

Questionnaire Number: \_ \_ \_ \_



**Dr Noam Sagiv**, Centre for Cognition and Neuroimaging,  
Psychology Department (MJ157), Brunel University, Uxbridge  
UB8 3PH. Tel: +44 (0)1895 265341, Office: Gaskell Bldg 168.

[syn.research.london@gmail.com](mailto:syn.research.london@gmail.com)

Website: <http://people.brunel.ac.uk/~hsstnns/>

## Synaesthesia and individual differences in perception and imagery

### Introduction

We rarely stop to think about it and typically assume that everyone sees the world just like we do, but some people's mental imagery is richer than others'. In synaesthesia, stimuli in one sensory modality can also trigger perceptual experiences in another modality; e.g., visualising colours when listening to music. Other sensory combinations are possible (e.g., involving taste, smell or touch).

The broad aim of this study is to understand the cognitive, developmental and biological basis of synaesthesia and individual differences in perception.

### What the study involves

(1) You will be asked to fill in a general questionnaire concerning individual differences in perception and imagery (attached to this form).

(2) If you are available to take part in research in our laboratory at Brunel University, you may be invited to take a number of computerised tests in which we present either visual images or sounds and ask you to rate or classify the stimuli. We will record your responses and in some cases your reaction time.

(3) We may invite some participants to take part in a follow-up brain imaging study. You are under no obligation to take part or decide now. You may take part in the simple computerised tests without committing to take part in any follow-up and you may withdraw at any time. For your information, the brain imaging facility is located on the Royal Holloway campus in Egham.

### Confidentiality

Your personal details (name, address, etc.) will not be passed on to anybody else outside of our research group without first gaining your written consent. You will be referred to in our records and in any publications by your initials (or another code such as participant number), in accordance with the data protection act.

Name of participant: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone number: \_\_\_\_\_

E-mail: \_\_\_\_\_

**I have read the information above and I agree to take part in the study. I understand that I may withdraw at any point in the future.**

Signed (by participant) : \_\_\_\_\_

Date : \_\_\_\_\_

# SYNAESTHESIA QUESTIONNAIRE

## ***Section 1. GENERAL INFORMATION, ABILITIES AND DIFFICULTIES***

**Initials:** \_\_\_\_\_

**Year of Birth:** \_\_\_\_\_ / **Age** \_\_\_\_\_

**Sex:** Male / Female

**Are you left or right handed?**      LEFT      RIGHT      AMBIDEXTROUS

**Is English your first language?**      YES      NO (please state \_\_\_\_\_)

**Other languages:**

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**Visual, hearing or any other sensory impairment?** \_\_\_\_\_

**Any history of brain diseases or trauma?** \_\_\_\_\_

**Do you find that you often get left and right confused?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you have problems navigating or finding your way around places?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you have (or have you ever had) problems with understanding numbers and/or calculation?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you have (or have you ever had) problems with reading and spelling?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

If YES, then were you ever formally assessed for dyslexia? \_\_\_\_\_

**Do you have a problem recognizing or remembering familiar faces, including people you see often such as close friends or relatives?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

Comments, if any:

## **Section 2. MENTAL IMAGERY**

**When listening to music, do you visualise colours, textures, or abstract shapes?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**When listening to music, do you visualise objects, places, or landscapes?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**When reading a story, do you visualise it in your mind?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**When reading a story, do you imagine the voice of the narrator or characters?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Some people visualise or 'fill in' colours when watching a black and white movie! Do you fill-in colours?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you visualise the text (e.g., like subtitles) when listening to someone speaking?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you visualise the text you are reading (e.g., do you see it in your mind's eye as well as on the page)?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree

**Do you think about letters or number as having gender? (e.g., 1 is a boy, 2 is a girl, etc)**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you think about letters or number as having personalities? (e.g., C is cute, N is nasty, etc)**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you think about some inanimate objects as if they had feelings (e.g., thinking that an object might feel lonely if separated from a group of objects)?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you ever sense touch on one part of your body when another part is stimulated (e.g., feel touch on your finger when your elbow touched something?)**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**Do you automatically visualise visual images when you close your eyes?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

- If you agreed with the last statement to some extent, how long after closing your eyes, do you start visualising images? \_\_\_\_\_
- What visual images do you perceive? Colours, Shapes, Textures, Motion, Other:

Comments, if any:

### **Section 3. MIRROR SENSATIONS and UNUSUAL PERCEPTUAL EXPERIENCES**

When seeing another person being touched, smelling a rose, or eating an apple, we could all say that we know what it would feel like, but some people actually have a very vivid experience, mirroring the other person (e.g., actually feel touch on their hand, actually smell a rose, or actually perceive an apple taste). These phenomena are called 'mirror-sensations'. Do you actually feel what others feel, as if you were in their shoes? Please consider the next 3 questions:

**1. TOUCH: Do you sense touch on your hand when seeing someone else being touched?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**2. SMELL: If you see a person smelling a rose in a movie, do you experience the smell too?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

**3. TASTE: If you see someone eating something in a movie (and you can tell what it is), do you experience the taste as well?**

Strongly disagree      Disagree      Neither agree nor disagree      Agree      Strongly agree

What we perceive usually reflects the actual objects and events around us, but occasionally, perception may persist longer than the duration of the stimulus, or may be present without a stimulus. Do you ever perceive more than what is actually there? Consider the next few questions:

**4. Do you sometimes experience persistence of touch (other than lingering pain after an injury, e.g., it feels like the sunglasses are still above your forehead, or a pill stuck in your throat long after you swallowed it), feeling wet (e.g., wet sock, long after you've changed to dry clothes)?**

Please give details: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Do you sometimes experience persistence of visual images, tastes, smells, or sound, some time after the stimulus has been removed? Please give details:**

**5. Vision:** \_\_\_\_\_

**6. Sound:** \_\_\_\_\_

**7. Taste:** \_\_\_\_\_

**8. Smell:** \_\_\_\_\_

**9. Are you taking any medications?** \_\_\_\_\_

**Any other comments:**

10. Do you sometimes experience a smell with no obvious source – a “phantom smell” (you are not sure where it coming from and nobody else knows what you are talking about / nobody can smell anything)?

Please give details: \_\_\_\_\_

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Have you noticed any patterns, when is it more likely to happen? \_\_\_\_\_

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11. Do you sometimes experience other phantom sensations (e.g., visual hallucinations, auditory/musical hallucinations, illusory touch, or taste?). Please give details: \_\_\_\_\_

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Have you noticed any patterns, when is it more likely to happen? \_\_\_\_\_

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### ***Section 4. SPATIAL PATTERNS***

Some people visualise or think about certain categories as if they had particular locations in space or as if they are organised in some sort of pattern. Everyone has seen a number line in a math textbook and most people would find it reasonable to draw number on a straight line going from left to right, however, fewer people automatically visualise such a line every time they think about a number (at least when concentrating without distraction).

Do you automatically think about locations/patterns in space every time you think about the following?

#### **Numbers?**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
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#### **Letters of the alphabet?**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
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#### **Days of the week?**

Strongly disagree	Disagree	Neither agree nor disagree	Agree
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#### **Months of the year?**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
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Any other sequences or categories that you think about as having different locations?

(e.g., Height, Weight, Temperatures, Years – if they have a separate pattern than the standard ‘number form’; certain names perhaps?)

Please attach additional sheets if necessary to illustrate the spatial patterns.

### Section 5. TYPES OF SYNAESTHESIA

Note here any other types of synaesthesia you think you may have. Use the notes column to indicate other synaesthetic properties not mentioned (e.g., if in addition to colour you also see shapes, textures, or visual motion). Please attach additional pages if necessary to provide more detailed descriptions.

Type of Synaesthesia	Y	N	Maybe	Details/notes
Coloured letters				Other visual
Coloured numbers				Other visual:
Coloured weekdays				Other visual:
Coloured months of the year				Other visual:
Coloured speech sound				Other visual:
Coloured sound (any noise)				Other visual:
Coloured music				Other visual:
Coloured music notes (written)				Other visual:
Coloured smell				Other visual:
Coloured taste				Other visual:
Coloured touch				Other visual:
Coloured temperature				Other visual:
Coloured pain				Other visual:
Coloured personalities/people/auras				Other visual:
Sound > taste				
Sound > smell				
Sound > touch				
Smell > sound				
Smell > touch/temperature				
Taste > sound				
Taste > touch/temperature				
Touch > Sound				
Touch > Taste or smell				
Temperature > Sound				
Temperature > Taste or smell				
Vision (static) > Sound				
Visual motion > Sound				
Vision > smell				
Vision > taste				
Vision > touch/temperature				
Personalities/people > smell				
Personalities/people > taste				
Faces > Colour/smell/taste				
Places > Smell				
Places > Taste				
Emotion > Smell /Taste				
Emotion > Taste				
Emotion > Colour/other visual				

Please describe here the colours of letters and numbers. In the rightmost column you may describe any additional properties that letters and numbers have (e.g., texture, taste,...) or give more detail if it is complicated (e.g., colour is transparent/glowing/changes in a certain context)

Letter/Number	Colour	Comments
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		
N		
O		
P		
Q		
R		
S		
T		
U		
V		
W		
X		
Y		
Z		
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		