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Gender-Inclusive School Architecture: An International Comparison

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1 ABSTRACT

Gender-inclusive school architecture seeks to design educational environments in which all genders – girls, boys, non-binary, trans and intersex people – are equally considered, feel safe and addressed, and have access to the same spatial opportunities. Drawing on a decolonial, queer and intersectional feminist perspective, this paper analyzes how architectural decisions and spatial configurations can either reinforce or challenge social power relations. Intersectionality provides the analytical lens to understand how discrimination based on gender, body norms, origin or social position operates simultaneously and interactively. This framework highlights the ongoing influence of historical, colonial and normative structures that continue to shape school architecture.

The study is grounded in a broad dataset collected between 2021 and 2024. Through qualitative methods such as interviews, drawings, questionnaires and participatory workshops, more than 460 children and adolescents aged 6 to 16 were included across school and extracurricular settings. This mixed-methods approach captures a wide range of spatial needs and experiences. From the analysis, four core dimensions of gender planning in school construction emerged: (1) safety, security and well-being; (2) movement spaces; (3) retreat spaces; and (4) toilets. These dimensions emphasize the tight interrelation between spatial design, participation, visibility, privacy and psychological safety.

A European comparison underscores Vienna's pioneering role in gender-inclusive planning. Building upon Carla Schwaderer's dissertation „Gender Planning in School Architecture", a comprehensive guide for gender-inclusive school architecture has been developed. Its principles are reflected in several Austrian best-practice projects, including the Konrad-Lorenz-Gymnasium in Gänserndorf, the NMS Mittelweiherburg in Hard and the Pestalozzi Education Centre in Leoben. Complementary examples from other European contexts broaden the analytical scope: Learning Landscapes in Basel, the Reggio School in Madrid and the TORNHØJ HALL in Aalborg Øst in Denmark.

Across Europe, cities and countries pursue different strategies, yet the comparative analysis reveals shared priorities: participatory planning processes, adaptable spatial structures, and safe, inclusive sanitary, movement and retreat areas. These elements form the basis of successful gender-inclusive school construction. The study concludes by reflecting on what can be learned from international examples for future European planning practices and how decolonial and queer-feminist perspectives can be embedded more systematically in architectural practice and educational policy.

Keywords: gender , inclusion, school architecture, intersectionality, planning

2 GENDER-INCLUSIVE SCHOOL ARCHITECTURE AS AN INTERDISCIPLINARY FIELD OF RESEARCH

2.1 Theoretical foundations and social relevance

Girls and young women, as well as other groups affected by discrimination (e.g., based on class, origin, etc.), have long been denied unrestricted access to education in Europe and have been systematically excluded at the institutional level (Jakobi, 2013; Kleinau & Opitz, 1996). Although this has improved in recent years, it is still noticeable in school buildings. Like all buildings, school buildings are mainly designed by male planners according to male needs, which means, among other things, that they are geared towards the "male" body (Criado-Perez, 2020), which differs from the average size, mass, and weight, and has different requirements, for example, in terms of room temperature (Chang & Kajackaite, 2019). The following section will outline the theoretical foundations of gender planning and its social relevance.

2.1.1 Gender, space, and education: A feminist-intersectional perspective

Gender-inclusive school construction refers to a planning and design-oriented approach that aims to design school buildings and spaces in such a way that students of all gender identities feel safe, respected, and included.

This approach takes into account not only binary gender categories, but also non-binary and other gender identities (such as inter, trans, etc.). The relevance of this approach stems from the central role that educational institutions play in the everyday lives of children and young people: Since they spend a significant amount of their time in schools, school spaces function not only as places of learning, but also as social living spaces with a significant influence on individual development processes (Friedrich, 2008, p. 24; Seydel, 2023, p. 19).

The topic of gender-inclusive school architecture is located at the intersection of gender studies, architecture, and education. While gender studies analyze social gender relations, power structures, and mechanisms of discrimination (Butler, 2025; Ahmed, 2024), architecture deals with the material and spatial organization and design of school environments (Kühn & ÖISS, 2025; Rieger-Ladich & Ricken, 2009, p. 197). Pedagogy, in turn, examines educational processes, social interactions, and the institutional framework of learning (Rosenberger 2023). Only through the intertwining of these three disciplines does it become apparent how spatial design, pedagogical practice, and gender attributions influence each other.

Schools are central social institutions in which all children and young people, regardless of their gender, should have access to safety, belonging, and support. Gender-inclusive architecture can help reduce experiences of discrimination, conflict, and insecurity, thereby supporting a supportive school climate. Furthermore, it enables more equitable learning and development opportunities by challenging stereotypical attributions of use, removing spatial barriers, strengthening user privacy, and designing flexible usage structures (Schwaderer, 2025b).

Gender-inclusive school architecture aims to create spatial conditions that ensure safety, well-being, and equal participation for all students. Key criteria here are accessibility, privacy protection, and multifunctional and adaptable spatial concepts. In this context, the term gender is understood as social gender and encompasses socially constructed role models, expectations, behaviors, and normative attributions associated with different gender identities. This is to be distinguished from biological sex, which refers to physical and physiological characteristics used to classify individuals at birth. Feminist spatial theories analyze the extent to which social norms and power relations structure the perception, appropriation, and use of spaces without using biological differences as an explanatory starting point.

The examination of gender-inclusive school architecture is approached from a decolonial, queer, and intersectional feminist perspective (Ahmed, 2024; Crenshaw, 1989). Decolonial approaches problematize historically grown power and knowledge orders that have emerged from colonial contexts and advocate for a pluralization of knowledge beyond Eurocentric norms (Roig, 2024). Intersectional perspectives analyze the interaction of various axes of discrimination – such as gender, origin, social class, disability, or sexual orientation – and reveal how they reinforce each other (hooks, 2000 [1984]; Lorde, 2007 [1984]; Lorde 2017). The feminist approach focuses in particular on structural inequalities and disadvantages faced by FLINTA* individuals and aims to eliminate them.

More than half of students in Austria can be assigned to at least one category of discrimination. Since spatial structures both promote and restrict social practices, the design of school buildings is of central importance.

Architectural decisions have a significant influence on whether experiences of discrimination are reproduced or reduced in the school context and thus contribute significantly to the creation or reduction of social inequalities in the educational space (Goffman, 2001 [1994]).

In addition, the discussion is based on inclusive and user-oriented research approaches that actively involve those groups that are often marginalized in planning and decision-making processes. These include people with disabilities, members of discriminated groups, and people with limited access to resources (Schwaderer, 2024). By systematically incorporating their perspectives as experts in their own lives, research and design processes are made participatory and oriented toward the actual needs, experiences, and everyday practices of the future users, i.e., the students, educators, teachers, and school administrators.

2.1.2 Research gap

Although there has been growing interest in issues of gender equality, inclusion, and diversity in the discourse on school construction in recent years, systematic engagement with gender-inclusive school architecture has remained fragmentary. While educational research often examines social dynamics, experiences of discrimination, and institutional conditions in everyday school life (Heinrich Böll Foundation

2022), architectural discourse increasingly focuses on accessibility, functional flexibility, or gender inclusivity in relation to the school's outdoor space (Diketmüller & Studer 2007; Hottenträger, 2005; Studer, 2002; Federal Ministry of Education, Science and Research, 2019; University of Vienna & tilia, 2007), there is a lack of integrative approaches that consistently combine spatial design, educational practice, and gender-theoretical perspectives.

In particular, there is a lack of empirically based studies that analyze the concrete impact of spatial design decisions on the use, perception, and appropriation of school spaces in relation to gender. Questions about how gender-inclusive planning approaches affect the sense of security, social participation, or well-being of different user groups in the long term have not yet been sufficiently researched.

Furthermore, there is a clear gap in the institutional and procedural anchoring of gender planning in school construction. In existing school construction guidelines, competition procedures, and planning processes, gender aspects are often only considered implicitly or selectively (MA56 – Schools, 2021; MA56 – Schools, 2023; ÖISS, 2021). There is a lack of binding guidelines for establishing clear responsibilities, for example in the form of gender coordinators within construction and planning projects, who would ensure the continuous integration of gender-related issues across all project phases.

Last but not least, there is a research gap regarding the political and legal embedding of gender-inclusive school architecture. Although there are equality, anti-discrimination, and inclusion laws at the national and international level, their spatial implications for school construction have hardly been analyzed and even less frequently translated into concrete building standards. The interactions between legal requirements, political objectives, and architectural practice thus remain largely underexposed.

2.1.3 Research relevance

Against this background, the scientific examination of gender-inclusive school architecture is of great social, political, and planning relevance. Schools are central places of socialization where spatial structures not only enable learning processes but can also reproduce or challenge social norms, power relations, and affiliations.

The study of school spaces from a gender, spatial, and educational theory perspective therefore makes a significant contribution to understanding structural inequalities in education.

This research is particularly relevant because it has the potential to establish gender planning as a binding component of school building guidelines. Such anchoring makes it possible to no longer treat gender equality as a voluntary additional service or individual commitment of individual actors, but to define it as a structural requirement in school architecture.

At the same time, the research provides a basis for argumentation for decision-makers in politics, administration, and planning to legitimize gender planning in school construction in a sustainable manner, secure it financially, and anchor it institutionally.

Overall, the examination of gender-inclusive school architecture closes a central research gap at the interface of gender studies, architecture, and education. It contributes to the further development of discrimination-sensitive, socially just, and sustainable educational construction and opens up new perspectives for planning practices that understand spatial design as an active component of gender equality policy.

2.1.4 Research question

Against this background, this paper takes a comparative international approach and addresses the following research question:

How do different cities and countries in Europe deal with gender-inclusive planning in school architecture, and what can be learned from their analysis for future innovative gender-inclusive school architecture?

2.2 Methods

The empirical data for this study was collected between January 26, 2022, and November 11, 2024, at public compulsory schools in Vienna. The focus of the study was on elementary and middle schools, as these represent a central stage in the socialization of children and young people and are therefore particularly relevant for the analysis of gender-related perceptions of space and experiences of use.

Data collection was primarily carried out in participatory workshops with children and young people. The aim of these workshops was to record subjective perceptions, experiences, and needs with regard to school spaces and to make these visible from the perspective of the actual users. The collected material comprises a total of 32 guided interviews with 53 students, 110 drawings, 111 completed task sheets, 145 written responses from workshop sequences, and 45 standardized questionnaires. The diversity of the survey formats enabled a multidimensional approach to the research field and helped to take into account the different forms of expression and communication of the participating children and young people (Vogl, 2015, p. 69).

All participating students were of compulsory school age at the time of the survey and were between 6 and 16 years old. The deliberate inclusion of this age group takes into account the fact that children and young people perceive and use school spaces differently and that gender-related attributions and spatial appropriation processes already take effect in early stages of life.

The data collected from the students as the central focus group of the study was supplemented by a total of 15 expert interviews. Experts from the fields of architecture, pedagogy, education and urban policy, city administration, and gender studies were interviewed. These interviews served to contextualize the institutional, planning, and political framework conditions of school construction and to triangulate the students' perspectives with expert assessments from various disciplines.

The interviews were recorded as audio files using mobile devices and then transcribed in full. The entire qualitative data material was evaluated using Mayring's summary qualitative content analysis (Mayring, 2015, p. 69-70). This evaluation method enabled a systematic reduction and structuring of the material as well as the identification of central thematic categories, patterns, and connections in relation to gender-inclusive spatial perception, experiences of use, and institutional conditions of school construction.

Research ethics principles were consistently taken into account when conducting the empirical survey, especially with regard to working with minors as a particularly vulnerable research group. Participation in the study was entirely voluntary. Before data collection began, both the legal guardians and the participating children and young people were informed in an age-appropriate manner about the aim, procedure, and content of the research. The consent of the legal guardians and the informed assent of the students were obtained prior to participation (Vogl, 2015, p. 88-89).

2.3 Four Core Dimensions

As already described, gender-inclusive school architecture aims to design spatial structures in such a way that they do not reproduce gender-related inequalities, but actively contribute to equal opportunities, participation, and social justice. The starting point is the recognition that spaces are not neutral, but can materialize and reinforce social norms, power relations, and role models. Gender-inclusive school architecture therefore takes into account the diverse needs, perceptions, and ways of appropriating space of students in all their diversity and avoids binary attributions or stereotypical space allocations (Schwaderer, 2023).

Key principles include the equality of all users, the flexibility and ambiguity of spaces, accessibility, transparency in planning decisions, and the institutional anchoring of gender competence in all phases of the design and planning process. Gender planning thus understands school architecture as an interdisciplinary task that integrates architectural, educational, and social science perspectives and views spatial design as an integral part of education and equality policy. Against this background, four core dimensions can be identified that are of particular importance for gender-inclusive school architecture.

2.3.1 Safety, security, and well-being

Safety, security, and subjective well-being are fundamental prerequisites for successful learning and social participation in the school context. Gender-inclusive school architecture takes into account not only objective safety aspects, but also, in particular, the subjective sense of safety of different user groups. Studies show that perceptions of insecurity can be strongly gender-dependent and that girls, non-binary, and gender-nonconforming students in particular are more likely to identify spaces that cause fear or insecurity (Schuster, 2012; Schwaderer, 2025b).

In this context, architecturally relevant features include clear spatial structures, easily visible traffic areas, clear orientation systems, and a balance between openness and protection. Dark, remote, or poorly visible

areas – such as long corridors, stairwells, or outdoor spaces – can increase feelings of insecurity and promote social exclusion mechanisms. Gender-inclusive planning therefore aims to minimize areas that cause fear and to create an atmosphere of transparency through design, lighting, and choice of materials, without placing the emphasis on surveillance or discipline.

Furthermore, well-being is closely linked to emotional and social security. School rooms should enable identification, make diversity visible, and give students the feeling that they are welcome. This can be supported by flexible furniture, age- and user-friendly design, and the opportunity to participate in the design process (Montag Stiftung Jugend und Gesellschaft, 2017, p. 191). Architecture that promotes security contributes significantly to reducing stress, withdrawal from everyday school life, and gender-specific exclusion.

2.3.2 Movement spaces

Movement spaces play a central role in everyday school life, as they not only enable physical activity, but also make social interactions, power dynamics, and gender-specific appropriation processes visible (Ostermann, 2009). In many schools, large-scale, competition-oriented exercise facilities – such as soccer fields or gyms – dominate, and these are often used more by certain groups, mostly boys. Other students are implicitly excluded or withdraw as a result (Schwaderer, 2025c).

Gender-inclusive school architecture challenges these one-sided spatial offerings and strives for a variety of movement spaces that enable different forms of movement, play, and physical expression. In addition to classic sports areas, this includes informal movement zones, small-scale offerings, multifunctional outdoor spaces, and transition zones that promote spontaneous, non-performance-oriented activities. It is crucial that no form of use is hierarchized or normatively evaluated (Women in Sport, 2022).

The design of movement spaces should also ensure social safety and accessibility. Clear zoning, flexible usability, and transparent rules can help enable all students to participate equally. From a gender-inclusive perspective, exercise spaces are therefore not only places for physical activity, but also central venues for social negotiation processes that can be specifically influenced by architecture (Derecik, 2015, p. 59).

2.3.3 Retreat areas

Retreat areas are an essential element of gender-inclusive school architecture, as they take into account the different needs for quiet, privacy, and emotional relief (Eichler, 2021). Everyday school life is often characterized by high social density, noise, and constant visibility, which can be particularly stressful for marginalized or more sensitive students. Gender-specific expectations regarding presence, assertiveness, or conformity further exacerbate this pressure.

Gender-inclusive planning recognizes retreat not as a deficit, but as a legitimate and necessary strategy for self-regulation. Retreat spaces can take various forms, such as small lounges, niches, reading corners, or sheltered outdoor areas. It is crucial that they are easily accessible, do not have a stigmatizing effect, and can be used by all students without having to justify or legitimize their use.

Architecturally relevant aspects include acoustic shielding, visual separation, flexible furniture, and a pleasant atmosphere. Retreat areas not only contribute to individual well-being, but also promote social sustainability by reducing potential for conflict and enabling self-determined use of space (Derecik, 2015). In gender-inclusive school concepts, they are therefore not an additional offering, but an integral part of the spatial program.

2.3.4 Toilets

Sanitary facilities are a particularly sensitive area of school architecture, as they are closely linked to issues of intimacy, physicality, gender, and social control (Schwaderer, 2025a; Schreiber, 2019). Traditionally binary school toilets can be a significant source of stress for trans*, non-binary, or gender-nonconforming students, leading to insecurity, avoidance, or discrimination. At the same time, toilets are often places of bullying, assault, or social exclusion.

Gender-inclusive school architecture aims to design toilet facilities in such a way that they guarantee safety, privacy, and dignity for all users. Key design principles include lockable individual cubicles, ceiling- and floor-to-ceiling partitions, clearly visible entrance areas, and a clear separation of washing and toilet areas.

Gender-neutral or all-gender toilets should be an important addition or alternative to binary options, provided they are integrated into the room concept in an equal, visible, and natural way (Schwaderer, 2025a).

In addition, the location of toilets in the school building is important. Good accessibility, social integration, and the avoidance of spaces that cause anxiety are crucial for reducing barriers to use. Toilet facilities are therefore not only functional infrastructure elements, but also key indicators of the extent to which a school recognizes and spatially supports gender diversity (ibid.).

3 EXAMPLES FROM PRACTICE

The aim of Carla Schwaderer's dissertation entitled "Gender Planning in School Construction. A Guide to Gender-Inclusive School Architecture" is to develop a guide that will be compiled in cooperation with the Austrian Institute for School and Sports Facility Construction (ÖISS) and published in spring 2026. Research conducted as part of the dissertation shows that, although there are specifications and guidelines for tenders and architectural competitions for school buildings in Vienna, some of these are binding and some are merely recommendations (Plattform schulUMbau, 2010; ÖISS, 2023; City of Vienna, 2023). However, these are mainly limited to general references to gender-inclusive planning, without providing specific instructions or design principles for gender-inclusive implementation. This gap is to be closed in the future by the guidelines developed as part of the dissertation.

An international comparison based on extensive research also shows that Vienna occupies a special position in the international context: Vienna is the only one of the regions studied that explicitly stipulates gender-equitable school spaces in its school building guidelines. In other countries – including Denmark, Sweden, Switzerland, Norway, Spain, Italy, Japan, the USA, and Canada – gender equity has not played a comparable role, at least at the level of guidelines, even though individual projects that have been implemented can certainly be classified as gender-inclusive – as we will discuss in chapter 3.2 International Examples.

3.1 Examples from Austria

With its early feminist urban planning, which was already influenced by Eva Kail (Kail, 2002) in the 1990s, Vienna has generally played a pioneering role in gender planning and can point to a long history of gender-sensitive planning (Knoll & Szalai, 2010; City of Vienna, 2007).

3.1.1 Konrad-Lorenz-Gymnasium, Gäserdorf

The Konrad-Lorenz-Gymnasium in Gänserndorf is a contemporary example of a school that goes beyond mere functional renovation and creates spatial qualities that take into account both the educational and social aspects of school. The building was completed in 2022 after the architectects Franz&Sue ZT GmbH won a Europe-wide competition for the renovation and expansion. The school serves as the main school location for around 1,000 students and integrates existing buildings with a new connecting structure to form an open, hierarchy-free ensemble (Franz&Sue, 2026; ZAB, 2026).

The architectural intervention responds to the structural deficits of the former, strongly linear and spatially segregated corridor school by focusing on central meeting and orientation spaces. The open auditorium in the middle of the building serves as an identity-forming center and connects different levels with wide seating steps. Floods of daylight, attractive seating areas, and a direct visual connection to neighboring open spaces enhance both the communicative use and social accessibility of the space. This communicative core supports an atmosphere in which different groups and social identities can overlap, thus contributing to a school environment that embraces diversity as a constructive element (Austria Architects, 2026).

The cluster structure of the classrooms around this central space creates manageable yet interconnected learning units that facilitate orientation and shorten distances. The deliberate structure promotes the self-organization of learning groups and minimizes areas of uncertainty, which can have different psychological effects on students, especially in larger building complexes (Kühn & Schwaderer, 2025). Color concepts and a visual guidance system also provide intuitive orientation that is not bound to traditional, strictly functional hierarchies, but opens up opportunities for identification through differentiated visual addresses.

Another feature is the integration of indoor and outdoor spaces, which allows views from the classroom into a variety of open areas. The schoolyards and school garden are designed so that they not only function as pure break areas, but also invite different forms of use – from exercise and informal encounters to quiet

retreat areas. This spatial diversity addresses key requirements of gender-inclusive school architecture, as it enables different forms of movement, lingering, and appropriation and promotes social participation among multiple user groups (ibid.).

The choice of materials and the design of the façade also reflect an approach to aesthetic identification and tactile quality: a delicate wooden slat façade lends the building liveliness and warmth, which, beyond functional requirements, can support a feeling of belonging and well-being.

Particularly noteworthy is the range of movement options in the intermediate zones of the school building, which can be considered exemplary for gender-inclusive school construction. Instead of a strict separation between learning, traffic, and movement areas, access areas, stairwells, and lounge areas are deliberately designed as informal spaces for movement and appropriation (Schwaderer, 2025c).

Seating steps, spacious staircases, and open transitions enable spontaneous, low-threshold forms of movement that are not performance-oriented and are not associated with any specific sports culture. This creates alternatives to classic, often gender-dominated exercise spaces such as gyms or sports fields. These informal movement opportunities promote diverse use by different groups of students, reduce mechanisms of exclusion, and support self-determined, gender-independent appropriation of the school space. The integration of movement into everyday routes and lounge areas thus contributes significantly to an inclusive, stress-reducing, and socially balanced school day (ibid.).

As a whole, the Konrad-Lorenz-Gymnasium shows how spatial structures beyond purely functional logic can enable social experiences, orientation, encounters, and identification. These qualities are central elements of gender-inclusive architecture, as they aim to allow for differentiated uses and to spatially accommodate heterogeneous realities of life in everyday school life. Through its combination of open communication spaces, differentiated learning clusters, designed outdoor areas, and an integrative color and orientation system, the building can be considered a model that supports spatial openness, social accessibility, and heterogeneous modes of appropriation in the spirit of contemporary school architecture.

3.1.2 NMS Mittelweiherburg, Hard

The Neue Mittelschule (NMS) Mittelweiherburg in Hard is an exemplary example of the contemporary approach to school interior design in the context of educational and social requirements. Originally opened in 1978, the school building underwent a comprehensive renovation, which was completed in April 2022, and was given a new focus in terms of content and space. The renovation was planned by the architects gruber locher architekten ZT GmbH from Bregenz, which was tasked with transforming the existing qualities of the school building while implementing modern standards of educational interior design (Daibau Magazine, 2026; gruber locher architekten, 2023).

As part of the renovation, the building was not only technically and energetically upgraded, but also structurally redesigned and given a new spatial logic. The aim was to transform the school building from a 1970s school typology often perceived as a “bunker” into an open, communicative, and flexible learning environment that allows for a variety of uses (Schlocker, 2023).

A central design element is the atrium at the intersection of the two wings of the building, which was designed as a vertical meeting zone and distribution area across all floors. This open hall serves not only as a spatial center, but also as a social mediator between formal teaching, informal encounters, and informal learning processes. The original solid steel railings have been replaced by transparent glass balustrades, significantly improving sightlines, permeability, and spatial orientation. This removes boundaries between the levels and allows spaces to be experienced as interconnected social places.

The cluster structure of the learning areas, in which three classrooms are grouped around a semi-open learning area, promotes communication, cooperation, and self-organization among the students. Such spatial constellations support heterogeneous forms of learning that have an integrative effect and enable different learning styles and social interactions. This flexibilisation of learning spaces is in line with gender-inclusive planning principles, as it breaks down stereotypical usage boundaries and creates learning environments that can be used and shaped equally by different groups (Nextroom, 2026).

Another aspect that sets the project apart in terms of gender-inclusive school construction is its use of materials, colors, and atmosphere. Whereas the school used to be characterized by brutal exposed concrete surfaces and garish colors, a coordinated material and color concept now creates a pleasant, diverse room

atmosphere that allows for both visual calm and acoustic differentiation. The use of wood, warm colors, and differentiated flooring materials contributes to the school's functional and emotional appeal, which supports the well-being and identification of all users, regardless of gender identity or personal preferences.

In addition, the renovation made the school barrier-free and equipped it with an elevator, which ensures physical accessibility and enables equal use of all school areas by students with different motor skills. This dimension of accessibility is a central component of gender-inclusive architecture, as it takes multiple differences into account and not only proclaims inclusive participation, but also realizes it spatially.

Finally, communal areas such as the auditorium, library, and modern lounge areas are an integral part of the spatial program, supporting both formal and informal uses. The combination of learning, lounge, and meeting areas promotes social interaction beyond formal teaching situations and fosters an atmosphere of openness that is important for diverse spaces of identity and experience.

As a whole, the NMS Mittelweiherburg shows how an existing school building can be transformed through careful but consistent pedagogically and socially oriented architecture. The combination of transparent spatial structure, flexible learning landscapes, differentiated materiality, and barrier-free access creates a spatial environment that not only tolerates diversity but enables it. This school building project thus makes an important contribution to an architecture of learning that follows gender-inclusive planning principles and translates them into concrete spatial qualities (Weber, 2025).

3.1.3 Pestalozzi Education Center, Leoben

The Pestalozzi Education Center in Leoben-Donawitz is considered one of the most innovative school construction projects in the country. The comprehensive renovation and reorganization of the existing Pestalozzi school complex was completed in 2016, after which the building was put into operation at the beginning of the 2016/17 school year. The Graz-based architectural office nonconform, in cooperation with schuleRAUMkultur/Michael Zinner from the University of Art and Design Linz, was responsible for the planning and implementation, jointly developing an integrative and participatory process management approach (Kühn, 2025).

The project brings together three different types of compulsory schools under one roof – elementary school, new middle school, and polytechnic school – and transforms the building into an open, shared educational center that serves as a model for other regions. The spatial reorganization aimed to break down barriers between traditional functional units and enable diverse forms of use. Participation processes with students, teachers, parents, and other user groups formed the basis for a spatial concept that is not characterized by rigid hierarchies, but focuses on social interaction, communication, and appropriation (nonconform, 2026).

An essential element of this gender-inclusive approach is the transparency and permeability of the spatial structure: classrooms open onto corridors and communal areas that serve as informal learning and meeting spaces. The spatial interaction between formal teaching and open communication spaces promotes heterogeneous modes of learning, facilitates social orientation, and minimizes isolating spatial forms. In this way, the architecture responds to the different needs of students and addresses differences in perception and use across genders, age groups, and learning preferences (ibid.).

Another characteristic feature of the education center is the integration of different age groups and school types into a common spatial logic. The resulting “interstitial spaces” between the units enable informal encounters that promote social exchange across institutional boundaries. Such intermediate zones offer a variety of opportunities for expression and movement: they serve as informal learning spaces, lounge areas, and informal meeting places that are not normatively defined for a specific use. This spatial openness supports a gender-inclusive appropriation of the school space by allowing for multiple identities and social practices equally, rather than reproducing traditional functional assignments.

In this context, the project's participatory planning strategy is relevant not only in terms of process but also in terms of architecture: the involvement of the school community in the design and appropriation phases has helped to ensure that spaces are not “imposed” but respond to actual everyday needs and can be flexibly developed. This form of participation – which goes beyond a mere survey of usage – strengthens the sense of shared responsibility and co-creation, which has a positive effect on subjective security, belonging, and well-being.

Finally, the importance of the Pestalozzi Education Center is also evident in the fact that it is perceived as a best-practice example of integrative school space design in both educational and architectural discourse. Professional recognition, participatory approaches, open spatial logic, and consciously promoted informal usage practices make the project a model that not only addresses gender-inclusive planning in school construction in theory, but also implements it in concrete spatial qualities.

3.2 International examples

This text focuses on Europe, as the regulations here are most comparable to our own context and to the guidelines in Austria; therefore, the learning effect is greater.

In a non-European context, gender planning in school architecture – for example in African countries – may instead emphasize aspects such as safe routes to school, sanitary facilities, and hygiene measures.

3.2.1 Learning landscapes at the St. Johann elementary school in Basel (Switzerland)

The learning landscapes at St. Johann Elementary School in Basel represent an exemplary approach in contemporary school construction, combining spatial qualities and educational requirements into an integrative spatial concept. The redesign of the school rooms was completed in 2019 and was carried out by the Basel-based architectural office ZMIK GmbH, which was able to develop new spatial structures in a participatory process with students and teachers (ZMIK, 2019).

Originally, the long corridors of the historic school building served merely as access zones for teaching purposes. In the context of the renovation, ZMIK transformed these linear spaces into multifunctional learning and recreation areas that combine informal learning, social interaction, and physical activity. The planning followed an intensive participatory process in which the perspectives of the actual users – especially the children – served as the conceptual basis, which promoted a high level of identification with the final spatial concept (ibid.).

Architecturally, the three main rooms of the school building are divided into three differently usable zones: cloakroom, learning landscape, and central movement and meeting area. This zonal structure not only enables functional differentiation, but also supports a variety of ways of using the space. Terraced and variably usable elements are arranged along the window side, serving both as work surfaces for individual or collaborative activities and as informal retreat and communication areas.

Particularly noteworthy is the hybrid character of the learning landscapes: instead of rigid classrooms or functional hallway structures, spatial niches such as “caves” and “hides” have been created that allow for different modes of use – concentrated work, playful discovery, retreat, or informal interaction. Elements such as slides, balance beams, and bouncing balls promote a concept of “active learning” that sees physical activity as an integral part of everyday school life (Schwaderer, 2025c).

From a gender-inclusive perspective, this project is exemplary because it breaks down traditional binary attributions of space and creates types of space that are not tied to specific roles, behaviors, or normative expectations of use. The learning landscapes thus promote the equal participation of all students – regardless of gender identity, learning style, or physical preferences – by offering different forms of access to learning and social interaction. The spatial structure allows for individual self-determination, supports cross-group communication, and creates a variety of opportunities for spending time together that are not evaluated hierarchically.

In addition, the integration of natural materials, differentiated acoustic solutions, and a graduated color palette has a psychosocially supportive effect: it promotes well-being and orientation, reduces stress factors, and creates an atmosphere that encourages positive social exchange. The proximity to the historic building and the acceptance of the existing building as a material basis underscore that gender-inclusive design can be effectively realized not only in new buildings, but also in the careful transformation of existing school buildings.

As a whole, the St. Johann elementary school shows how participatory planning, diverse spatial offerings, and flexible appropriation options can result in a school building that not only supports educational innovation but also creates a multi-layered, socially inclusive, and gender-inclusive learning and living space.

3.2.2 Reggio School in Madrid (Spain)

The Reggio School building in Madrid (El Encinar de los Reyes) was designed by architect Andrés Jaque and the Office for Political Innovation (OFFPOLINN) and completed at the end of 2022. The design is based on the educational principles of Reggio Emilia pedagogy, which views children as active designers of their own learning processes. This educational approach has a direct impact on the architectural concept and makes the school a remarkable example of gender-inclusive school construction (iqd, 2022).

Architecturally, the Reggio School is designed as a vertically organized, open ecosystem that deliberately avoids rigid functional divisions. The spatial organization follows the principle that the learning environment itself – alongside teachers and peers – acts as a "third educator" and thus actively participates in learning processes. Rooms are designed to allow for diverse, self-directed forms of acquisition and interaction. This diversity of possible uses is a central aspect of gender-inclusive planning, as it accommodates different learning styles, modes of expression, and physical needs without reproducing conventional attributions of use.

A striking example of this openness is the central, more than 8-meter-high common room, which serves as a multifunctional agora. This large, light-filled hall can be used as a space for movement, a meeting place, a teaching area, or a social gathering place, and is deliberately not zoned hierarchically. It functions as a social hub that promotes exchange across age groups, interests, and gender boundaries – a spatial counterpart to inclusive educational relationships.

The Reggio School largely dispenses with traditional corridors and instead creates flowing transitions between learning, play, and recreation rooms. These fluid transitions allow students to flexibly cross spatial boundaries and experience the school space in their own way, breaking down stereotypical patterns of use and enabling diverse forms of appropriation (Baunetzwissen, 2022).

Another important aspect is the design of the materials and space, which combines transparency, rawness, and ecological sensitivity. Visible technical systems, exposed pipes, and the consistent integration of natural elements such as courtyards and green spaces create a non-hierarchical, exploratory learning environment in which students of all genders are equally motivated to explore their surroundings and use them interactively.

The vertical staggering of the building – younger children on the lower levels, older children on the upper levels – supports age-differentiated but at the same time permeable use of space. This organization allows for the creation of autonomous spaces for experience without building social barriers, and creates spaces for experience that can be shared by heterogeneous groups (Metalocus & Dragoeva, 2022).

As a whole, the Reggio School combines architectural diversity, pedagogical openness, and ecological responsibility to create a spatial structure that implements gender-inclusive school construction not only as a normative goal, but as a concrete spatial practice. The school creates spaces that equally enable exploration, cooperation, social interaction, and self-directed learning, thus minimizing barriers between different users, age groups, and social identities, both thematically and spatially.

3.2.3 TORNHØJ HALL in Aalborg Øst (Denmark)

Completed in 2012, Tornhøj Hall is a motor skills-based extension of the sports hall at Tornhøjskolen in Aalborg Øst and was designed and built by the Danish architectural office Keingart (in collaboration with technical planning partner Kærsgaard & Andersen). The design responds to the conversion of an existing, traditionally organized hall structure and transforms it into an open, versatile environment for exercise and recreation (Keingart Space Activator, 2012).

Although it is not formally a classic new school building, the project is closely linked to the school context in terms of its functional and social impact: the hall is an integral part of Tornhøjskolen and is not only used for physical education, but also functions as a social, sporting, and interactive center for students of all ages, genders, and social backgrounds. This allows the hall to be seen as an example of gender-inclusive planning in the broader context of school interior design.

The basic architectural concept consists of opening up, connecting, and differentiating spaces for movement and interaction (Schwaderer, 2025c). The long, formerly dark sports hall has been made more permeable; corridors and access areas have been transformed into movement-promoting landscapes that spiral through the building and invite a variety of physical activities: from climbing and balancing facilities to free play and

movement zones to retreat and relaxation niches. This spatial openness and diversity of use promotes spontaneous, non-hierarchical forms of movement that are not bound by traditional performance or gender norms.

Particularly relevant in terms of gender-inclusive aspects is the integration of movement and social spaces: instead of a strict functional separation between sports and recreation areas, intermediate zones are created in which all students – regardless of gender, athletic ability, or physical characteristics – can move and interact independently. This corresponds to a planning concept that breaks down stereotypical patterns of use and offers space for diverse ways of appropriation. The small-scale nature of the facilities, in combination with the open spaces, creates a low-threshold participation structure in which different groups can participate on an equal footing (Keingart Space Activator, 2012).

Furthermore, opening up the hall to the school and the public space has created a strong connection between everyday school life and communal use. The newly created café and lounge areas function as social threshold spaces that enable informal encounters and exchanges before and after class or outside of organized sports activities. This spatial coupling promotes social cohesion and reduces barriers between user groups, which is a central concern of gender-inclusive planning.

The project is also notable for its understanding of physical activity not only as a cognitive or performance-related discipline, but as a social and everyday process of interaction. This perspective supports different forms of expression of movement and reduces normative attributions – an approach that, beyond its specific use, can serve as a reference for gender-inclusive school architecture by showing how spaces open up potential for movement, encounter, and appropriation for all users equally (ibid.).

4 CONCLUSION

The present analysis shows that gender-inclusive school architecture goes far beyond questions of individual room types or design details. It should be understood as an interdisciplinary field of action in which architecture, pedagogy, and gender studies jointly contribute to understanding school spaces as social, political, and pedagogical spheres of influence. School buildings are not neutral containers of learning, but rather materialize social norms, power relations, and ideas of belonging – and thus have the potential to either reproduce inequalities or actively dismantle them.

The theoretical approaches, empirical findings, and practical examples examined illustrate that gender-inclusive planning is effective when it is structurally, procedurally, and spatially anchored. Safety, opportunities for physical activity, places of retreat, and sanitary facilities prove to be central sites of negotiation for gender participation, where social dynamics manifest themselves particularly clearly. At the same time, international and national examples show that gender-inclusive school architecture is not a singular design model, but is characterized by flexible, context-related, and participatory solutions.

This makes it clear that gender planning in school architecture is not an optional addition, but a central prerequisite for sustainable educational architecture. Only when gender equality is understood as a cross-cutting issue in planning and is translated into binding guidelines, processes, and built spaces can schools become learning and living spaces that not only allow for diversity but actively support it.

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