



Applying State Dependent Memory On A Procedural Task

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Abstract

This study was designed to determine whether state dependent memory had an affect on a procedural task. Past research has shown that state dependent memory can affect the retrieval process. In a study conducted by Lang, Craske, Brown, & Ghaneian (2001), participants who were able to return back to the same state of mind that they were originally in, at the time of learning, were able to recall more information than those participants that were brought to a different state of mind. In the current study, it was expected that participants who created an origami swan (procedural task) while listening to instrumental music (Cherry Blossoms) would experience an increase in performance levels. Participants in the experimental group were exposed to the sound condition, while participants in the control group were not exposed to the sound condition. A sample of college students (N = 43) were used in this study, however results indicate that there was no significant difference found between participants in the sound condition and the no sound condition.

Introduction

- Researchers were interested in the idea that sound could serve as a state dependent tool, which could influence a person's ability to recall information, as long as they were exposed to the same sound as before.
- It was predicted that the presence of sound would decrease the time of completion and increase the number of correct steps in a procedural task when compared to the no sound condition.
- According to Seitz, Kim, & Shams (2006) sound serves as a facilitator for memory recall.
- The current hypothesis was based on previous research which suggested that recall increased when participants were tested in the same context where they first learned the information, compared to participants who were not tested in the same context (Godden & Baddeley, 1975).

Objectives

- To test whether sound could have an affect on time completion.
- To test whether sound could have an affect on the individual's ability to recall and complete the correct origami steps.
- It was hypothesized that participants under the presence of the sound condition would complete the origami swan faster than those participants who were not exposed to the sound condition.
- It was hypothesized that participants under the presence of the sound condition would complete more correct origami steps than those participants who were not exposed to the sound condition.

Methods

Participants:

- N = 43
- Age ranges from 18 to 49
- 25 females and 18 males (4 participants were excluded)

Materials:

- Consent form
- Instructional origami video (3 minutes)
- Two light blue origami papers
- Blank sheet of paper (filler task)
- Demographic/manipulation check questionnaire
- Debriefing form
- Participation slip
- Origami rubric

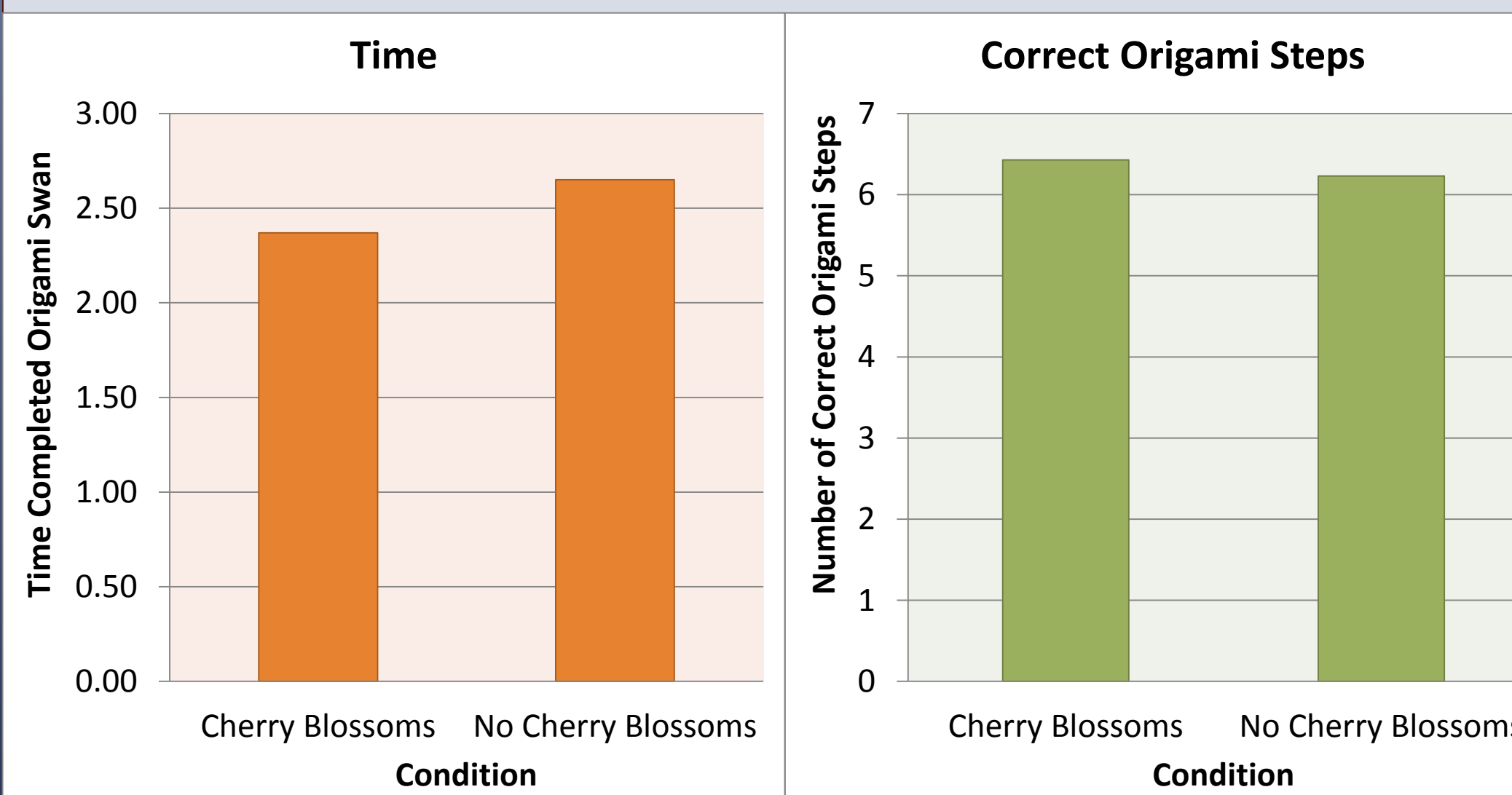
Design:

- Between subject design
- Independent variable
 - Sound (Cherry Blossoms), no sound (no Cherry Blossoms)
- Dependent variable
 - Length of time and number of complete origami steps

Procedures:

- Participants were shown an instructional origami video
- A filler task
 - Participants wrote down as many of the 50 states in America they could within a minute
- Participants recreate the same origami from the instructional video, while timing participants
 - Control group were not exposed to Cherry Blossoms
 - Experimental group were exposed to Cherry Blossoms
- Origami folds were rated by multiple raters for reliability

Results



- Results were obtained by an independent sample t-test
- No significant difference on the number of corrects steps between sound(M=6.43,SD=3.47) and no sound (M=6.23,SD=2.88), F (1,41)= 2.18, P>0.05
- No significant difference in time between sound (M=2.37, SD=0.66) and no sound (M=2.65, SD= 0.43), F(1,41)=4.34, P>0.05

Discussion

- No significant difference was found
- Two separate lab rooms were used
- Music did not have a strong effect on participants' recall ability
- Computers shut down during some trials causing instrumental decay
- Sound did not produce a strong effect on state dependent memory
- Manipulation check questions revealed a lack of participant's awareness
- Last three steps on the video were difficult to follow
- For the future, more demographic questions would be needed to access whether participants across conditions were similar in mood and state
- Since both the control and experimental group showed no differences, it is concluded that there must have been a confounding variable that affected the results from achieving significance

References

- Fiechter, D. "Beautiful Japanese music-*Cherry Blossoms*." *Youtube*. 24 Dec. 2013. Web. 15 Dec. 2014. <<https://www.youtube.com/watch?v=Wp2oSuh1Hy0>>.
- Godden, D.A. (1975). Context-dependent memory in two natural environments: On land and underwater. *British Journal of Psychology*, 66(3), 325-331.
- How to make a paper swan, origami. (n.d.). *Youtube*. 15 Dec. 2014 <<https://www.youtube.com/watch?v=bofHx6N9W1k>>.
- Lang, A. A. (2001). Fear-related state dependent memory. *Cognition & Emotion*, 15(5), 6695-703.
- Seitz, A. R., Kim, R., & Shams, L. (2006). Sound facilitates visual learning. *Current Biology*. doi: 10.1016/j.cub.2006.05.048.

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