CHAPTER – 1

INTRODUCTION

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1.1 Title of the Study:
“Contribution of Social, Spatial Characteristics towards Student’s Behaviour and Learning in Primary Schools, Pune Municipal Area”.

1.2 Background of the Study:
Architects care about people’s needs, their psychology, culture, lifestyle and behaviour by designing space and creating innovative forms. Architects passively govern the life of a child in a learning environment by playing with spaces. Considering early childhood, children spend a major time in school where major development of the brain takes place. Learning is a complex activity that develops student’s motivation and knowledge. The role of teachers and teaching methodologies are important, but the space in which time is spent is also bound to have an impact on the child. The Reggio Emila approach to education talks about the environment as a third teacher since surrounding space matters enormously (Nicholson, 2009). Different pedagogical approaches like Montessori, Vygotstsy etc. have identified the need for design of space for cognitive development.

Space can bring out emotional responses; modulate behavioural response of inmates using the space. Research shows that both teachers and learners notice the physical environment and build up opinions about it (Maxwell, 2000) which influence their attitudes and views to the life. The positive correlation between school building quality and math test scores is congruent with previous research (Al-Enezi, 2002). Within schools therefore, the construct of physical environment which is narrowly understood as the actual physical setting is interconnected within a complex network of organizational and behavioural factors, all contributing to the learning environment as experienced by students and impacting on their success.

Bronfenbrenner’s theory of ecological development suggests that school is only one component of the complex system in which children develop. According to German Architect Herman Hertzberger (2008), School-building is one of the few areas in architecture today where designers are still able to define and influence human conditions. The researcher opined that school buildings require striking a balance
between use, performance and an architecture informed by education. The researcher
opined that the school buildings should combine a balance between the use of the
building, the performance of the building and its occupants and the role of an architect
who designs the building. The architect must possess knowledge regarding the
educational purpose of the building (Hertzberger, 2008).

The Architect who designs a school building cannot think only in terms of shelter, or
blueprints, or brick. The architect must think about the job the building is intended to do
which is the full development of all potentials of each student. If the architect keeps these
things in mind, he may be able to contribute to the educator’s goal by creating a building
that is a tool for the teacher and the expression of school’s educational approach. By
creating an atmosphere, a mood, to aid the student in every learning task set before them
the architect can make the school a place the students looks forward to entering, and one
they regret leaving (Bradford & Bordwell, 2010).

The initial research into the relationship between academic achievement and building
condition focused on the impact of one physical condition variable such as, age, colour,
lighting etc. on student achievement. But this approach is less favored today than the
other research approaches which emphasize the relationship between the “total” overall
building condition and student achievement. More research studies on the relationship
between the building condition and student achievement in different places of the world
are needed, because they can provide useful information about the influence of the
various environments on different students (Earthman, 1986).

Studies also indicate performance difference in school children between developed and
developing counties. In developing countries, at times, considering school construction,
quantity matters but quality cannot be overlooked. If data regarding the quality of a
school building condition as a factor that might influence student achievement is
provided to the school administration to seek more attention to it, the administrative
authorities of the Education Department could use the results to justify upgrading existing
schools, which are below standard and enhance existing programs, of improved school facilities for all new schools.

1.3 Statement of Problem:
School buildings are places for studying, meeting, searching and sharing information which is also a place in the vital social growth for that particular age group. Pedagogical thinking and education curriculum have changed over the years. Introduction of information technology has developed a need for improving or modifying the school infrastructure.

Government of India has launched a national movement for Universal Elementary Education (UEE) through Sarva Shiksha Abhiyan (SSA) under which upgradation & construction of classrooms in existing schools and construction of new school buildings has been under process. The ‘Right to Education Act’ has been notified on 27th August, 2009. The section no.19 and 25 of the act specifies the minimum facilities that shall be made available in all elementary schools. These facilities have to be made available within the time frame stipulated by the act. This large school infrastructure provisioning under SSA cannot be ignored in this decade.

School is an investment. School design needs an integrated manner, relating the needs of the activities being conducted or that should be conducted, always considering the inter-linkages, so that the physical infrastructure becomes a facilitating feature, rather than a restricting feature. Students learn best in stimulating, safe, and resource-rich learning environments (Lackney, 1998). Many researchers have studied the effect of the school building, environment, infrastructure etc. on the students learning, performance, achievement etc. But the concept has not been explored in India and in the Indian educational scenario. Classroom is a basic unit of school. The physical environment of classroom might be one of the contributing components in learning environment. Hence the researcher has tried to examine the association between social, spatial characteristics of primary school and student behaviour and learning.
1.4 Research Premise:

The school is an institution which is intended to nurture and care for education (Dudek, 2000). Mark Dudek believes that the physical environment in general and in specific ways is deemed to have an effect on the success of children not only academically but also socially which is also expressed by Henry Sanoff 1994 (Sanoff, 1994). Studies related to building condition, school facilities and student achievement, teacher’s satisfaction (Scott, 2007) indicate that student achievement improves with improved building condition. Factors like light, temperature, and acoustics have an effect on student achievement. With references from fields like education, psychology and previous research studies, this research study aims to find out the association of social, spatial characteristics towards student’s behaviour and learning in primary schools with the premise that the social, spatial characteristics of primary school buildings contribute in improving student’s behavior and learning outcome.

1.5 Objectives of the Study:

After reviewing earlier published literature and the studies conducted on the research subject the researcher came up with the following research questions:

1. What are the social characteristics with respect to school?
2. What are the spatial characteristics with respect to classroom space, corridor of school?
3. What are the activities related to student behaviour & factors related to learning in schools?
4. Is there any association between social, spatial characteristics and student behaviour, learning in primary schools?
5. Contribution of Social, spatial characteristics in student behaviour and learning in primary schools.

There are two major components of learning environment which are physical component i.e. school building and human component i.e. Student, Teachers, Principal, Management. Teaching pedagogy is also an important component. Keeping this in mind, this research
aims to inquire contribution of social, spatial characteristics towards student’s behaviour and learning in primary schools with the following objectives:--

1. To find out information about social characteristics with respect to primary school.
2. To identify spatial characteristics with respect to physical environment of classroom in primary school.
3. To know about student behaviour of primary school student.
5. To find out the association of social, spatial characteristics of physical environment to student behaviour and learning in primary schools.
6. To identify spatial characteristics contributing towards student’s behaviour and learning in primary schools.

1.6 Assumptions of the Study:
While conducting this research study it was assumed that:

- The sample of teachers who volunteered to participate represented the teachers in primary schools of Pune Municipal Area.
- Schools selected for the study were following SSC curriculum.
- Teaching is done as per the guidelines of Government of Maharashtra and Sarva Shiksha Abhiyan (SSA) with all necessary curriculum rigorously. It is same throughout the population.
- The continuous evaluation grade data given by school authorities are valid measures of student academic performance in the particular year of study.

1.7 Operational Definitions:
The following definitions are provided for terms used in the study.

1.7.1. Social characteristics: It refers to characteristics mainly related to number of students and facilities in a school like socio economic status, gender, gender equality, literacy rate, access to facilities, parental background, teacher's participation, principals administration etc. School environment is divided into four different environment mainly
social, spatial, psychological and cultural environment. Every school provides to its students a social environment. The student is surrounded by other learners as well as the influential adults and the teachers. The social surrounding of a school constitutes its social environment. Referring the literature review, the social characteristics for this study have been identified as school type, school size, student teacher ratio, attendance and midday meal.

It includes:

- School type (school management i.e. day today organizational unit)
- School size (number of students enrolled in school for the study year considered)
- Student teacher ratio (i.e. number of students in classroom and number of teachers teaching for a particular lecture time)
- Attendance (A monthly attended days recorded by the school authorities and converted into percentage)
- Mid Day Meal (A nutritious diet provided by the Government of India through Sarva Shiksha Abhiyan (SSA) in school every day. This diet includes various forms like dry or wet food items served by an agency appointed by either school or local governing body during recess time). This dry or wet food item serving in school is referred Mid Day Meal as in this study.

1.7.2 Spatial characteristics: It refers to the actual dimensions and availability of facility related to classroom and corridor. The information related to spatial characteristics will be referred on the basis of IS 8827 (1978) Reaffirmed 2006: Recommendations for basic requirements of school buildings [CED 12: Functional Requirements in Buildings]. Spatial characteristics include:

- Age of the building (means completed no. of year’s construction as per school record)
- Classroom area (means the carpet area of the classroom under study, calculated on basis of actual measurements taken by researcher)
- Classroom dimensions (refer to actual sizes of room; means the length and breadth of classroom or diameter of classroom whichever is applicable for a classroom under study)
• Classroom proportions (worked as ratio worked out as length to breadth, where length is considered as one unit for calculations)
• Classroom height (means actual height at any point from the surface of the floor to the lowest point of the ceiling. Classrooms with sloping roof, height in centre of room is considered for study purpose)
• Minimum distance (means a distance between the chalkboard and front edge of the first row of desks when chalkboard is in use)
• Base of chalk board (means distance between base of chalkboard and floor level)
• Location of chalkboard (refers to placement of chalkboard on wall in the classroom)
• Size of chalkboard (refers to length and breadth of chalkboard placed on one wall of classroom)
• Children’s chalkboard (means an additional black / White board or part of wall coloured and converted as blackboard, specially allotted for children to draw as per their wish)
• Storage (refers to a cupboard, a rack or built in storage specific to classroom used for storing stationary, teaching learning material required and easy access to students and teachers also)
• Pin boards (means stuck board placed in classroom for student’s work display)
• Desirable fittings (include wooden picture rail i.e. the rail provided on the wall opposite to windows or opposite to chalkboard. It also includes student lockers provide for students bags and other project work)
• Fans (means number of fans in the classroom)
• Light (number of light fitting in the classroom)
• Window (refers to number of windows present on classroom area of window and ventilator, calculated on the basis of size of window and number of windows)
• Noise (refers to disturbing sound coming from either interiors of school or from exterior surrounding of school, measured by students opinion)
• Door width (refers to opening size in wall)
• Number of doors (refer to how many entry and exit door ways are provided to classroom under study)
• Verandah or corridor width (actual clear distance, transitional space, classroom wall and parapet wall or railing of the corridor)
• Colour (means colour of the classroom walls observed by the researcher)
• Ground (refers to play area in school; ground means actual ground, paved setback area or central courtyard for this study)
• Garden (refers to a place in school site with play equipments and landscaped area).

1.7.3 Student Behaviour:
Behaviour range of actions and mannerisms made by individuals, mainly things individuals do, including thinking, feeling, seeing, doing, moving around, as well as, talking with others. Physical environment forms a background for activities, rarely noticed at all levels. Physical environment provides the required arrangement, light, ventilation etc. to form a particular movement pattern based on activities.

Moleski and Lang state, the physical setting provides the physical elements required to sustain the physical attributes necessary for individual’s satisfaction of his needs such as light, smell, and heat. Subsequently, the physical environment provides the physical facilities and spatial layouts/arrangements that help to sustain specific activity patterns and hinder the others (Pasalar, 2003). Student’s Behaviour here means student’s social (peer) interaction and passive exploration of within the environment (School), as both these behaviours are appropriate behaviours.

1.7.4 Student Learning: Achievement is a progress that a learner makes in learning, often measured by either standardized or teacher made test (Educator’s encyclopedia). Therefore, academic achievement/student learning is knowledge acquired and skills developed in school subjects generally indicated by marks obtained in test. It is exposition of his/her present level of performance. Student learning i.e. Student’s
Performance here means the marks obtained by the students in 7th class examination considered as score of Academic performance.

**Management of School/Educational Institution:**

The authority, which runs a school, determines its type of management. In India, the management of schools is categorized as under.

**Local Body**: Institutions/schools managed and financed by Municipal Corporation, District Board, Municipal Board, Cantonment Board, Town Area Committee, Panchayat Samiti, Zila Parishad etc. are classified as local body institutions.

**Private Aided**: Institutions/schools managed by an individual, trust or a private organisation and are receiving regular maintenance grants either from a Local Body or the Central/State Governments.

**Private Unaided**: Institutions/schools managed by an individual, trust or a private organisation and do not receive regular maintenance grants either from Local Body or Government (Central/State). An institution which is in receipt of an ad-hoc grant for a specific purpose like building grant, grant for strengthening of library or laboratory facilities, one time subsidy towards teacher salary etc. but does not receive regular maintenance grant should be treated as an unaided institution

1.7.5 **Primary school**: A primary school or elementary school is a school in which children receive primary or elementary education from the ages of about five to eleven, coming before secondary school and after preschool or a school having highest class up to IV or V will be termed as Primary School (NCERT) (Pal). It is the first stage of compulsory education in most parts of the world, and is normally available without charge, but may be offered in a fee-paying independent school. For this study, the term primary school will refer to public schools including grades 1 to 7.

1.8 **Significance of the Study**: This study gives a valuable insight into an association of social spatial characteristics to student behaviour and learning. This study has observed the primary schools in Pune city for developing a proper understanding of the situation and to attract the attention of the
concerned authorities to conduct further district / state / national level study on the same. This study also highlights the spatial characteristics which are important considering student learning and user’s perception about their school. The study will assist in identifying social, spatial characteristics which contribute in student learning and also suggest measures to improvise. This study throws light on the contribution of spatial characteristics towards student behaviour and learning Results from spatial analysis will be transformed into identification of spatial characteristics significantly contributing towards student behaviour and academic performance. Suggestions will be helpful for school architects, management and policy planners and will be an addition to existing byelaws.

1.9 Limitations of the Study:
Following are the limitations of the research study:--

1. The time frame covered in the study is 2010 – 2015. For academic performance data, it is 2013-14 only.
2. Due to time constraint, only schools within PMC area were studied.
3. Within each school setting, the study is limited to classroom space and transitional space i.e. corridor only.
4. Considering ethical issue, photography or voice recording for interview was not permitted, thus spatial data documentation was done through actual measurements specially classroom layout and notes by the researcher.
5. Student behaviour was limited to observed behaviour i.e. social interaction and passive exploration.

1.10 Chapter Scheme:
The chapter scheme of the research thesis is given below.

CHAPTER I: INTRODUCTION
The first chapter gives an introduction to the problem indentified, gives an overview of physical environment characteristics of primary school, student behaviour and learning. It also states background of the study, objectives, assumptions, significance, limitations and operational definitions used for study.
CHAPTER II: REVIEW OF LITERATURE

The second chapter deals with the relevant literature concerning to social characteristics and spatial characteristics of school especially classroom, student behaviour and learning. The review details out physical requirements of classroom space. It gives an overview of student behaviour, development perspectives with reference to psychology, education and relation between design, behaviour and achievement. Part of this chapter discusses primary education scenario in India, National Curriculum Framework 2005 and norms for school building forming basis for finalization of parameters.

CHAPTER III: RESEARCH METHODOLOGY

The third chapter gives detailed information about research methodology as research setting, research hypotheses, tools used for study, sampling and data collection procedure. It also gives information about pilot study and data compilation.

CHAPTER IV: DATA ANALYSIS AND INTERPRETATION - CLASSROOM

The fourth chapter describes classroom studied in detail. It provides the data analysis and interpretation of the tables and documentation of the social, spatial data collected for classroom and corridors of selected sample schools.

CHAPTER V: DATA ANALYSIS AND INTERPRETATION (OVERALL) AND TESTING OF HYPOTHESES

The fifth chapter explains the data analysis and interpretation of the tables and graphs of the data collected from the respondent’s opinion. This chapter also includes the testing of hypotheses set for the research study with reference to study variables and identifying association.

CHAPTER VI: FINDINGS, CONCLUSIONS AND SUGGESTIONS

The sixth chapter concludes with overall findings, conclusion arrived at and recommendations for classroom space in relation with review of literature. It also states
the suggestions and recommendations for the study. This chapter also includes the scope for further research followed by bibliography and annexure.

1.11 SUMMARY

This chapter has thrown light on the importance of the school building in the growth and development of the students since the students spend a major portion of their day in the school. The contribution of the spatial and social characteristics towards the learning and behaviour of the students is a subject which has not been explored in the Indian context. Many studies have been conducted on the subject abroad and they have produced significant results tempting the researcher to explore the subject in the Indian context. The next chapter will provide an insight into the relevant literature concerning to social characteristics and spatial characteristics of school especially classroom, student behaviour and learning. It will give an overview of student behaviour, development perspectives with reference to psychology, education and relation between design, behaviour and achievement. The chapter will also detail the primary education scenario in India, National Curriculum Framework 2005 and norms for school building forming basis for finalization of parameters.