

# **The Impact of Holistic/Analytic Cognition on Eyewitness Memory**

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Eyewitness testimony is fundamental to criminal justice systems around the world. It has also comprised a primary focus of legal psychology research for over a century. These studies demonstrate that eyewitness memory is stunningly fallible and powerfully shaped by the social context in which it is recalled.

But despite widespread recognition that remembering a crime is not only a cognitive activity, but also a *social* activity, researchers have neglected the relationship between culture and eyewitness memory. The scientific literature on eyewitness memory is based on narrow samples of study participants and ignores the possibility that members of other cultures may perceive or recall crimes differently.

This is a significant deficiency because culture has a profound impact on human behavior. It structures not only what we believe, but also basic psychological processes that determine how we perceive and relate to the social world. Culture may therefore have significant implications for eyewitness memory.

Support from the Pacific Basin Research Center has allowed us to explore this possibility. We are currently researching the relationship between an important dimension of culture—holistic/analytic cognition—and eyewitness memory.

Studies by Richard Nisbett and his colleagues have shown that East Asians tend to engage in holistic cognition, whereby they employ dialectical reasoning and focus on context and relationships rather than individual attributes or events. In contrast, Westerners tend to engage in analytic cognition, whereby they apply formal logic rules and focus on individual attributes or events rather than context and relationships.

We are examining the impact of this dimension of culture on two sources of distortion of eyewitness memory: statements made by co-witnesses and leading questions posed by police officers.

Discussing the crime with a co-witness tends to cause eyewitnesses' memories of the incident to unintentionally and subconsciously converge. As a result of this phenomenon—called “memory conformity”—exposure to a co-witness's inaccurate recollection of the crime can greatly reduce the accuracy of an eyewitness's own memory of the event.

Leading questions posed by a police officer can have a similar effect. They not only tend to elicit testimony that confirms the beliefs or expectations implicitly communicated in these questions, but can even result in this information being unintentionally and subconsciously integrated into an eyewitness's actual *memory* of the crime.

We suggest that holistic cognition, which is associated with the cultures of many East Asian and other Pacific Basin countries, exacerbates susceptibility to memory conformity and leading questions. We hypothesize that when information communicated by a co-witness or a police

officer conflicts with what an eyewitness originally perceived, East Asian eyewitnesses tend to resolve this conflict by following the holistic approach. They implicitly take a holistic view of all information available to them and shape their testimony to reduce the extent to which it conflicts with information provided by a co-witness or a police officer. Western eyewitnesses, on the other hand, tend to employ the analytic approach to deal with conflict between their memory of the crime and information subsequently provided by a co-witness or a police officer. They view truth as dichotomous (*i.e.*, either true or false), and when their analytic approach is coupled with common self-serving biases, are more likely than East Asian eyewitnesses to recall information inconsistent with that communicated to them by a co-witness or a police officer.

We are conducting two experiments at Soka University of America to test our hypotheses. We hope that our studies will advance both theory and practice, as they will simultaneously examine the implications of holistic/analytic cognition in an important real-world situation, advance legal psychology theory, and produce empirical support for reforming eyewitness identification and interview procedures in the Pacific Basin and around the world.

### **Experiment 1**

To conduct the two aforementioned experiments on eyewitness memory, we have to first make sure that our manipulation of “culture” is valid and effective. In the past, culture has been operationally defined by the participants’ nationality or through self-report tests to measure their culturally-fostered way of thinking. However, both of these techniques to operationally define culture have been criticized in the past for their validity. Thus, in the first experiment, we will be testing the validity and effectiveness of a newly devised “cultural priming” technique (*i.e.*, *Monkey Priming Test*) to manipulate culturally-fostered cognitive tendency (holistic vs. analytic)

on a well-established test (i.e., *the Frame Line Test*) to measure the changes in the participants' cognitive tendency.

## **Cultural Priming**

*Monkey Priming Test.* In order to prime participants to think in either the holistic or analytic way, we have decided to use the *Monkey Priming* technique used by Monga and John (2008). Participants will be shown a black and white drawing of a scene, which has 11 smaller hidden objects embedded, with a 3 x 3 gridded overlay. The top and bottom are labeled with numbers corresponding to each box, and the left and right sides are labeled with letters so each box has a coordinate (e.g., A1, B3), with 9 total coordinates.

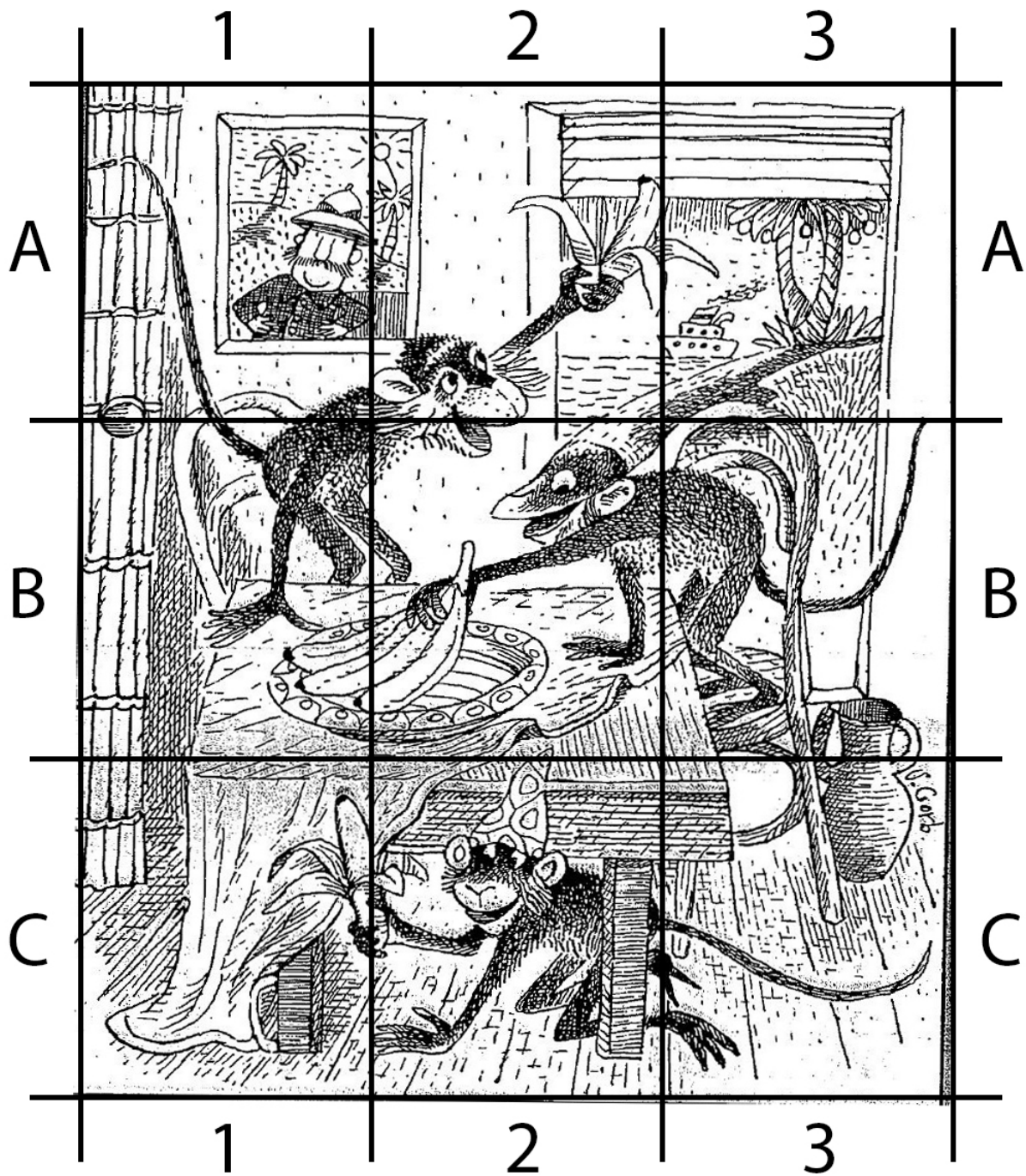
In the online experiment created using Qualtrix, the participants will be randomly assigned to one of two conditions (analytic vs. holistic) and shown the *Monkey Priming* scene (see Appendix A). In the analytic condition, participants will see the monkey prime image with the 3 x 3 gridded overlay and, immediately next to it, the reference image of the 11 hidden objects (see Appendix B). Underneath, participants will be instructed to identify the coordinates of each separate object using two drop down lists, one giving the letter option and the other giving the number option. In the holistic condition, participants will see the same image of the monkeys and the 3 x 3 gridded overlay. In this case, participants have an open text box immediately next to the image and will be instructed to create a story by looking at the image as a whole and making as many connections among the objects they see in the image as possible and type it into the open text box. After three minutes, Qualtrics will automatically save all progress and force all participants to the next section of the survey.

*Computerized Frame Line Test.* To measure analytic and holistic cognitive tendency of the participants, we recreated a computerized version of the Frame and Line Test (FLT; Kitayama, Duffy, Kawamura, & Larson, 2003). The FLT (see Appendix C) measures the ability to incorporate or ignore contextual information (i.e., square frame). Participants will be first shown a square frame with a vertical line in it and then presented with another square frame of either the same or a different size. In the second square, participants will be asked to draw a line that was identical to the first line in either absolute (i.e., absolute task) or relative (to the frame) length (i.e., relative task). Thus, the absolute task requires attention to the length of the focal line independently from the contextual frame, whereas the relative task requires attention to the relationship between the focal line and the contextual frame.

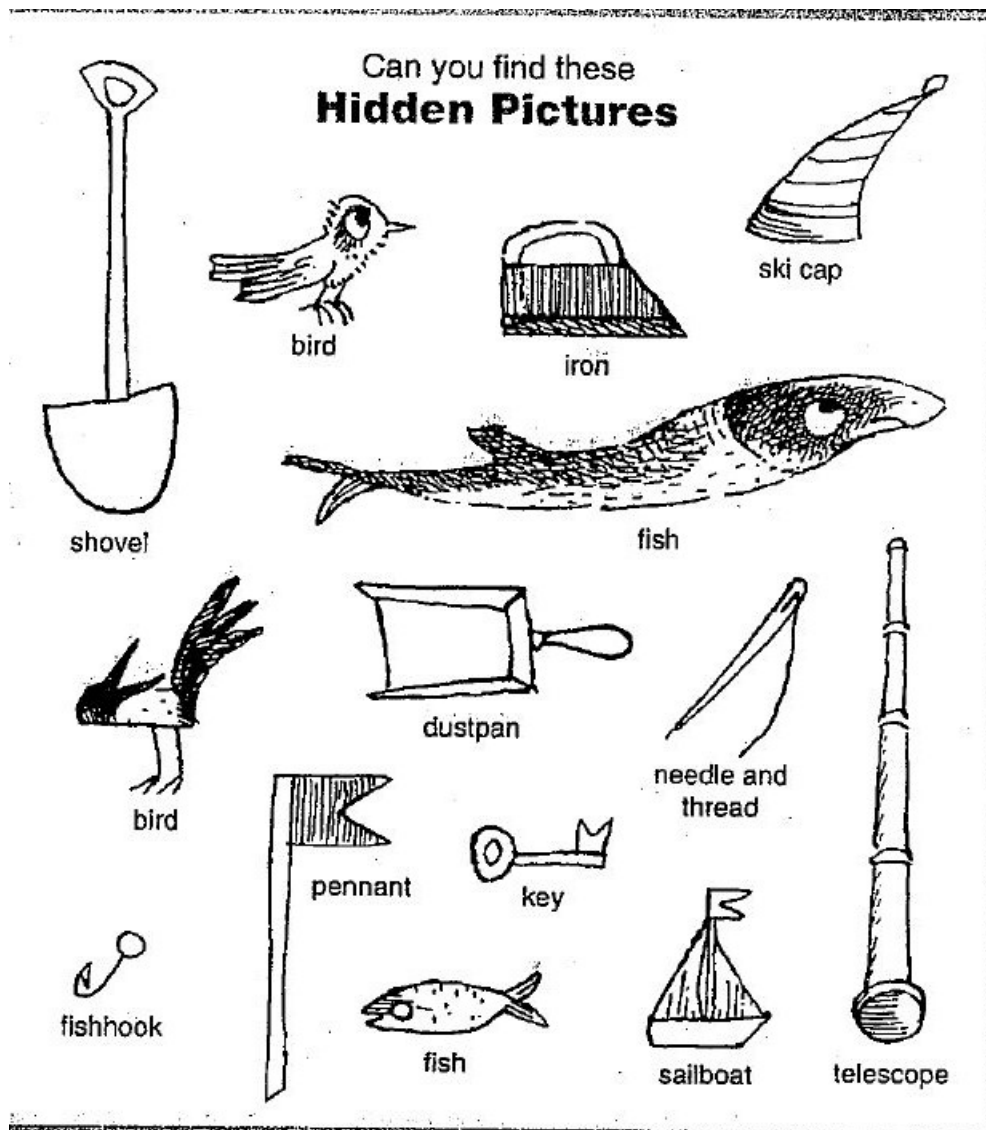
To recreate the computerized version of the FLT, we will present participants with a square with a vertical line in it on a screen, which will be shown only for three seconds and then automatically disappears from the screen. Then, they will be shown a brief filler image to reduce the impact of iconic memory. On the next screen, participants will be asked to complete either the absolute task or relative task first by clicking through a series of images of the new frame that are identical except for the line length. The line length for each image gradually increases in order to emulate manually extending the line. After the participant clicks through a number of images and reaches the line that s/he believes is the same length as the original framed line in either the absolute or relative length, the participant selects that framed line. The participants will then repeat the other task that they have not completed (i.e., the absolute task if they were given the relative task first and the relative task if there were given the absolute task first). The survey

will conclude once participants finishes the tasks for the final frame and line test and obtains the \$1 payment.

Appendix A



Appendix B





## Appendix C

