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Student's Preference for Informal Learning Through Informal Activities in Architecture College Transitional Spaces

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Abstract

Transition space is basically the space where two different realms meet. It can be anywhere and of any scale from city level to residential level. There is no architecture without transition spaces, which reflect changes in the state of the space from one state to another state.

According to a recent architect, transitional space design may help establish a learning atmosphere that is essential to the educational process. Where formal education is successful in the field of architectural design, informal activities play a complementary function to official events. For social activities such as debate, discussion, group work, and presentations, students require transitional places on campus.

All these activities encouraged students' development of informal learning. The current question is whether the students' transitional spaces aid in improving their informal knowledge. on light of this, research was conducted to examine the functions and significance of transitional spaces at architectural institutions. The study was conducted in D.Y. Patil College of Architecture, Akurdi, Pune. In all 177 students were selected using simple Random selection method. The analysis of the study indicated that in all eight transitional spaces were identified in selected college. Out of eight, five transitional spaces which were performed by students, high relevance rating received from expects and highest ranking obtained using "Garrett Ranking method " were selected for conducting informal activities.

As regards activities performed out of ten activities identified, three activities ranked highest were selected for conducting experiment in selected transitional spaces. It was determined that a model-making activity in the courtyard and student plaza demonstrated the highest knowledge level, at 80.3% and 792.3%, respectively. Research was conducted on the use of transitional spaces and the level of knowledge gained by students through activities. The results of knowledge gain in different transitional spaces were further tested to examine the difference between score based on type of transitional spaces using Kruskal Wallis tests. The analysis explains that there is no statistically significand change in rating scores of knowledge in the fire types of transitional spaces.

However, study suggest that proper upgradation of transitional spaces will be beneficial in facilitating knowledge.

Keywords: Transitional spaces, Informal activities, composite index.

Introduction

Transitional spaces are typically utilised as a connecting area between two or more places. Common examples include courtyards, verandas, corridors, stairs, and ramps [1]. Architecture spaces are incomplete without transition spaces because a transition in architecture is a move from one state to another [2]. Indian architecture has used transitional spacer extensively to separate and link spacers, as well as to assist maintain

seclusion [3]. Research emphasised the possibility of designating a significant percentage of buildings as transition spaces, along with entrances, corridors, atriums, lobbies, and other areas where people pass between outside and interior areas [4].

History of Transitional Spaces.

The extremely old civilizations of Mohenjo-Daro and Harappa were built in India with substantial use of translons spaces, which constitute a straightforward hallway linking two homes to the courtyards [10]. There hasn't been much of a shift between transitional spaces created previously and those constructed currently, but rather they have developed from prior transitional spaces [6]. Cities in the former era were packed, and as a result, transitional spaces were small and largely bordered on all sides, giving the impression of space. As the population increased, they became more ordered and well-planned.

Role and importance of Transitional Spaces.

The most crucial aspect of architectural design is transitional spaces. Nowadays, most architects try to design spaces that go beyond just four walls and a ceiling. [9]. highlighted that transitional spaces serve as the basis for sustainability and have practical, social, symbolic, and aesthetic functions. Because individuals prefer to stay in transitional places for shorter periods of time, they inherently have an elastic atmosphere.

According to recent architectural research, transitional space design may foster learning that is beneficial to the educational process. Usama A. Nassar discusses the use of transitional spaces as meeting areas for students in higher education buildings to encourage social contact and enhance informal learning [5]. Students pick transitional spaces as their study locations because these places are provided with all infrastructural amenities, which is vital for student learning [13]. In colleges, these areas are mostly utilised for a variety of informal learning activities. Informal activities have a complementary performance to formal events in architectural design education where formal education proves effective [3]. The main goal of informal activities is to get students more active on campus. These activities aided in the development of the students' leadership, civic engagement, social responsibility, voluntarism, and employment experience [7]. Students require intermittent areas on campus for social activities like debate and discussion. Presentations and group work. All of these activities will aid in the student's development of informal learning [10]. Now, the question is Will these transitory areas aid students in enhancing their informal learning, then?
considering this, the current study was conducted to determine the function of traditional spaces at architecture colleges.

Methodology
As the present research involves combination of socio-psychological and Architectural parameters, efforts as been made to develop relevant methodology. This helped to arrive at most logical and imperical reveliation.

Sub Sections of Methodology:

1. Locale and year of study

The study was conducted in Pune by identifying six leading Architectural colleges under Pune University. The year of study was 2021-22.

2. Sample and Sampling Technique
a. Selection of colleges
The Six colleges were selected, Out selected these colleges, two college were purposively selected for study based on relatively higher level of degree of availability of transitional spaces. level of degree of availability of transitional spaces was decided based on number of transitional spaces, characteristics of transitional spaces. Each character was judged on three-point continuum with score 3,2&1. Two colleges with hights rating were selected for study.

b. Selection of students
In all 177 students that selected using nth simple n^{th} number method of random selection. The students selected for study from Two colleges are as follows.

Table 1: Selection of students

Sr.No.	Year of Study	No. of Students	% of Total
1	1st Year	53	29.94
2	2nd Year	36	20.34
3	3rd Year	46	25.99
4	4th Year	27	15.25
	Total	**177**	**100**

3. Identification and ranking of transitional spaces

In all eight transitional spaces were identified in selected colleges. The list of identified transitional spaces are given in table 2.

Table 2: Identified Transitional spaces from selected colleges

Sr. No	Type of Transitional space
1	Court yard
2	Students' plaza
3	Amphitheatre
4	Common Area
5	Corridors
6	Verandas
7	Canteen Area
8	Library Area

After identification of transitional spaces, the selected students were asked to give their preferences for importance of transitional spaces. The most preferred transitional spaces were referred to judges who were Architects with more than ten years of experience in their field and closely associated with college teaching, for rating their importance. Rating was subjected to three points continuums namely most relevant, relevant. not relevant with, 3, 2, and 1 score. After receiving their rating, mean score and C.V. was worked out to select important transitional spaces. Finally, five transitional spaces whose C.V. was less than 30 were selected. Their after Selected transitional spaces were Ranked based on "Hennery Garrett's Ranking" technique. The details of technique are as follows.

Hennery Garrett's Ranking Technique
This technique was used to convert the order of merit given by judges in rank using formula. In this method, judges have been asked to assign the rank to all indicators and the outcome of such ranking have been converted in to score value with the help of following formula:

Formula:
Percent Position = 100 (Rij - 0.5) / Nij

Where,
Rij = Rank given for the ith indicators by the jth judges.
Nij = Number of indicators ranked by jth judges.

With the help of Garrett's table, the percent position is estimated and converted in to scores. Then for each factor the score of each individual is added, and then the total value of score and mean value of the score is calculated. The indicator with highest mean value is considered to be the most important indicator.

4. Identification and ranking of characteristics of transitional spaces.

Characteristics referred as a quality that is typical of something and that makes him different from other things. The characteristics of transitional spaces existing in college were identified. In all 37 characteristics were identified. After identification of characteristics of transitional spaces, students were asked to preferred and rank characteristics. Judges were asked to rate the desirable and recognized qualities. The same panel of judges provided ratings on three-point scales for relevance—most relevant, relevant, and not relevant—with scores of 3, 2, and 1, respectively. The mean score and CV were subsequently calculated. Then characteristics were ranked from most important to least important using Hennery Garrett's Ranking Technique as explained earlier.

5. Use of transitional spaces in Architecture Colleges for conducting activities

The information on informal activities conducted in transitional spaces for the year 2021-22 in selected colleges were collected and presented in table3.

Table 3: Informal Activities Conducted in selected colleges.

Sr.No.	Informal Activities Conducted
1	Students Presentation
2	Model Making Activity
3	Workshop
4	Academic Activity
5	Student Meeting
6	Discussion with Teachers
7	Jury / presentations
8	Sharing of Practical Knowledge
9	Experiential learning
10	Reading

The conducted informal activity was tested for its relevance and importance by referring to judge's team consisting of 23 teaching faculties from different Architecture colleges for ranking on a scale of 3, 2, and 1 for the three points: most important, important, and not important. After receiving ratings from the judges, the mean score and C.V. were calculated in order to choose an activity whose C.V. is under 30. The activities were ranked using "Hennery Garrett's Ranking Technique ".

6. Students Gain in Knowledge Through Informal Activities

In order to study, the students gain in knowledge through informal activities, a Composite Index of Informal knowledge was worked out by selecting knowledge indictors. In the present study, nine informal knowledge indicators were selected. The selected knowledge indictors were given table 4.

Table 4: Selected Knowledge Indicators

Sr.No.	Informal knowledge indicators
1	Graphic Design Skills
2	Architecture Vocabulary
3	Cutting and Rendering
4	Communication skills
5	Self Confidence
6	Subject Knowledge
7	Adaptability
8	Intra -Personal Skills
9	Decision Making Skills

To obtain data on these indicators and to examining the effectiveness of transitional spaces, Transitional areas were used for the design and testing of the experimental research on anthropometry.

The student's replies were then recorded in a specifically designed schedule on a continuum of five points, with scores representing fully increased, increased, partially increased, not increased, and not increased at all (5,4,3,2-, and 1), respectively. Each indicator's score was used to calculate a composite index of each student's informal knowledge.

7. Reliability of Collected Data.

The responses of the students were tested for its normality with appropriate statistical method and observed that the data is not normally distributed and hence non parametric test have been used to test the significance difference in obtaining knowledge within Transitional Spaces. The test uses were Kruskal - Walli's test. After testing the data for its reliability, Composite Index of informal knowledge was worked out using the score assigned for each indicator of informal learning. The formula used as follows.

Formula:
Composite index of Informal knowledge = Obtained score/Obtainable score X 100

Results & Discussion

The results and discusses include the investigation of transitional spaces in selected Architecture college. The required data for analysis have been collected in prescribed scheduled from the respondent students by personal interview.
The results have been discussed under the following heads.

I. Identification of transitional spaces in Selected colleges.
II. Characterises of transitional spaces in selected colleges.
III. Uses of transitional spaces.
IV. Analysis of reliability of collected data.
V. Distribution Analysis.

1. Identification of transitional spaces in Selected colleges.

Transitional spaces with proper infrastructure and seating arrangement play a significant role in motivating the students to visit this area for group discussions. It also gives an environment where student feel free to interact and this fruitful interaction results in the rise of confidence level of individual students. The different types of transitional spaces identified in selected college is given below in table.

Table 5: Identification of transitional spaces in selected college along with area occupied.

Sr. No	Type of Transitional space	% of Area occupied by transitional spaces
1	Court yard	12.5%
2	Students' plaza	10%
3	Amphitheatre	10%
4	Common Area	5%
5	Corridors	3.75%
6	Verandas	2.5%
7	Canteen Area	3.12%
8	Library Area	3.13%
	Total	**50 %**

It could be seen form table that 50 % area was occupied by transitional spaces in selected college, out of eight transitional spaces Courtyard, Student Plaza, Amphitheatre, and Common Area were occupied to the extent

12.5 %, 10 % 10%, and 5% respectively. This indicated that these are the important transnational spaces available in selected colleges.

a. Student's preferences.

The selected students were asked to give their preference towards transitional spaces for conducting various informal activities. The preferences of the selected students are given in table.

Table 6: Students Preferences Towards Transitional Spaces.

Sr. No	Type of Transitional space	Number Of Students Preferred	% to Total Number of Students
1	Court yard	37	20.72%
2	Students' plaza	29	16.24%
3	Amphitheatre	24	13.44%
4	Common Area	22	12.32%
5	Corridors	20	11.20%
6	Verandas	18	10.08%
7	Canteen Area	14	7.84%
8	Library Area	13	7.28%
	Total	**177**	**100 %**

Table shows that majority of the selected students have preferred courtyard (20.72%), student plaza (16.24%) Amphitheatre (13.44 %) and Common area (12.32%) . as a transitional spaces for conducting activities in college. Thereafter identified transitional spaces were referred to Judges for rating as explained in methodology. After receiving rating from judges mean score and C.V. for each transitional space was worked out and presented in table.

b. Mean score and C.V. based on Judges rating

Table 7: Mean score and CV of Transitional Spaces based on judge's ratings

Sr. No	**Type of Transitional space**	**Mean Score**	**CV**
1	Court yard	2.9	10.90
2	Students' plaza	2.5	28.28
3	Amphitheatre	2.8	15.06
4	Common Area	2.8	15.06
5	Corridors	2.4	29.13
6	Verandas	2.7	17.89
7	Canteen Area	2.4	21.52
8	Library Area	1.6	52.70

In general, C.V. between 20-30 is acceptable and greater than to is unacceptable (Elsevier). Further, as explained in methodology the transitional spaces were ranked using Garrett Ranking Technique. The transitional spaces along with their rank is presented in table.

c. Ranking of Transitional Spaces Using Garrett Ranking Technique.

Table 8: Ranking of Transitional Spaces Using Garrett Ranking Technique.

Sr. No	Type of Transitional space	Rank
1	Court yard	1
2	Students' plaza	4
3	Amphitheatre	2
4	Common Area	3
5	Corridors	5
6	Verandas	6
7	Canteen Area	7
8	Library Area	8

Finally, five transitional spaces which are mostly preferred by the students, Judges and with high ranking were selected for conducting experiment.

2. Characteristics of Transitional spaces with Ranking.
Characteristics referred a special quality or identity applies to something that distinguishes a thing. The characteristics of transitional spaces were identified and presented along with their ranks in table.

Table 9: Characteristics of Transitional spaces with their Garrett Rank.

Garrett Ranking for Indictors of Transitional Spaces			
Judges Rating (Most Relevant (1), Relevant (2), Not Relevant (3))			
Sr.No.	Transitional Space	Garrett Value	Rank
1	Semi open space	67.1	Rank 1
2	Centrally located in college building	65.2	Rank 2
3	Square shape transitional space	63.3	Rank 3
4	Near to Class Room	61.4	Rank 4
5	Open to sky	61.4	Rank 5
6	Mix	61.4	Rank 6
7	Near to Amphitheatre	59.5	Rank 7
8	Partly Open Space	59.5	Rank 8
9	Semi covered	59.5	Rank 9
10	Seating Arrangements for students	57.6	Rank 10
11	Near to Canteen	57.6	Rank 11
12	Rectangle	57.6	Rank 12
13	01:02	57.6	Rank 13
14	Partly covered and partly open	57.6	Rank 14
15	Semi Open	55.7	Rank 15

16	01:03	55.7	Rank 16
17	20%	55.7	Rank 17
18	Hard	55.7	Rank 18
19	Level Difference	53.8	Rank 19
20	30%	53.8	Rank 20
21	Electrical Facility/ Wifi	53.8	Rank 21
22	Octagon	51.9	Rank 22
23	Notice Board	50	Rank 23
24	Pentagon	50	Rank 24
25	Open Space	48.1	Rank 25
26	Panelling	48.1	Rank 26
27	Oval	48.1	Rank 27
28	Soft	46.2	Rank 28
29	At Entrance of Building	44.3	Rank 29
30	01:04	44.3	Rank 30
31	Covered	42.4	Rank 31
32	Wooden Flooring	42.4	Rank 32
33	10%	40.5	Rank 33
34	01:05	38.6	Rank 34
35	5%	38.6	Rank 35
36	Triangle	34.8	Rank 36
37	Enclose Space	32.9	Rank 37

It is observed from table that out of 37 characteristics of transitional spaces identified in selected college, transitional spaces located in semi - open space and centrally located in college building have been found to be most important characteristics of transitional spaces.

3. Uses of Transitional spaces

The selected transitional spaces were used for conducting informal activities. In all 10 activities were conducted. Based on C.V., the activities which are less important were deleted and the activities which are finally selected for study are presented in table.

Table 10: Selected Informal Activities conducted in Transitional spaces in selected colleges.

Sr.No.	Activities Conducted	CV	RANK
1	Students Presentation	26.4	**1**
2	Model Making Activity	29.9	**2**
3	Workshop	27.0	**3**

4. Analysis for Reliability of data

The data collected after conducting experiment in transitional spaces as explain in methodology were tested for their reliability. Among different methods, Cronbach Alpha " method was used.
The results obtained are presented is table

Table 11: Reliability analysis using Chronbach Alpha

Sr.No.	Learning Indictors	Chronbach Alpha
1	Graphic Design Skills	
2	Architecture Vocabulary	
3	Cutting and Rendering	
4	Communication skills	
5	Self Confidence	
6	Subject Knowledge	
7	Adaptability	
8	Intra -Personal Skills	
9	Decision Making Skills	

The data collected from students were analysed for their normality. The results obtained shows that it was not normality distributed and hence non parametric test were used for analysis of data. The results obtained are presented in table.

Table 12: Descriptive Statistics for Distribution of data.

Statistics

	PreX1	Post X	Pre X2	Post X2	Pre X3	PostX3	Pre X4	Post X	Pre X5	Post X5
N Valid	90	90	90	90	90	90	90	90	90	90
Mi	0	0	0	0	0	0	0	0	0	0
Mean	79.41	77.0	67.26	77.11	66.22	78.96	61.48	72.8	62.52	74.67
Std.	1.152	1.15	1.072	1.264	.713	1.069	1.153	1.24	1.249	1.362
Media	80.00	80.0	66.67	80.00	66.67	sa 00	60.00	73.3	60.00	73.33
Mode	87	73	67[3]	80	67	80	60	60	53	73
Std.	10.931	10.9	10.174	11.995	6.763	10.13	10.93	11.8	11.849	12.92
Varian	119.495	118.	103.51	143.8	45.743	102.7	119.6	139.	140.40	166.9
Skewn	-.417	-	.157	-.756	-.458	.210	.493	.326	.058	-.630
Std.	.254	.254	.254	.254	.254	.254	.254	.254	.254	.254
Kurtos	-.424	-	.700	.196	.918	-.267	.109	-	.621	.207
Std.	.503	.503	.503	.503	.503	.503	.503	.503	.503	.503
Minim	53	53	47	47	47	60	40	47	33	33
Maxi	100	93	93	93	80	100	87	93	93	93
Sum	7147	693	6053	6940	5960	7107	5533	656	5627	6720

a. Multiple

	Pre X6	Post X6	Pre X7	Post X7	Pre)	(Post)	Pre X9	Post X9	Pre Y	Post Y
N Valid Missi	900	900	900	900	900		90	900	900	900
Mean	79.41	72.00	61.48	72.74	62.67		7	68.67	67.93	74.57
Std. Error	1.036	1.220	1.063	1.473	1.232		1.	1.363	.485	.587
Median	80.00	73.33	60.00	73.33	60.00		7	66.67	68.89	74.81
Mode	80	73	67	73	60		7	67	70	79
Std.	9.825	11.57	10.082	13.97	11.68		11	12.932	4.602	5.571
Variance	96.524	134.0	101.65	195.4	136.6		1	167.24	21.17	31.035
Skewness	-.231	.302	.290	-.209	-.137		-	-.379	-.451	-.816
Std.	.254	.254	.254	.254	.254		.2	.254	.254	.254
Kurtosis	-.979	-.321	-.021	-.342	-.823		.3	-.521	-.180	.316
Std.	.503	.503	.503	.503	.503		.5	.503	.503	.503
Minimum	60	47	47	47	40		4	40	57	59
Maximu	93	93	87	100	87		9	93	77	83
Sum	7147	6480	5533	6547	5640		6	6180	6114	6711

5. Effect of Various activities conducted in transitional spaces on informal learning.
To study the Effect of Various activities conducted in transitional spaces on informal learning a Composite Index Informal Knowledge for each student was workout for each activity conducted in transitional spaces. The results obtained are presented in table.

Table 13: Students gain in knowledge through different activities in Transitional spaces.

Sr. No.	Transitional Space	Learning Activities	Mean Levels of Informal Learning (%)
1	Courtyard	Model Making Activity	77.3
2	Amphitheatre	Students Presentation	73.2
3	Common Area	Work shop	70.6
4	Student's Plaza	Model Making Activity	74.2
5	Corridors	Students Presentation	72.6

It could be seen form table that model making activity conducted in Courtyard and Student's plaza were found to be most effective activity and exhibited highest level of knowledge i.e., 77.3% and 74.2% respectively followed by student presentation activity in Amphitheatre (73.2%) and Corridor (72.6 %). Further, it is observed that workshop activity conducted in common area has shown relatively low level of knowledge (70.6 %). Thus, it may be said that, overall knowledge is relatively more in model making activity conducted in court yard and student plaza.

The data was further tested to examine the difference between scores based on type of transitional spaces using Wallis tests to see whether there is a significant change in scores based on type of transitional spaces in which activity was conducted. The results presented in table.

Table 13: Difference between Rating Score for Five Type of Transitional Spaces.

Test Statistics[a,b]

	SX1	SX2	SX3	SX4	SX5	SX6	SX7	SX8	SX9
Chi – Square df Asymp. Sig.	4.923 4.295	1.173 4.882	1.776 4.777	1.036 4.904	.830 4.934	1.968 4.742	1.977 4.740	3.672 4.452	8.883 4.064

a. Kruskal Wallis Test

b. Grouping Variable: GROUPS

It is seen on table that there is no statistically significant ($p<.05$) change in the rating score for learning in the five types of transitional spaces. This implies that the type of transitional space does not make a difference. However, proper utilization of any of the mentioned transitional spaces will be beneficial in facilitating knowledge.

CONCLUSIONS AND IMPLICATIONS.

The following conclusions have been drawn based on the results of the study and relevant implications given for future use and actions to be taken while designing Architectural colleges.

1. In all eight transitional spaces were identified in selected Architecture colleges namely Courtyard, Student's plaza, Amphitheatre, Common Area, Corridor's, Veranda's, Canteen, and Library Area.
It is concluded that five transitional spaces namely Courtyard, Amphitheatre, Common Area, student plaza and corridors were most preferred and effective for informal learning.
Therefore it is implied that the Architecture colleges should ensure that these five transitional space should be considered while designing the college building.

2. As regards to the Characteristics of transitional spaces, those located in semi - open space and centrally located in college building were found to be most preferred for informal learning as indicated by Students, judges and teachers.
Therefore. it is implied that the open spaces and centrally located spaces should be adequately provided in the Architecture college building.

3. It is concluded that the knowledge gain by students due to conduct of various activities in transitional spaces exhibits that model making activity has improved the student's knowledge to the extent of 80.3 percent followed by students' presentation 73.2 percent and workshop activity 70.6 percent.
Therefore, it is implied that the learning activities namely model making and student presentation needs to be encouraged during learning to improve the knowledge of students.

4. Kruskal - Walli's test for testing the significance difference in gaining the knowledge within transitional spaces shows that there is no statistically significant Change in the knowledge gain in five types of transitional spaces. Proper utilizations of transitional spaces would be beneficial in facilitating knowledge.
Therefore it is implied that irrespective of type of spaces the effectiveness in gaining knowledge in different spaces does not varied significantly and hence high rank spaces should be considered while designing. Architecture college building.

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