

MAPPING ACROSS SENSES: TWO CROSS-MODAL ASSOCIATION TASKS

Mark Dingemans, Tessa van Leeuwen & Asifa Majid

Project	Categories across Language and Cognition.
Task	Test-retest colour associations with (i) tones from a musical scale and (ii) characters from writing systems (if applicable).
Goals	To explore cross-modal mappings in different cultures using field tasks that can be rapidly and easily deployed with many subjects.
Prerequisites	You will need the focal colour card and colour blindness cards; a portable computer to present the stimuli and record the results; the response sheet for data input and playback; and the stimulus items in the folder “stimuli”: 15 audio files and two presentations containing characters from the Roman alphabetical writing system..

Background

This entry describes two simple colour association tasks that can be run quickly in the field. The principal aim is to collect data on cross-modal associations. Cross-cultural work on tone-colour and character-colour associations is rare, so this puts fieldworkers in a unique position. If you are able to collect data from many people, you may also be able to identify a possible synaesthete. This would be a major find as no one to date with this condition has been documented in a non-literate community and, in general, little is known about how synaesthesia manifests itself outside of a Western context.

Task 1 involves associating tones with colours. Task 2 involves associating characters from the Roman alphabetical writing system with colours. In both tasks, the response required from participants is to indicate a colour by pointing to a chip on a 84-chip colour card. Piloting in Ghana suggests that adults and kids from the age of 12 upwards (literate as well as non-literate) find it easy to carry out this kind of task, and can do it fast. Although it might seem unusual, we do not require literate participants to do the letter-colour association task. It can work perfectly well with non-literate participants. The letters can simply be treated as shapes and the task is a simple shape-colour association task. Task 1 is obligatory; Task 2 is optional. They can easily be done in the same session. Together the tasks should take around 10-15 minutes.

Note: these tasks were foreshadowed in the previous field manual entry *Synaesthesia: a cross-cultural pilot* (Majid, van Leeuwen & Dingemans 2009).

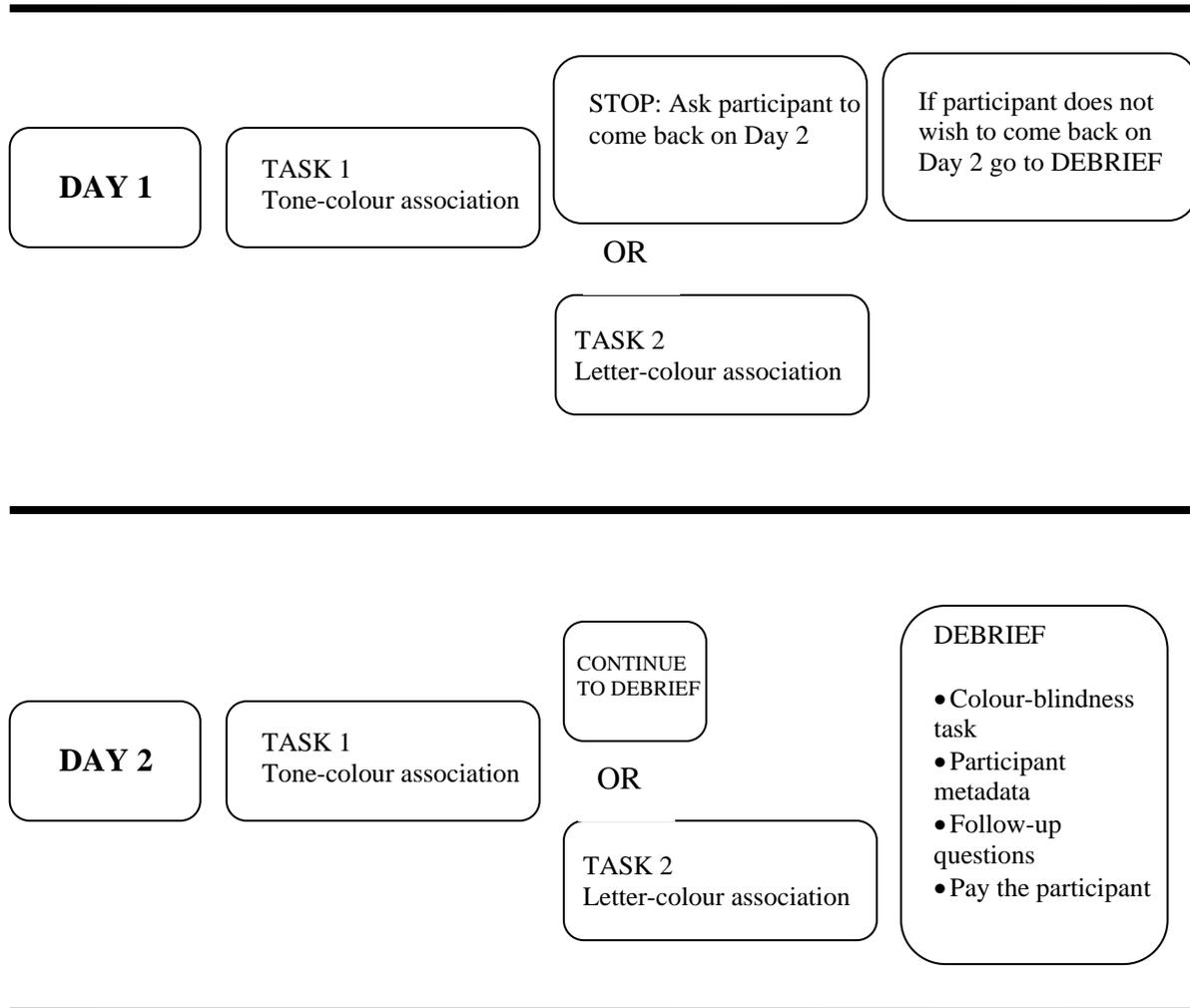
What you need

- Two days on which you can run this task at least 48 hours apart. The main constraint is to ensure that Day 1 participants will be able and willing to return on Day 2.
- Small rewards for every participant (as an incentive for them to come back on Day 2)
- A quiet place where you can administer the task to one person without others interfering (potential future participants should not be allowed to witness the task)
- Table and two chairs

- Focal colour card (84 colour chips on one page)
- Colour blindness cards
- Computer
- Two headphones and an audio splitter

Workflow

This cross-modal association task is simple but consists of a number of small steps. In order to help you keep track of what you need to do, consult this workflow diagram as needed.



Task 1: Tone-colour association

This task is designed to elicit colour associations using a tonal scale of 12 simple tones.

Consultants

Aim to test at least 20 participants.

Stimuli

The stimuli consist of 12 audio files. You can play them directly from within the Excel sheet (cross-modal-colour.xls). There are two different fixed randomised orders, one for Day 1 and one for Day 2. You also need the focal colour card (Majid, 2008).

Procedure

Write down the responses during the session, either in a notebook or directly in the Excel data sheet. You can record the session but it is not necessary.

Consultants should listen to the stimuli over good quality headphones. Do not use the internal speakers of the laptop computer.

Before beginning the task, record the participant's name.

Day 1

Explain that you will be playing them sounds, one by one. Ask them to listen to the sound and then to point to the colour this sound makes them think of. Exemplify the pointing at a specific colour chip on the card. Below are some instructions. Pick the one most appropriate to your fieldsite (and modify as required).

- “Some people think sounds have colour. If you had to choose one colour for this sound, what would it be? Can you point to it.”
- “What colour does this sound make you think of?”
- “What colour is this sound like?”

If your language lacks a superordinate term for “colour”, then substitute something like “black, white, red”. For example, “Some people think sounds are black, white, red...”

Play the first sound from the Day 1 worksheet in Excel. Repeat if the participant requests it. Write down the response according to the coordinates on the colour card, letter first (e.g., “a20”). Continue till you have played all 12 files. After finishing the task with a subject, take some time to write down your impression of the subject's performance (e.g., “takes a lot of time but is very definite”, “went way too fast”, “hovers over general area then picks specific colour”, etc.).

Continue to Task 2. If you cannot or choose not to, then at this point you should conclude the data collection session. Ask the consultant to come back on Day 2 to get a small reward. (If they do not wish to come back, give them the small reward now.)

Day 2

Copy the participant's name from the Day 1 worksheet onto the Day 2 worksheet. Repeat the procedure from above.

Continue to Task 2 or conduct Debriefing now.

Task 2 (optional): Letter-colour association

This task is designed to elicit colour associations using the roman alphabet. If you want to do this task, it is best to do it right after you finish Task 1, while the participant is still with you.

Stimuli

The stimuli consist of characters from the Roman (English) alphabet, presented in randomised order in a PowerPoint presentation (one for each day).

Procedure

Write down the responses during the session, either in a notebook or directly in the Excel data sheet. You can record the session but it is not necessary.

Day 1

Open the file with the Day 1 slides. Explain to the participant that you will be showing letters, one by one. If the person is not literate, then you can tell them you will show them some shapes (instead of letters). Ask them to point to the colour the letter (shape) makes them think of. Exemplify the pointing at a specific colour chip on the card. See above for instructions.

Debrief the participant, telling them they need to come back on Day 2 to get a small reward.

Day 2

Open the file with the Day 2 slides. Repeat the procedure from above.

Show the first letter. Write down the response according to the coordinates on the colour card, letter first (e.g., “a20” — lowercase letter is fine). Continue till you have shown all characters. After finishing the task with a person, write down a quick impression of their performance, as above.

Debriefing

After concluding data collection you must elicit background information from the consultant.

(1) Run the colour blindness task. Guidelines from Majid & Levinson (2007: p23-24):

First, test your consultant for colour-blindness. This is a very simple task. You have 2 colour plates, made up of colour patches of different colours. Place the colour plates around 75 cm away the consultant. Ask the consultant to trace (with their index finger) the winding lines between the two x's. The tracing should be completed within 10 seconds.

Plate 1 (No. 21) – normally sighted trace the orange line but the majority of colour-blind are unable to follow this line. They may follow a different line.

Plate 2 (No. 18) – normally sighted trace the purple and red lines. In protanopia and strong protanomalopia only the purple line is traced. In deuteranopia and strong deuteranomalia only the red line is traced.

If your consultant is unable to trace the indicated line, or takes an inordinate amount of time to do so, this may be evidence of colour-blindness. If your participant is colour blind we are still interested in their data!

(2) Elicit participant metadata including name, age, gender, literacy, schooling, linguistic background and musical training.

(3) Follow-up questions: If the participant's performance has been unusual in anyway, ask some additional questions ("Do you see the colours when you hear the sound?" "How do you know this is blue?"). These questions can help understand the performance, and also potentially reveal synaesthetes.

(4) Finally, give the participant a reward (as appropriate to your community – please keep a note of the reward).

Coding and analysis

Code the data using the response sheet supplied. You can record responses while running the task, or note them down and type them in later.

Important Make sure to turn off Excel's *autocomplete* function while recording the colour choices in Excel. (This function may "complete" 'a2' to 'a20' if there is a cell containing 'a20' above, so it could lead to errors.) You only need to do this once. Here's how to do it:

In Excel 2003:

1. Click on Tools > Options to bring up the *Options* dialogue box.
2. Click on the Edit tab.
3. Remove the checkmark from the *Enable Autocomplete for cell values* option box.
4. Click OK. Autocomplete should now be disabled.

In Excel 2007:

1. Click on Office Button > Excel Options to bring up the *Excel Options* dialogue box.
2. Click on the *Advanced* button in the left hand pane.
3. Remove the checkmark from the *Enable Autocomplete for cell values* option box.
4. Click OK. Autocomplete should now be disabled.

Outcomes

The data will be analysed for consistency across stimuli (within and across subjects) and across days (within subjects). The data will speak to published findings on the putative universality of cross-modal associations. A likely outcome is a publication of these findings in a jointly-authored paper. Should a synaesthete be identified in your community, we would tailor specific tests to explore their condition. This is a likely high impact follow-up and would lead to a separate publication.

References

- Majid, A., van Leeuwen, T., & Dingemanse, M. (2009). Synaesthesia: a cross-cultural pilot. In A. Majid (Ed.), *Field Manual Volume 12*, Nijmegen: MPI for Psycholinguistics.
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