

Exploring Place-Identity Theory, School Architecture, and Cognitive Development: Implications for Learning Environments and their Spatial Design

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Abstract

This paper examines the intersection of Place-Identity Theory, School architecture, and Cognitive development within the Indian educational system, emphasizing their implications for educational outcomes and emerging spatial design considerations for learning spaces. It begins by defining concepts such as Place-Identity Theory, Sense of Place and Memory Association within the Environmental Psychology framework, establishing the research's theoretical foundation. Through an extensive literature review, the study investigates how school architecture influences cognitive development, focusing on the implications of the theory.

The research further highlights how the study can contribute to forming architectural and psychological principles that align with the objectives of India's National Education Policy (NEP) 2020, which envisions inclusive, student-centric learning environments that foster holistic development. The literature review findings reveal that Place-Identity Theory plays a crucial role in shaping educational experiences. Spaces designed with attention to environmental and psychological factors can enhance students' sense of belonging, improve memory retention, and create environments conducive to learning. These insights are particularly relevant within the Indian context, where diverse socio-cultural factors influence education. This paper advocates for the integration of Place-Identity Theory in school design, encouraging architects, policymakers, and educators to prioritize design strategies that align with NEP 2020's vision for transforming educational spaces.

Keywords: Place-Identity Theory, School architecture, Cognitive Development of children, Learning environments, National Education Policy (NEP) 2020, Environmental psychology, Memory Association, India.

Introduction & Research Background

The study seeks to explore the role of 'Place-Identity Theory' (Proshansky, 1978) in shaping the spatial design of learning spaces in schools, concerning the proposed Indian education system structure (5 + 3 + 3 + 4) and the objectives outlined in the NEP 2020. The study also points out that the "Indian Standard with Recommendations for Basic Requirements of School Buildings" was updated in 1978 and reaffirmed in 2006 ([IS 8827](#)). Hence, with constant changes in the education system, objectives, methods, and curriculum, a change in the spatial organization of learning spaces in the 'Indian Standard' has become imperative.

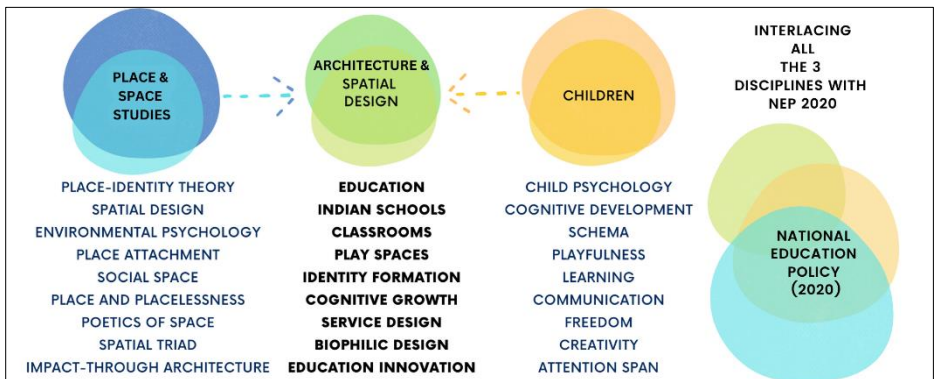


Figure 1. The Interlinked Keywords identified by the author for all three disciplines and a Venn diagram explaining NEP being the Premise of the study

Figure 1 illustrates the intersection between the NEP 2020 and 3 key areas of focus: Place and Space Studies, Architecture/Spatial Design, and Children. The overlap displays the relevance of these domains to each other, with NEP 2020 serving as the point of convergence. The research gap underscores the need for comprehensive research in the intersection of these domains and the interdisciplinary nature of the study highlights the potential areas where focused investigations can contribute to the effective implementation of the policy.

The paper provides a concise conceptualization of terms such as "Environmental Psychology," "Place-Identity Theory," "Sense of Place," and "Memory Association" in line with the research objectives. Environmental Psychology is a subfield of psychology that studies how people interact with their physical environment. It explores how the environment influences human behaviour, well-being, and cognitive processes. The concept of Place-Identity Theory revolves around understanding the intricate connection between individuals and the spaces they inhabit. Proshansky (1978) defined it as "those dimensions of self that define the individual's identity with the physical environment using a complex pattern of

conscious and unconscious ideas, feelings, values, goals, preferences, skills, and behavioural tendencies relevant to a specific environment." This theory suggests that places, whether homes, neighbourhoods, or other geographical locations, play a pivotal role in shaping an individual's identity.

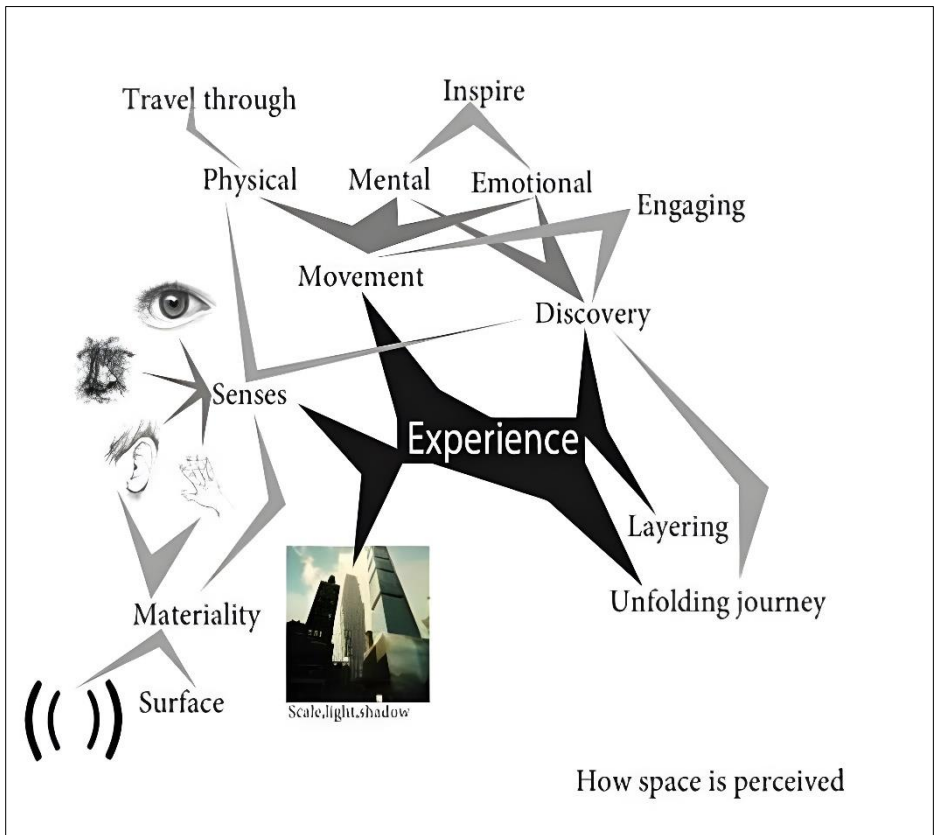


Figure 2 Space Perception with reference to Place-Identity Theory (Bechtel, r.b., & Churchman, a. 2008)

Edward Relph's concept of the "Sense of Place" (Relph,1976) refers to the subjective and emotional connections people form with a particular place, creating an identifiable and personal meaning associated with that space. This concept suggests that places evoke a range of feelings, memories, and attachments in individuals, influencing how they interpret and interact with their surroundings.

In the context of children, a strong sense of place often involves a deep connection to the cultural, historical, or social aspects of a location, contributing to an individual's identity and sense of belonging. (Proshansky & Fabian, 1987; Twigger-Ross et al., 2003) Personal experiences, shared memories, cultural importance,

and social interactions within a given environment can all influence one's sense of place. (Kenny et al., 2011)

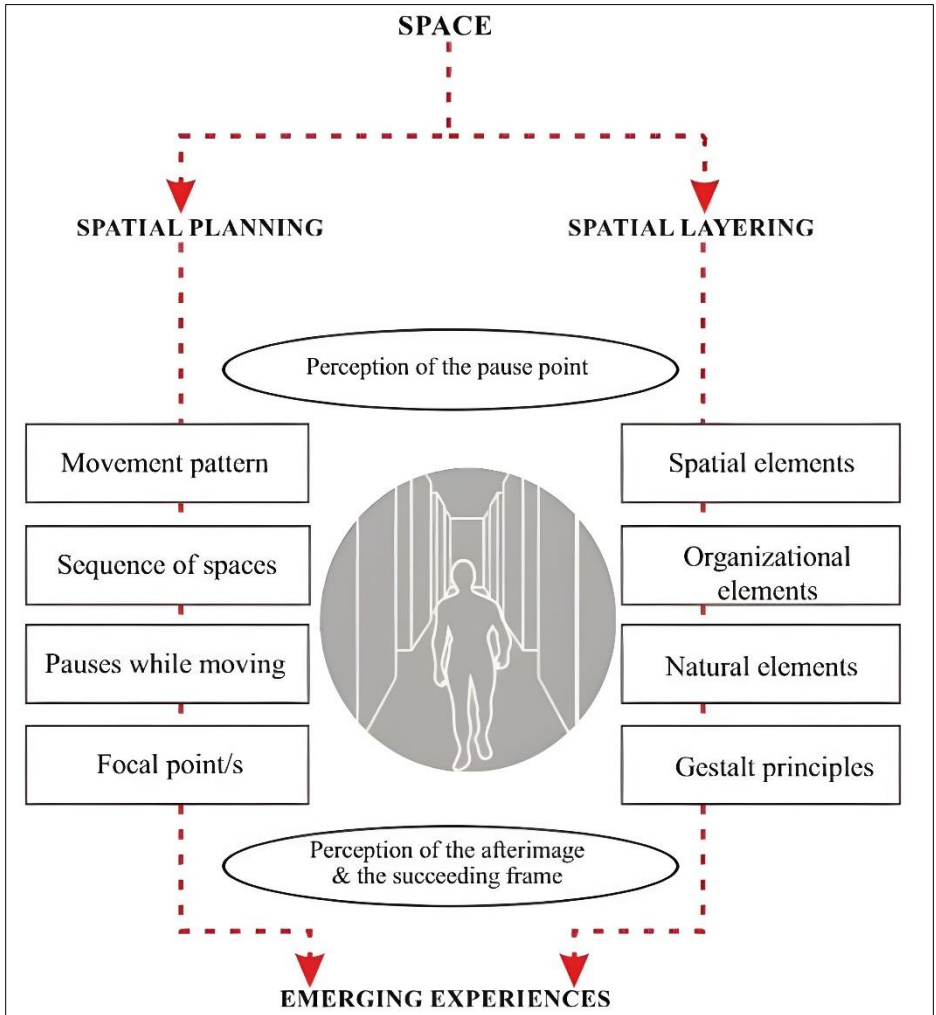


Figure 3 Space and emerging experiences (Bechtel, r.b., & Churchman, a. 2008)

"Memory Association" refers to the psychological process wherein memories or experiences connect with specific places, objects, or stimuli. The human mind's ability to correlate memories with specific signals or triggers results in a network of interconnected ideas, thoughts, and recollections.

Overarching these terms with an extensive Cognitive Development Theory (Piaget, 1936) by Jean Piaget emphasizes the phases of children's cognitive or intellectual development, which is crucial for the study to understand the complex relationship between age-appropriate skills and their learning environments. Piaget's theory specifies the four stages of cognitive development in children, including the sensorimotor, preoperational, concrete operational, and formal operational.

Literature Review & Findings

The understanding of space, both philosophically and within academia, has been dynamic and multidimensional. From ancient philosophers associating with the elusive nature of space to contemporary scholars examining the intricate relationship between place and its facets in different contexts, the literature review highlights the interconnected disciplines, relevant to the scope of research. The review's focus is the Place-Identity Theory, unveiling its implications on the development of a 'sense of self' in individuals.

Authors	Year	Summary
Piaget	1952	Explored the role of place and space in children's cognitive development.
Barker	1968	Investigated the impact of the physical environment on children's behaviour and social development.
Relph	1976	Explored the concept of placelessness and argued for the importance of place in human experience.
Tuan	1977	Explained the emotional and experiential aspects of place. He highlighted the importance of attachment and familiarity
Proshansky	1978	Coined the term Place-Identity and its psychological implications.
Bronfenbrenner	1979	Introduced the ecological systems theory, which emphasizes the influence of the environment, including place, on children's development.

Proshansky, Fabian, & Kaminoff	1983	PI Emphasises the psychological and emotional attachment of individuals
Moore	1986	Examined the influence of the physical environment on children's behaviour and development.
Altman & Rogoff	1987	Investigated the impact of cultural and environmental factors, including place, on children's cognitive and socio-cultural development.
Brown & Perkins	1992	PI on community involvement.
Bonaiuto et al.	1996	Influence of PI on well-being.
Hart	1997	Examined children's experiences of place and their role in shaping well-being, relationships, and environmental attitudes.
Saracho	2002	Examined the role of place in children's play and learning experiences.
Stedman	2002	Examined the influence of PI on environmental values and behaviour.
Scopelliti & Giuliani	2004	Role of PI in coping with environmental stressors.
Spencer & Blades	2006	Explored the impact of place on children's spatial, navigation and environmental cognition.
Scannell & Gifford	2010	Investigated the relationship between PI and environmental behaviour.

Lewicka	2011	PI in the process of migration and adaptation to new environments.
Scannell & Gifford	2013	PI on the perception of climate change and support for climate change policies.
Devine-Wright	2013	PI in relation to energy projects and acceptance.
Brown, Perkins, & Brown	2013	PI in the recovery process after natural disasters.
Devine-Wright & Howes	2014	PI on responses to renewable energy technologies.
Stedman	2016	PI on environmental concern and behaviour.
Scannell & Gifford	2017	PI in fostering sustainable behaviours.
Devine-Wright	2019	PI on perceptions of landscape change.
Lewicka	2019	PI and well-being in urban neighbourhoods.
Karimi	2020	PI on urban public space perceptions.
Saarikalle	2021	PI in nature-based tourism experiences.
Gustafson, Kyle, & Daniel	2021	PI in the context of urban regeneration projects.

Jorgensen, Fjellstad, & Hagen	2021	PI on the acceptance of wind energy projects.
Li & Hu	2021	PI on residents' attitudes and behaviour towards heritage preservation.
Kim	2021	PI on residents' support for urban green spaces
Smith & Wakefield	2022	PI on the perception and acceptance of smart city technologies.
Li, Kong, & Buhalis	2022	PI in the context of destination branding and marketing.
Wu, Zhong, & Zhang	2022	PI on residents' perceptions of neighbourhood safety and crime prevention strategies.
Eriksson & Andersson	2023	The relationship between PI and well-being
Zhang, Xu, & Wang	2023	The relationship between PI and sustainable tourism
Olsson & Jansson	2023	PI in the process of rural depopulation and revitalization.

PI – Place Identity

Historical Foundations of Place-Identity Theory and Child’s Cognitive Development:

The early foundations of Place and related Identity trace back to Piaget (1952) and Barker (1968). Piaget emphasised the significance of place in children's cognitive development, highlighting how physical environments shape cognitive processes.

Barker, on the other hand, investigated the impact of the physical environment on children's behaviour and social development, highlighting the importance of open spaces, play areas, and safe neighbourhoods.

The early works of Bronfenbrenner, Tuan, and Barker laid the groundwork for understanding the significance of place in child development. These pioneers pointed out the influence of the environment, including physical, social, and cultural aspects, on children's cognitive and behavioural development. Their research highlighted the importance of considering place in architectural design for children. Moore (1986) proposed the importance of well-designed environments for children's play, exploration, and social interactions. This highlighted the need to consider the specific needs and preferences of children while designing spaces. Altman and Rogoff (1987) posited the influence of cultural and environmental factors. Saracho (2002) examined the role of place in children's play and learning experiences. In a nutshell, the studies pointed out that the design of child-friendly spaces offer opportunities for imaginative play, exploration, and discovery that enhance children's development.

In addition to these contributions, the following readings in Figures 4 and 5, have been studied and recommended to understand the relationship between Place-Identity Theory, School architecture, and a child's cognitive development better.

Place Identity Theory & School Architecture (1950 - 2023)		
Year	Study	Authors
1966	The Open Classroom: A Study of Environmental Effects on Learning	Gump, Peter V. and Kulk, James A.
1972	The School as a Unique Environment: A Study of Elementary School Buildings in the United States	Becker, Franklin D.
1980	The Learning Environment: An Instructional Strategy	Barker, Roger G. and Gump, Peter V.
1985	Educational Building Appraisal	UNESCO
1988	The Environment of the School	Moos, Rudolf H.
1992	School Buildings and Design in Relation to Learning	Lally, Vince
1999	The Third Teacher: 79 Ways You Can Use Design to Transform Teaching and Learning	Hertz, O., Gregory, C., and Second, L.
2003	The Impact of School Building Condition on Student Achievement	Earthman, Glen I.
2006	The Language of School Design: Design Patterns for 21st Century Schools	Lippman, Peter C.
2008	Schools for the 21st Century: Designing School Grounds as Outdoor Learning Environments	Dillon, Justin et al.
2011	The Impact of School Architecture on Student Outcomes	Barrett, Peter et al.
2015	Designing the Learning Environment: A Guide to School Design and Planning	Earthman, Glen I.
2018	Place Identity and School Architecture: Creating Meaningful Learning Spaces	Weinstein, Young, & Berman

Figure 4 Key Literature on Place Identity Theory & School Architecture

Place Identity Theory & Child Development (1950 - 2023)		
Year	Study	Authors
1975	The Meaning of Home	Altman, Irwin and Chemers, Martin M.
1980	The Role of Place Identity in Children's Environmental Attitudes and Behaviors	Altman, Irwin and Chemers, Martin M.
1992	Children and Their Environments: Learning, Using, and Designing Spaces	Moore, Robin C.
1997	Children's Understanding of the Personal and Social Aspects of the Environment	Tanner, Carol
2001	Environmental Identity in Urban Children	Altman, Irwin et al.
2003	Environmental Experience and Psychological Well-Being: Theory and Measurement	Korpela, Kalevi M.
2005	Children's Places: Cross-Cultural Perspectives	Christensen, Pia et al.
2009	Children's Outdoor Play and Learning Environments: Returning to Nature	Rivkin, Mary S. et al.
2012	Place-Based Education: Connecting Classrooms and Communities	Smith, Gregory A. and Sobel, David
2014	The Role of the Physical Environment in Promoting Children's Well-Being	Kuo, Ming et al.
2018	The Influence of Place Identity on Children's Outdoor Play Experience	Cosco, Nilda G. et al.
2020	Place Attachment and Child Development: A Review of the Literature	Elsner, Johanna et al.

Figure 5 Key Literature on Place Identity Theory and Child Cognitive Development

Conclusion

The goals of the NEP 2020 are integral to this discussion, as the policy aims to overhaul the Indian education system to make it more inclusive, equitable, and effective. The NEP goals of Universalization of Education, Holistic Development, Flexibility/Choice, Technology Integration and Promoting Research/Innovation align with the Place-Identity Theory. Similarly, the National Curriculum Framework's (NCF) focus on Play-based learning, Multidisciplinary Curriculum, Inclusive Education, Teacher-child interaction, Parent and Community involvement, and Health/Well-being are in the scope of the research; aligning with the Place-Identity Theory. The findings are to the best of the author's knowledge and aim to interlace Place Identity theory, educational spaces, and cognitive development. By understanding how the physical environment influences learners' sense of place and cognitive development, educators, designers and policymakers can create suggestions for the IS 8827 for school buildings. This synthesis of literature and policy analysis provides a comprehensive understanding of how Place-Identity Theory and School Architecture can be leveraged to improve educational environments in India.

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