“Your voice tastes like salted caramel”: Exploring synesthesia in the Philippines

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Abstract

Synesthesia is a neurological condition wherein stimulation of one sensory modality automatically triggers sensation in another sensory modality (Cytowic, 2002) however, narratives are mostly drawn from Western populations and the recording of the condition and experiences of Filipino synesthetes are minimal if not non-existent. To help address this gap, purposive sampling was used to recruit five Filipino synesthetes who were then interviewed in-depth. Thematic analysis was used to analyze the transcribed data. Among the five participants, synesthesia manifested as sound→color, music→color, number→form, sequence→space, grapheme→color, grapheme→pattern, subject & days of week→color and voice→taste. Although some shared similar synesthetic conditions (e.g. grapheme→color) they differ in associations and how these change with different stimuli. Similarities of experiences were discussed (late identification, condition as not disadvantageous, and desire to get to know other synesthetes) as well as the role of culture and the local setting. Idiosyncratic benefits of the synesthetic condition were also seen, such as how the synesthetes have used it to create recipes, poems or as study guides and memory cues.

Keywords: synesthesia, synesthetes, Philippines, culture

Billie, a Filipina synesthete, says that listening to *Pathetique* by Beethoven is “like a warm sunset orange”. She means this not in the poetic, literary sense but in the concrete associated visual sensation that is triggered when she hears the musical piece. Synesthesia is a neurological condition in which stimulation in one sensory modality automatically triggers a sensation in another sensory modality (Cytowic, 2002). People who identify as synesthetes report seeing colors and shapes when listening to music, or identifying taste when they hear or smell. This interesting condition however, has rarely, if at all, been given attention in the local setting. There is a general lack of articles, both academic and otherwise, that address the existence of synesthetes and synesthesia in the country. To help remedy this gap, we set out to explore the condition and experiences of Filipino synesthetes and to make preliminary incursions to the role of culture in the experience of the synesthesia.

Synesthesia as a Neurological Condition

While there is no formal clinical diagnosis for synesthesia, the experiences of synesthesia among individuals usually follow several established criteria. The synesthetic experience is automatic and involuntary (American Psychiatric Association, 2013) and is typically generic and consistent through time (Cytowic & Eagleman, 2009; Simner & Bain, 2013). The associations are made between elementary units of stimuli (e.g. blobs, geometrically simple shapes, digits, letters) and not overly complex or pictorial stimuli. Furthermore, the associations perceived by the individual with synesthesia may remain the same from childhood throughout adulthood. (Baron-Cohen, Wyke & Binnie, 1987; Simner & Bain, 2013)

The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) defines synesthesia, but does not give it a chapter of its own, reinforcing the assertion that “synaesthesia is not a disorder, but rather a different way of

experiencing the world” (Max Planck Institute for Psycholinguistics, n.d). However, while synesthesia in itself is not a disorder, intoxication from hallucinogens may cause temporary experience of synesthesia, among other perceptual changes and hallucinations (American Psychiatric Association, 2013)

Numerous types of synesthesia exists (for a review see: Cytowic & Eagleman, 2009), the most common among these include the grapheme→color synesthesia (where letters and digits are associated with color), number→form synesthesia (where numbers are seen in a spatial map), spatial→sequence synesthesia (seeing sequences such as days of the week and months of the year as having a spatial organization) and sound→sight synesthesia (where colors are closely associated with auditory stimuli)

Nevertheless, synesthetes differ in the strength, nature and general experience of the triggered sensation. Some describe experiencing real-world sensations while others report that they experience a more “back-of-the-mind” association (Simner et al., 2006)

Prevalence of the Condition

It is popularly believed that synesthesia is an uncommon condition. In a population study done in Cambridge, England prevalence rate for synesthesia was found to be approximately 1 case in 2000 with a sex ratio of 6:1 (female:male). (Baron-Cohen, Burt, Smith-Laittan, Harrison, Bolton, 1996). However, in a study by Simner and coworkers (2006) which used individual assessments instead of self-report show that synesthesia is far more common and that 1 in 23 individuals have some type of synesthesia and with no female bias. Particularly worthy to note is the lack of statistics in the Philippine setting.

Certain forms of synesthesia have also been suggested to be genetic. Occurrences of heritable variants of synesthesia comprise roughly 4% of the general population. Genetic

research suggests that synesthesia may be heterogeneous and polygenetic. (Brang and Ramachandran, 2011)

Etiology of Synesthesia

There are different proposed causes of the experience of synesthesia. One proposal suggests that synesthesia is caused by an overabundance of neural connections in the brain as a consequence of inherited genes. This overabundance causes a breakdown in the strict modularity of the senses, and an integration of sensations. (Baron-Cohen, et. al. 1987)

Maurer and Spector (2009) on the other hand suggest that humans may be born with neural connections that allow synesthesia. However, most of us lose these connections as we grow up. This is supported by Hubbard & Ramachandran (2005) who posit that the excess of neural connections between sensory modalities is a result of decreased neural pruning of interconnected regions in the fetus.

An alternate explanation by Grossenbacher & Lovelace (2001) proposes the improper inhibition of feedback connections from multisensory areas of the brain to single-sensory areas. As a result, signals are sent to different single-sensory areas other than the appropriate ones, leading the senses to mix-up. This explanation also accommodates reports of temporary synthetic experience brought about by hallucinogenic drugs

Cultural Differences in Manifestations of Neurological Conditions

Not all neurological conditions, such as mental disorders are experienced or expressed uniformly across cultures. It is recognized that culture plays a significant role in the field of abnormal psychology; generally in what is considered abnormal, but more concretely in its effect in the expression of mental disorders as well as its subsequent treatment. (Nolen-Hoeksema, 2011). For example, much of the reported content of auditory hallucinations in Saudi Arabia

include religious elements while those in the United Kingdom had themes of instructions and running commentaries (Kent & Wahass, 1996). Although synesthesia as mentioned earlier is not a mental disorder, it shares key characteristics such as being a condition with presumably altered neural bases and which deviates clearly from the norm.

One can speculate how culture can affect the experience of synesthesia, especially in determining or influencing which stimuli triggers the experience and what associations are made. Specific types of synesthesia, like grapheme→color synesthesia rely heavily on culturally acquired symbols such as letters and digits. It is only when letters and numerals in a language are learned that the representations required for grapheme-color synesthesia are established (Simner & Bain, 2013) which may point to the areas in which culture can mediate the experience of the neurological condition. Anton Sidoroff-Dorso (2014) asserts that synesthesia or aspects of it is more likely to be culture-bound (rather than culture-neutral) and that synesthesia reflects both biology and culture. In fact, there have been a few cases of synesthesia which are evidently heavily affected by childhood association (Day, 2005)

Thus, the present research aims to (1) explore the synesthetic conditions and (2) document the lived experiences of these Filipino synesthetes, as well as to (3) probe the role of culture and the local setting in the development and experience of synesthesia.

Method

The study follows a general qualitative research design. A total of 5 Filipino synesthetes were interviewed either face-to-face ($N=3$) or online ($N=2$) with a pre-set interview guide. The interview guide included questions that probe the details their synesthetic condition, their different experiences and their interpretation of different events and influences. The online interviews were necessitated by the constraints in participants' availability and time-constraints

in the data gathering period. The interview was semi-structured for the face-to-face participants, while online interviewees were given the questionnaire and subsequently asked follow-up questions. Participants were recruited through purposive sampling and by putting up posters in the corridors of the Psychology Department in the University of the Philippines Diliman.

Of the five participants four were female (Karla, Ana, Billie and Pia) and one was male (Benedict)¹. At the time of the interview, Benedict was studying medicine at a university in Metro Manila, while Karla, Ana, Billie and Pia were students of three different colleges in the University of the Philippines Diliman. Since there is no formal medical diagnosis for synesthesia, participants were initially invited if they reported associating one modality with another, and their information retained for analysis if along the course of the interview it was found that their synesthetic experience were (1) automatic (2) involuntary and (3) consistent through time as detailed in the established literature (American Psychiatric Association, 2013; Baron-Cohen et al., 1987; Cytowic & Eagleman, 2009; Simmer & Bain, 2013). All of the participants met the criteria.

General thematic analysis was used to explore the data gathered, and observe trends among the experiences and answers given by the participants. This method of analysis was deemed fit for the current research due to the exploratory nature of the study and its appropriateness in generating insight about the topic.

Results and Analysis

Synesthetic Conditions

Participant 1, Karla

¹ Pseudonyms used, although participants were favorable towards non-anonymization and the disclosure of much of the interview

Karla, an undergraduate student in UP Diliman at the time of the research, has grapheme→color synesthesia. Letters, words and numbers have unique and corresponding color associations and the color association for letters seem to be the building block for her colors for words. The letters A, B and C for example is colored as “*A, green, ta’s B somewhat red – hindi siya exactly red, hindi rin siya exactly brown basta somewhere in between. C is yellow.*” (“A is green and B is somewhat red – it’s not exactly red but not exactly brown too, but somewhere in between. C is yellow”). The first letter then affects the color of the rest of the word. The word ‘church’ for example is associated with the color yellow, and so is the word ‘cat’ - but this word is a slightly brighter yellow for Karla as the letter A, which follows C, is colored green.

While the colors of letters mix when forming words, this is not the case for numbers. She views numbers as being brighter, where “1 is white, 2 is orange“ and so on. This leads to a case for example, the multi-digit number such 1567 will have distinctly different colors per digit. Her grapheme→color synesthesia extends to signs and symbols, leading to cases where a blackboard full of equations is reported to be really colorful.

Karla’s form of synesthesia though seems to be regulated by her ability to understand (or become familiar with) the graphemes. While a string of random letters in the Latin alphabet will still produce an associated color, Japanese characters for her were only colorful when she was learning and practicing the language; after some time and having forgotten what the characters meant, she fails to produce an association. This is also similar to the fact that she sees the words in a printed document as black and white when viewed from a distance, but once she is able to read them, colors automatically associate with the words. As such, the significance of meaning as a variable is further validated by knowing that Karla equally associates the same color with the graphemes whether this is seen or heard.

Aside from her grapheme→color synesthesia, Karla also associates color with sound and music, although she reports this is not as distinct as her other form of synesthesia. Sounds produced by saxophones are said to have metallic colors, while everyday noises come in browns or grays. Higher notes are indicated to have brighter colors, while lower notes have darker ones. Listening to classical music then, is described as “*Parang painting. Parang nagsiswirl na paint*” (“It’s like a painting, like a swirling paint”). Furthermore, the same tones may produce the same colors but their textures differ across different mediums. Karla relates: “*I think same yung C [chord] . . . Parang ayun nga, metallic sa violin, pastel yung sa piano*” (I think it’s the same for C [chord] . . . But, again, it’s metallic for the violin and pastel for piano)

While this may seem overwhelming seeing that in any given time she can perceive colors in her surroundings and then associate colors with words, and then with music - Karla reports that she is not bothered, and can easily localize which colors are which and has no difficulty in integrating the various stimuli (“*nakalakihan mo na siya*”) (“you get used to it”). While her associations are automatic, she does know what the ‘original’ color of the printed words are.

Participant 2, Benedict

Benedict is a medical student who experiences number→form synesthesia and spatial sequence synesthesia. His first synesthesia automatically causes arrangement of numbers into a certain pattern. The sequence of numbers from 1-100 is visualized as grouped together by tens and is situated in a visual pattern that repeats itself by the hundreds. *Figure 1* shows his number form sketch, digitally reconstructed to enhance the clarity of the figure.

Figure 1. Benedict's Number Form

His second synesthesia, spatial sequence synesthesia entails the automatic association of spatial organization of sequences, specifically the arrangement of days of the week and months of the year. Thus, whenever Benedict sees or thinks of a number, day, month or individual letters, he automatically and constantly localizes them to their positions in these maps.(i.e. E will always be in the corner, Sunday will occupy the same position and size compared to the other days etc.) *Figures 2, 3 and 4* show rough visualizations of these associations drawn by the participant himself. *Figure 2* show that Benedict's alphabet map resemble a rectangular spiral, the pattern follows the sequence of the 26 Latin alphabet (i.e A which is followed by B, which is followed by C etc. with no letter or group of letters breaking the conventional sequence). When probed, Benedict admits that the letters *ñ* and *ng* are not really part of the map, but with effort he can localize where these letters should be, which is beside and after the letter N. This is contrasted with characters from other languages, which he cannot incorporate in his associated maps. In his words, "*Parang mas conscious effort [Ivisualize ang ñ at ng]. Pero kaya pa din.*

Unlike yung mga french special characters like dikit na oe or ae (“It takes conscious effort to visualize ñ and ng, but it still can be done. Unlike those french special characters like the oe and ae”). From this we can surmise that ñ and ng are not natural triggers of his synesthetic associations.

Figure 3 shows his spatial visualization of the days of the week. Each day is situated in a circular manner that starts with Sunday and ends with Saturday. Both the days of weekend also occupy a greater portion compared to any single weekday - in fact Saturday and Sunday make up a little more than half of the entire week map. *Figure 4* meanwhile, shows his visualization of the months of the year following a curved line with the months continuously repeating themselves. Benedict relates that these visualizations are not projected into actual physical space but occur in his mind’s eye in a more implicit manner of visualization. In fact, there is a great versatility in how he views his maps. Benedict relates, “*kaya makita in one go. Kaya magzoom in or out. Kaya ding iview pabaliktad yung numbers and letters, pero yung days of the week and months of the year hindi. 2D lahat.*” (“I can see it in one go. I can zoom in or out. I can also view the numbers and letters upside down but not for the week and months of the year. All the maps are in 2D”)

Figure 3. Week map

Figure 4. Year Map

Figure 2. Alphabet map

Participant 3, Ana

The third participant, Ana, is a scent→taste synesthete who reports that certain scents – both of food and non-food items- cause her to perceive tastes. This triggered taste from the olfactory stimulation is similar to how it would taste if she had actually eaten the food item, with a few exceptions. She cites that the triggered taste of the scent of sausages is that of a salty and sweet taste however the actual taste of sausages is just salty. Non-food items on the other hand elicit tastes that are described not in terms of universal tastes (bitter, salty, sour, sweet, umami) but according to similar- tasting food items (e.g. minty taste for the smell of air conditioning). Incidentally she also reports that she has heightened sensation of tastes compared to her peers especially for the basic tastes of bitter and sour.

She also describes another form of synesthesia in which she automatically perceives patterns from letters and numbers. She reports that these letters and numbers “rearrange” themselves into forms that are more meaningful to her (i.e. digits of the cell phone numbers of friends are automatically cross-referenced to her own cell phone number, letters of a text are “rearranged” into a mnemonic similar to that of a friend’s initials). This may be a form of number-space synesthesia although more associative in nature and occurring at the back of the mind rather than projected onto the digits. Further, unlike Benedict’s condition, this rearrangement of graphemes do not project into a concrete shape or form.

When asked whether she has ever found her synesthesia to be distracting, she answers that it has sometimes affected her reaction to certain places such that it would divert her course of action or repel her from a certain place. She recalls being discouraged to go to the hospital due to the smell and taste, “[pag] *pumupunta ako ng hospital ang sagwa ang pangit talaga ng lasa. Ang pangit as in yung amoy ng metal, amoy ng dugo, amoy ng alcohol, tas parang oo gusto ko nang umalis*” (“Whenever I go to the hospital the taste is extremely unpleasant. It really is unpleasant – the scent of the metal, the scent of blood, the scent of alcohol and yes, I just want to leave”)

Participant 4, Billie

Billie is an undergraduate student who reports experiencing four types of synesthesia: namely: music →color, voice →taste, subject →color, and days of the week →color synesthesia. For the four types of synesthesia, she reports that the associations occur mostly as back-of- mind associations rather than projected – unlike the previous participant Ana whose taste is visceral with the olfactory stimuli.

For her music→color synesthesia, Billie associates particular colors for corresponding musical pieces, such as classical or pop songs. For pop music, she reports strong associations based on the whole song (e.g. she cites one Japanese song as blue). For another pop song, she relates how colors flash along with the song. Taking us through an entire pop musical piece she says:

“Start of the song, it’s mostly just black and then it starts with like parap-parap-parap parang ganun, and then parang may konting like [hand gesture representing a flicker] para ng white, parang ganun. And then, parang small lahat na gumaganon na white. Parang ganun, they’re in a line [hand gesture representing a line with a series of flickers]. Parang naka ganun lahat. And then ah . . . it’s not moving by the lyrics itself pero like, drng-drng it starts off like that. And then like, at some point parang mas nagiging equal parts black and white siya. So meron, sometimes the appearance of the white is sharp, so like sharp na ganun. Sometimes, like for example dun sa chorus ‘took a walk on the clouds better sleep on the moon’ basta yung chorus, and it’s more like they’re blending to each other. Yung black and white is like [hand gesture circling around each other] it’s compared to like a black fluid and a white fluid and let’s say they don’t mix and become gray. Parang gumaganun. Something like that” (“At the start of the song it’s mostly just black and then it starts with like parap-parap-parap, like that, with a little [hand gesture representing a flicker] which is white. All those small flickers are white, and they’re in a line [hand gesture representing a line with a series of flickers], they’re all in that form. And then it’s not moving by the lyrics itself but more like, drng-drng it starts like that. At some point it becomes

equal parts black and white. Sometimes the appearance of white is sharp.

Sometimes, for example in the chorus ‘took a walk on the clouds better sleep on the moon’ it’s more like they’re blending into each other. The black and white is like [hand gesture circling around each other]. It’s compared to like, a black fluid and a white fluid and let’s say they don’t mix and become gray. Something like that.”)

For classical music on the other hand, she sees different colors for different segments. This echoes the experience of the first participant, Karla who says she sees many different swirling colors when listening to classical music.

Apart from sound triggering color, she also reports experiencing strong associations of taste upon hearing certain voices. She recalls thinking to herself upon hearing a friend’s voice “your voice tastes like salted caramel”. Although it does not occur for all voices, she says the associations are pretty strong and occur even before she could identify the taste which accompanied the stimulus. She also reveals the innateness of the experience when she respond to the prodding of a friend: “I don’t turn it on and off! It just happens”

Another reported association she experiences is that of subject to color. She relates how different subjects in school have their own color. She relates:

Composition, Composition is forever yellow. As in no matter what you do, that [subject] is yellow. Psych 108 is pink. Yeah that’s why I chose the pink filler for Psych 108. . . [Music] is blue, the subject Music [when I was in highschool] is also blue. Spelling was also pink, I don’t know why. ‘Pagbabaybay’ was brown. Filipino was green and brown.

Interestingly, she says her associations of subjects to colors extends to the letter C, which may be reflective of a partial grapheme-color synesthesia. She says: “the letter C is also yellow, maybe that’s why composition is also yellow, I don’t know, pero the letter C is yellow”

She also reports seeing colors in days of the week, saying:

Friday is orange. Tuesday is also blue. Thursday is a darker shade of green.

Wednesday’s green. [Yeah] Sunday’s clean (mild laughter) it’s a clean color, really like a light yellow or a white or something. Yeah, not much for Monday and Saturday. Friday is definitely orange.

However, when asked whether these same color associations occurred for the days of the week in Filipino, she responds that it differs as she generally has no associations for Filipino terms for days. She explains: “*Para kaseng, ‘Huwebes’, ‘Martes’. I usually don’t call them by the Tagalog [term]. . . I think it’s in the word itself, I mean the certain word gives that – it’s just, it’s just Friday is just a word. Yung sa word ang association*” (“It’s like, ‘Huwebes’, ‘Martes’. I don’t usually call them by their Tagalog terms. I think it’s in the word itself. The association is in the word itself”). However upon further probing, she relates how, on the top of her head, ‘Huwebes’ is a lighter orange, similar to the color ‘Friday’ which she earlier reported as orange, only now in a different intensity. This may have some similarities with Karla’s condition, in which words only gain triggered associations when they gain meaning.

Interestingly, Billie also has a brother who is a synesthete and they both share similar associations for some stimuli. For a certain chord for example, they both experience the color green. However, not all associations are similar for both of them.

Participant 5, Pia

She has only recently identified as a synesthete but Pia has experienced number→color synesthesia all her life. The digits 0-8 each have a specific color (or color family) while 9 is indicated to be a neutral color. Pia indicates that (0) is white to grey, (1) grey to black, (2) pink, (3) light blue, (4) green, (5) red, (6) yellow, (7) dark blue, (8) orange. For the number 9, Pia stresses

I don't know it has so many beautiful products, it's a square and it's a magic number so there are so many number associated with it I guess it never got its own colour. It's pretty neutral I guess...

Unlike Karla, where the digits do not mix and remain distinct even in number with multiple digits, Pia's number→color synesthesia for multiple digits of numbers involves a more canny process. When the single digits are in contrast with one another, they do not mix (i.e. 57 would remain red and dark blue respectively) while colors that are more similar may combine and form a single unit of color for both digits such as when "21 is mauve because [2] pink + [1] grey/silver." or how 68 becomes a cross between yellow and orange. The single number 5721 then would be formed with 3 units of colors: red, dark blue and mauve.

The color schema does not only depend on the contrasts among the digits, somehow Pia also takes into account whether the number is a perfect square ("36 is mostly yellow/ mustard because it's 6x6 / 169 & 196 are sort of like that too but with grey because of the 1"). Furthermore, the idiosyncratic aesthetic sense of Pia also changes how some multiple digits of numbers express their colors or hues such as when "72 is electric blue + neon pink" instead of just being dark blue and pink - that is, the digits adopt a shade similar to their original hue which would match each other better. This is also why the number 32 for Pia is not just the original colors of light blue and pink but rather "navy [and] carnation pink"

Comparison and Similarities of Experience

Self-Identification as a Synesthetes

From the 5 Filipino Synesthetes who participated in the study, automatic and stable associations among sensory modalities (Cytowic, 2002; Cytowic & Eagleman, 2009) aren't the only similarities between them. For one, a very salient sentiment among the synesthetes is captured by Benedict when he says that "It never occurred to me that seeing patterns in letters and numbers was not the norm" or when Billie, after learning that she was a synesthete, remembered thinking that "oh, that's what it's called. Apparently this isn't normal"

This also ties in with the observation that three of the five synesthetes interviewed only self-identified as a synesthete during high school or college, although they may have had the inkling pretty early on that this was not how their peers experience the world. In fact, only in the course of the research would the two other participants (Ana and Pia) embrace their identity as a synesthete. It took a certain insistence for one researcher to convince Pia that "*di naman ako synesthete, [automatically] inaassociate ko lang naman ang colors sa numbers!*" ("I am not a synesthete, I only associate colors with numbers!") is exactly what a synesthete is.

It has only been 5 years before her meeting with us that Karla realized she was a synesthete and she only realized it when she was talking to a friend. Similarly, Benedict, during his second year of college found out that he was a synesthete when he chanced upon an internet article talking about the condition, specifically of the number→form synesthesia. Billie was in 4th year highschool when she realized her condition wasn't 'normal' or necessarily experienced by her peers through reading a book where the protagonists are synesthetes who experience bullying. Interestingly Billie also mentions that it was only on the morning of the interview session that her mom found out that she

was a synesthete, relating “*I told my mom the reason why I’m coming here like sabi ko an interview for synesthesia and then my mom’s like ‘Synesthesia, what’s that?’ and then I told her. ‘Actually matagal na [akong may synesthesia]. Kuya and I have that’ and she’s like ‘Okay’*” (“I told my mom the reason why I’m coming here. I said it was for an interview for synesthesia and then my mom’s like ‘Synesthesia, what’s that?’ and then I told her ‘Actually it’s been ages [that I had synesthesia]. Kuya and I have that’ and she’s like ‘Okay’”).

Consistency and Intensity of Synesthesia over the Course of Development

In line with Baron-Cohen and colleagues’ (1987) and Simner & Bain’s (2013) findings, much of the associations of the participants were reported to have been similar or the same even from childhood. Billie recounts that “Yeah, like I mentioned that Japanese song, the title is Nantoka Narusa [is] still light blue for me up until now. When I listen to it, they still give off the same color”. However, not all synesthetic conditions have been perfectly conserved, with some associated sensations being modified through the years. Ana says of her smell→taste synesthesia now compared to her childhood : “*andun parin siya pero hindi ganun ka - oo intense*” (It’s still there but yes, It’s not that intense). Participants who reported differences in their experience of synesthesia point towards a change in intensity rather than in actual content of the associations. While Benedict reports that his synesthesia has generally remained stable throughout time he notes that one change that occurred was in his spatial sequence synesthesia. He relates that for his visualization of the months of the year, the months of April and May used to be less apparent and lacking in detail but this changed when entered college. He proposed the explanation that this may be because April and May became more important to him in college due to summer classes.

While associations are more or less automatic, the role of attention still greatly moderates the intensity of the stimuli. For many, associations tend to happen in the background and do not take precedence unless it's unusually striking. In fact, because there's a barrage of noise and graphemes in any given situation, Karla reveals that for some stimuli: "*hindi ko rin siya napoprocess na ganun yung kulay niya kasi di ko siya pinapansin.*" ("I don't process what color it is, because I don't pay attention to it")

When asked about how their associations formed and what could have possibly influenced their pairings between stimuli, participants speculated explanations for their associations. Karla tentatively suggested that her associations may have come from the color of the planets in the solar system which she recalls as the first thing she learned. She saw parallels between the color of certain planets similar to the color of the first letter of the planet names. Pia relates how her associations might have been influenced by 8-piece box of crayons

It's funny if you notice the visible light spectrum the colour with the most shades is green but I only have one digit for it 4. But my blues are 3 & 7 and light blue and dark blue just like the crayola box set. Then there's yellow & orange (6 & 8) too.

I'm pretty sure the standard box set has something to do with it.

an account that, though speculative, parallels findings of Day (2005) which also reports of anecdotes of how certain relevant stimuli in childhood affects synesthetic associations However, because it is a retrospective account, it cannot answer to whether which of Grossenbacher & Lovelace (2001) or Hubbard & Ramachandran (2005) models of synesthetic development is more accurate. Benedict also speculates that his alphabet map (*Figure 2*) was formed due to an actual alphabet maps in his kindergarten classroom. However his experiences in later life gives the most definitive account of what influences his associations: aside from the evidence of

increased clarity for the summer months of April and May as discussed above, he also says that for his month calendar visualization, the larger space delegated for August and December is reflective of the importance of the dates within their family since most of their birthdates fall within these months, Benedict forwards that

I feel that my year-map is highly influenced by the school year and how my family values August to December due to our birthdays, and that my week-map is highly influenced by how I value weekends

Idiosyncratic Benefits of Synesthesia

For all this, synesthesia is seen as a more advantageous condition than an unfavorable one – a support to the established literature that classifies it as a neurological condition and not a disorder (American Psychiatric Association, 2013; Max Planck Institute for Psycholinguistics, n.d). For all the participants, no stigma was attached to having synesthesia, a finding opposite to some of the accounts presented in Cytowic (2002) which come from American synesthetes.

While some report of certain inconveniences and distraction that comes along with condition such as when Benedict reports “I find calendars that start with Mondays very distracting, and I even have a hard time remembering important events in those” or when Pia shares that, “I have an unnatural anger and seething hate for colour-by-numbers that didn’t agree with my number-colour schema thing” more often than not, they tout the benefits of having synesthesia. These automatic associations are used as effective memory aids, such as when Karla, uses the color associations of numerals to memorize. She says, “. . . *silang nagreview sila, ta’s nasa kanila yung reviewer na malaking card talaga. Tapos tiningnan ko lang siyang ganyan tapos biglang ‘okay na ako’ ganyan. Na memorize ko na siya na ganun*” (“. . . they were still reviewing, and they had the reviewer that was a really large card. Then I just looked at it, and I

was like ‘I’m good [with reviewing]. I already memorized it’) which is similar to how Pia finds the synesthetic condition useful in memorizing the multiplication table and in factoring algebraic and logarithmic equations. Benedict also reports that he anchors his tasks to his visual maps and thus he can “manage my week and remember dates more efficiently”

Synesthesia is also accessed by some participants to help in their literary activities, Billie admits that it is sometimes useful “. . . *for example in poetry, kasi I like writing a lot. Especially poetry. It helps [when it comes] to imagery. . . I don’t have to try particularly hard to think about an association kasi its really there in the first place*” (“For example in poetry, because I like writing a lot, especially poetry. It helps when it comes to imagery . . . I don’t have to try particularly hard to think about an association because it’s really there in the first place”). Ana even uses her smell→taste synesthesia to insightfully create recipes and to mix-and-match food items.

Synesthesia and Belongingness

A recurring sentiment among the synesthetes we have interviewed is the interest, if not outright enthusiasm to know about and potentially get linked to one another. Karla would succinctly say (and despite finding synesthesia to be a positive condition) “*parang it’s a lonely world out there kasi ikaw lang wala kang makakausap doon. Gusto kong makakilala din talaga ng mga katulad kong grapheme color synesthesia*” (It’s feels like it’s a lonely world out there, because you’re the only one who doesn’t have anyone to talk to there. I really want to get to know people like me who has grapheme color synesthesia”). Once something they thought everybody had, their identification as a synesthete also comes with learning of the rarity of the condition. However, it is important to note that the awareness of the condition of synesthesia among the general public may limit our knowledge on its occurrence (Simner et al., 2006). Only

one participant, Billie, knows of a family member that also has synesthesia – the only participant which points to what may be an underlying genetic element of the condition (outlined in Brang & Ramachandran, 2011) As all of the participants reported, they did not know that others weren't experiencing certain stimuli the same way they did and therefore never pointed it to others, even to their parents during childhood. They only learned that they experienced the world uniquely when they chanced upon learning synesthesia.

Role of Culture and the Local Setting

The research has started out to see if culture plays a role in determining the manifestation, content or associations of synesthesia. That is, if synesthesia is similar to Kent and Wahass (1996) study of hallucinations, and to see what aspects of synesthesia are culture-bound and how it affects these (Sidoroff-Dorso, 2014). In this exploratory study of five Filipino synesthetes, we find *no* definitive predictive value of culture in the synesthetic condition. That is, given the Filipino culture, one does not come any closer to knowing what the trigger sensory modality and what the associated sensory modality are, nor even what associations are produced within these modalities (i.e what are the colors for the given grapheme or the forms for the given numbers)

Nevertheless, because graphemes and constructs of weeks and months are cultural artifacts in themselves- one should expect that the culture and the setting one grows up in should affect the synesthetic experience. Several lines of evidence from this qualitative research show that one role of culture in synesthesia is in the modification (rather formation) of associated sensations. *In fact, the mechanism through which culture and the local setting affects these associations may be through how they influence meaning and importance, especially towards various cultural artifacts.* It is telling especially in Karla's case, that words and letters only begin to have automatic associations once she understands them exemplified in her experience with

Japanese characters. Further, Benedict's report of his year map changing due to a shift of importance imply that some types of synesthesia may be more malleable than others.

The role of culture in which two sensorial modalities are ultimately linked, that is, which sensations and stimuli are to be triggers of other modalities is much harder to quantify since the synesthetic associations are either genetic or learned in childhood (Day, 2005) either of which makes the synesthetes unable to articulate or to attribute how the associations were formed and thus can only give speculations, as plausible as they are.

What is clearer though, is how culture and the local setting affects how an individual lives as a synesthete and the way they feel about the condition. Fortunately, there is also little reported stigma on synesthetes and there is generally minimal distress among the participants for perceiving the environment differently from the rest of the population. However awareness of the condition and the people who have them are negligible. For many participants, this experience causes them to seek other people with synesthesia who will be able to relate to their experience – a sentiment one can understand, as being a synesthete continues to develop as significant area of the self-identity of Karla, Benedict, Ana, Billie and Pia.

Limitations and Further Research Directions

Due to the lack of statistics, formal diagnosis and general knowledge of the public about synesthesia (and even of the synesthetes about themselves), there is great difficulty in recruiting synesthetes. Thus further research must invest in expansive testing procedures using a battery to identify various forms of synesthesia among the public. As the number of identified synesthetes increases, inquiry and analysis of the role of culture at all levels of synesthetic development and experience will be placed on a much firmer ground. Meanwhile, as the study of synesthesia continues, the authors also submit that the synesthetes be given the chance to network that they

may form a community, whether virtual or physical, through which their unique conditions will find ready acceptance and interest in a company who will understand it best.

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