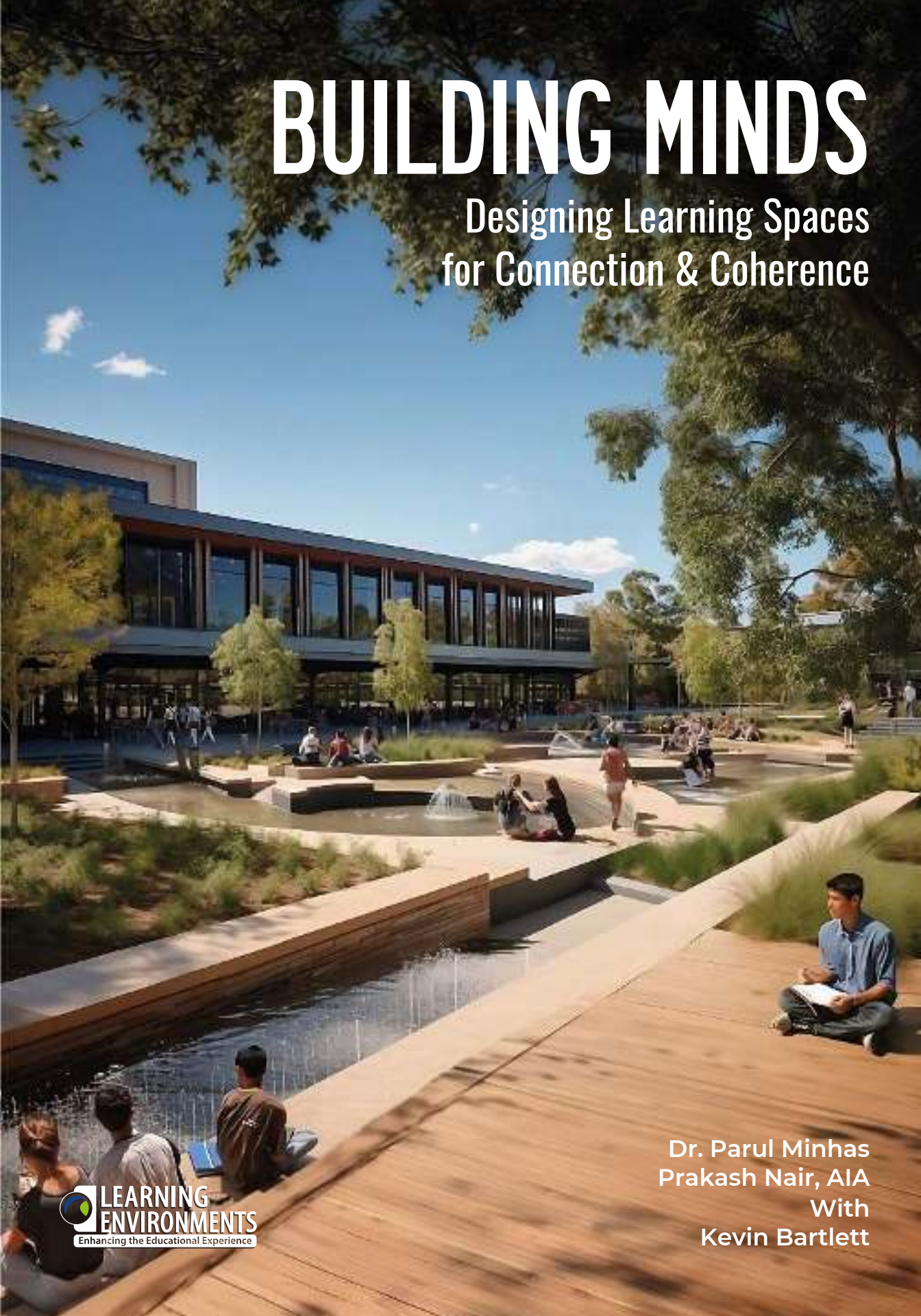

BUILDING MINDS

Designing Learning Spaces for Connection & Coherence

Dr. Parul Minhas
Prakash Nair, AIA
With
Kevin Bartlett

LEARNING ENVIRONMENTS
Enhancing the Educational Experience

Dedicated to our dear friend Ed Kirkbride, philosopher, architect extraordinaire, and the greatest connector we've known. Thank you Ed, for your lifetime of service to the children of the world.

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Association for Learning Environments

BUILDING MINDS. Designing Learning Spaces for Connection & Coherence

$35 ARCHITECTURE, INNOVATIVE SCHOOL DESIGN, EDUCATION, SCHOOL REFORM

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ISBN 9798337503899

Copyeditor: Diane Walters https://dianewalters-writer.com
Cover & Book Design: Dmytro Zaporozhtsev https://dribbble.com/DmytroZappa

Photo Credits:
Education Design International
Prakash Nair
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Original Edition Printed in the United States of America

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PREFACE

Learn how to see. Realize that everything connects to everything else.

Imagine a world where the boundaries we've drawn between ourselves—of religion, nationality, color—cease to exist. Picture a society where, instead of focusing on what makes us different, we celebrate what unites us as people. A world where every person is seen as part of a single, united family—as ancient Indian wisdom, Vasudhaiva Kutumbakam, calls it. In such a world, there would be no wars, atrocities, violence, or crime, for we would recognize that by harming another, we harm ourselves.

This vision shouldn't just be a utopian dream; it must be a possibility, a future for humanity that we must all strive for. But to bring this future to life, we must start where all true change begins—with our children. It is in their formative years, in the environments where they learn and grow, that the foundation for this new, gentler, kinder world can be developed.

Children are like sponges, absorbing what they see, hear, and experience around them. The influences they encounter in their school environment leave lasting imprints on their hearts and minds, shaping how they perceive themselves, others, and the world. These early experiences are not just fleeting moments; they are the seeds that will grow into the beliefs, values, and actions that guide them throughout their lives. And, as these children grow into adults, those seeds bear fruit, influencing the future of our world.

As Mahatma Gandhi wisely said, "If we are to reach real peace in this world . . . we shall have to begin with the children." This book is a call to action: a framework for how we can start this change. It is an exploration of how we can build educational environments that go beyond silos, that foster connections instead of divisions, that teach our children to see the world as one family.

In these pages, we reject the fragmented, compartmentalized approach that has dominated education and society at large. Instead, we advocate for an integrated vision—one that sees learning, well-being, and humanity as interconnected threads of the same fabric. This book is not just about creating better schools; it is about creating a better world.

INTRODUCTION

Human development is deeply rooted in an essential need for connections. We thrive when we positively connect with ourselves, others, and the environment. This fundamental need spans various dimensions of our lives, impacting emotional, psychological, and cognitive growth.

Abraham Maslow was one of the first scholars to comprehensively discuss the importance of connections with self, others, and the environment. In his seminal book, *Toward a Psychology of Being* (1962, revised in 1968), Maslow's concept of self-actualization within the "hierarchy of needs" emphasizes the significance of self-connection through realizing one's full potential and finding meaning within oneself. Maslow also highlighted the importance of social connections and relationships through the need for love, belonging, and esteem. His discussion on aesthetic and cognitive needs also underscores the importance of a harmonious relationship with one's surroundings. In his later works, Maslow introduced the concept of self-transcendence, which involves transcending beyond the self and finding a higher purpose, unequivocally highlighting the importance of these connections.

In educational settings, the design of physical spaces plays a critical role in fostering these connections. Thoughtfully designed environments can transform learning experiences by promoting collaboration, engagement, and well-being. Lev Vygotsky's sociocultural theory of cognitive development emphasizes the importance of connections, which posits that social interaction is fundamental to cognitive development.

FIGURE I.1 *Vygotsky's sociocultural theory highlights the importance of connections in cognitive development.*

Vygotsky's research shows that learning is inherently a social process, and environments that encourage collaboration and mutual understanding significantly enhance both learning and personal development. This aligns with the neurological basis for learning, as studies by contemporary neuroscientists like Louis Cozolino, indicate that emotional and social connections are crucial for effective learning.

> *"Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, logical memory, and the formation of concepts. All the higher functions originate as actual relationships between individuals."*
>
> *—Lev Vygotsky*

Connection with oneself is equally important. Modern psychological approaches, such as those advocated by Carol Dweck's growth mindset theory, emphasize the importance of self-actualization and the need for individuals to connect with their true selves. Dweck's research suggests that creating environments where students can explore their identities and develop self-awareness is crucial for personal and academic growth.

Furthermore, our connection to both the natural and built environments plays a critical role in our development as humans. The biophilia hypothesis, proposed by biologist E.O. Wilson and supported by recent studies in environmental psychology, suggests that humans have an innate affinity for nature, which is essential for our well-being.

> *"Biophilia, the innate tendency to focus on life and lifelike processes, is an essential part of the human psyche. Schools should incorporate nature into their design to nurture this connection in students."*
>
> *—Attributed to E.O. Wilson*

Modern psychological approaches, such as those advocated by Carol Dweck's growth mindset theory, emphasize the importance of self-actualization and the need for individuals to connect with their true selves.

FIGURE I.2 ***Before:*** *The building on the left is the intermediate school before the renovation. This area separates the intermediate school building from the library on the right. Not only is there no direct connection between the two buildings, but this area between them is wasted and not used in any way. Notice also that the small high windows limit the amount of daylight coming into the building, and there are no views to the outside green areas either.*

FIGURE I.3 ***After:*** *This image shows a new trellis that connects the renovated intermediate school (previous photo) with the existing library building. The sheltered area between the two buildings now becomes another great space for outdoor learning. Also note how the entire face of the building has been opened up via glass doors and picture windows. Such examples are important because they showcase how modest improvements in the built environment can positively impact the sociocultural development of students.*

Integrating natural elements into learning environments can enhance students' cognitive function, emotional well-being, and overall health. Recent research has shown that exposure to well-designed environments, including natural settings and thoughtfully constructed spaces, can reduce stress, improve attention, and foster a sense of connectedness to the world around us. By prioritizing these elements, we can create holistic educational environments that support all learners. Figures 1.2 and 1.3 illustrate how thoughtful design of learning spaces can help children feel connected to the world around them while improving their cognitive abilities and enhancing their overall learning experience.

Well-designed environments, including natural settings and thoughtfully constructed spaces, can reduce stress, improve attention, and foster a sense of connectedness to the world around us.

When connections with oneself, others, and the environment are healthy and positive, they lay the foundation for connecting with transcendence. As described by Mihaly Csikszentmihalyi, being in a state of flow is one way to connect to transcendence.

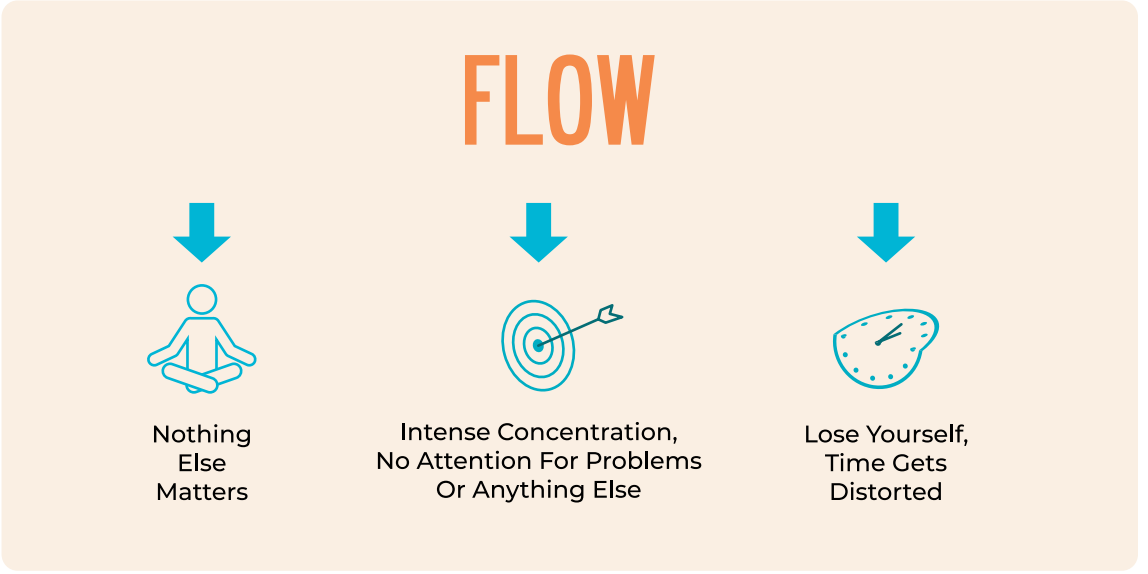

FIGURE I.4 *Achieving transcendence through deep connections.*

This connection helps our children become not just good learners but whole people. Understanding and integrating transcendence in education supports the development of self-awareness, empathy, and a sense of purpose, contributing to the holistic growth of students, which leads us into this book's second part, where "becoming human" is the central idea and the goal around which learning spaces and learning systems must be designed.

> *"The process of becoming a whole person is an ongoing journey of discovery, openness, and courage. In which you reach higher and higher levels of integration and harmony within yourself and with the outside world, allowing greater flexibility and freedom to become who you truly want to become. Since you are always in a state of change, you are always in a state of becoming."*
>
> *—Transcend: The New Science of Self-Actualization*

Despite our advanced understanding of these intrinsic human needs, many educational systems are still rooted in outdated paradigms from the industrial age. These models emphasize isolation, competition, and a one-size-fits-all approach, which starkly contrast with our natural tendencies for collaboration, self-discovery, and connection with the environment.

Innovative educational reformers like the late Sir Ken Robinson and Sugata Mitra have highlighted the need for a radical overhaul of traditional educational systems.

> *"When people are in their Element, they connect with something fundamental to their sense of identity, purpose, and well-being."*
>
> *—Ken Robinson*

They advocated shifting from standardized testing and rigid curricula to more personalized, student-centered approaches. Robinson's vision of fostering creativity and Mitra's work on self-organized learning environments (SOLEs) illustrate the potential for transformative change in education. Their ideas align with Maria Montessori's philosophy, emphasizing the importance of self-directed learning and the prepared environment. This shift is essential for redefining success within educational institutions and creating environments where students can explore their passions and develop their unique capabilities.

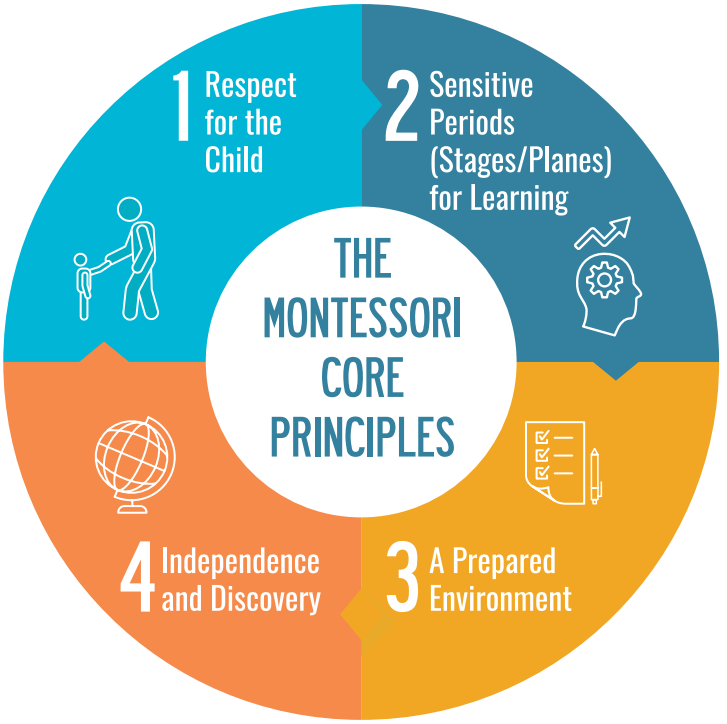

FIGURE I.5 The Montessori method connects learning deeply with the environment.

However, this shift is challenging within conventional classroom settings, which often lack the space or opportunities for connections with oneself, others, and the environment—crucial for developing self-awareness and emotional intelligence. The focus on uniform learning and assessment methods overlooks individual learning styles and needs, restricting students' ability to self-discover or pursue their interests. This stifles the development of self-knowledge and diminishes personal fulfillment. Additionally, the typical classroom layout, with students arranged in rows facing the teacher, minimizes meaningful peer interaction, stifling collaborative learning and limiting the development of communication and interpersonal skills.

Traditional learning systems prioritize the transmission of information over the construction of knowledge through social interaction, undermining the potential to foster a sense of community and mutual support among learners. Furthermore, conventional education often confines learning to classroom walls, detaching students from real-world contexts where their knowledge could be applied. This separation leads to disengagement and obscures the relevance of education to the outside world. Limited exposure to both natural settings and the broader community restricts opportunities for experiential learning, which is essential for understanding ecological and social systems.

> *"Education is not preparation for life; education is life itself"*
>
> *—John Dewey*

This leads us to another crucial disconnect that needs to be addressed: the vital connection between learning systems and learning spaces. Despite numerous efforts in recent years to reform education, changes have often been piecemeal and isolated, preventing revolutionary progress. Revolutionary change in education is hindered because all parts of the learning ecosystem are treated separately rather than holistically. ***To achieve meaningful and sustained transformation, all the vital parts of an education system—including learning spaces and learning systems—must work in coherence.***

The focus is on beginning with the end in mind, emphasizing the importance of guiding the design of cohesive educational environments. The "Portrait of a Learner" model integrates various elements of education to nurture students to be their most fulfilled, humane selves. This approach aims to create an integrated and revolutionary education system, designed from the ground up with all the pieces of the educational puzzle in mind, including the learning spaces.

Part 1: Building Minds

The first part of this book, "Building Minds," advocates for a transformative approach to education that includes the creation of vibrant spaces that foster connection and engagement. This approach includes designing adaptable learning spaces that cater to diverse needs, integrating natural and built elements to enhance well-being, promoting critical thinking and creativity, facilitating collaboration and empathy, incorporating real-world applications and technology, and supporting emotional and social intelligence. Inspired by Mihaly Csikszentmihalyi's concept of flow, these spaces aim to facilitate deep immersion and joy in learning. ***Central to this part is the idea that learning spaces must facilitate connections on multiple levels to truly "build minds," thereby nurturing intellectual, emotional, and social growth and preparing students for the future.***

Part 2: Cultivating Coherence

The second part of this book, "Cultivating Coherence," addresses the often-overlooked connection between learning systems and learning spaces. This alignment ensures that all parts of the learning ecosystem work together harmoniously. By designing coherent learning environments, we can create educational experiences that empower learners to thrive academically, socially, and personally. This integrated approach ensures that education is a cohesive experience, preparing learners for an interconnected world. The central idea of "becoming human" is explored here, emphasizing the holistic development of individuals through coherent educational practices.

Revolutionary change in education is hindered because all parts of the learning ecosystem are treated separately rather than holistically.

PART ONE

CRAFTING CONNECTIONS

CHAPTER 1

THE PARADOX OF DISCONNECTION

1.1 Human Connection at Birth

The journey of human life begins with an essential, profound connection. From conception, we are intricately linked to another human being—our mother. This connection is both biological, through the umbilical cord that nourishes and sustains us, and emotional, as we develop in the enveloping warmth of the womb.

FIGURE 1.1 *The word "connection" is at the very heart of our human existence. The foundations for our need to be connected to others are built well before birth.*

These initial human connections lay the foundational understanding that to be human is to be connected. The innate need for connection is fundamental to our very survival and growth as human beings. Psychological research underscores the importance of the earliest bonds we make during childhood, indicating that these initial emotional and physical connections are crucial for developing trust and security, which influence our interactions with others throughout our lives.

1.2 The Paradox of Modern Disconnection

In stark contrast to these beginnings, and despite the array of technologies designed to keep us all connected, today's world is characterized by a pervasive sense of disconnection. This paradox continues to deepen with technological advancements ostensibly designed to enhance connectivity. That is because technology allows for communication across vast distances in mere seconds, but it often fails to provide the depth and fulfillment inherent in direct human interactions. This disconnection manifests across several dimensions.

FIGURE 1.2 *The virtual world brings our children into contact with dozens or even hundreds of other people. These connections can feel very real. Unfortunately, every moment spent in front of a screen is a moment not spent developing the deep and fulfilling connections that only happen through direct, spontaneous in-person interaction.*

Despite the array of technologies designed to keep us all connected, today's world is characterized by a pervasive sense of disconnection.

1.3 Disconnect from Self

1.3.1 What Does it Mean to Disconnect from Self?

Disconnecting from self refers to losing touch with one's internal thoughts, feelings, and values. This occurs when individuals prioritize external validation over self-awareness and personal fulfillment. Disconnection manifests in several critical ways:

Lack of Introspection: A decline in personal reflection and self-awareness as external pressures and digital distractions dominate one's daily life. This results in a diminished capacity to understand one's own needs, desires, and emotions.

Emotional Disengagement: Reduced emotional engagement leads to an inability to manage personal emotions effectively, impacting overall mental health and resilience. Individuals may feel detached from their emotional responses and struggle to process or express feelings adequately.

FIGURE 1.3 Reduced emotional engagement leads to an inability to manage personal emotions effectively.

Reduced emotional engagement leads to an inability to manage personal emotions effectively, impacting overall mental health and resilience.

Compromised Identity Formation: As individuals neglect their inner self, their sense of personal identity becomes shallow or overly dependent on societal expectations and norms. This often results in a conformist attitude where external factors heavily influence personal choices rather than genuine personal preferences.

1.3.2. The Consequences of Disconnect from Self

Mental Health and Reduced Emotional Resilience: The rising incidences of mental health disorders, such as depression and anxiety are closely linked to a disconnect from self. This disconnection contributes to existential angst and reduces emotional resilience, making it difficult for individuals to engage meaningfully with their inner lives. The lack of a deep personal connection complicates navigating life's setbacks and can perpetuate a cycle of chronic stress and emotional instability.

Relationship Challenges: Impairment in forming and maintaining healthy relationships stems from a disconnect from self. A poor understanding of one's own emotions leads to diminished empathy and meaningful interactions, causing conflicts and dissatisfaction within personal and professional relationships.

Low Self-Esteem: A disconnect from self often results in low self-esteem. Individuals may feel inadequate and continuously seek external validation, which can be exacerbated by the pressure to conform to societal or educational standards.

As individuals neglect their inner self, their sense of personal identity becomes shallow or overly dependent on societal expectations and norms.

FIGURE 1.4 Disconnecting from oneself often leads to low self-esteem and increased susceptibility to peer pressure.

Susceptibility to Peer Pressure: The need for acceptance and fear of rejection can make individuals more susceptible to peer pressure, compromising their authentic self-expression and decision-making abilities.

Consumerism and Workplace Impact: Society's focus on materialism and external achievements drives individuals away from self-discovery, leading to consumerism and a lack of genuine self-expression in the school or workplace. This results in decreased engagement in school and college, poor job satisfaction, and reduced productivity.

Society's focus on materialism and external achievements drives individuals away from self-discovery.

FIGURE 1.5 Disconnection from oneself contributes to a pervasive sense of dissatisfaction and malaise.

General State of Unhappiness and Malaise: Overall, societal disconnection from self contributes to a pervasive sense of dissatisfaction and malaise. Despite high levels of technological advancement and comfort, many feel something fundamental is missing, leading to a continuous and often futile search for more fulfilling experiences.

Direct Effects on Physical Health: The stress and anxiety resulting from a disconnect from self can have direct physiological effects, increasing the risk of health issues such as heart disease, insomnia, and chronic fatigue, further complicating the cycle of disconnection.

SYSTEMIC EDUCATIONAL DESIGN

1.3.3 How Do School Environments Play a Crucial Role in Deepening Students' Disconnection from Self?

Standardized Curriculum and Assessment: The educational system's reliance on standardized curricula and assessment methods fosters conformity, deterring students from exploring and appreciating their unique strengths and interests. This uniform approach stifles creativity and personal engagement, which are essential for developing critical thinking and reflective capacities.

Focus on Rote Learning: Curricula that emphasize rote memorization and test performance fail to incorporate diverse content or cater to individual student interests, leading to diminished engagement and fostering disconnection from academic and personal development. This idea is further elaborated in Chapter 7.

Disconnects of Modern Schooling

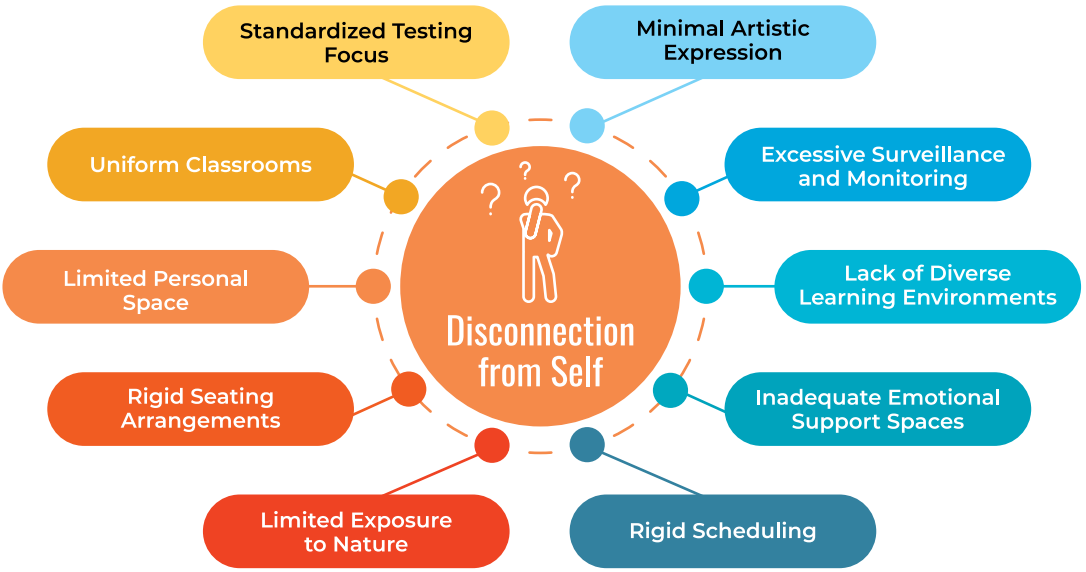

FIGURE 1.6 Over time, schooling has become a more entrenched and self-perpetuating system that has lost touch with the real needs of its most important clients—children. The above list shows how the many elements that make up modern school systems contribute to deepening students' disconnection from self.

PHYSICAL DESIGN OF SCHOOLS

Uniform Classrooms: Schools often feature stark, uniform classrooms prioritizing order and compliance over creativity and individual expression. This environment can alienate students from their intrinsic curiosity and self-directed learning instincts, which are crucial for emotional growth and personal connection.

FIGURE 1.7 and FIGURE 1.8 *Most classrooms, to this day, remain faithful to the design and function of the original classrooms of the industrial era. Their goal was to create a generation of "lettered" but not necessarily "learned" individuals fit to work in factories. Today's rhetoric of wanting students to realize their full potential is in direct conflict with classroom-based learning that, almost by design, limits creativity, collaboration, and critical thinking—all essential skills for success in a fast-changing world.*

Rigid Seating and Room Layouts: Fixed seating arrangements and standardized room setups in conventional schools restrict movement and limit personal space, leaving little room for autonomy. This rigidity not only hampers spontaneous social interactions and collaborative learning but also deepens children's disconnection from their inner selves. The lack of flexibility in the environment prevents opportunities for self-reflection and deep work, essential for personal growth and self-connection.

The lack of flexibility in the environment prevents opportunities for self-reflection and deep work, essential for personal growth and self-connection.

FIGURE 1.9 When was the last time anyone saw a traditional classroom set up in a way that would allow individual students to get away to think, reflect, and synthesize all their formal learning? The reality is that school environments in general, and classrooms in particular, have never been about child development but about management and control.

IMPACT ON STUDENT DEVELOPMENT

Loss of Individuality: Focusing on conformity in educational settings often strips students of their unique identities, making their educational journey more about meeting external standards than fostering personal growth.

Reduced Emotional Engagement: Limited opportunities for students to express their emotions or engage in emotional intelligence learning hinder personal development and increase the risk of mental health issues.

Suppression of Natural Curiosity: The restrictive nature of many educational systems stifles the natural curiosity essential for comprehensive learning and deep personal connections, limiting students' ability to understand their environment and their role within it deeply.

TABLE 1.1 School Design Aspects Contributing to Disconnection from Self

Aspect of School Design	Impact on Disconnect from Self
Uniform Classrooms	Uniform, stark classrooms with minimal personalization lead to a lack of self-expression among students, stifling their personal identity and creativity.
Rigid Seating Arrangements	Fixed seating arrangements prevent flexibility and movement, discouraging autonomy and personal engagement in learning activities.
Limited Exposure to Nature	The lack of natural elements in the school environment can decrease students' connection to themselves through reduced interactions with environments that promote calm and introspection.
Standardized Testing Focus	Emphasis on standardized testing over diverse assessment methods can reduce students' opportunities to explore their strengths in different contexts, limiting self-knowledge and confidence.
Minimal Artistic Expression	Schools with limited facilities for art, music, and creative expression prevent students from exploring diverse aspects of their personalities and reduce the development of emotional intelligence.
Surveillance and Monitoring	Excessive monitoring and surveillance within school premises can create an environment of mistrust, reducing students' comfort with exploring their individualities and expressing themselves freely.
Rigid Scheduling	Natural learning rhythms are disrupted with rigid scheduling, preventing deep engagement and the development of flow in activities.
Limited Personal Space	Alone time, crucial for reflection and personal growth, is restricted with limited personal space, hindering self-awareness and emotional intelligence.
Lack of Diverse Learning Environments	Individual scholarship cannot flourish in a lack of diverse learning environments, which, in turn, will alienate students who do not fit the conventional learning mold.
Inadequate Emotional Support Spaces	Emotional expression and management that are vital for healthy psychological development can be stifled with inadequate emotional support space.

1.4 Disconnect from Others

1.4.1 What Does it Mean to Disconnect from Others?

Disconnecting from others involves a reduction in meaningful interpersonal relationships and a sense of community. Superficial interactions and a lack of deep, empathetic connections characterize this type of disconnection. Following are some consequences of the disconnect from others:

Superficial Interactions: Increasing reliance on digital communication platforms offers convenience but often fails to provide depth in interactions, leading to relationships that lack emotional and psychological intimacy.

FIGURE 1.10 With the advent of the digital era, computer literacy and, later, overall digital literacy became essential elements of the modern school curriculum. However, as digital devices became more sophisticated, they also became more alluring to young minds. Gone are the days when boredom was a common experience of growing up. Today, despite brain-based research that shows the advantages and, indeed, the necessity of downtime for boredom, children are constantly stimulated in their virtual worlds. The superficiality of these worlds in which children live militates against them in forming deep and meaningful relationships in their personal lives.

Diminished Empathy: As genuine face-to-face interactions are replaced with brief and impersonal exchanges, the ability to empathize with others significantly decreases. This lack of empathy makes it difficult to understand or share others' feelings, contributing to social fragmentation.

Weakening Social Cohesion: As individuals feel less connected to each other, the fabric of community and collective identity weakens. This results in reduced participation in communal activities, less support within social networks, and a general decline in social cohesion and mutual support.

Psychological and Health Implications: As genuine connections dwindle, loneliness and social isolation have escalated to major public health issues, strongly linked to an array of mental health problems, including depression and anxiety. Research shows that chronic loneliness impairs immune function, increases inflammation, and is linked to numerous health issues, including heart disease and stroke. John Cacioppo's research highlights that "social isolation has an impact on health comparable to the effect of high blood pressure, lack of exercise, obesity, or smoking."

Social isolation has an impact on health comparable to the effect of high blood pressure, lack of exercise, obesity, or smoking.

FIGURE 1.11 Social isolation can lead to an array of mental health issues.

1.4.2. How Do School Environments Play a Crucial Role in Deepening the Disconnection from Others?

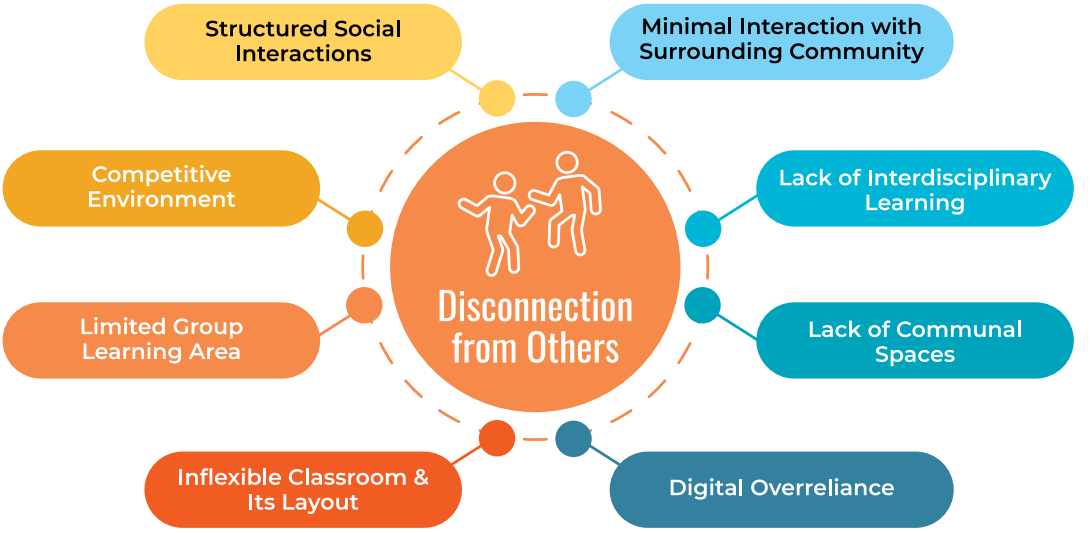

FIGURE 1.12 A school's physical design is just one element in a larger system of schooling that disconnects students from each other.

Systemic and Physical Educational Design: The educational system often promotes standardized curricula and assessment methods, encouraging a one-size-fits-all approach that overlooks the importance of social diversity and individual learning preferences. This emphasis not only discourages cooperative learning but also fosters a competitive atmosphere, alienating students from one another. Complementing this, traditional school layouts with uniform classrooms and rigid seating arrangements prioritize efficiency over engagement. Such physical environments stifle spontaneous social interactions and limit opportunities for students to develop essential interpersonal skills.

Impact of Traditional Classroom Layouts: The setup of conventional learning spaces, with students seated in rows facing forward, minimizes the potential for face-to-face communication among peers. This arrangement restricts direct dialogue and eye contact, which are crucial for establishing rapport and fostering empathy. Reduced face-to-face interactions can decrease the release of oxytocin, a hormone important for social bonding, thereby diminishing the quality of social connections formed in the classroom.

Consequences for Community Building and Individual Identity: By emphasizing competition over collaboration, educational environments not only hinder the formation of meaningful relationships but also undermine the sense of community among students. This focus on competition leads to isolation and reduces opportunities for students to develop empathy and mutual support, critically impacting their ability to navigate social relationships effectively and form a cohesive community identity.

Emphasis on Cognitive Skills Before Social-Emotional Learning: A critical issue in school environments is the emphasis on developing cognitive skills, such as reading and writing, before children have adequately developed social-emotional skills. This approach can hinder the natural progression of interpersonal connections and emotional intelligence. Research has shown that early development of social-emotional skills is crucial for children's overall success. Studies indicate that prioritizing social-emotional learning (SEL) in the early stages of education leads to better academic outcomes, improved behavior, and enhanced emotional intelligence. For children to form meaningful relationships and thrive socially, the environment must first facilitate connection and collaboration. Schools should create safe and supportive learning environments that prioritize SEL, laying the foundation for empathy, communication, and teamwork, which are essential for both personal and academic success.

By emphasizing competition over collaboration, educational environments not only hinder the formation of meaningful relationships but also undermine the sense of community among students.

TABLE 1.2 School Design Aspects Contributing to Social Disconnection

Aspect of School Design	Impact on Disconnect from Others
Structured Social Interactions	Uniform, stark classrooms with minimal personalization lead to a lack of self-expression among students, stifling their personal identity and creativity.
Competitive Atmospheres	Fixed seating arrangements prevent flexibility and movement, discouraging autonomy and personal engagement in learning activities.
Lack of Communal Spaces	The lack of natural elements in the school environment can decrease students' connection to themselves through reduced interactions with environments that promote calm and introspection.
Limited Group Learning Areas	Emphasis on standardized testing over diverse assessment methods can reduce students' opportunities to explore their strengths in different contexts, limiting self-knowledge and confidence.
Inflexible Classroom and Its Layout	Schools with limited facilities for art, music, and creative expression prevent students from exploring diverse aspects of their personalities and reduce the development of emotional intelligence.
Digital Overreliance	Excessive monitoring and surveillance within school premises can create an environment of mistrust, reducing students' comfort with exploring their individualities and expressing themselves freely.
Minimal Interaction with Surrounding Community	"With the lack of interdisciplinary learning, natural learning rhythms are disrupted, preventing deep engagement and the development of flow in activities.
Lack of Interdisciplinary Learning	Insufficient areas for alone time, which is crucial for reflection or personal growth, hinder self-awareness and emotional intelligence.

1.5 Disconnect from the Environment

Disconnecting from the environment refers to the increasing lack of awareness and interaction individuals have with both natural and built surroundings. This disconnection is driven by urbanization, technological advancements, lack of awareness, and lifestyle changes that prioritize indoor activities. While the reduced interaction with the natural environment is a significant aspect, disconnection from the built environment also plays a crucial role.

1.5.1 Disconnection from the Natural Environment

Disconnecting from the natural environment refers to the increasing separation between individuals and natural settings due to urbanization, technology, and indoor-focused lifestyles. This disconnection includes,

a. **Loss of Direct Interaction:** Reduced physical contact with nature means fewer opportunities for physical activity and sensory engagement in natural settings. People experience less of the textures, sounds, and sights that only diverse ecosystems can provide.

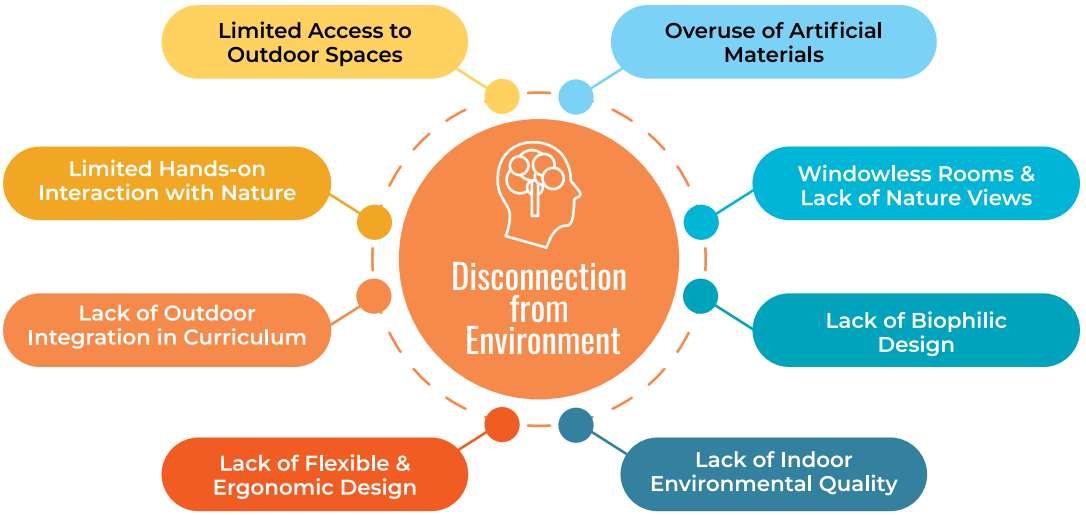

FIGURE 1.13 It is no surprise that most schools provide few opportunities for students to connect to the natural environment. That is because communing with nature is rarely seen as an "essential" element of human development, even though all the research says the exact opposite. Human beings, especially children, are hardwired to thrive socially, emotionally, and even academically in natural settings.

b. **Cognitive and Sensory Deprivation:** Natural environments are vital for cognitive development and sensory stimulation. Disconnection from nature leads to a deprivation of these essential experiences, which enhance focus, problem-solving abilities, and overall mental acuity.

c. **Diminished Ecological Consciousness:** Individuals may develop less concern for environmental issues without regular interactions with nature. This detachment affects not only personal lifestyle choices but also broader attitudes toward environmental policy and conservation efforts.

d. **Emotional and Psychological Impact:** Nature has restorative psychological effects that urban environments cannot replicate. Disconnecting from nature can increase stress, anxiety, and feelings of confinement while reducing opportunities for mental restoration that natural settings provide.

How Do School Environments Play a Crucial Role in Deepening the Disconnection from the Natural Environment?

Systemic Neglect of Outdoor Education: Many schools overlook the importance of outdoor education in their curricula, thus failing to provide crucial opportunities for students to engage with the natural environment through practical learning experiences. This lack of outdoor educational focus stunts the development of a deep appreciation and understanding of ecological systems.

Physical Design Limitations: The architectural design of many educational facilities does not facilitate sufficient interaction with natural elements, lacking green spaces and diverse ecosystems. Most designs do not take advantage of nature views from indoors, which is one of the simplest ways of connecting with diurnal rhythms. This deficiency hinders the benefits of nature exposure, as emphasized in studies such as Richard Louv's *Last Child in the Woods,* which discusses the implications of what he terms "Nature Deficit Disorder."

FIGURE 1.14 *Tens of thousands of classrooms around the world are designed with no windows. It is not uncommon to hear the rationalization that these classrooms are good for children who may otherwise be distracted by outdoor views.*

FIGURE 1.15 *Even when there are lots of windows, in many schools they are either closed off with blinds or covered with paper for the same reason—to prevent students from being distracted.*

Excessive use of technology in education reduces the amount of time available to students to spend outdoors.

FIGURE 1.16 Contrast the prior two images with this one of Anne Frank Inspire Academy in San Antonio, TX. Here, both daylight and nature views are recognized and welcomed for their value as essential elements of a good learning environment.

Overemphasis on Technology: Excessive use of technology in education reduces the amount of time available to students to spend outdoors. This diminishes opportunities for direct environmental education and reduces physical activity, which is vital for health. Activities in natural settings, proven to enhance focus and creativity, are curtailed, affecting overall health and developmental outcomes.

A lack of foundational environmental engagement can lead to long-term neglect of ecological stewardship and ongoing health issues related to inactive lifestyles.

Interaction with spaces that lack physical comfort and adaptability can lead to discomfort and disengagement.

1.5.2 Disconnection from the Built Environment

Disconnection from the built environment refers to the lack of interaction with well-designed, ergonomic, sensory-rich spaces supporting human activities and well-being supporting human activities below:

Deprivation of Optimal Lighting, Acoustics, and Thermal Comfort: Inadequate lighting, poor acoustics, and insufficient climate control create environments that hinder learning and well-being.

Loss of Ergonomic and Flexible Design: Interaction with spaces that lack physical comfort and adaptability can lead to discomfort and disengagement. The absence of flexible design limits support for various activities and needs.

Diminished Psychological Freedom: Lack of control over one's immediate environment, such as the inability to adjust lighting or rearrange furniture, reduces psychological freedom and a sense of belonging, negatively impacting well-being and productivity.

Absence of Thoughtful Sensory Stimuli: Built environments often lack diverse sensory stimuli such as varying textures, colors, and sounds, leading to feelings of disconnection and discomfort due to sensory deprivation.

How Do School Environments Play a Crucial Role in Deepening the Disconnect from the Built Environment?

Physical Design Limitations: Many educational facilities lack ergonomic furniture, adequate lighting, and flexible spaces that accommodate different learning styles and activities. This deficiency hinders the benefits of well-designed environments, as emphasized in studies on the impact of classroom design on student outcomes.

Overemphasis on Standardization: Standardized classroom designs often do not consider students' diverse needs, leading to a lack of personalized and flexible learning spaces. This standardization can limit students' engagement and comfort, impacting their overall educational experience.

Absence of Thoughtful Sensory Stimuli: Many school environments fail to incorporate sensory-rich elements such as varied textures, natural light, and acoustics that enhance learning and well-being. This lack of sensory engagement can make school environments feel sterile and uninviting

Lack of sensory engagement can make school environments feel sterile and uninviting.

FIGURE 1.17 *The lack of sensory engagement makes most school environments feel sterile and uninviting. The problem is further exacerbated by the arrangement of fixed furniture and equipment that limit children's movement. This is what the computer lab at Hillel Academy in Tampa looked like before the school decided to eliminate it.*

FIGURE 1.18 *This is the same space previously occupied by the defunct computer lab (see Figure 1.17) at Hillel Academy after a low-cost summer renovation. The dramatic improvement in the quality of the space is obvious as one that allows students to better connect with themselves, their peers, and their environment.*

This ironic modern disconnection calls for a critical examination and restructuring of how we interact with technology, each other, and our environment. To address these challenges, designing educational and social systems that prioritize and nurture the essential connections that define and sustain human life is imperative.

As we conclude our exploration of the paradox of disconnection, we find ourselves at a critical juncture. The profound disconnections from self, others, and the environment that permeates modern educational systems call for more than mere recognition—they demand transformative action. The next sections of our book unveil how intentional design can mitigate these disconnects and enrich the educational landscape by fostering deep, meaningful connections.

The profound disconnections from self, others, and the environment that permeates modern educational systems call for more than mere recognition—they demand transformative action.

TABLE 1.3 *School Design Aspects Contributing to Disconnection from the Environment*

Aspect of School Design	Impact on Disconnect from the Environment
Limited Access to Outdoor Spaces	Predominantly indoor-centric learning and limited direct access to outdoor spaces reduce students' exposure to and engagement with the natural world. This includes a lack of biophilic design elements that facilitate a seamless transition between indoor and outdoor environments.
Limited Hands-on Interaction with Nature	The absence of a curriculum that integrates outdoor learning experiences restricts students' direct engagement with nature, which is crucial for developing an understanding of and respect for natural systems.
Overuse of Artificial Materials	Extensive use of synthetic materials in construction and furnishing can diminish students' tactile experiences with natural materials, further detaching them from natural textures and elements.
Windowless Rooms and Lack of Nature Views	Learning spaces without windows deprive students of natural light and views of the outside, reducing their daily connection to the natural environment and its rhythms.
Lack of Biophilic Design	The lack of biophilic elements within interior design—such as living walls, natural materials, water features, and color schemes derived from natural settings—limits the psychological and physiological benefits associated with close contact with nature.
Lack of Ergonomic and Flexible Design	The lack of ergonomic furniture and flexible spaces that accommodate different learning styles and activities can impair physical comfort and engagement. This deficiency impacts overall well-being and productivity.
Lack of Indoor Environmental Quality	Poor indoor environmental quality, including inadequate lighting, acoustics, and thermal comfort, can reduce students' cognitive function, mood, and productivity.