Four-Factor Model on Image Auditing of the Entrance Design, Structure Edifice of Higher Technical Institutes in Tamilnadu: A Conceptual Framework

Babu Rajeswaran 1, Thirumaran Kesavaperumal 2

1 Research Scholar, Department of Architecture, National Institute of Technology, Tiruchirappalli, India
2 Associate Professor, Department of Architecture, National Institute of Technology, Tiruchirappalli, India

babumarch@gmail.com

Abstract. This study attempts to develop a conceptual framework to reveal that the educational institutions become increasingly concerned with the expressions of their physical environments. In fact, due to today’s highly competitive domain of business, the institutes imparting technical education is under tremendous pressure to market them as well as to gain an edge over competitors. In doing so, the institutes spent enormous amounts of resources to project a desirable expected ‘image’. The institute Institutions, today, not only want their physical settings to satisfy the functional requirements of business but also want settings to create legibility and project representative ‘superior images’. However, in spite of the effort and expectations of the institutions in creating a set of impressions and image for their institute, there is no guarantee that the observers at large will experience the same expected image of the institutions. Thereby, the present study focuses this dimension and attempts to conduct an Image Audit of the entrance edifice of technical institutes selected in Tamilnadu, by identifying four factors, i.e., Comprehension, focus, context and individualization that are responsible for inducing the variance. The findings of the correlation study indicate a moderate to high variation between the expected image by the institute and the image experienced by the observers in specific regions of Tamilnadu. Thus, it is evident through the four-factor model that particular variables could articulate to experience the similar image by the observers as expected by the Institute developers. Furthermore, this study facilitates the institute to assimilate the process, meanings, and anticipation of the observers and integrate them while evolving their design program for enriching the existing Entrance edifice.

1. Introduction

Recently, educational institutions are known to have become increasingly concerned with the expressions of their physical environments. The institute developers have perfectly understood that an observer’s first impression of their institute is certainly experienced from the physical appearance of the very entry point to the college i.e., the appearance of entrance structure design and the physical features of the elements that provide access to the college. In view of this fact, many institutions that impart higher technical educations have made conscious effort to articulate the entrance structure of the Institutes with its design elements and physical features in order to create an image expected by the institution. However, in spite of the effort and expectations of the institutions in creating a set of
impressions and image for their institute, there is no guarantee that the observers at large will experience the same expected image of the institutions.

Thereby, the present study focus this dimension and attempts to conduct an Image Audit of the entrance edifice of technical institutes selected in Tamilnadu, through an empirical study on the variance between the image expected by the institutes and the image experienced by the observers. The primary objectives of this study are (i) to conduct image auditing by exploring the variance between the expected image by the institutions and the image experienced by the observers, and (ii) to prove that the perceived image of the entrance edifice is a function of purposive factors, design elements and other Characteristic physical features of the setting. Furthermore, it develops a four factor model through a conceptual framework demonstrating the relationship between the four Factors i.e., comprehension, focus, context and Individualization in inducing the image expected by the institutes and the image experienced by the observers.

2. Literature review

2.1. Relationship between Physical environment and Human-Perception
The relationship between human perception and the physical environment is a multi-disciplinary field that includes contribution from social and behavioural sciences of psychology, sociology, geography, and anthropology as well as from the design disciplines of Architecture, landscape architecture, interior design, and urban and regional planning. Recently it has included contributions from neuroscience research [1] and public health [2] [3].

2.2. Comprehension
Comprehension is a complex process that has been understood and explained in a number of ways. Work in social psychology and cognitive psychology, is making clear that comprehension takes place in settings that have particular sets of cultural and social norms and expectations and that these settings influence understanding and transfer in powerful ways. Thus, in comprehension of physical setting the Signifier is synonymous to the form of the physical structure that one observes.

2.3. Focus
Generally, Focus is a subset of the visual discipline attention, studied under the scientific field Psychology. According to Psychologist John Watson, visual attention is thought to operate as a two-stage process. In the first stage, attention is distributed uniformly over the external visual scene and processing of information is performed in parallel. In the second stage, attention is concentrated to a specific area of the visual scene (i.e., it is focused), and processing is performed in a serial fashion. Thus, study on focus is an area that extracts information from Philosophy, cognitive psychology, spotlight model, then zoom-lens model, then from neuropsychology, concept of exogenous and endogenous orienting, and cognitive load theory. Because of this multitudinous nature, the factor Focus holds a strong position in inducing image among the observer of the physical setting on a daily basis.

2.4. Context
Context is ‘a frame that surrounds the event and provides resources for its appropriate interpretation’. It is thus a relativistic concept, only definable with respect to some focal event. Context is usually conceived as an extensive and multidimensional concept, which includes social, cognitive, cultural, linguistic, physical, and other non-linguistic context [4] Therefore, context can be said to encompass all the information that the hearer utilizes when interpreting language expressions. A context cannot be reduced to an enumeration of people and artefacts; rather the specific transformative relationship between people and artefacts, embodied in the activity theory notion of functional organ.
2.5. Individualization

The term individualization is derived from the word individuation. Therefore, a brief study of the concepts of the term its various connotations will provide a theoretical background on the factor Individualization. Individualism is the moral stance, political philosophy, ideology, or social outlook that emphasizes the moral worth of the individual. Individualism is often defined in contrast to totalitarianism, collectivism, authoritarianism, communitarians, tribalism, and more corporate social forms.

3. Methods and Material

3.1. Study hypothesis

To fulfil the study objectives, the author developed the following hypotheses and tested through the correlation test.

- **H1**: the variance in the expected image of the institutions and the image experienced by the observers depends on the level of comprehension of the design elements of the entrance edifice of the institute.
- **H2**: the variance in the expected image of the institutions and the image experienced by the observers depends on the kind of focus created by the design elements of the entrance edifice of the institute.
- **H3**: the variance in the expected image of the institutions and the image experienced by the observers depends on the context of the physical setting of the design elements of the entrance edifice of the institute.
- **H4**: the variance in the expected image of the institutions and the image experienced by the observers depends on the prevailing individualization of the design elements of the entrance edifice of the institute.

Finally the hypothesis test supports in demonstrating that Image variance \(I (vari)\) between institute expectation and the experience of the observer is a function of \(BE + comprehension + focus + context + individualization\) through the Four factor model thus establishing a new model to explain the variance.

3.2. Conceptual framework

Semi-structured interviews were conducted and they were exploratory in nature and well designed to provide insights to guide the content of the questionnaire survey (see Appendix-I) which was administered in the study. The scores obtained from the survey and used for correlation analysis. From the goals and intentions of the institute and the aspects highlighted as the primary dimensions responsible for the image created through the physical design elements, a set of common factors. Such factors as of greatest resonance were structured and arrived as a purposive factor for administering further in the questionnaire survey, and the scores obtained are used for statistical analysis (see Appendix-I). Thereby, we are able to frame a conceptual four-factor model for the survey around the following four factors: Comprehension, Focus, Context and Individualization (see figure 1).

3.3. Samples

In Tamilnadu, 70 technical institutions were sampled and data from the institutional side were collected from 210 respondents, which included the institutional owners, CEO’s and the designers. These samples were collected from three regions of Tamilnadu: North – 22 institutions, Central – 30 and south – 18 institutions respectively. Selective set of two Images and description of the entrance edifice belonging to northern, central and southern regions are shown in Tables 1, 2.
Table 1. Sample of Technical Institutes distributed over three regions of Tamilnadu

| Study regions in Tamilnadu | Northern region | Central region | Southern region | Total Survey sample – N |
|----------------------------|-----------------|----------------|-----------------|------------------------|
| Sample size                | 66              | 90             | 54              | 210                    |

Table 2. Sample of respondents distributed over three regions of Tamilnadu

| Study regions in Tamilnadu | Northern region | Central region | Southern region | Total Survey sample – N |
|----------------------------|-----------------|----------------|-----------------|------------------------|
| Sample size                | 210             | 155            | 220             | 585                    |

Figure 1. Conceptual framework explaining the Factors responsible for the variance between the image expected by the institutes and the image experienced by the observers

On the other hand, a sample of 585 individuals that includes public, nearby residents and local people who experience the setting on a daily basis for more than 5 years. A random sample survey is done administering the instrument finalized after the pilot test. The image and description of the entrance edifice of three regions of Tamilnadu. 1. Northern Region 2. Central Region, and 3. Southern Region is shown in Table 3, 4, and 5 respectively.

Table 3. North region image description

| Sl.No | Entrance Edifice image | Description                                                                                                                                 |
|-------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
Table 4. Central region image description

| Sl.No | Entrance Edifice image | Description |
|-------|------------------------|-------------|
| 1     | ![Image](image1.png)   | The entrance is framed by post and beam structure with gate for entry and exit of the access way. The structure above the gate has RCC pergolas as a design element. |
| 2     | ![Image](image2.png)   | The entrance is framed by post and beam structure with a single huge gate for entry and exit of the access way and a small gate on one side for pedestrian movement. The top of the horizontal beam displays the sign of the institute’s name. |

Table 5. South region image description

| Sl.No | Entrance Edifice image | Description |
|-------|------------------------|-------------|
| 1     | ![Image](image3.png)   | The entrance is framed by a central segmental arch with a sculptural element in the front and at the crown and Name of the Institution is displayed in the central arch. The central archway is flanked by small archways on either side with tower like structure having fortified parapet element with white color finish. |
| 2     | ![Image](image4.png)   | A central segmental arch with circular element at the crown frames the entrance and Name of the Institution displayed in the central arch. The central archway is flanked by small archways on either side with tower like structure having fortified parapet element with white color finish. |

4. Statistical analysis

Table 6 shows the Pearson’s correlation coefficient values with \( p \leq 0.05 \). Where, \( X \) – refers to correlation coefficient values between the factors and the image expected by the institute. \( Y \) – refers to correlation coefficient values between the factors and the image experienced by the observers.

|                  | Northern region | Central region | Southern region |
|------------------|-----------------|----------------|-----------------|
|                  | \( X \) | \( Y \) | \( X \) | \( Y \) | \( X \) | \( Y \) |
| Comprehension    | 0.77 | 0.63 | 0.74 | 0.66 | 0.72 | 0.64 |
| Focus            | 0.72 | 0.59 | 0.70 | 0.61 | 0.69 | 0.58 |
| Context          | 0.74 | 0.71 | 0.75 | 0.70 | 0.71 | 0.66 |
| Individualization| 0.78 | 0.72 | 0.71 | 0.68 | 0.75 | 0.69 |

5. Results and discussions

From Table 6, it is evident that the correlation values between the image expected by the institute and the factors like comprehension, focus, context and Individualization do not match with the correlation values between image experienced by the observers and the same factors that has been analysed. Though the difference in the correlation to each factor with respect to expected image and image experienced
appears to be meagre, it has greater significance in providing meaning regarding respondent’s region, environmental awareness, Familiarity and personal factors that account for its variance. The overall results indicate that there is a variance of 14% due to comprehension in North and 12% in central and 8% in the South. Whereas, the Factor Focus accounts for a variance of 13% in North, 9% in central and 11% in the South.

Thus, The Hypothesis H1, H2, H3 & H4 were supported and proved by the four factor model that the proposition “Image variance between institute expectation and the experience of the observer is a function of *BE + comprehension + focus+ context+ individualization. {*BE = Built environment}.

6. Conclusions

The findings of the study provide insight with domain specificity into the factors that needs attention in order to reduce the prevailing difference between the expected image and the image experienced by the observers. The scope of bridging the gap between the expected image and the experienced image appears to be feasible within the domains and possible to achieve the goal of the institution in provoking desirable meanings, emotions and impressions. Perhaps, the entrance structure could even become a Landmark of that Location through the kind of image they project by articulating their Institute’s entrance edifice.

References

[1] Zeisel, J. (2006). Inquiry by design: Environment/Behaviour Neuroscience in architecture, Interiors, Landscape, and planning (Rev. ed.). New York: Norton.
[2] H. Frumkin, Healthy places: Exploring he evidence, American journal of public health, 39(9), 1451-1456, 2003.
[3] Northridge, M., & Sclar, E. (2003). A joint urban planning and public health framework: Contributions to health impact assessment. American Journal of Public Health, 93, 118 – 121.
[4] Klippi A (1995) Kontekstilogopedissassa tutkimuksessa. Afasiavuorovaikutuksen kielioppia etsimässä [Context in logopedic research. Searching for the grammar of aphasic interaction]. Suomen logopedis-foniatrinen aikakauslehti 15: 97–109.
[5] Sperber D & Wilson D (1995) Relevance: Communication and Cognition (2nd ed). Blackwell, Oxford, UK.[4]Prutting CA (1982). Pragmatics as social competence. Journal of Speech and Hearing Disorders 47: 123–134.
[6] Milosky LM (1992) Children listening: The role of world knowledge in language comprehension. In: Chapman RS (ed) Processes in Language Acquisition and Disorders. Mosby-Year Book, St Louis, MO, 20–44.
Appendix

Questionnaire Survey

Comprehension:
X: if the features of the built form of the entrance design elements facilitates the ease in understanding the function, activity and idea of the physical setting. Then, it will drive superior image to the institution.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |

Y: if the features of the built form of the entrance design elements facilitates the ease in understanding the function, activity and idea of the physical setting. Then, it will drive superior image among the observer.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |

Focus:
X: if the features of the built form of the entrance design elements emphasis the environment on the centrality of learning engineering, science and technology with high standard of learning with equal opportunity for learning . Then, it will drive superior image to the institution.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |

Y: if the features of the built form of the entrance design elements emphasis the environment on the centrality of learning engineering, science and technology with high standard of learning with equal opportunity for learning . Then, it will drive superior image among the observer.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |

Context:
X: If the features of the built form of the entrance design elements, express the place and its identity by confirming cultural connectedness. Then, it will drive and bring superior image to the Institution.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |

Y: If the features of the built form of the entrance design, elements express the place and its identity by confirming cultural connectedness. Then, it will drive and bring superior image among the observer.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|-----------------------|-------|---------------|
| 1                 | 2        | 3                     | 4     | 5             |
**Individualization:**
X: If the features of the built form of the entrance design, elements manifest Novelty through its uniqueness and thereby creating legible identity. Then, it will drive and bring superior image to the institution.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|----------------------|-------|----------------|
| 1                 | 2        | 3                    | 4     | 5              |

Y: If the features of the built form of the entrance design, elements manifest Novelty through its uniqueness and thereby creating legible identity. Then, it will drive and bring superior image among the observer.

| Strongly Disagree | Disagree | Agree to Some Extent | Agree | Strongly Agree |
|-------------------|----------|----------------------|-------|----------------|
| 1                 | 2        | 3                    | 4     | 5              |