

Westerners and Asians Have Different Conceptual Structures: Evidence from Two Categorization Tasks

Vanessa Huang¹ and David Rose[#]

¹Taipei Fuhsing Private School, Taiwan

[#]Advisor

ABSTRACT

This research paper examines the contrasting conceptual structures of Westerners and Asians in the context of categorization. Drawing on previous studies, the paper explores the influence of cultural factors on individuals' thought processes, specifically focusing on relational and taxonomic thinking. The central hypothesis posits that Westerners and East Asians differ in their categorization strategies due to cultural variations. The study involved participants from Taiwan and the United States who completed categorization tasks involving biological kinds and artifacts. The results revealed a significant disparity in categorization patterns between the two groups. Westerners exhibited a higher inclination towards taxonomic categorization, whereas East Asians demonstrated a preference for relational categorization. Furthermore, when the relationship between objects was disrupted, East Asians were more likely to perceive a lack of existence compared to Westerners. These findings provide empirical evidence supporting the notion that cultural influences shape cognitive processes and conceptual frameworks.

Introduction

Background & Motivation

Do Westerners and Asians categorize entities differently? If you have traveled or lived in the Western hemisphere as an Asian, you might have noticed minor differences in ways of thinking, behavior, and habits. For instance, people from Western countries might share different musical tastes, approach education with a different focus, and even perceive various aspects of culture differently. In fact, people in Western and Eastern cultures do think and specifically categorize objects differently.

There is an overwhelming amount of evidence that all points to the same conclusion: Asians and Westerners have divergent thought processes. Nisbett (2001) argues that cultural differences can affect people's thought processes more significantly than generally believed. Nisbett states that the social organization and practice of modern Asians are rooted in those of ancient Chinese, while those of modern Europeans are similar to those of ancient Greeks. To elaborate, Asians tend to see the big picture – viewing objects in relation to their environment; alternatively, Westerners focus on objects and ignore domains, and they perceive fewer objects and relationships in their environment than Asians. There is other work supporting this claim. In particular, Masuda & Nisbett (2001) find that East Asians explain events with reference to context more than Americans do. In another study by Masuda & Nisbett (2001), “[participants] were shown previously seen objects as well as new objects, either in the original environment or in the new environment, and then asked to judge whether they had seen the objects” (Masuda & Nisbett 2001). The results showed that Japanese people made more accurate statements about contextual information and relationships than Americans did, suggesting that Japanese people think in a more relationally contextual style.

Nisbett (2004) builds on the claim that the Chinese classify subjects in a relational way, whereas Americans categorize subjects taxonomically. According to the research, participants from Taiwan, China, Singapore, and Hong

Kong were asked to organize a trial of categorization tasks, in which sets of three words were presented; the participants were required to select two out of the three words that were most closely related. The finding was that “East Asians’ attention is oriented toward the field and to relationships between objects and events. In contrast, North Americans decontextualize an object from the field and attend to its properties in an attempt to understand and predict the object’s behavior” (Nisbett, 2004, p.57).

In a previous study, Chiu (1972) provided an extended precursor to this theory through a more advanced experiment. The study tested whether individual differences in cognitive styles were closely related to disparate family experiences. In this research, there were three pictures represented in different categories, including humans, vehicles, furniture, tools or foods. The task for the subjects, elementary students, was to select any two out of the three objects in a set which were alike and to state the reason. The results showed that American children scored significantly higher than Chinese children in the descriptive-analytic style. In contrast, Chinese children scored significantly higher than American children in the relational-contextual style, implying the same results as Nisbett’s subsequent studies.

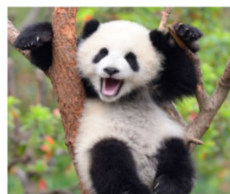
The motivation for this essay stems from the four research studies above. Since these studies all proved the theory in various ways, we want to create an in-depth study comparing household items and biological species to perceive the potential of altered judgments. Also, we are interested in seeing whether people think entities still exist if they fail to bear relations to other entities. Thus, this study answers the research question: How do different relationships affect Westerners’ and East Asians’ categorization judgments?

The research question is whether there are differences in relational and taxonomic categorization in Western and East Asian perception. Below is a description of the participants sampled as well as the procedure and results of the experiment.

Participants and Materials

We collected data from participants located in Taiwan and the US. They were recruited through an online platform, Instagram, and through word of mouth. Participants’ ages ranged from 12 to 49 with the majority being high school students aged 15–17. The experiment was hosted on Google Forms. After clicking the invitation link, participants were taken to the Google Form and would first read instructions about the experiment. In the first part of the experiment, participants were shown three pictures and asked which two go together. Of the three objects in the picture, two had a taxonomic relationship while two had a relational relationship. For example, in one trial participants saw a monkey, a panda and a banana (see Figure 1).

1. Of these three things below, which two are most similar? *
從下列的三個圖形中選擇兩個你認為最有關聯的東西



- Banana + Monkey 香蕉+猴子
- Panda+ Banana 熊貓+香蕉
- Monkey + Panda 猴子+熊貓

Figure 1: Monkey, Panda and Banana Trial

Procedure

They were given three response options, as shown in Figure 1. The “Banana + Monkey” and the “Panda + Monkey” are both relational responses while the “Monkey + Panda” is a taxonomic response. Participants completed six trials where three were of biological species and three were of artifacts. After completing these trials, they then went to a new page where they were asked a new set of questions. There, they were asked to imagine that the first of two related no longer existed. Next, they were asked whether they thought the second object that belonged to this relationship would still exist. For example, as can be seen in Figure 2, participants were shown a monkey and a banana and told to imagine that bananas no longer existed. They were then asked whether monkeys would still be monkeys. Ratings were made on a 6 point scale ranging from “definitely not a [item]” to “definitely a [item]”. Participants completed six trials involving the same three artifacts and biological kinds from the first part of the study. Lastly, participants completed a basic demographic survey and were given the opportunity to leave feedback.

1. Imagine that there are no more bananas in the world. *
To what extent do you think that this thing would still be a monkey?
想像這個世界上沒有香蕉了，猴子也沒有香蕉吃了。你認為猴子還會是猴子嗎？

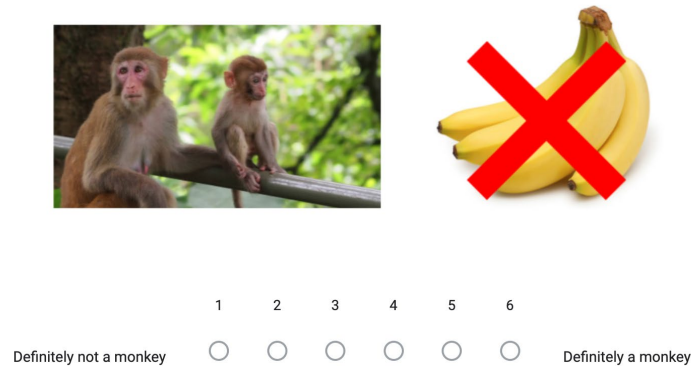


Figure 2: Monkey and Banana Trial

Analysis & Result

The overall pattern of the experiment showed that Westerners displayed a higher tendency of taxonomic responding, while East Asians displayed a lower tendency of taxonomic responding. The results can be seen from the difference between participants from Taiwan and the US for the relational and taxonomic response (see Figure 3).

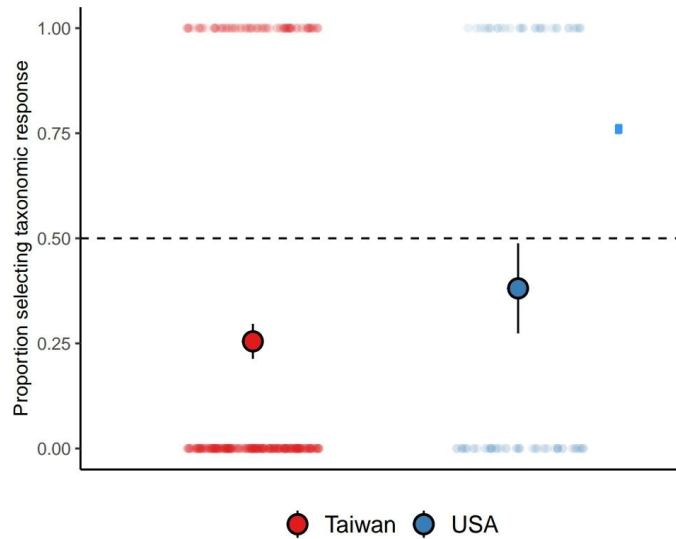


Figure 3: Proportion of taxonomic responses among Taiwanese and Americans. Higher ratings indicate increased taxonomic responding.

To clarify, the closer the dots are to 1.00, the greater the extent of taxonomic responding. Among Taiwanese, representative of East Asians, the average rate of taxonomic responding was only 25%. But among the participants from the US, representative of Westerners, the average rate of taxonomic responding was approximately 40%, which was 15% higher than that of East Asians. This implies that East Asians utilize another system of process to respond: relational thinking.

Our main result, indicating a difference in taxonomic responding between East Asians and Westerners, replicated previous findings. However, we also wanted to see whether categorization judgments were affected by biological kinds or artifacts. As shown in Figure 4, biological kinds and artifacts were treated similarly among Westerners and East Asians. Evidently, for both artifact and biological kinds, participants from the US gave a higher proportion of taxonomic responses.

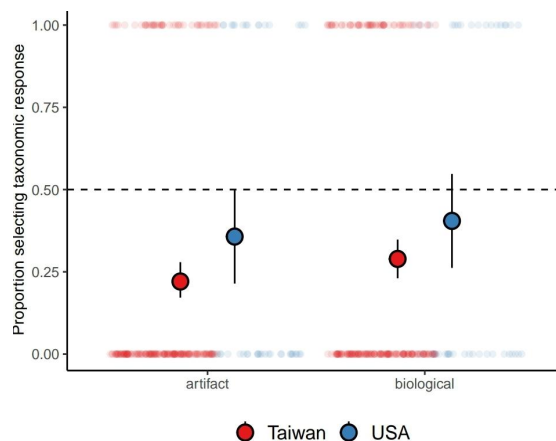


Figure 4: Proportion of taxonomic responses among Taiwanese and Americans for Artifacts and Biological Kinds. Higher ratings indicate increased taxonomic responding.

To build up further understanding, we aimed to observe whether people would have a totally different response depending on the items in question. As demonstrated in Figure 5, Americans gave higher taxonomic responses than Asians for most of the biological kinds and artifacts. For instance, Americans showed a clear preference for categorizing the can opener with the bottle opener. In contrast, only 25% of Taiwanese categorized the can opener with the bottle opener. That is, East Asians were more inclined to engage in relational categorization in that they grouped the can opener and the can together. Moreover, for biological kinds, approximately 49% of Americans categorized spiders taxonomically: they grouped spiders and ants together. However, Asians tended to categorize relationally in that they grouped spiders and spider webs together. East Asians and Westerners showed a consistent pattern across biological kinds and artifacts with two anomalies: scissors and elephants.

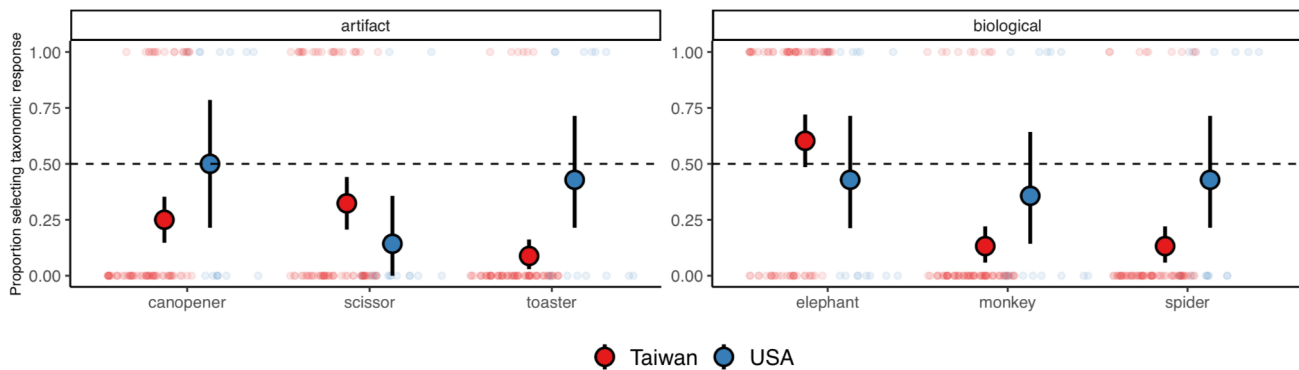


Figure 5: Proportion of taxonomic responses among Taiwanese and Americans for individual Artifacts and individual Biological Kinds. Higher ratings indicate increased taxonomic responding.

Overall, it appears that East Asians are more inclined to categorize items relationally. Our next question was: what if we break the relationship? If East Asians do categorize objects in a relational way, then if there is no longer a relationship between each object, we should expect East Asians to be more inclined to think that those objects no longer belong in the same category. As shown in Figure 6, in general, participants from Taiwan gave lower ratings than participants from the US. This suggests that East Asians, who are more inclined to engage in relational thinking, are more likely to think objects would not continue to exist if they no longer had a relationship with the relevant objects.

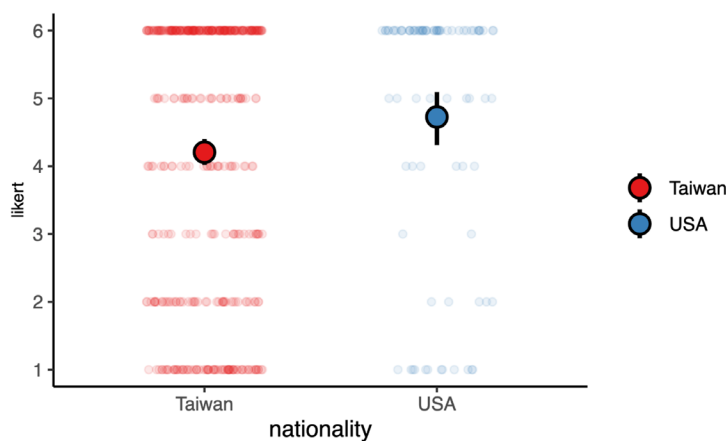


Figure 6: Mean Existence Responses among Taiwanese and Americans, on a Likert scale. Higher ratings indicate that the thing would still exist.

Again, we wanted to find out whether a consistent pattern existed if we examined individual items across various categories. It seemed that overall, East Asians were more likely to think that a secondary object would not exist if the first object that was previously linked to it ceased to exist. Nevertheless, it seems that this tendency was somewhat stronger in the case of artifacts.

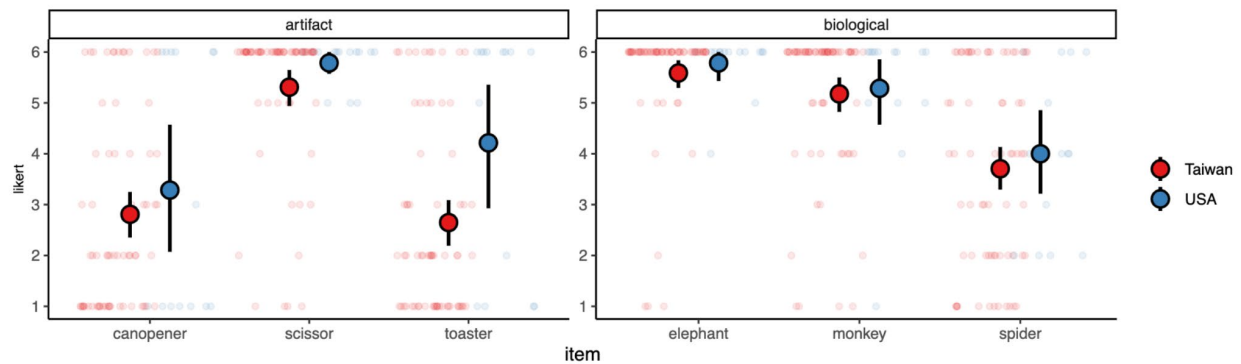


Figure 7: Mean Existence Responses among Taiwanese and Americans for individual Artifacts and Biological Kinds, on a Likert scale. Higher ratings indicate that the thing would still exist.

Discussion

Our question was whether different relationships affected Western and East Asian categorization judgments. The evidence indicated that East Asians grouped objects in a more relational way, whereas Westerners categorized objects in a more taxonomic way. In addition, we further extended this finding by investigating how the relational categorization judgment was affected in circumstances where the connection between two entities were broken. The findings suggested that East Asian categorization judgments were more affected when relationships between objects no longer existed. In contrast, Westerners were not affected when connections between the objects ceased to exist since they categorized entities taxonomically.

However, there were also some unexpected results. In the findings, there were two anomalies. One was that East Asians and Westerners did not show a consistent pattern for the questions on scissors and elephants. For these questions, Westerners were more likely to engage in relational categorization. Perhaps these anomalies arose because the grouping options were not obviously or uniquely related to the object. For instance, elephants might not be strongly associated with peanuts for East Asians, and so they ended up selecting the taxonomic alternative. It is important, however, to note that Asians as a whole do not normally group entities taxonomically. The second anomaly was that Taiwanese participants were less affected by connections being broken for biological kinds than they were for artifacts. Concerning biological kinds, even though the connection breaks, East Asians were still inclined to think the thing would exist if objects that were part of the relation no longer existed. Still, it seemed that East Asians were overall less inclined than Westerners to think the thing would exist if the object it entered into a relationship with failed to exist.

Despite the surprising data found, our experiment had some limitations. First of all, the sample sizes were unequal (67 responses from Asia; 14 responses from the US). Furthermore, the participants were mostly high school students between 15 to 17 years old. Hence, if we could find a broader, more diverse sample of participants, we would have the opportunity to find out whether the assumptions made in this experiment apply to all ages. Second of all, a few participants pointed out in the feedback section that the format of the answer choices were confusing. To elucidate, we first formulated the answer choices in both English and Chinese and placed them side by side in the experiment. However, some participants misunderstood the question thinking that there were more than three options. To fix this

problem in the future, we can create two separate experiments — one in English and the other in Chinese. Last but not least, the experiments should have included follow-up questions, such as, “Why did you group these together?”. Had we added these follow-up questions, we might have been able to gain further insight into what participants focused on in categorization. In future research, if we could improve on all the flaws mentioned above, we believe that more potential discoveries would be found.

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