(Fig 1. Pembrokshire County Council, n.d.)

How does the evolution of educational environments affect student mental and social development? And what will the future of educational environments look like?

Vitor Hugo Ferreira Pacheco

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Stage 3 Research Thesis

Contents

Introduction

Educational environments are more than just settings for learning; they actively shape how students engage, develop, and thrive. From the colourful and interactive classrooms of primary schools to the more restrictive and demanding spaces of secondary schools, the design of these spaces plays a significant role in students' intellectual and social development. This essay examines how educational spaces influence the students' learning and well-being, combining historical context, architectural theories, and findings from a survey that highlights trends in people's personal school experiences. Exploring these elements, I aim to understand how school design has evolved and the environment's lasting effects on students.

A central aspect of this analysis is a survey I conducted, revealing notable patterns in how individuals perceive their school environments. Respondents overwhelmingly described primary schools as "colourful, engaging, and interactive, with 70.3% selecting this description, however secondary schools were often characterized as
"restrictive and uninspiring," chosen by 48.6%. Moreover, 78.4% noted a significant shift in atmosphere between primary and secondary school, linking the transition to less vibrant, more serious environments. Such findings suggest that as students advance in their education, their environments often become less engaging, impacting both mental health and social interactions, thus making students less willing to engage.

These findings align with critiques from architects and theorists such as Mark Dudek and Herman Hertzberger. Dudek critiques mono-functional spaces, likening them to
"mental straitjackets" that stifle creativity and limit social interaction. Similarly, Hertzberger argues that spaces designed for singular purposes suppress individuality, while flexible designs foster discovery and awareness. Philippe Aries Centuries of Childhood supports these views, noting how pre 18th century educational spaces were flexible and communal, accommodating diverse activities and fostering social exchange. However, the 18th-century shift toward corridors and private rooms prioritized structure over adaptability, introducing a model that is consistent with today's.

Historically, school design reflects societal priorities. In 19th-century England, the rise of industrialization and the 1870 Elementary Education Act formalized education for children aged 6-13. School buildings were designed to address overcrowding and sanitation, but the Church's influence on education prioritized moral and religious principles over intellectual development. Dr. Thomas Arnold, a 19th-century headmaster, emphasized religion and morality over academics, reinforcing rigid designs aimed at discipline and conformity rather than creativity or individuality. This historical precedent explains the persistence of functionalist, mono-purpose spaces that often fail to meet the broader needs of students.

These historical and architectural critiques highlight a disconnect between school design and student needs. The vibrant, flexible environments described in my survey align with modern research on child development, which emphasizes the importance of stimulating, adaptable spaces. However, the stark decline in engagement as students progress through the education system suggests a need to rethink how spaces are designed. This essay seeks to explore the relationship between educational design and student experiences, advocating for spaces that not only support learning but also nurture creativity, well-being, and social connection.

The Evolution of School Design

Educational spaces have undergone significant transformations over time, driven by changes in social attitudes and pedagogical theories, and architectural innovation. Early school buildings reflected the rigid values of nineteenth century Britain, favouring strict highly structured designs meant to instil order and discipline. Classrooms often featured rows of fixed desks with a clear separation between teacher and students, and minimal decoration or comfort - a design approach that reflected a belief in authority and uniformity. Schools built during the Victorian era in the UK were often imposing, institutional buildings that served not only as places for instruction but as symbols of social order.

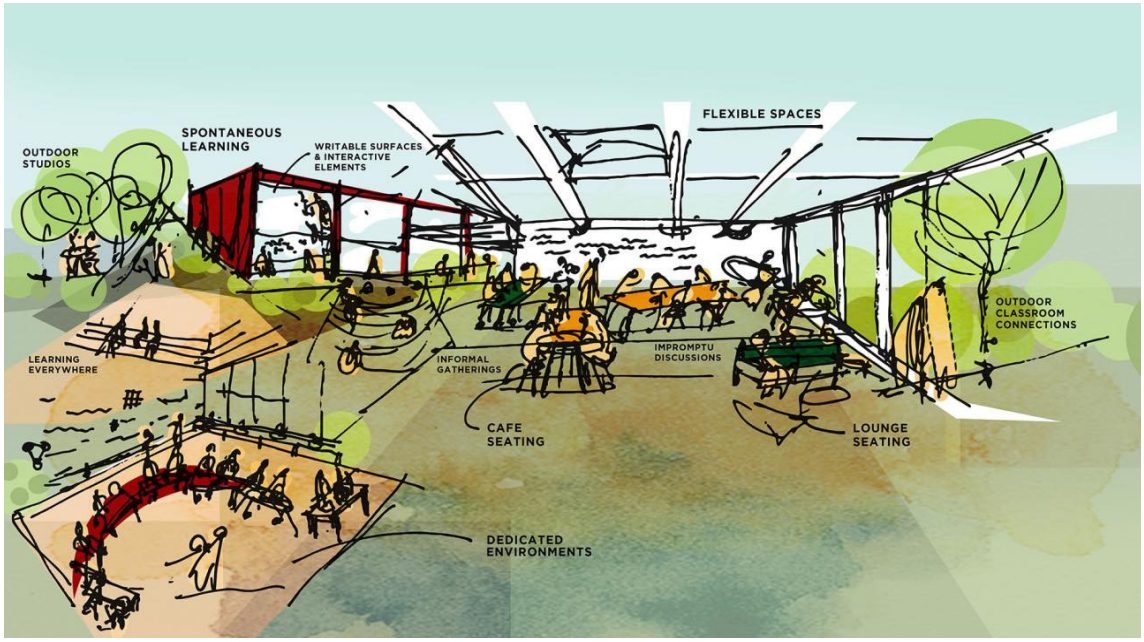
This structuring of spaces reflects what Edward T.Hall identified as an approach where activities and spaces are meticulously planned to ensure consistent use and predictable interactions. Hall explained that people in " a constant state of confusion are those who fail to classify activities and artefacts according to a uniform, consistent or predictable spatial plan. At the opposite end of the scale is the assembly line, a precise organisation of objects in time and space." (Hall, 1966) This theory promotes a mono-functional model,a design strategy that educational architects have increasingly challenged. Mark Dudek a specialist architect in designing children's environments. He has designed numerous children centres and wrote many papers and books on the matter. In Dudek's book Architecture of schools the new learning environments, he critiques Hall's model in his book, describing how these mono-functional layouts as "mental Straitjackets" that can stultify "the possibility for wider social interaction, the source from which education springs." (Dudeck, 2000 p.1) He argues that assigning spaces strictly to singular functions minimises creative use and limits opportunities for imaginative engagement, leaving "little or no possibility for the form to be interpreted imaginatively." (Dudek, 2000 p.1)

Dutch architect Herman Hertzberger also challenges single-purpose room designs. Hertzberger argued that " … a thing exclusively made for one purpose, suppresses the individual because it tells him exactly how it is to be used. If the object provokes a person to determine in what way he wants to use it, it will strengthen his self identity. Merely the act of discovery elicits greater awareness. Therefore a form must be interpretable." (Hertzberger, 1991) Such an approach promotes a more adaptive, learner-centred environment that contrasts with traditional, rigid school designs and allows spaces to evolve based on the needs of those using them.

Flexible Spaces in Historical Context

Historically, communal and multifunctional spaces were central to social structures. Philippe Aries', in Centuries of Childhood discusses how, prior to the eighteenth century, spaces were more communal and adaptable, with people freely using rooms for various activities. These multifunctional rooms encouraged different purposes and fostered more community-oriented interactions. In mediaeval educational settings, rooms were frequently served by multiple disciplines and sometimes even doubled as dormitories. Children spent most of their waking hours in these educational environments, which served as integral parts of their lives beyond mere instruction. It was not until the eighteenth century that these spaces began to specialise, with distinct rooms designated as dining halls or bedrooms.

Dudek notes that the introduction of hallways in the 18th century marked a significant shift, as they facilitated a transition from open, multifunctional spaces to more private specialised rooms. Corridors fostered these private atmospheres and "little houses" within buildings-spaces that felt like "a secure microcosm of the home itself" (Dudek, 2000). Especially when children used to have to live in these institutions, they would spend most of their days in these atmospheres. This shift towards spatial specialisation in educational settings mirrored larger cultural movements toward privacy and individuality, a trend that would continue into the industrial era.



(Fig 2. Amazing Architecture, 2022)

Social and Cultural Shifts in School Design

As industrialization progressed in the 19th century, the UK pioneered educational reforms aimed at addressing the needs of its rapidly growing, urbanised population.
Driven by both humanitarian concerns and the practical demands of an industrial workforce, England developed educational provisions to support the intellectual and moral development of all children. The 1870 UK Elementary Education Act made school attendance compulsory for children aged 6 to 12, seeking to address not only academic skills but also social issues stemming from overcrowded, unsanitary urban conditions. As education expanded in reach, the influence of the Church became apparent in guiding the moral and spiritual aspects of education.

Dr. Thomas Arnold, the headmaster of Rugby School in the 19th century, emphasised this religious influence, stating, " …. what we must look for here is first religion and moral principles, second gentlemanly conduct, thirdly intellectual ability" (Arnold, 1838). This emphasis on religious instruction over academic pursuits underscores how deeply intertwined the Church was with the British education system at the time, often prioritising spiritual development over intellectual growth. As Caroline Ben observes, the Church wielded "considerable influence within the evolving school system and policymaking, acting as a moral guide in shaping young minds within an industrial society (Benn, 2011).

In addition to spiritual influence, early school designs were highly regimented, aligning with the orderly, hierarchical structure of the industrial workplace. This was partly an effort to acclimate children to the disciplined, organised environment that they would encounter as adults. The layout of classrooms and school buildings embodied these values, reflecting the prioritisation of order, discipline, and conformity. However, as society's understanding of education evolved, so too did the architectural strategies used to shape school environments. By the mid-20th century, educational theorists like Maria Montessori and John Dewey argued that structured, inflexible spaces inhibited curiosity, critical thinking, and creativity. These ideas gradually influenced school architecture, encouraging more adaptive designs that promote exploration and engagement.

Site Analysis: Victorian and Modern School Comparisons

(Fig 3. Harris Museum and Art Gallery, n.d.)

Comparing a Victorian-era school with a modern primary school reveals profound differences in how educational spaces support or restrict childhood development.

Victorian schools, with their rigid layouts and imposing structures, aimed to instil discipline and authority, often using spatial arrangements that reinforced hierarchy.

Conversely, a contemporary primary school designed with open, flexible spaces offers children more freedom to explore, collaborate, and develop social skills within a nurturing environment. Such layouts embody the pedagogical shifts introduced by thinkers like Dewey and Montessori, emphasising interaction, sensory engagement, and adaptability over rigidity.

In summary, the evolution of school design reflects broader social and cultural shifts, moving from rigid, hierarchical structures toward more inclusive and adaptive spaces that recognize the diverse needs of children. By studying these historical changes, we gain insight into how educational environments can foster or hinder childhood development, as well as the importance of creating spaces that support not only academic learning but also social and emotional growth.

This expansion of Chapter 1 incorporates Edward T. Hall's and Dude's theories on spatial design, Hertzberger's emphasis on interpretability, and the historical context provided by Philippe Aries. It also details the cultural influence of the Church in British education and offers a comparison between Victorian and modern school.

Educational Environments and Developmental Stages

Each educational stage presents distinct design principles aimed at fostering the development needs specific to different age groups. Here I explore primary schools, secondary schools, highlighting how each environment supports cognitive, social, and emotional growth and noting where design elements may hinder these objectives.

Primary Schools (Ages 5-11)

Primary school environments are generally designed to be vibrant, colourful, and engaging, using visual stimuli to enhance memory and creativity. Reading corners, comfort areas, and interactive play zones employ colour-coding to make spaces memorable and distinguishable, allowing young children to navigate their surroundings with ease. Warmer tones are often used in reading and relaxation areas to create a comforting atmosphere, while cooler colours like blue are used in technology spaces to promote focus.

These spaces are typically designed to support active learning. Many UK primary schools incorporate physical activities, such as school plays and art projects, into the learning process. This hands-on approach allows children to engage more deeply with the material, aiding memory retention and social skills. Outdoor play areas-complete with slides, climbing structures, and sports equipment-further support development by providing opportunities for physical activity and social interaction.

Research also indicates that colour can significantly affect memory and emotional engagement. In the paper The Influence of Colour on Memory Performance: A Review, Miriam Adawiah Dzukifli and Muhammad Faiz Mustafar conclude that colour enhances memory by making information more accessible and easier to recall. Their study notes, "There appears to be a basis for associating colour and its significant effect on memory abilities... increasing the chances of environmental stimuli to be encoded, stored, and retrieved successfully" (Dzukifli & Mustafar, 2010).

Secondary Schools and Colleges (Ages 12-17)

The transition from primary to secondary school introduces a significant change in environmental design, often replacing the vibrant, flexible spaces of primary schools with more structured, muted settings. Secondary schools tend to favour whites, greys, and other neutral tones, reflecting a shift toward an environment focused on discipline, order, and concentration.

While some designers argue that neutral colours like white can minimise distraction, David Bachelor's concept of "Chromophobia" critiques this approach, suggesting that extensive use of white and grey can feel overwhelming or even oppressive. In his book, Batchelor writes, "A world that would remind you... of everything you were not, everything you had failed to become" (Batchelor, 2000, p. 9:11). The shift from bright, lively colours in primary settings to more subdued tones can feel isolating, potentially diminishing student engagement and creativity.

Secondary schools also typically provide fewer outdoor spaces and recreational activities compared to primary schools. This reduction in play areas can limit students' social interaction and physical activity, both of which are essential for their overall well-being. Jacques Rancière highlights the importance of active learning in The Ignorant Schoolmaster, suggesting that intellectual growth often results from active engagement. He states, "The virtue of our intelligence is less in knowing than in doing. 'Knowing is nothing, doing is everything" (Rancière, 1987, p. 23:40), which suggests that reduced interaction in rigid environments may stifle students' development.

Higher Education Environments (Ages 18+)

University settings represent a final shift toward independence, with spaces often designed to facilitate individual study and intellectual growth. However, the minimalist designs commonly seen in UK universities--characterised by white walls, open layouts, and sparse decoration--can be daunting for some students, creating an environment that feels impersonal and unwelcoming. As Batchelor critiques, stark environments can serve as reminders of "everything you had not got around to doing" (Bachelor, 2000, p. 9:11), potentially increasing feelings of isolation or inadequacy.

Universities also tend to offer flexible study areas, where students can choose between solo study rooms, group work tables, and shared creative spaces. This flexibility encourages both collaborative and independent learning, catering to the diverse needs of students. However, the shift away from guided interaction found in primary and secondary school environments can be challenging for some.

Design Elements - Colour, Light, Layout, and Technology

The Role of Colour in Cognitive and Emotional Development

Colour plays a significant role in learning environments, influencing not only students' mood but also their cognitive function and memory. For younger children, warm and engaging colours can create a sense of comfort and excitement. By contrast, the use of neutral colours in secondary schools and universities can help minimise distractions, although this approach may sacrifice the vibrancy that fosters creativity.

Lighting, Layout, and Flexible Spaces

Lighting plays a vital role in creating effective educational environments, significantly impacting students' well-being, focus, and engagement. Natural light, in particular, reduces eye strain, boosts mood, and enhances concentration, making it a preferred feature in classroom design. Large windows and skylights provide a connection to the outdoors, creating a calming, energizing atmosphere. For schools with limited access to natural light, diffused or ambient lighting can replicate its benefits. Warm, soft tones in artificial lighting minimize glare and foster a welcoming environment, especially for younger students and those sensitive to sensory stimuli.

Flexible layouts are equally essential in modern educational spaces, allowing schools to adapt to diverse teaching methods and learning styles. In primary schools, movable desks and modular furniture support the creation of zones for individual work, group collaboration, or creative activities. These adaptable designs encourage dynamic and engaging learning environments. Open floor plans further enhance flexibility, particularly in libraries, art rooms, and science labs, where collaboration and interaction are key. Such layouts empower students to take ownership of their spaces, boosting both creativity and engagement.

By thoughtfully combining natural light with adaptable layouts, schools can foster environments that promote both academic success and emotional well-being, ensuring students thrive in all aspects of their development.

Integration of Technology

The future of educational environments will likely be defined by cutting-edge technologies that enhance engagement, creativity, and personalized learning.
Touchscreen technologies, already present in many primary and secondary schools, could evolve into fully interactive desks or walls, allowing students to collaborate on projects in real-time and explore digital resources intuitively.

Virtual Reality (VR) and Augmented Reality (AR) offer even more transformative potential. These tools can transport students to historical landmarks, outer space, or microscopic environments, creating immersive experiences that deepen understanding and make abstract concepts tangible. For example, science classes could use AR to explore the human body in 3D, while geography lessons could leverage VR for virtual field trips. These technologies also offer great promise for students with special needs by providing customizable learning experiences tailored to individual abilities.
Additionally, advanced software incorporating artificial intelligence could provide real-time feedback, adaptive learning pathways, and data analytics to support teachers in tracking student progress more effectively. Gamified platforms can also boost motivation, transforming lessons into engaging challenges.

While these advancements are exciting, they must be carefully integrated into school environments. A balance between digital and physical activities, along with spaces that support social interaction and creativity, will be essential to ensure technology complements rather than dominates the learning experience.

(Fig 4. Studio 505, 2015)

Case Studies of Innovative School Designs

(Fig 5. Teicu, 2011)

Examples of innovative schools can offer insights into how thoughtful design can impact development. Case studies on schools that incorporate sustainable materials, outdoor zones, ergonomic furniture highlight how design can create positive and engaging learning experiences through the use of colour and structure.

Schools like Bangkok University Creative Center had the Supermachine Studio create a vibrant, adaptive space using two floors which can support both individuality and collaboration. "According to Chaowakul, BUCC was set up as part of the government's goal to transform the country's economy from agricultural and industrial into the creative economy. To encourage creativity, communication and experimentation, the BUCC facility needed to be open, playful, expressive and flexible." (from article)
Two of the more distinctive features of these floors is the 180 metre 'Lo-Fi Pixel Wall' which is composed of these interactable pixel shapes with four faces of all different colours. To almost let your mind wander and play, linking back to aspect of playfulness, it also is an innovative way to create a flexible and malleable space as they people using this space will be able to customise and alter it whenever and however they would like, possibly even write messages on the wall for other students.

The second stand out feature is the Green Internet Pod, this is a 600 metre spaceship-like pod that can be moved by the people using this space to specifically meet their needs.

(Fig 6. Studio 505, 2015)

Nanyang Primary School in Singapore by Studio 505 and LT&T Architects. Their aim was to be a "highly inspirational and communal space, designed to showcase active, uninhibited free thinking and bringing joy and excitement equally to children and to the child within the teacher." They effectively achieved this by creating this "Kaleidoscope" facade with a beautiful use of bundles of colours to paint each of the floors. All of these colours surround a central open valley large enough to use as communal spaces as they said that they wanted communal spaces to be at the heart of the school. The various colours are plentiful as are all the opinions and all the voices.

The large buildings with the valley-like centre also help shield the children from the outside world, effectively separating them from the residential areas.

Survey Analysis - Personal Experiences with Educational Environments

This survey was conducted to understand the real world impact on how different educational environments ranging from primary school to University, have influenced learning, social development, and overall development. Your responses will provide insights into the impact on school design on student well-being and success.
The survey also revealed a few patterns in how students perceived the impact of their interiors like the use of colour, the layout, and recreational space on their focus, comfort, and social interaction.

To initiate my survey I gave the respondents a series of multiple choice questions on how they would describe their experiences with first primary school and then secondary. The options given for this question (How would you describe the design of your primary school environment (ages 5-11)?) were:

1. Colourful, Engaging, Interactive
2. Functional but basic
3. Neutral / minimalist
4. Outdated or poorly maintained

26 out of the 37 respondents (70.3%) chose option 1. Colourful, Engaging, Interactive as their experience with their primary school environment. 8 respondents (21.6%) functional and basic, and then 3 respondents (8.1%) for outdated or poorly maintained.

The next question (How would you describe the design of your secondary school or college environment (ages 12-18)?), the options were similar to the previous they were:

1. Colourful, Engaging, Interactive
2. Neutral / minimalist
3. Restrictive and uninspiring
4. Varied depending on the space (e.g classroom, library)
5. Less colourful but still with lots display boards on walls

As I suspected the amount of respondents answering with the first option would decrease, to the point where only one respondent answered with this. The majority of 18 respondents (48.6%) chose the restrictive and uninspiring option, almost supporting my opinion on the older the students get and as they move into higher levels of education their environments become less and less inspiring and engaging. Then I had 9 respondents (24.3%) varying depending on the space (e.g classroom, library), and the 8 respondents (21.6%) for neutral / minimalist.

I then asked "Did you notice a significant change in the atmosphere and design between primary and secondary school?" where 29 respondents (78.4%) agreed as they chose the option of "Yes, it became less colourful and more serious".

To finish off my next few questions had a similar premise where I asked the effects of the different school environments on relationships with peers and social interactions and on mental health. There were many varying responses to these multiple choice questions, almost half of

the respondents said they had an adverse reaction to some of their environments, the other half consisted of positive impact and not noticing much of an impact. The amount of people who chose the option of there being a positive effect was higher for the primary school question (29.7%) than the one for secondary school (16.2%). Another important finding was that the option for (It varied depending on the subject or space" between the two first questions had anywhere from 27% to 13.5%,

Conclusion Based on Survey Findings

The survey results show several clear trends that emerge and reveal how school environments can significantly impact students' learning experiences, social interactions, and mental well-being. The findings provide a deeper understanding of how the design and atmosphere of educational spaces evolve as students progress through different stages of their education, and the consequences of those changes.

1. Engaging and Positive Primary School Environments:

The overwhelming majority (70.3%) of respondents described their primary school environments as "Colourful, Engaging, Interactive," which supports the notion that early educational environments are often designed to be visually stimulating and inviting for young children. This aligns with educational theories advocating for vibrant, interactive spaces that foster curiosity, creativity, and social bonding in early childhood education.

2. Decline in Engagement in Secondary School:

In stark contrast, only one respondent characterized their secondary school as "Colourful, Engaging, Interactive," with nearly half (48.6%) choosing "Restrictive and Uninspiring." This shift suggests a significant decline in how engaging and stimulating secondary school environments are perceived to be. The responses highlight a potential issue with the design philosophy of secondary schools, which tend to prioritize functionality and seriousness over creativity and warmth, possibly at the expense of student well-being and enthusiasm for learning.

3. Impact on Social and Mental Health:

The survey results also reveal the role school environments play in shaping students' social interactions and mental health. While primary school environments were reported to have a positive effect on social relationships and mental health by 29.7% of respondents, only 16.2% reported a positive impact in secondary schools. Additionally, many respondents noted adverse effects or varied experiences depending on the specific spaces within the school. These findings emphasize the importance of flexible, inclusive, and supportive design choices that cater to students' emotional and social needs.

4. Transition Between Stages:

An important trend emerged regarding the perceived change in atmosphere between primary and secondary school. A striking 78.4% of respondents reported noticing a significant shift, with secondary schools becoming "less colourful and more serious." This transition suggests that as students grow older, their environments may become less nurturing and more utilitarian, which could influence their sense of connection, comfort, and engagement.

5. Variation Between Spaces:

Another key finding is the variation in experiences based on specific spaces within schools. For example, responses such as "It varied depending on the subject or space" ranged from 27% for primary schools to 13.5% for secondary schools. This highlights the potential for certain spaces (like libraries, art rooms, or recreational areas) to counterbalance the rigidity of classrooms and offer more opportunities for creativity, collaboration, and mental reprieve.

Key Takeaways

- Positive early experiences matter: The findings affirm the value of designing engaging, interactive spaces for young learners. The decline in engagement and inspiration as students transition into secondary school suggests a missed opportunity to continue fostering creativity and comfort during these critical developmental years.

- Rethinking secondary school design: The data suggests that more attention needs to be given to making secondary school environments supportive and engaging, rather than overly focused on functionality and restraint. Design features such as flexible spaces, vibrant colours, and accessible recreational areas could significantly enhance student well-being and success.

- Flexibility is crucial: The variation in responses based on different spaces within schools reinforces the importance of flexibility in design. By creating multi-functional, adaptable spaces, schools can cater to a broader range of needs and provide environments that encourage both academic and social growth.

These findings align with critiques made by architects such as Mark Dudek and Herman Hertzberger, who argue against rigid, mono-functional school designs and emphasize the importance of flexible, interpretable spaces. The survey results further suggest that school environments are not just backdrops for learning but active participants in shaping educational experiences and outcomes. As schools continue to evolve, architects, policymakers, and educators must prioritize the creation of spaces that are inclusive, adaptable, and conducive to the holistic development of students at all stages of their education.

The Future of Educational Environments

In my opinion, when looking at the future of educational environments the priorities lie in creating spaces that prioritize mental health, social skills, and engagement through intentional design, inclusive Design and by using innovative architectural solutions. To foster better mental health, educational spaces must incorporate natural elements, flexibility, and colour.

Biophilic design, I think is important as it integrates natural light, greenery, and organic materials, which can help reduce stress and promote a sense of calmness amongst students. The access to outdoor learning spaces and green courtyards also allows students to reconnect with nature, improving their mood and focus. The use of natural light and proper ventilation is equally crucial, as the link between exposure to daylight and improved mental well-being should not be ignored. Green courtyards, rooftop gardens, and classrooms with large windows connecting to the outdoors can help students reconnect with nature, once again fostering a more relaxed and inspiring atmosphere.

Colour remains a key architectural element in the future of educational design.
Primary schools are colourful and interactive, creating an atmosphere that fosters creativity and joy. Therefore, we need to ensure that these design elements do not disappear or get replaced by neutral or sterile spaces. By thoughtfully using colour palettes associated with positive psychological effects-such as blues for calm, yellows for stimulating creativity, and greens for a balanced educational environment can enhance students' focus and emotional well-being.

Flexibility in architectural design is another essential consideration. Spaces that adapt to different needs-whether for collaboration, quiet study, or relaxation-can enhance both engagement and social skills. For instance, I propose that implementing multi purpose classrooms that feature movable walls or modular furniture allow students to actively engage with their environment and encourage teamwork and problem-solving, personal interpretation, and creating a room that they have molded to be how they want. This adaptability also counters the mono-functional model criticized by thinkers like Herman Hertzberger and Mark Dude, who advocate for spaces that stimulate individual interpretation and creativity.

Social spaces play a pivotal role in shaping students' interpersonal skills. From my survey findings, it's clear that restrictive and uninspiring environments in secondary schools negatively impact social interactions. To counteract this, I think that the future designs should prioritize areas where students can connect and build relationships. I believe that enhancing social spaces is crucial for developing interpersonal skills. Future schools should include open-plan lounges, communal areas, and even outdoor seating zones to encourage connection and informal learning. These spaces promote collaboration and peer support, addressing the negative effects of restrictive environments highlighted in my findings.

From my perspective educational environments must prioritize students' mental health, social skills, and engagement through thoughtful architectural design and innovation.

Findings from my survey highlight the significant impact of design elements on students' experiences, particularly the decline in vibrancy and inspiration as they progress from primary to secondary school and beyond. To address these issues, future educational spaces must integrate natural elements, flexibility, and social zones to support both well-being and interpersonal development.

Moreover, I think that an essential is the integration of inclusive design, ensuring that schools accommodate and celebrate the diverse needs of all students. This includes creating spaces that support children with learning difficulties, mental health challenges, and physical disabilities. Inclusive design prioritizes accessibility and equity, recognizing that one-size-fits-all solutions often fail to serve every student. For instance, future classrooms should include quiet zones or sensory rooms for students who may become overwhelmed in traditional settings, allowing them to self-regulate and engage at their own pace, and these spaces in my opinion are open to all students as even students with no mental challenges also need a break at some point or another. Students with physical disabilities, accessible layouts are crucial. Features like wide hallways, ramps, elevators, and adjustable desks ensure that every child can navigate and use the space with ease. Similarly, universal design principles, such as using contrasting colours and intuitive signage, can help students with visual or cognitive impairments. By emphasizing inclusivity, schools can create environments that can empower all students to thrive socially, emotionally, and academically.

In summary, the future of educational design must balance aesthetics, functionality, and well-being. By integrating biophilic principles, adaptable spaces, and engaging social areas, architects and designers can create environments that support mental health, foster creativity, and promote meaningful social interactions.

(Fig 7. The Asia School, 2022)

Conclusion

The current state of educational environments in the UK is in dire need of reform.
Schools, particularly at the secondary level, often prioritize functionality and order over creativity, mental health, and social development. My survey findings highlight this disconnect while primary school environments are remembered as colourful and engaging, secondary schools are frequently described as restrictive and uninspiring.
This stark shift demonstrates the UK's failure to create environments that adapt to the developmental needs of students as they grow. A rigid, mono-functional model is no longer sufficient. If we want to produce well-rounded, emotionally resilient, and socially skilled individuals, schools must be reimagined to better serve children's needs and ambitions. Whilst secondary schools are the main institutions that impose the restrictive current designs, this should not be the sole focus as primary schools in the uk equally need changing.

Other countries provide clear examples of what is possible. Many other countries like Finland and Denmark have embraced progressive school designs that foster creativity, collaboration, and community. Their use of vibrant colours, flexible layouts, and diverse, multi-functional spaces contrast to the often sterile, unimaginative classrooms found in the UK. By integrating open-plan designs, sensory-friendly zones, and outdoor learning areas, these countries provide students with spaces that inspire curiosity and engagement. The UK has much to learn from these child centered approaches. If we truly care about the student's success, it's time to abandon the one size fits all mentality to design and adopt designs that encourage exploration, individuality, and well-being.

Architectural changes will have a major impact in seeing a change by using flexible layouts that allow for movement and creativity are essential. Desks that can be rearranged for group work, modular furniture, and adaptable zones for different teaching styles should be utilized. Natural light is another critical factor, offering significant benefits for mood, focus, and overall well-being. And I think by prioritizing windows and open spaces, UK schools could counteract the dreary, institutional atmosphere of many classrooms. Outdoor spaces are also underutilized in the UK, despite their potential to serve as areas for play, relaxation, and alternative learning experiences. Sensory rooms and quiet areas, especially for younger students or those with special needs, would provide vital support for mental health and focus.

Technology is another avenue for innovation. While UK schools have integrated tools like interactive whiteboards and digital platforms, the possibilities of emerging technologies like virtual reality (VR) and augmented reality (AR) remain largely unexplored, and the UK could be pioneers in changing that. Imagine students virtually walking through ancient Rome or dissecting complex molecules in 3D without stepping outside the classroom. These technologies can transform learning into an immersive, hands-on experience. But as I mentioned before we must also make sure to find a balance with implementing all this technology. The technology should be there to enhance and further studies, and not replace certain aspects of school life. This is a must to avoid overreliance, and decline in physical movement, interpersonal connection, and critical thinking skills.

In my opinion, inclusivity in school design in any UK schools fails to adequately accommodate students with physical disabilities, learning difficulties, or mental health challenges. Thus inclusive design principles must be prioritized to create spaces that are accessible and welcoming for all students. This means implementing ramps, quiet zones, and layouts that reduce overstimulation while fostering a sense of belonging for every child.

The UK's educational environments and current designs often fail to engage students, support their mental health, or adapt to their diverse needs. By drawing inspiration from successful international models, embracing flexibility and creativity in architectural design, and integrating cutting-edge technologies, the UK can transform its schools into spaces that truly support holistic childhood development. These changes require bold decisions and significant investment, but the result will be schools that nurture not just academic success but also emotional resilience, social connection, and a lifelong love of learning. It's time for the UK to rethink its approach and put children's well-being and potential at the center of educational design. Because is it not time we asked ourselves if our current schools reflect the kind of society we want to build for the future?We can not expect students to thrive in outdated and uninspiring environments when we know that their surroundings directly influence their mental health and learning outcomes. Personally I think that we can't afford to ignore the growing evidence that flexible, inclusive, and engaging educational environments are essential for fostering lifelong success.

List of Illustrations

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Interior Architecture
Stage 3 Research Thesis

Author: Vitor Hugo Ferreira Pacheco