditation practice. (20 points)**

Scientific research highlights the central role of specific psychological processes, in particular those related to the self, in various forms of human suffering and flourishing. This view is shared by Buddhism and other contemplative and humanistic traditions, which have developed meditation practices to regulate these processes. Meditation is a practice where an individual uses a technique – such as mindfulness, or focusing the mind on a particular object, thought or activity – to train attention and awareness, and achieve a mentally clear and emotionally calm and stable state. Building on a previous paper in this journal, we propose a novel classification system that categorizes specific styles of meditation into attentional, constructive, and

deconstructive families based on their primary cognitive mechanisms. We suggest that meta-awareness, perspective taking and cognitive reappraisal, and self-inquiry may be important mechanisms in specific families of meditation and that alterations in these processes may be used to target states of experiential fusion, maladaptive self-schema, etc.

Source:

Dahl, C. J., Lutz, A., & Davidson, R. J. (2015). Reconstructing and deconstructing the self: cognitive mechanisms in meditation practice. *Trends in cognitive sciences*, 19(9), 515-523.

**3. The pen is mightier than the keyboard: Advantages of longhand over laptop note taking.**  
**(30 points)**

Taking notes on laptops rather than in longhand (writing by hand using complete words, as opposed to typing or using shortened forms or special symbols) is increasingly common. Many researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing. In three studies, we found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. We show that whereas taking more notes can be beneficial, laptop note takers' tendency to transcribe lectures verbatim rather than processing information and reframing it in their own words is detrimental to learning.

... Students generally participated 2 at a time, though some completed the study alone. The room was preset with either laptops or notebooks, according to condition. Lectures were projected onto a screen at the front of the room. Participants were instructed to use their normal classroom note-taking strategy, because experimenters were interested in how information was actually recorded in class lectures. The experimenter left the room while the lecture played.

Next, participants were taken to a lab; they completed two 5-min distractor tasks and engaged in a taxing working memory task. At this point, approximately 30 min had elapsed since the end of the lecture. Finally, participants responded to both factual-recall questions (e.g., "Approximately how many years ago did the Indus civilization exist?") and conceptual-application questions (e.g., "How do Japan and Sweden differ in their approaches to equality within their societies?") about the lecture and completed demographic measures.

Source:

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological science*, 25(6), 1159-1168.

**4. Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips  
(30 points)**

The advent of the Internet, with sophisticated algorithmic search engines, has made accessing information as easy as lifting a finger. No longer do we have to make costly efforts to find the things we want. We can “Google” the old classmate, find articles online, or look up the actor who was on the tip of our tongue. The results of four studies suggest that when faced with difficult questions, people are primed to think about computers and that when people expect to have future access to information, they have lower rates of recall of the information itself and enhanced recall instead for where to access it. The Internet has become a primary form of external or transactive memory, where information is stored collectively outside ourselves.

... we tested whether people remembered information that they expected to have later access to — as they might with information they could look up online. Participants were tested in a 2 by 2 between-subject experiment by reading 40 memorable trivia statements of the type that one would look up online (both of the new information variety, e.g., “An ostrich’s eye is bigger than its brain,” and information that may be remembered generally, but not in specific detail, e.g., “The space shuttle Columbia disintegrated during re-entry over Texas in Feb. 2003.”). They then typed them into the computer to ensure attention (and also to provide a more generous test of memory). Half the participants believed the computer would save what was typed; half believed the item would be erased. In addition, half of the participants in each of the saved and erased conditions were asked explicitly to try to remember the information. After the reading and typing task, participants wrote down as many of the statements as they could remember.

A between-subjects 2 (saved or erased) by 2 (explicit memory instructions versus none) ANOVA revealed a significant main effect for only the saved/erased manipulation, as those who believed that the computer erased what they typed had the best recall. This finding corresponds to previous work on directed forgetting, showing that when people don’t believe they will need information for a later exam, they do not recall it at the same rate as when they do believe they will need it. Participants apparently did not make the effort to remember when they thought they could later look up the trivia statements they had read. Because search engines are continually available to us, we may often be in a state of not feeling we need to encode the information internally. When we need it, we will look it up.

Source:

Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips. *Science*, 333(6043), 776–778. <https://doi.org/10.1126/science.1207745>