



The Cognitive Perceptions in Synaesthesia: Indian Case Studies

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Available online at: www.isca.in

Received 21st May 2013, revised 22nd June 2013, accepted 23rd July 2013

Abstract

The present investigation of the study is to investigate the cognitive perceptions of synaesthesia with subjects, case study wise in Indian context. The different methods in instruments used, for subjects' identification. In the study, we found that most of the subjects are having 'grapheme-personification synaesthesia. The linguistic characteristics are associated with the letters and numbers relating to gender, personality, appearance and social relations. It means that the subject with A letter, they have associate different characteristics based on their cognitive perceptions. In this connection, the four case-studies are described in a scientific way. However, it is truly amazing while pursuing the subjects. Two of subjects also additionally, have shape-personification attributions which are reproduced by the subjects. In the mean-time. Based on their subjective information, mentioned their psychological and social perspectives. However, this area is astonishing when you focus attention to understand the cognitive perceptions. It concludes that we require empirical research efforts in a scientific way to deal such area and find-out the variety of unbelievable facts in cognitive perceptions in synaesthesia.

Keywords: Cognitive perception, synaesthesia, letters and numbers, grapheme-personification, shape-personification, linguistic characteristics, gender, personality, appearance and social relations.

Introduction

Synaesthesia means perceive together with different modalities which have the cognitive perceptual as well as sensory perceptual experiences. Even within the same type, the perceptual practices are varied immensively in individual perceptual ways in terms of subjective synaesthesia experience. In all cases, the synaesthesia is familiarized by the pairing of a triggering stimulus or inducer with a synaesthete experience or concurrent and their pairing represents the merging of two or more than two cognitive or sensory modalities that would usually be experienced separately e.g. A synaesthete may associate colors with letters and digits. In majority of cases, the synaesthete inducers are language units.

Most of the research in western countries, on synaesthesia is grapheme – color synaesthesia. I think that more availability of such category of people than others. In earlier itself, it was scientifically reported by Sir Francis Galton¹, but it is totally ignored by scientists. In addition to colors and spatial patterns attributed to graphemes some may report personifications. E.g. A is a male wise man, B is active alert. 9 is harsh husband. In India, this research area is ignored by the psychologists and other scientists. Grapheme personification synaesthesia has received of numbers and letters somewhat limited attention in the growing synaesthesia literature, despite common among synaesthetes.

Very little is known about the neural basis of this form of synaesthesia, but one possibility is that Grapheme Personification and other types also arises from cross-talk in the

region of the inferior parietal lobule between regions of the angular Gyrus involved with representing ordinal sequences, and adjacent regions involved with the identification of personality and theory of mind near the supramarginal gyrus which is studied by Simner and Hubbard².

During the interaction of Flournoy³ with Synaesthete - Mme. L. reported that for her 1, 2, 3 are children (who) play together. 4 is a good peaceful woman, absorbed by down-to-earth occupations. Calkins^{4,5} synaesthetes explains that 'T' s are generally crabbed, ungenerous creatures, u is a soulless sort of thing. 4 is Honest, but mathematically angular and ungraceful. Patricks⁶ synaesthetes describes the number 5 as a society girl, who has everything she wants, does not care how much trouble she makes other people.

In the study of Simner and Hubbard⁷, states that Grapheme Personification Synaesthesia is a form of synesthesia in which ordered sequences, such as ordinal numbers, days, months and letters are associated with personalities.

At first glance such reports seem very unusual, but there are several good reasons to examine them more closely. It shares, the quality of familiar types of synesthesia. (The associations appear stable overtime and elicited automatically). Evidence for the genuineness of OLP experiences comes for a number of sources in this particular variant, as in other variants of synaesthesia. Synaesthetes tend to be consistent over time in their synthetic reports. The consistency has been objectively demonstrated across months years (Dixon et.al)⁸ and even decades (Simner and Logie)⁹ and is considered to be the

behavioral hallmark of synesthesia (Rich et.al)¹⁰. In deed Synesthetes are significantly more consistent than controls when these letters are asked to invent and memorize analogous associations. (E.g Palmeri, Blake Marois, Flanery and whetsels, 2002)¹¹, Rich, Bradshaw and Mattingly, (2005)¹², Ward and Simner¹³.

In OLP too, the synaesthetes pairings between inducer and concurrent have been shown to be consistent over time (e.g. at least 2 years Simmer and Holenstein¹⁴, Smilek et.al¹⁵. In another study, Simner and Hubbard¹⁶ showed that graphemes' colour and gender attributes interact: the synaesthetic colour Stoop interference occurs only when incongruent colours correspond to letters with a matching gender, indicating that different graphemes may be associated with a single gender node. They also showed that naming time for the genders associated with graphemes are slower when graphemes are coloured with an incongruent colour associated with a grapheme of a different gender (but unaffected when the colour is suggestive of a grapheme with the same gender). This indicates that colour may be implicitly associated with gender and further strengthens the conclusion that grapheme personification is just as real as grapheme colours.

Research Methodology

Based on above mentioned views and studies, the synaesthesia area has been concentrated and started investigation in Indian context. The present investigation of the study is to concentrate on 'Grapheme-Personification' in Indian context. We are more exited while interacting with the synaesthesia people. It is amazing that there are varieties of hidden cognitive and sensory perceptions which are observed.

In addition to that, subjects' identification is also typical task. In this connection, there is no any statistical survey in order to identify such synesthesia people in India. There is no thought of identification of subjects by the psychologists and other scientists who are working in their own fields. As per the source of the statistical survey of synaesthesia people, it said that 1:2000 in Britain and American Countries. However, there is no any type of work or survey for subjects' identification in India.

Subjects: In the investigation of the study, under description of the case studies, four subjects are considered and examined in several cognitive and behavioural perspectives from the identified subjects. The subjects' identification is primary task and a tough task. Through awareness programs, interactive sessions in school, colleges, professional arts and painting schools, Software Maya and Graphics training centres, hyperactive and autism children and blind children schools etc. and pamphlets, news papers, facebook etc., subjects were identified for the investigation of the study. The authors visited different parts of Andhrapradesh, Tamilanadu and Karnataka for subjects' identification. Besides, the synaesthesia tests were

used for subjects' identification and followed by an interview method and questionnaire method.

In Indian context, where we have been visited, most of the subjects are belonging to 'Grapheme – Personification category and other categories identified are Grapheme Shape Synaesthesia and Lexical Gustatory Synaesthesia.

Tools used: i. preliminary synaesthesia test, ii. Conducted pre and post tests for subjects' identification. iii. The questionnaires were filled by the subjects in terms of type of synaesthesia, cognitive and behavioural perspectives. (Questionnaire relating to grapheme-colour synaesthesia, developed by David M. Eagleman et.al. and personifications Questionnaire developed by Dr. Noam Sagiv, Centre for Cognition and Neuro-imaging, Brunel University, West London i. The subjective information of subjects and test-retest (pre and post tests) consistency scores are considered for synesthetes in the investigation of the study.

Procedure: Respondents were given screening tests. Directly or indirectly through e-mails. A questionnaire was prepared on the basis of screening tests for synaesthetes available in net. Individuals whose responses indicated possible synaesthesia a more detailed questionnaire tailored to the type of synesthesia they experienced. We are taken the cases in particular; synaesthetic percepts should be idiosyncratic consistent overtime and reported from early childhood. In this study we administered personification questionnaire whose responses are related to type of OLP. In order to provide a more objective measure of synesthesia, we tested for consistency of inducer-concurrent associations using a test- retest procedure in all reported synaesthetes. To test for consistency, each synaesthete was contacted by telephone or directly (without warning) between 3 to 6 months.

After completing the detailed questionnaire and were asked to restate their synthetic concurrent associated with their inducers. And multiple choice questions: The test display contains grapheme and four alternative personality descriptions. One was taken from the participant's initial personality description of grapheme. The remaining were randomly selected from other characters. For e.g. harsh in nature is only right answer for No 7 to GS remaining alternatives are different characters .In another set we are given characters and multiple choice of graphemes .e.g. Cheater ---- No's (A) 6, (B)7 (C)3, (D)9; Fighting ---- No's (A) 1 6, (B) 17 (C) 13, (D) 19; and also asked yes or no statements which are prepared individually based on their attributions.e.g.6---- Husband - (yes) (no); A--strong, stylish, - (yes) (no) 2222--- Calling all his friends to help-- (yes) (no).

The present investigation of the study is to describe the case studies of subjects in different dimensions. After data collection, more number in the synaesthesia category is 'grapheme-personification synaesthesia'.

In the contemporary literature, there are two brief accounts about the existence of these synaesthetic personalities (Cytowic,¹⁷, Sagiv)¹⁸ as well as three articles based on case studies Simner and Hubbard¹⁹, Simner and Holenstein²⁰, Smilek et.al²¹. The case studied by Simner and Colleagues was AP, who has personalities and genders for letters, numbers, and months and who reports, AP subject has said that February is “an introverted female”, while F is a “[male] dodgy geezer”. Similarly, May is reported to be “soft-spoken” and “girly” while M is an “old lady [who] natter[s] a lot”, and while August is “a boy among girls”, A is a female “mother type; Very busy; sensible; b is her male relative and c is a perfectly nice boy studied by Simner and Hubbard²², Simner and Holenstein²³, Smilek et.al²⁴ described case TE. Who reported that ‘3’ is such a jerk; he only thinks of himself. He does not care about any other numbers or anything. He only thinks of himself. He does not care about any other numbers or anything. All he wants is to better himself and he will use any sneaky, underhanded means necessary.

Based on the other sources, synesthesia is thought to stem from neuro-developmental differences in the brain maturation of synaesthetes, and there are three classes of theories to account for these differences studied by Hubbard and Ramachandran²⁵. The “cross-activation” theory proposes that brain regions that are normally segregated in non-synaesthetes remain connected in synaesthetes due to a genetically mediated failure of pruning. This may cause one region to cross-activate another, in a manner similar to that observed in phantom limb patients. However, unlike phantom limbs, which result from cross-activation within the somato-sensory modality, synaesthetic experiences cross boundaries between processing streams that are normally segregated studied by Hubbard and Ramachandran²⁶, Ramachandran and Hubbard²⁷.

Results and Discussion

Case Study I : Result: The subject PR who has ‘grapheme-personification synaesthesia’, attributed the different linguistic characteristics in terms of gender, personality, appearance and social relations in the personification of letters. Regarding gender, the subject PR attributed A,C,G, O and Z for girl and female and the remaining the other letters, attributed male and boy, It means that if the subject perceive the A, C, G, and O, she attributes the gender characteristics related to female. If the subject PR perceives the other letters, attribute the gender characteristics relating to female. It might be cognitive process to reveal immediately the different connected traits.

In the case of personality, the subject PR attributed that A for happy, B for good, C for sad, D for anger, E for very naughty, F for polite G for affectionate and followed different linguistic characteristics letter wise. It means that the different linguistic characteristics are revealed by the subject with regard to personality. While attributing or identifying the people, events, or any circumstance or incident or conversation, they might have such modalities to connect and produce final intension of the subject.

With regard to appearance, the subject attributes the variety of linguistic characteristics in a given situation. In this connection, A for baby in frock, B for boy in jeans, C for women in sari, D for person wears kurtha, E for Big, wearing jeans etc., mentioned in the table 1. Like that subject might be developed such connectivity in the cognitive process and trying to reveal such situation.

Regarding the social relations, subject attributed such linguistic characteristics in social perspectives.

Table-1

Shows that Synaesthete--PR personification of letters with regard to gender, personality, appearance and social relations

Letter	Name	Gender	Personality	Appearance	Social role/Relations
A	PR	Girl	Happy	baby in frock	B's sister
B	PR	Boy	good	Boy in jeans	A'S Brother
C	PR	Female	Sad	Woman in Sari	D's wife
D	PR	Male	Anger	wears kurtha	D's husband
E	PR	Male	very naughty	Big ,wearing jeans	F's Brother
F	PR		Polite	Small	E'S Brother
G	PR	Female	Affectionate	She wears sari	H's mother
H	PR	Male	Sad	In jeans	Son
I	PR				
M	PR	Male	helping	big	Brother of N
N	PR	Male	very niceand happy	Small, and wearing color full dresses,	Brother of M
O	PR	Girl	Happy	little girl in frock	p's sister
P	PR	Boy	enjoyable, playing	boy wears t-shirt Jeans	O's Brother
Y	PR	Male	at ease	wears shirt andlight jeans	Z's Husband
Z	PR	Female	contented	beautiful in sari	Y's Wife

A for B' brother, B for A's brother, C for D's wife, E for D's husband, E for F's brother and other expressed by the subject relating to social relations. While referring the social relations, the subject take the support of letters and attribute the variety of dimensions in social perspectives. It can be said there is association with letters with regard to gender, personality, appearance and social relations. It means that D for male who is in angry, wears kurtha, husband of D. Relating to H for male, who is sad, wears jeans and is a son of somebody. It can clearly associate with linguistic characteristics in terms of gender, personality, appearance and social relations.

Discussion: It means that the synaesthesia people have specific cognitive perceptions and adapts by inherent qualities like two or more modalities which maintain the multi channels to attribute. Based on the western countries research evidences it is somewhat abnormality in the cognitive process which cannot expect such modality influences in common people.

The grapheme-personification synaesthesia attributes the different linguistic characteristics interms of gender, personality, appearance and social relations not only with letters but also numbers.

Result: The same subject PR has also such grapheme-personification with numbers, mentioned table 2.

It can be said that the subject PR attributes that with regard to gender, 1, 3, 4, 7, 9, 11, 13, 14, and 30 for male and 2, 6, 8, 10, and 12 for female. It means that the subject reveals the gender differences male or female with specific numbers and reveals the situations easily with the numbers.

Regarding the personality, the subject PR, 1 for superior, 2 for distressing , 3 active alert, 4 for organized systematically, 5 for courageous, 6 for gloomy, 7 for awful, 8 for arrogant and Gives ideas to 7 beat to 6, 9 for responsible, 10 for depression, 11 for humorous, 12 for high in spirit, 13 for friendly, 14 for relationship oriented, and 15 for cheerless etc., It can be revealed that with letters the synaesthesia people reveal the personality and its traits with different modalities in a meaningful way.

With regard to appearance, the subject PR states that 1 for wears jeans pant, 2 for wears sari, 3 for well dressed, 4 for wear jeans and shirt, 5 for strong wears dhoti, 6 for wears Punjabi, 7 for well gloomed, 8 for wears sari, 9 for old, 10 for wears traditional dress, 12 for wear sari in neat manner, 13 for younger, 14 for middle aged, 15 for old, 88 for old, and 97 for ghost etc., It reveals that the subject easily associate the traits relating to appearance with numbers. Any kind of situation, they can reveal easily and associate to conversant something in a given situation.

Table-2
Presents that the Synaesthete-PR personification of numbers with regard to gender, personality, appearance and social relations

No	Sub	gender	Personality	Appearance	Social role/Relations
0	PR				
1	PR	Male	Superior	Wears pant and Shirt	2's Husband
2	PR	Female	Distressing	wears sari	1's Wife
3	PR	Male	Active, Alert	Well dressed	4's younger brother
4	PR	Male	Organized	wears jeans and shirt	3's and 5's brother
5	PR		Courageous	strong wears dhoti	big brother of 3, 4 and 6
6	PR	Female	Gloomy	wears Punjabi	wife of 7, prince
7	PR	Male	awful	well groomed	husband of 6
8	PR	female	Arrogant, Gives ideas to 7 beat the 6	wears sari	sister of 7
9	PR	Male	responsible	old	10's father
10	PR	Female	depress	wears traditional dress	
11	PR	Male	Humorous		12's Husband
12	PR	Female	in high spirits	Wears Sari in neat manner	11's Wife
13	PR	Male	Friendly	younger	13, 14 and 15's are brothers
14	PR	Male	Relationship oriented	middle aged	Brother
15	PR	Male	Cheerless	old	brother
30	PR	Male			60' small brother
88	PR			Old	
97	PR			Ghost	
4000	PR	Female			8000's Sister

Discussion: Relating to social relations, 1 for 2's husband, 3 for 1's wife, 3 for 4's younger, 5 for 3's and 5's brother, 6 for wife of 7, prince, 7 for husband of 6, 8 for sister of 7, 9 for 10's father, 11 for 12's husband. 12 for 11's wife, 13 for 14 and 15 's brother, 14 for brother, 15 for brother, and 30 for 60's small brother. It can be assumed that the synaesthete reveal the different linguistic characteristics with numbers. The cognitive process should have some connectivity while attributing.

In this case, gender wise 1 for male, personality wise superior, and appearance wise wears pant and shirt and social relation point of view, 2's husband. It means that the male who is superior, has wears pant and shirt, husband of 2. There is a truly association with numbers with regard to gender, personality, appearance and social relations.

Case study II: Result: The subject PM who has grapheme-personification synaesthesia attributed the variety of linguistic

characteristics by letters with regard to gender, personality, appearance and social relations. It has clarity and clear picture relating to association with the letters, mentioned in table 3.

Based on the above mentioned, it can be said that A for male (gender) who is proud (personality) is a king (social relation). C for a female (gender) who is shy and obedient (personality) is a student (social role/relation). G for female (gender) who is pleasant (personality), is traditional (appearance) mother (Social relations). It is amazing to reveal such kind of associated pattern in cognitive dimensions. Their cognitive dimensions are specific multi connectivity with different modalities.

Discussion: The subject PM who has grapheme-personification synaesthesia attributed the variety of linguistic characteristics by numbers, with regard to gender, personality, appearance and social relations. It has clarity and clear picture relating to association with the letters, mentioned in table 4.

Table-3
Synaesthete --PM Personification of letters with regard to gender, personality, appearance and social relations

Letter	Name	Gender	Personality	Appearance	Social role/Relations
A	PM	Male	Proud		King
B	PM	Girl		Fat	
C	PM	Female	Shy, Obedient		Student
D	PM	Male			C's brother
E	PM	Male			Brother to F
F	PM	Male			Brother to E
G	PM	Female	Pleasant	Traditional	Mother
H	PM	Male		Big	Son
M	PM	Male			Brother of N
N	PM	Male			Brother of M
P	PM	Male			Messenger
R	PM	Girl			Queen
Z	PM			Animal	

Table-4

Shows that Synaesthete -PM Personification of numbers with regard to gender, personality, appearance and social relations

Numbers	Name	Gender	Personality	Appearance	Social role/Relationships
	PM				
1	PM	Male	Big body	Strong	King, husband of 2
2	PM	Female			Queen, wife of 1
3	PM	Female			Daughter of 1 and 2
4	PM	Male			Lover of 3
5	PM	Female	Single-handedly	Poor	Student
6	PM	Girl		Smart	
7	PM	Boy			
8	PM	Girl			
9	PM	Female			
10	PM	Male			like king (from back)(or)first one from the last
30	PM	Boy	Anger		
50	PM	Male	Loose tongue		
100	PM			younger one	
1000	PM			big one	
10000000	PM		Great feeling		

Based on the above mentioned, the association is revealed by the subject significantly ie., 1 for male (gender) who has big body (personality), is strong (appearance) and is king, husband of 2 (social relations). The 5 for female (gender) single handed (personality) poor (appearance) and Student (social relations). It can be said that such multi modalities combined together with information and reveal an event with association and a meaningful way.

Case study III: Result: Some grapheme-personification synaesthesia people have only personification with letters which case study has been mentioned in table 5.

Based on the above mentioned, the SM has attributed that E for female (gender) who is sensitive (personality), is a little girl (appearance) and sister of A and B. (Social relations). Y for male (gender) who is perspective (personality) is young (appearance) and son of X and Y (Social relations).

Discussion: In addition to this, we observed that the shape-personification synaesthesia type is also, attributed by the subject SM. The subject associates the shape of letters while attributing the linguistic characteristics with regard to gender, personality, appearance and social relations to some extent. It can be

reproduced that C with wide open it appears like a old women, appears weak. C with close open it personified like child of A .If it writes in straight lines it personified like cuboid. Regarding F also, has three shape -personifications. All capital letters are personified as men and women, small letters are perceived as boy and girl. In this subject SM, observed the two dimensions of personifications like letters and shape of the letters. When SM subject will be in good moods or bad moods, certain changes takes place in shape-personification attributions.

However the cognitive perceptions of such categories are truly speculating and astonishment. It is really questionable to perceive the thing like that or it is contradictory how their brain functions should be different, why should such modalities influences the perceptions. In this dimension, if we want to do research work in cognitive standpoint , then only, to understand the real cognitive world of synaesthetes in terms of brain activity - cognitive, affective, and physical ,psychological and behavioural dimensions of synaesthesia people.

Case Study IV: Result: Some grapheme-personification synaesthesia people have only personification with numbers which case study has been mentioned in table 6.

Table-5
Shows that Synesthete--SM personification of letters only gender, personality, appearance and social relations

Letter	Name	Gender	Personality	Appearance	Social role/Relations
A	SM	Male	Anger		head of the family, husband of b
B	SM	female	sensitive		mother, wife of A
C	SM	Male			son of A and B
D	SM	Male	Active,	Small	son of A and B,
E	SM	Female	Sensitive	Little cute girl	sister of D, daughter of A and B
F	SM	Male	cool	tall	big brother of A
G	SM	Female		short	wife of F, wife of H
H	SM	male		height	---,husband of G
I	SM	male	cool		son of H, brother of J
J	SM	female		short	daughter of h, (sister of I)
K	SM	female		old	mom of L
L	SM	male	responsive	Young	son of K
M	SM	Male		big	Brother of N
N	SM	Male		Boy	Brother of M
O	SM	Female		old, big	sister of P
P	SM	Female		Old	Sister of O
U	SM	Male		Boy	brother of V
V	SM	Male		Boy	brother of U
W	SM	Male		Old	Husband of X
X	SM	Female		Old	Wife of W
Y	SM	Male	perceptive	Young	son of X and Y
Z	SM	Female		Young	Wife of Y

Table-6

Shows that Synaesthete--GS personification of numbers with regard to gender, personality, appearance and social relations

Numbers	Sub	Gender	Personality	Appearance	Social role/Relations
0	GS	Boy	less mind	Less Body-wears yellow shirt one hand had a band	friend of 2
1	GS	Male	Good	Heavy muscles, wears red T shirt having just do it words, black pant, brown shoes	Hero, 1, 2 and 3 are friends
2	GS	male	helping	body builder, without shirt	friend
3	GS	girl	soft nature	with Cinderella dress and shoes	friend
4	GS	Male	ready for fighting	iron plate shirt, big knife rolled by cycle chain, red cloth rolled to that hand	Father of 5
5	GS	Female	Innocent	Yellow T-shirt have girl portrait, galaxy iPod in left hand in right costly hand bag.	daughter of 4
6	GS	Female	adjust	young in white saree, gold chain to neck	wife of 7
7	GS	Male	Harsh	Crumple black jeans, red colour full hand shirt, little finger have ring of two snake heads, diamond ring for little finger.	husband of 6
8	GS	Male	advocate ,bad	black coat, spike hair	friend of 9
9	GS	female	Cheater	A mark on chin,	opponent to 1
10	GS		seeking advice		
18	GS	Male, Male	8 cheats 1 to help 9		Friends
19	GS	Male, male	fighting		
20	GS	Male, Male	helping each other		
46	GS		thinking what to do (Discussing)		
49	GS		blackmail		
55	GS		Thinking to go in right way or wrong way with his twin		
63	GS		giving ideas to 3		
67	GS	Female, Male			wife husband
88	GS		taking help from his twin		twin
93	GS		kidnapping 3		
95	GS		9 influence 5 to bad things		
115	GS		telling good to 5		
2222	GS				Friends

It also can be said that 1 for male (gender) who is good (personality) has heavy muscles, wear red t shirt, black pant brown shoes etc., (appearance) and a hero, have 1, 2, and 3 friends (social relations). 5 for female (gender) who is innocent (personality) wear yellow t shirt and has portrait, galaxy iPod in left hand and the costly bag in right hand (appearance) and daughter of 4 (social role/relationship).

Discussion: In this case of GS also, we assumed that Shape-personality attribution. The shape changes the personality trait and physical trait also changes for GS who reproduced the 3 like this it appears a girl with sweet mind. ➤ If it starts with seven shape and end like 3 it appears as fighting girl. If the shape of number changes the personality trait and physical trait also

changes for him. The physical appearances also changes first 3 wearing Cinderella dress. Second 3 appear with jeans and sleeveless tight banyan. For him 7 is harsh nature. The three starts with 7 shape it appears like fighting nature like that for 2, 4. It means that there are different perceptions in personification with numbers.

However it is also amazing. Such category people perceive different dimensions based on their cognition. It can be said we require more experimental opportunities to prove with empirical evidences. In India, there is no research in this viewpoint.

Psychological and Social dimensions of synaesthesia people: Based on the subjective information by the subjects and the

psychological and social dimensions are somewhat different. They are quite normal people. We cannot identify certain related synaesthesia characteristics with the normal interactions. While interacting, the few of their parents revealed that such cognitive perceptions were not observed in their children. They are wondered after coming to know the facts about their children. In the daily activities, they are normal. Most of the people are introverts and might have been identified insecurity. During the task achievement, they are more impulsive and adamant. In their inner world, most of the people might be emotional. Their intelligence capacities are average and above average.

The people might have specific skills in arts, writing poems, stories, drawing the pictures which have given clear meaning eventually. While thinking, most of the feel that there are certain difficulties in their thinking process sometimes. Some people have migraine head-ach also. They refuse to share their perceptual process, thinking process with others. If they share, people think in different dimensions, which are reproduced by the subjects. They are very strong in their thought perceptions. Sometimes most of the people are immovable. They have stick on their own perceptions. However it is fact that they perceive in different dimensions with two or more than two modalities. We should expect such categories more in normal people, and also might be expected in blind-people, left-handed people, autistic children, altruistic people, hyperactive people etc., based on the data of synaesthesia people literature and interactions with medical professionals and behavioural scientists.

Conclusion

The case study 1 and 2, subjects are having 'grapheme-personification synaesthesia (letters and numbers) and they reproduced the linguistic characteristics in different dimensions with regard to gender, personality, appearance and social relations in a multi-meaningful way. The case study 3, subject has 'grapheme personification' with letters and 'shape-personification attribution' with letters. The case study 4, subject has 'grapheme personification' with numbers and 'shape-personification attribution' with numbers. The subjects' cognitive perceptions are different individually. However could observe the different modalities in the cognitive process. The subjects are skilled in arts, painting and drawing. Poems, stories, designs etc., in a meaningful way eventually. The synaesthesia people are in normal people. The subjects are introverts and their inner world is amazing to perceptualize in different manner. However they have some difficulties in the cognitive and thinking process.

Implications of the study: i. The cognitive perceptions of the synaesthesia people are astonishing. There is no research which is ignored by the scientists. If we strengthen research in this area, then only we come to know the facts in this area in Indian context. ii. There is an essential to study the synaesthesia area experimentally in order to identify the cognitive, psychological, social and behavioural dimensions of the synaesthetes. iii. To

find –out whether synaesthesia is cognitive perception or sensory perception or both. It is a great contradictory question.

Acknowledgement

We are very grateful to DST (Department of Science Technology) provided project in cognitive science Initiatives in the area of Synaesthesia. As a part of our project work, we wrote an article – “The Cognitive Perceptions in Synaesthesia: Indian Case Studies”. It is only courtesy of DST. In this regard, we are thankful to DST.

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