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Identifying the Perceptual Qualities in a Heritage Precinct - Entrance Gateway of Thiruvasi Village, Tamilnadu

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Abstract*: Heritage is the one need to be appreciated, cherished and preserved. Loss of identity of any place, event, culture or structure without understanding it, results in failure of meaning for settlement. Temple gopuram is the established sign and symbol of an urban space in the regions occupied by Hindu people where ever they settle. It orients people in the known or unknown environment. On a macro level, it acts as gateway, way finder, gives urban identity, adds imageablity, to micro level it directly influences the human actions and feelings. This study sets out to explore, how the perceptual qualities of the gopuram affect person's memory and perception. The investigation was carried out with questionnaires to the students of number 32, visited the rural space for their case study purpose. The parameters of perceptual qualities were considered as the visual, social and cognitive image. The result shows that the perceptual quality depends on the visual and the cognitive image parameters than the social image. Though the visit is for a short duration of time of one week or for one day, the Rajagopuram structure influence of the observer in a major way and for the inhabitants it adds a symbol of identity to the place.

Keywords: Raja Gopuram, Temple, Perceptual Qualities, visual image, cognitive image, social image

I. INTRODUCTION

"Two things endanger our environment today: pollution and the loss of meaning" - **E.** V. Walter

Majorly three types of temple architecture style were followed in India, Dravidian in the South; Nagara is North and Vesara in West. Each style has its own characteristic style of construction, spatial planning, construction materials and details. It is based on the physical, geographical and geological conditions prevailed in the particular region. The measurements for each detail and parts are based on accurate calculations and precision. Vastu sastra - building technology related with the five basic elements known as fire, earth, land, air and sky /space and Silpasastra - Science of Shilpa (arts and crafts) is the base for this measurement and dimensions. The temple is constructed as a place which receives abundant energy from the cosmos, from micro to meso scale. Other than serving as abode of a deity, it also reflects the power of the ruling king at that period. The spatial planning of the Hindu Dravidian temple consists of Gopuram, Vimanam, Artha mandapam, Mahamandapam, Dwajastambam, Garbagriha, Sthalatheertha and the Sthalavriksha .Vimana houses the garbagriha in the lower portions where the deity is placed and it is a vertical pyramidal tower structure with many layers mentioned as storeys or Talas .Gopuram is same as Vimana but it has split in the rectangular portion below which acts as entrance gateway. The gopuram - dvara is placed in all cardinal directions for spatial emphasize and among them, main entrance gopurams called as Rajagopuram is placed in the East side majorly. The eastern direction facilitates the direct rays of the sun in the entrance way and through colonnaded mandapa it reaches the deity. A devotee who approaches the deity, go through the equally split Entrance Rajagopuram, then the series of gateways open with various levels of illumination and reaches the Garbagriha where the holy shrine is placed. Picture 1 shows the difference between Vimana and Gopuram

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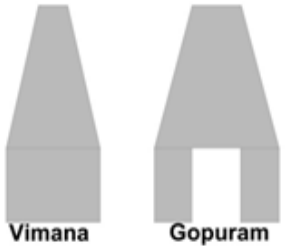
II. GOPURAM AND ITS MEANING



Picture 1

In Ramayana, town and forts were constructed with *Antapuras* - Quarters for female. It was protected by strong walls and ramparts. To afford additional protection, ditches were dug around the exterior of the wall. Four side elongated gateways had been designed with a bridge supported by pillars to cross the ditch and with strong door. Towns were called *puras* or *nagaras* in later period and it was guarded by big wall. The temple plan has been derived from the idea of different courts with gate at cordinal directions. In Sangham age it is known as imperishable gateway. In Sanskrit, *Gopura* name has been derived from the Cow - gate of the vedic village that has become the entrance to the temple and to the identity of the territory.

The Ganesha ratha and Bhima ratha of Mahabalipuram has the longer barrel shaped vault, with the finial details that crowns the roof. As pallavas were the pioneers of temple construction, these ratha's were the derivative forms of thatched huts. The material has been kept as stone for the purpose of strength and the durability.

There are few facts that prevail about the *Gopuram* and *Vimana* is the derivation of the forms from Chaitya Hall used for Buddhist prayer purpose. But there is no conformity to these facts.

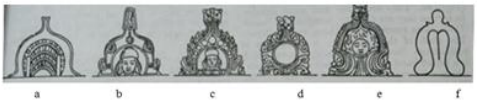
A. Features of the Gopuram

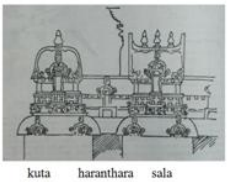
Gopuram is the tapering oblong form, having wooden gates at the ground level. The materials used were mostly stone in the earlier period and from the 12th century; brick is used to reduce the load of the super structure. Many of the gopurams are at the same height with the vimanas; few taking to increase in height example Sri Ranganathaswamy Temple, Srirangham has its 239.501 feet, higher than the Vimana. Other than acting as an entrance gateway, the gopuram has internal stairs, which leads to top level used to during *Mahakubabishekam*- the ceremonial function of sprinkling water. *Talas* are the stories of the *Gopuram* or *Vimana* which has intricate details explicitly shows the Hindu mythology explained as stories related to the main deity. It diminishes in size as the tower narrows. *Haras*– row of shrines decorate the storeys. The *finial* or *kalasa* usually tops the tower with a *sala* - barrel vaulted roof in the ridge portion in row. Predominantly the gopuram could be seen in two varieties. Pyramidal structures with sloping sides is common form and more or less straight or the structure slightly concave or convex shape. As the temple is the one constructed as the *Vastu purusha* - cosmic man, *in* the lying position, the gopuram is related to the feet of the god. Normally gopuram has odd number tiers like 1, 3, 5, 7, 9 and 11.

Each *Tala* has the details of *Kuta* - the miniature shrines motifs, *Sala* - an oblong member with wagon shaped roof, the *Harantara* - the recession between the *Kuta* and the *Sala* ornates the gopuram giving a repetition of details in an order. *Kudu* – shaped arch details with figurative idea differs to the dynasty and the period of construction, also adds intricacy to the structure. (Picture 2 & 3)

Development of the kudu

a) Origin, sun window of chaitya





Picture – 2 & Picture - 3

b) Pallava (7th – 8th C, A.D)
c) Chola (11th C)
d) Pandya (13th C)
e) Vijayanagar (15th C)
f) Madurai (18th C)

Source: 'A History of Fine Arts in India and the West' by Edith Tomory

B. Measurements and the proportions of Gopuram

The ancient texts insist on a high degree of precision in their measurements. The standard text Mayamata mentions "Only if the temple is constructed correctly according to a mathematical system, it can be expected to function in harmony with the universe. Only if the measurement of the temple is in every way perfect, there will be perfection in the universe as well." Thus details each unit in the temple is based on precise proportions and measurement. The dimension starts from *anu* a smallest unit of measurement that is hardly perceptible. The *angula* (1.875cm) and the *hastha* (cubit, 45cm) are basic unit used to derive at the measurements.

Few examples of measurements are as follows

Eight *anus* (particles) = one *nulu* (breadth of a fine cotton or silk fiber),

Eight *nulu* = one hair (breadth of horse hair),

Eight hairs = one grain of sand used for intricate details.

One *Hastha* =24 *angulas* = 45 cms shows the proportions of relative measurement.

12 *Angulas* = One *Vitasta* or *tala* (span) and 2 *Vitasta* or *Tala* = *Hastha* (cubit) = 24 *Angulas*

In the *Gopuram*, the single layer *Tala*, measured as 45 cm is derived from 24 *Angulas*. The height of the *Rajagopuram* denotes the power the king who rules the region in that particular period. The measurement of the structures has been derived from these bases and with the thumb rules narrated in books like *Manasara*. Table 1 explains it. There exist five variations in the gopuram height related to the temple proportion given in the hand written monograph *Manasara*. As the same, *Mayamattan* describes 15 varieties of gopuram

Table – 1 - Proportion of Gopuram to temple

Variations	Gopuram	Temple
Santica – Moderate	Breadth is divided into 7 parts and 10 of such parts makes the height	The temple has the proportion of 7: 10
Panstica – The bulky	Breadth is divided into 6 parts and 9 of such parts makes the height	The temple has the proportion of 2:3
Jayada - The victorius	Breadth is divided into 5 parts and 8 of such parts makes the height	The temple has the proportion of 5:8
Atbhuta – the admirable	Breadth is divided into 4 parts and 7 of such parts makes the height	The temple has the proportion of 4:7
Sarvacama – the universally beloved	Breadth is divided into 3 parts and 6 of such parts makes the height	The temple has the proportion of 1:2

Source: Krusche

III MEANING OF PERCEPTUAL QUALITIES

From the latin word *perceptio*, the word perception derived is the association, recognition, and elucidation of sensory information, in order to signify and realize the obtainable information or the settings. It can be split into two methods. Dealing out the sensory input that converts, the low level information to the higher level information is the one process and the later deals with the method of selecting knowledge for the restorative mechanism of perception. In Architecture and Urban design Kevin Lynch (1960), Gordon Cullen (1961, Jane Jacobs (1961),

Christopher Alexander (1977) Amos Rapoport (1990) has described around few parameters for understanding the perceptual qualities of built environment.
Among them only 16 perceptual qualities were selected for understanding the meaning of Gopuram. (Flow Chart 1) These parameters are categorized under the main division of Visual, Social and Cognitive characters that define the perceptual qualities in general.

IV CASE STUDY OF THIRUVASI

The village Panchayat of Thiruvasi in all its glory and appeal is located in the tranquil land of Trichy with its coordinates latitude 10.8905304 and longitude 78.6648452. The entire plan of the village is done around the temple concentrically on the basis of religious hierarchy. Settlement pattern followed is linear, providing easy transportation and easy accessibility to utilities. The most important attraction of the village is the temple with the deity named *Sri Maaturai Varadeeswarar*. The temple is 1500 years old was built and refurbished by Kings of the Hoysala, Chola and Pandiya dynasties. The east facing temple has a 5-tiered main tower - Raja gopuram and it has 2 corridors.

A. Characteristic of the village

The total Area of the village is 105 Acres .The area of total buildings in this village is 19.2 Acres and the area of Agricultural land covers 85.8 Acres. Most of the buildings in this village are pucca in type. The major vegetation seen in this area is coconut trees and the agricultural crops like paddy, sugarcane that varies with the season. Picture 4 shows some details of the characteristics of the village and the spatial organization. The houses are 50-100 years old and new houses have been constructed in the present decade with the help of new housing schemes and subsidies. The following

Picture 4

picture 4 shows the spatial organization of the village around the temple.

B. Temple Details

The Hindu temple is dedicated to Lord Shiva named as Matrurai Varadeeswar and goddess Balambigai. The name of the village has been derived from the ancient name called Tiruppachil Ashramam located near the bank of Kollidam River. It is one of the 116th Devaram Padal Petra Shiva sthalam. Appar, the great tamil poet has sung hymns in praise of the god. For curing the ailments of infants, the devotees visit the temple and also the people who has nervous problem are reaching to worship. Spaces have been clearly given in below plan - Picture 6 in not to scale. The main rajagopuram faces east and placed in the entrance path way with a detailed wooden door and the second gopuram placed after the colonnaded mandapam and the garbagriha has the Vimana.

Picture 5

C.Gopuram Details

The main gopuram has 5 tiers enhanced with the more details on all four sides with the rectangular dimension of 36' by 22' and the height being 31'4". The picture 5 shows the intricate details of stories rendered in each layer. In the top portion the barrel vault with *kalasa* and *finial* details adds the aesthetic essence to the structure with all its meaning, proportion and harmony. According to the table 1 this gopuram comes under the category of *Santica* – Moderate type of the gopuram with its dimensions. The secondary data gathered from the temple exhibits the length of 300' and breadth of 168' in the *Santica* Category which is more or less in the proportions. Picture 5 shows the details of *Gopuram*. The accuracy of the proportion and the measurements are not assured because the details have been collected from the secondary data available.
Picture 6 gives the details of *Kudu* – shows the chola period of construction crowns the sala. Tala is ornated with center *harantara* in between *kuta* and *sala*. *Kalasa* in the top arranged in row along the ridge, barrel shaped oblong roof – *sala* is the main feature. 5 tala with the diminishing scale as it ascends gives the tapering structure a rhythmic proportion of aesthetic sense. *Adhishthana or pitha* – a base portion support the tower.

Picture 6

V RESEARCH QUESTIONS

The key research questions are how the perceptual qualities of temple Rajagopuram influence students after the visiting period of 6 months.

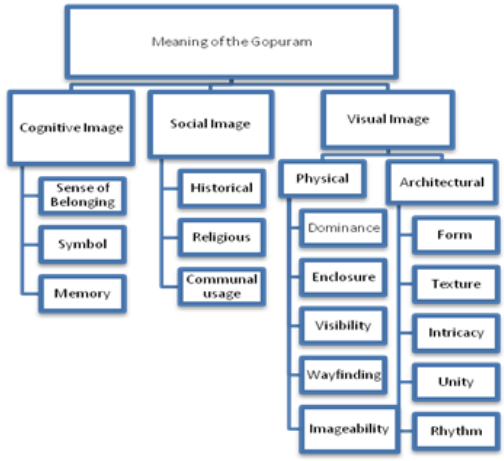
1. How a student visitor perceives a gopuram in understanding its meaning to elucidate the perceptual qualities in a rural space?

2. What relationship is there between the visual, social and cognitive characters to persuade the meaning of the structure?

A Methodology

Examine a particular person, group, event or social, physical setting to appreciate through empirical way is a process used in case study method.

In this study, the questionnaire survey is carried out from the second year Bachelor of Architecture students who have visited the village for their rural study project and been there for



Flow Chart – 1

one week. The questionnaire was collected after the study with a time gap of 6 months. The 16 perceptual qualities as listed by the literatures with the association of parameters linked with a Hindu temple gopuram is listed and grouped in the survey questions as visual, social and cognitive image as flow chart 1.

B. Questionnaire and its understanding

Structures that are visually appealing or with landmark features will always have an influence on the observer who perceives it. If the same building is seen nearby or far away distance, in day to day life, the sense of belonging or attachment develops in the course of time. If the building is placed in the regions where the person resides, then it will become an identity to the particular area. At the macro level, it is used for orienting themselves. In this context, a Dravidian style rajagopuram is the one which dominates the region where ever it is an established symbol. The following lists of features are categorized to find out the meaning of the gopuram with its perceptual qualities.

C. Results and Discussion

The visual image (Graph -1) with its forms creates strong sensual features of the structure with 73%. The form as whole is perceived and the above 57% of students perceive it with the intricate details and texture that creates unity.

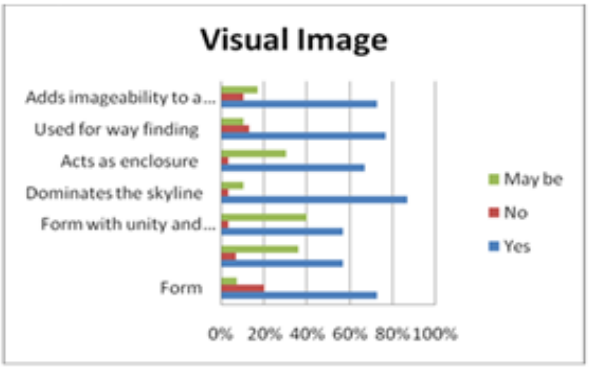
While being in the study, 77% of the students used it for way finding and 73% accepts it adds imageablity to the space it exists. 67% accepts it as a structure that gives a feel of the enclosure

47% of the student have the idea about its historical characters and 20% can list out the exact features and 27% had come out the answers like No and May be.

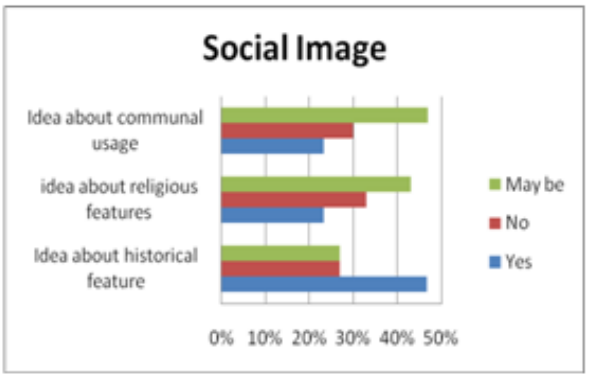
43% of the students have the knowledge of the religious usage and more than 20% doesn't have that.

Around 47% of the students responded that they have an idea about the communal usage and more than 20% has no or partial idea about it. (Graph 2)

Graph 1



Graph 2



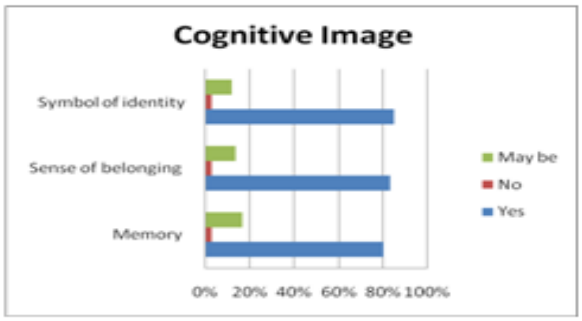
Above 80% of the students have the clear idea that gopuram structure gives a symbol of identity to the rural space with its associated characters, people who resides near by the structures has the sense of belonging and also conveys that it will be in the memory of them and also to the inhabitants. (Graph 3) Only 3% of the students express that it doesn't work in that way and more 12% convey that maybe, it adds to the cognitive image.

The visibility of the structure is the important criteria as it is only going to regulate the height control in the surrounding building nearby the gopuram. In the response 60% & 17% wants to have the visibility of the structure from their house and 3% want to have from far distance and 13% nearby and 7% doesn't have an idea about it visibility. (Graph 4)

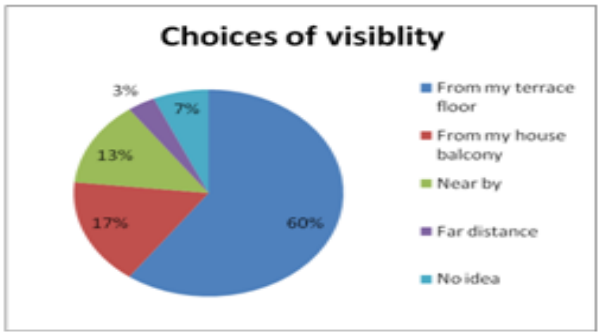
Among 32 students, 30 students are ready to answer the questions and the 2 students don't want to participate in the survey itself. As they have been informed that it purely based on their experience and intuitive ideas and the questions are not inquiring to test the knowledge of them, they were open minded to participate in the survey. As they are in the starting years of their undergraduate studies, questions were not informed that it is under a grouping character, interlinked with each other. Because , if the questions are in confused way or higher than the level of answering, then the correct answers won't be able to be properly gathered.

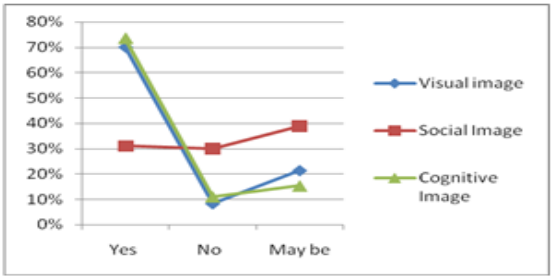
Even the 30 students have been called separately, explained about each question and its significance, not to discuss and the answers are acquired with its pure nature of thoughts to a maximum possibility.

Graph 3



Graph 4





Graph 5 & Table 2

Perceptual Qualities	Yes	No	May be
Visual image	70%	8%	21%
Social Image	31%	30%	39%
Cognitive Image	74%	11%	15%

Though the parameters are interlinked, visual image and cognitive image come under perceptual schemata and associational schemata. So the visual and cognitive parameters are selected as variables influencing more than the social image.

VI CONCLUSION

This survey is conducted to understand the meaning of the *Rajagopuram* in a village of Thiruvasi with its perceptual qualities. The study started with the *Gopuram* in Dravidian style, features of the gopuram, the measurements, the proportion of the gopuram with the temple, the important features and finally with the significant parts compared with the Thiruvasi temple. Then the questionnaires were prepared based on the three parameters like visual, social and cognitive images and the results were analyzed in a detailed way. The results establish that the perceptual qualities of the *Rajagopuram* rely on the visual and cognitive characters than the social characters. The aim of the research is to understand the impact of historical structures on the students that dominates the skyline. The visibility is needed as a prominent parameter so that the meaning won't be lost and the regulation for height control could be proposed in the future. Conducting these types of researches in temple towns like Madurai, Kumbakonam, Chidambaram will helps to regulate the height control measures near the heritage structures to avoid the losing of meaning.

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