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# The Importance of Spaces at the University to Promote Learning Through the Body in Movement

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**Abstract**

This article aims to analyse the design of university educational spaces in relation to learning through the body in movement. It presents a qualitative study in which a total of 54 students from the teaching degree program at University of Girona were involved. The structured interview was used as the instrument of data collection, thus allowing us to identify the students' perception of the spaces in the faculty where they study in relation to learning in movement. The data analysis was in two phases: a first phase with a thematisation of the results obtained, followed by a second phase of creative cartography. The results provide new knowledge and pose questions as to how students perceive the spaces in the university in terms of promoting learning in movement, as well as what kinds of spaces would respond to this better. Moreover, the present study shows the importance of including architectural dimensions, along with students' voices in research.

## Introduction

Over recent decades, different studies have been carried out on learning in movement (Cañabate & Soler, 2017; Nathan, 2022), the importance of the body in learning (Allen et al., 2023; Hegna & Ørbæk, 2024), and the design of educational spaces (e.g. Bautista et al., 2021; González-Zamar & Abad-Segura, 2020). However, few publications investigate the relationship between these three aspects. Therefore, the objective of this article is to contribute to analysing how university educational spaces encourage or limit learning on the move.

Learning environment is a field of research with a notably long history. More recent is the line focused on physical learning spaces. For more than three decades, researchers have been committed to studying the connections between the architecture and design of educational spaces and students' learning experiences (Zandvliet & Fraser, 2019). Both from the field of architecture connected to education (Bosch, 2018; Hertzberger, 2008; Könings et al., 2017) and from the field of education itself (Malaguzzi, 2000; Acaso, 2018, Bautista et al., 2021), there are several studies that over time reveal the importance of taking care of the educational spaces and how their design affect learning and knowledge creation. In the complex times we are living in, "there is a need to rethink educational spaces so that they act as real social and community settings" (González-Zamar & Abad-Segura, 2020, p. 2).

Several authors demand a design of educational spaces in coherence with the pedagogies and curriculum to achieve better learning experiences and processes (Bosch, 2018; Cañabate et al., 2021; González-Zamar & Abad-Segura, 2020; Könings et al., 2017). According to Könings et al. (2017, p. 306), "changes in educational vision that necessitate curricular change require corresponding changes to the spaces". Bosch (2018) argues that architecture is crucial to design spaces that foster learning and students' engagement. And not only this, aesthetics also matters in terms of comfort and quality of the space (Alonso-Sanz, 2016; Mamur, 2020).

Malaguzzi (2000), in his project for Reggio Emilia schools, spoke of space as the "third teacher", where architecture and design are tools to facilitate active learning for students, thus promoting autonomy and critical thinking instead of being a control instrument (Urda & Leal, 2016). This approach influenced many schools. Although since the beginning of the 21st century there have been studies and proposals for the transformation of educational spaces under the pedagogies to be applied, these often focus on preschool, primary and secondary schools, with very few publications and projects focused on the university context (Bautista et al., 2021; Hernández & López, 2023). For this reason, we need to rethink these spaces as an aesthetic-pedagogical instrument that encompasses the educational institution (Abad and Ruiz, 2020; Hertzberger, 2008).

Another emergent field of research is embodied teaching and learning. Unfolded more

intensely after the embodied turn (Schoeller et al., 2025), several studies agree that embodied learning genealogy is the result of merging ideas from different fields of knowledge (Schoeller et al., 2025; Hegna & Ørbæk, 2024). Post-war French philosophers such as Sartre, Foucault, and Bourdieu drew attention to the centrality of the body to mind and being. However, Merleau-Ponty, influenced by Husserl's theory of the body, is well-known to provide new insights from phenomenology in terms of including the body in philosophy (Hegna & Ørbæk, 2024). From the pragmatist philosophy, the figure of Dewey and the importance of the body in learning experiences stand out. Finally, from feminist and new materialist perspectives, Braidotti and Haraway claim for situated and embodied knowledge (Schoeller et al., 2025).

In the present study, embodied learning understands the learner as an integrated system of mind, body, and environment (Allen et al., 2023; Cappello & Cañabate 2025; Nathan, 2022). Thus, embodied learning occurs when "the meaning of what is learned is grounded specifically in body movement and perception" (Nathan 2022, p. 81). The literature shows through different studies that the body and movement in all cases are a good ally for learning and improving academic performance (Cañabate & Colomer, 2020; Learreta & Ruano, 2021; Rupnik & Geršak, 2022). Knowledge is truly integrated when it touches the body, when it traverses it (Torrents et al., 2021). We learn better if our body is active (Bosch, 2018). However, in general, teachers do not encourage students to move in the classroom, especially once we move away from the childhood stage. Only in the first years of schooling can we speak of an "experienced body", naturalised, that has the privilege of being able to move spontaneously (Camerino-Foguet & Castañer-Balcells, 2022).

According to Gómez et al. (2018), education understood as fabrication maintains a classifying, categorising, and ableist view towards the subject. Instead, Learreta and Ruano (2021) present evidence, reflections, and demonstrate the benefits of movement in classrooms to improve learning. Movement generates experiential learning, improves the organisational dynamics of the classroom, influences the emotional climate, helps students relax or develop executive functions and, ultimately, improves the dynamics of classroom functioning by facilitating dynamism, joy, movement and surprise with emotion (Bonem et al., 2020; Cañabate et al., 2021).

Various studies have shown how those teachers who employ greater levels of body language obtain better results. This is because the gestures and movements that accompany the explanations activate sensorimotor regions of the brain that facilitate learning (Kontra et al., 2015; Cañabate et al., 2018). In this way, body movement must be seen and treated from a multidimensional and complex perspective. This requires a holistic vision that integrates the person as a whole (Rodríguez & Carmona, 2021) and transdisciplinary pedagogies in which

movement and physical activity are engaged in collaborative teamwork and in hands-on ways (Allen et al., 2023).

Through movement and bodywork, an opportunity is generated to question the place of the body and movement in the human experience, creating a context for observation of and reflection (Rodríguez et al., 2014). In this way, Thorburn and Stolz (2023) stress the importance of "being-in-the-world" and being engaged with the environment (p. 612). This can be guided by adopting a Critical Pedagogy of the Place (CPP) in the sense that it empowers students "to engage critically with their learning and environment" (Gutiérrez-Ujaque & Montserrat-Degen, 2024, p. 538).

From this perspective, the article presented here starts with understanding space as a learning facilitator, designed with an educational intention. Therefore, we must be open to the fact that any space in an educational institution can become, at any time, an educational space. Thus, educational transformation must include all the spaces of an institution.

For all of the reasons above, this research aims to understand and analyse, from the perspective of university students, how the body and movement are related to the design of the educational space for learning, with the aim of demanding better designs of university educational spaces to improve student learning.

## Research Question and Objectives

Starting from the main hypothesis that the design of educational spaces conditions and affects body movement and learning, the following questions are raised:

> *How do university students perceive that educational spaces foster learning in relation to movement?*
>
> *What importance is given to the body in movement for learning?*

From these questions, the following research objective surfaces: analyse how university educational spaces encourage or limit learning on the move. This objective is specified in:

- Providing reflections on body movement as a learning acquisition tool.
- Valuing and exposing the difficulties and reflections regarding students' learning.
- Analysing students' reflections on the relationship between space movement and learning to improve educational practice through interviews.
- Offering proposals for improvement in the design of spaces at the university to promote learning through movement.

## Method

To respond to the objectives stated above, qualitative research was carried out with 54 students from the teacher training degree at University of Girona, analysing the spaces of the Faculty of Education and Psychology in relation to learning and movement. Specifically, these students were chosen because they were enrolled in subjects related to artistic education: 1) the design of educational spaces (32 participants); 2) body and physical education (20 participants); and 3) body expression and dance (2 participants). To do this, a narrative and visual methodology has been followed. According to Hernández (2011), in research, it is important not to speak for the other, but to include the subjects questioned in it. In this way, the present study proposes research *with* and not *about* these university students. In addition, we point out the importance of collecting student perceptions. On the one hand, according to Bernal and König (2017), "perceptions encompass psychic sensations of facts as well as knowledge and ideas, opinions, feelings and judgments" (p. 183); in this case, about their ways of inhabiting the spaces in their faculty in relation to their learning.

The structured individual interview has been established as a data collection method. This allows one to obtain answers on the same topics to facilitate subsequent theming. In this case, it was decided to send the interview to the students by email, to allow them the necessary time to respond thoughtfully and without the pressure of having to respond quickly (Bampton & Cowton, 2002; Hunt & McHale, 2007) – albeit with a certain spontaneity being lost (Bampton & Cowton, 2002). In other words, the presence of the researchers did not affect their responses. They could review their use of language (Hunt and McHale, 2007), and avoid wasting time on organising face-to-face meetings, as well as the researchers' time spent on transcriptions (Meho, 2006).

The interview consisted of six open questions regarding the key concepts and objectives of the research. The first four followed an order from the most general to the most personal, initially asking about which spaces in the faculty the students felt were learning spaces and why. Next, we delved into how the students related the body to movement and learning. The last two questions in this block were an invitation to reflect and connect the previous ones, inviting students to think about how the characteristics of the spaces they had identified that took into account the body in movement, affected their learning. The fifth and penultimate question focused on imagining the ideal learning space, while the final question approached the role of the teacher and to what extent they took into account the body in movement in their educational proposals. All participants had been duly informed about the research and its purpose, and had given their consent to participate in it and for the information uncovered to be used for research. To do this, we have anonymised their responses, indicating the initials of their first and last name (instead of using their full name) in the literal quotes that we share in the results section.

### *Data Analysis Phases*

The analysis was carried out in two phases: 1) a thematisation of the interview responses and 2) two cartographies created in relation to the spaces and uses of the faculty; one of which responds to the current situation and the other projects students' desires concerning university spaces based on their responses.

The content of the responses collected in the interviews was analysed using a thematic analysis (Braun et al., 2014). Data analysis was carried out manually and we created the following themes: 1) conceptions about the relationship between body-in-motion and learning; 2) evaluations of faculty spaces in relation to learning through the body in movement; 3) characteristics of an ideal space; 4) assessment of the role and involvement of the teacher in educational proposals that take into account the body in movement.

With the aim of deploying the potential of artistic methods in research, we produced two creative cartographies of the faculty spaces. According to Gunilla et al. (2018), artistic manifestations brought to the field of educational and social research can open us up to new possibilities in the creation of knowledge, allowing us to study human experiences in more complex ways. Furthermore, the visual representation of territories (whether physical, real, or imaginary) helps us to discern and understand our current reality, as well as imagine possibilities for 'other' realities (Onsès, 2014). In this way, the second phase of analysis, the first creative cartography, was carried out as a synthesis and abstraction of the surface currently occupied by the different types of spaces that the students have mentioned as learning facilitators. Next, a second creative cartography was drawn consisting of an adaptation of the same surface but modifying the spaces according to the improvement proposals mentioned by the students.

## Results

The results obtained through the four themes that emerged in the first stage and the results from cartographies in the second stage are detailed below.

***Results by Thematisation***

**Table 1**

*Thematisation of interviews transcriptions*

Source: own elaboration

| **Theme** | **Approach** | **Selected Quotes** |
|---|---|---|
| Conceptions on the relationship between body-in-motion and learning | From practical and experiential learning | "All is experiential, that is, learning through movement and actions." (M.T.)<br>“The spaces where you have to see the body in movement are those spaces in which the learning acquired is more significant due to the fact that it is more experiential and different from what we are used to." (L.E.) |
| | Connected to the well-being of the body | "I consider that the body and movement are closely linked to sensations and emotions, since depending on the mood one has one muscle tone or another, feeling a "negative" emotion (shame, insecurity, etc.) affects the movement of the body. body and, therefore, the proposal.” (M.U.) |
| | Relational approach | "I learn more when my movement has implications and effects on those of my colleagues; that is, when they are linked and contextualised in some way." (F.C.) |
| | Body as center for learning | “The simple fact of not having tables and chairs, as in a traditional classroom, forces you to approach the sessions in a different way, putting the body and movement as the central axes of learning.” (A.P.) |
| Assessing faculty spaces | Formal learning spaces that foster learning in movement | "The gym... thanks to the experience with my own body I can have more memory and the learning of what we are learning is more significant." (A.R.)<br>“The music classroom is a small, cosy space in which there are no tables, but there are chairs. The chairs are placed in the shape of a circle and, therefore, the space in the middle |

| | | |
|---|---|---|
| | | is always free for when we want to carry out learning activities, manipulate instruments or objects, etc.” (M.M.)<br>"In the laboratories is where the body in movement plays a fundamental role since they are classes where more significant and practical proposals are made." (A.P.) |
| | Non-formal learning spaces that foster learning in movement | “In the common areas, the body is freer and I can move if the body asks me to.” (L.R.)<br>"The spaces in the hallways that allow greater flexibility in posture, in movement when speaking, and changing body positions." (C.F.)<br>"On the patio and in the bar I learn things related to everyday life and also about social relationships." (I.G.)<br>“The space at the university where I learn the most is in the library. It is a space that transmits calm to me and allows me to organise the different tasks that I must carry out to my liking.” (J.A.) |
| The ideal space | Sensorial | “An ideal space would be a large classroom, with large windows that let in a lot of natural light. The white walls.” (L.R.)<br>“With comfortable furniture that invites you to meet other colleagues … cosy tables with good ventilation … several work areas … tables and chairs that are easy to put away at times when they are not needed and could have beanbags or pillows to form circles, and encourage debates and shared learning.” (J.P.)<br>“Individual tables with a drawer to store things.” (X.G.)<br>"Polyvalent, accessible, polysensory, experiential, healthy, community and aesthetic." (N.O.) |
| | Contact with nature | "My ideal space would be outdoors, surrounded by nature and breathing fresh air." (A.R.) |
| | Flexibility and versatility | “With part of the classroom with comfortable tables and chairs, and another part with sofas to give cooperative and more creative classes.” (L.R.)<br>"One that invites individual and autonomous work, with the movement of the body, with cooperative work and with the space for conversation and reflection." (F.C.) |

| | | |
|---|---|---|
| | Inclusion | “That offers adaptable proposals for everyone.” (J.H.) |
| The role of the teacher | Traditional classes, except for artistic and corporeal subjects | “The teachers look for a classroom where there are enough chairs for all the students and that has a projector… They do not consider aspects such as the discomfort of the chairs or small tables, or the fact that there are no power outlets strategically distributed throughout the classroom.” (J.A.)<br>"Those who do take it into account, I think, demonstrate it in the choice of the classroom to carry out the educational proposals." (M.D.)<br>“The teachers we have had when we have taught at the gym have been some of the few who have taken this into account, and I suppose this is because of their specialization in psychomotor skills.” (J.P.) |
| | Including the body in master classes | "Introduce breaks in in-class hours to move the body a little, doing some fun group activity, taking into account learning possibilities outside the university, in green spaces." (J.P.)<br>“There are studies that reaffirm that we cannot spend more than 30 minutes in the same posture and focused doing the same thing. Thus, techniques could be put into practice to move the body and so improve learning and concentration. I also think that teachers should have relaxation techniques for when students are in exam periods or at the end of a session.” (S.A.) |
| | Other factors besides the role of the teacher | "I think there are several factors such as: not everyone's needs can be met, there are many classrooms occupied, or there is no real analysis of which spaces we could work in better." (P.R.)<br>“Although much progress has been made in methodological innovation, I think there is still a long way to go, as many classes continue to be purely traditional and theoretical.” (A.P.)<br>“It depends on each teacher, the experience they have, their training, their ideals, their ability to create activities, etc.” (F.M.)<br>“All spaces at the university are suitable for acquiring learning. Whether these are significant and functional depends on the well-being you have in that place, at that moment, and the quality of the stimulus.” (F.M.). |

*Conceptions On The Relationship Between Body-In-Motion And Learning*

Most students relate the body in movement to more practical and experiential learning. More than being in line with embodied approaches for learning (more holistic and connected to the authors mentioned in the introduction), they understand learning in movement as the process to learn whilst the body is in movement. Some students associate body-in-motion linked to learning with the well-being of the body and how our physical-emotional condition affects it. Others connect learning through body movement to the relational. That is, not only is it important how their body is positioned in a specific learning experience and what movements the place makes possible, but also how it allows them to relate to their classmates' bodies. Finally, some students' conceptions are more akin to embodied learning theories, understanding the experience of learning linked to the body more holistically and integrally.

*Assessing Faculty Spaces*

The students have differentiated between two types of spaces:

1) Formal learning spaces, that is, those designed specifically for subjects to be taught, and those designed for informal meetings. Within the first group, the gym, the music classroom, and the laboratory stand out as facilitators of learning through the body in movement. The gym, for example, is a large, open space without furniture. So students can run, jump and move freely in the classes. The music classroom is smaller, but it has the peculiarity that its furniture consists of folding chairs, so teachers can easily liberate the space and propose activities in which the body can move more freely as well. The laboratory also allows major movement in students. Although it has tables for work, students are sitting on stools, and usually the activities proposed allow them to stand up, walk through the space to take materials or chat with classmates.

2) Informal learning spaces. These are spaces for meeting outside of classes. In this type of space, students mention indoor spaces such as the sofa areas found on each floor of the building, the bar and the library; and outdoor spaces such as the patio or terrace. Students appreciate these spaces because they allow students to group in different formats and sizes, move chairs, and be in different and varied body positions in a more relaxed way. From the library, students value the silence and its quietness that facilitates concentration and allows them to focus more on their studies and work.

*Characteristic of the Ideal Space*

Some of the items that stand out are in relation to the type of furniture (versatile, light and easy-to-move), the spaciousness of the space, the light - if possible natural -, the colours, the order, the orientation and furniture arrangement. On a sensory level, they refer to facilitating the meeting space and dialogue, and to comfort. Some demand open spaces that allow contact

with nature. Others propose multipurpose spaces, either indicating the different areas or having a certain diversity of materials and furniture that makes possible different kinds of activities, movements and bodily positions. Finally, some students also mention the issue of inclusion in educational spaces, and claim for designs adaptable to different students' needs according to their disabilities.

*The Role and Involvement of The Teacher*

The majority of students interviewed consider that, except for those teachers who teach physical education, music, arts, theatre, and some subjects about didactics in children aged 0-3 years, teachers do not take movement into account in their educational proposals. Class proposals are generally transmissive in which the students are sitting in chairs (rated as uncomfortable), looking at the projector, listening and taking notes. That's why students appreciate those teachers committed to the design of spaces because they choose more flexible and versatile classrooms in terms of body and movement. Other respondents propose strategies to include the body in movement in these master classes through transversal and interdisciplinary activities. In this way, they believe that learning would be more meaningful, and the results would have higher educational quality. Others consider the role of the teacher not as an isolated issue, but connected to other factors, such as logistics in the Faculty schedule -there are few classrooms prepared to foster learning through body and movement-, the mood each student brings into classroom, or the (lack of) experience and formation teachers have in terms of embodied learning and design of educational spaces.

### *Mapping Real and Desired Spaces*

Below is the result of synthetically mapping the faculty following two different criteria (Fig. 1). Creative Cartography 1 shows a synthesis resulting from adding all the real surfaces of the spaces of the Faculty of Education mentioned by the students in the interviews. Creative Cartography 2 allows these spaces to be visualised in relation to the 'desired' surface by the students. That is, the result of adding the number of students who mention these spaces in the interviews in relation to the total responses.

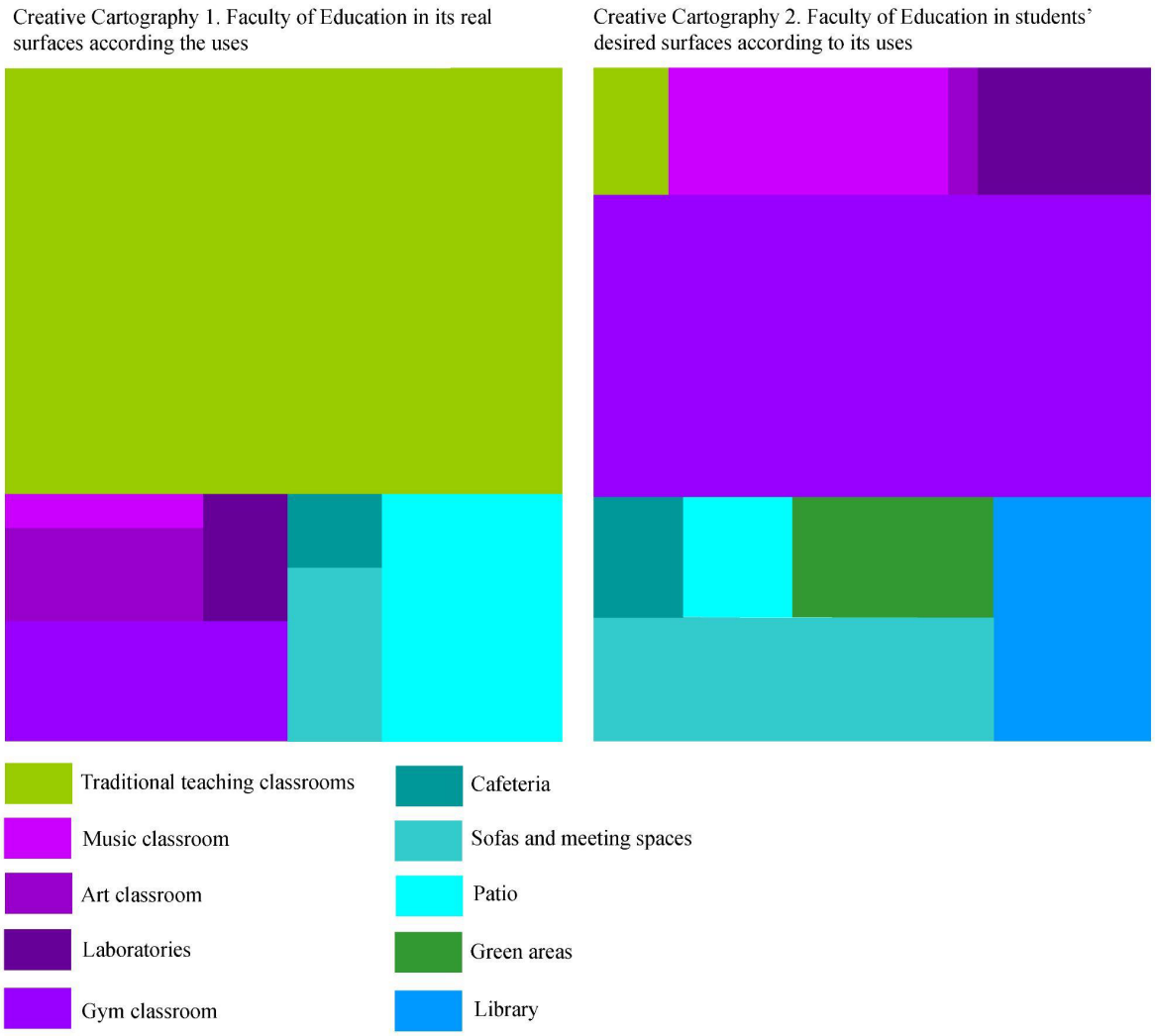


*Figure 1*. Creative Cartographies 1 and 2.
Source: own elaboration

While most of the building is currently designated to traditional classrooms, it is revealing that perhaps it should be occupied mostly by classrooms similar to the gymnasium and music classroom. Many students also demand a larger surface area of common spaces and, as for the patio, although it currently occupies a certain space, they demand more green areas. This may be because the current patio is a hard concrete square with some benches that are not very ergonomic. We find a similar situation in the art classroom. Initially designed to be a versatile classroom that promotes different types of educational methodologies and body movements, it seems that the students do not experience it this way. Contrary to laboratory classrooms, where this versatility and promotion of bodily and moving learning is appreciated.

Finally, it is interesting to note that, although the library is located in a building separate from the faculty, and the students were asked about the faculty spaces, some highlighted this space as a place of learning. That is why we have included the library space in Creative Cartography 2. We thought that perhaps their wish would be to find some type of space similar to this within the faculty.

## Discussion

Hegna and Ørbæk (2024), in the literature review they present on embodied learning at higher education, claim the need to build more knowledge on this. In response, the study presented sheds light from different dimensions. It provides new knowledge about the relationship between the design of educational spaces and learning linked to movement from students' perspectives. The results show evidence of how educational spaces at the university foster learning in movement. According to many participants, university spaces encourage this kind of learning if their design is based on this premise and if teachers consider taking advantage of it. That is, there are very large spaces, such as the gym, which encourage learning through more specific proposals for body movement (often subjects linked to physical education or theatre).

However, other classrooms smaller than the gym (such as the music or science classrooms) also encourage it due to the flexibility they show to move the furniture and being able to create spaces according to the pedagogical and spatial needs. Finally, those spaces that allow more subtle but less limited movements than more traditional classrooms (with shovel chairs) are appreciated too (such as the library, study spaces in the floor halls, some with sofas, or the bar). These are spaces where, even if the body is not moving too much, they allow the students to sit more comfortably and freely. Unfortunately, these spaces are fewer, whilst the predominance is classrooms with very uncomfortable chairs with a shovel (according to interviewees) that require sitting in a very specific position and do not allow much movement.

The results also warned us about students' conceptions of learning in movement. We have identified that many students mean by learning in movement the learning that entails only physical body movements. This led us to think about the importance of introducing or reinforcing approaches to embodied learning in students so that they become more aware of the importance of this beyond understanding it as the opposite of sitting quietly in the classroom with chairs with a shovel, taking notes. In this sense, we agree with Bautista et al. (2021) when calling for rethinking educational spaces to improve university learning practices. This "involves thinking about how you want to teach and learn, how you want to spend your time, what type of interactions the people who live there have and want to have" (Bautista et al., 2021, p. 6). Including what movements and notions of the body are linked to the learning we want to promote (Nogué et al., 2025).

At a time when the university is increasingly tending towards a "neoliberal ideology [...] dominated by a business culture" (Díez, 2018, p. 396), it is important to vindicate the design of its spaces as facilitating agents of change and social improvement, as well as promoting the Common Good (Morales et al., 2018). According to Mamur (2020), "Change in space is an indicator of social change" (p. 22).

Reflecting on the concept of movement, Merleau-Ponty (1993) differentiates between movements that construct the world and movements that are based on the world as it is given. The first is creative and aims for the possible. The latter are static and point to the mechanical and inert. In the students' responses, these two types of movements connected to the educational spaces of the faculty are identified. For example, the gym and some common spaces facilitate a type of movement more in line with Nathan's (2022) notion of embodiment, understood as the people's use of "body-based resources to make meaning and to connect new ideas and representations to prior experiences" (p. 4). Whereas traditional classrooms promote more performative movements (Butler, 2007), where agents outside the student body have previously defined which movements promote learning.

Here is when education becomes political. According to Martínez-Vérez (2022), this kind of space objectifies the subject and the way of teaching, so that students learn and reproduce automatically this role in the classroom. This scenario shows students performing controlled bodies in terms of movement and expression despite the discomfort and limitation it entails (according to their answers in the interviews). In this sense, the body becomes a political agent and expression of freedom (Grosz, 2010). Thus, if the university is understood as a place that seeks to foster human freedom and emancipation (Stojanov, 2020), it should promote educational spaces that facilitate learning in movement.

Many students related learning linked to body movement to emotions and well-being. Coinciding with some research carried out previously (Acaso, 2018; Cañabate et al., 2021), when students are asked why they value the spaces, some focus on the comfort of the space, a convenient layout and dimensions of the furniture, and pleasant views to the outside. Also, in line with the project carried out by Könings et al. (2017) with this study, the students have become aware of the importance of space in their university educational environment, considering its status as a facilitator or limiter of learning.

Similarly to other studies, some interviewed reflect on the role of the teacher in promoting learning, in addition to spatial conditions. Most of them consider that teachers do not take movement into account in their educational proposals. This connects with some conclusions of the research carried out by Bautista et al. (2021), where they state that teachers pay little attention to what classrooms and other learning spaces are like and how they are organised at

the university. However, according to Barrett et al. (2017), the teacher's ability to make the most of the possibilities of the educational space to enhance student learning is important.

On the other hand, the present study reinforces a line of research *with* young people, in which, according to Atkinson (2018), it is important to promote learning encounters at the university to invite students to ask themselves about their ways of learning and offer them the necessary tools to be able to imagine other realities and be able to materialise them. This idea connects to Critical Pedagogy of Place (Gutiérrez-Ujaque & Montserrat-Degen, 2024), and the need to involve students in university decisions that concern and will affect them.

Furthermore, the use of creative cartographies as a mode of analysis allows us to "weave a network of symbols and meanings that lead us to new ways of representing and understanding the world" (Onsès, 2014, p. 48). Visualizing reality from another way and perspective offers other ways of understanding and knowing the diversity of learning spaces (Onsès-Segarra & Hernández-Hernández, 2023), both present and desired by students at the university. Through creative cartographies, we have been able to relate real surfaces with desired surfaces in a kind of graphic game that creates new knowledge about how students perceive learning spaces at the university.

## Conclusions

Although there is much research on embodied learning and the design of educational spaces, very few studies analyse the relationship between the design of educational spaces and embodied learning and movement through students' perceptions. Therefore, this work is innovative in that it reinforces the importance of including students' voices and criteria in the design of the spaces they will inhabit. Their responses clearly show that they would like more quality spaces that offer contact with nature, are adapted to potential disabilities, and, above all, offer comfort in terms of flexibility in spatial organisation, comfortable furniture, and freedom of movement.

The research also stresses the idea of a holistic notion of learning and the body as a whole, connected to well-being and emotions. Therefore, not only understand embodied learning from a cognitivist perspective, but also as a means of communication, expression, emotion, culture, relationship, and learning. In this sense, it is important for students that the spaces at the University are designed for this purpose. For their part, teachers must remain active and in a constant quest to implement new developments into their classes that may be useful to their students in the future. And universities should include in the teaching degree curriculum more theory about embodied learning and the design of educational spaces to develop future teachers with more solid criteria regarding this.

Finally, the need to reclaim and strengthen spaces for critique and resistance to the control of bodies in the university as a resilience strategy becomes evident. It is important to demand a university that fosters freedom and the emancipation of bodies. This includes faculty, designers, architects, and those responsible for educational policies at universities.

Furthermore, the research invites us to continue studying the possibilities of designing educational spaces at universities in relation to embodied and moving learning in order to imagine and materialise university spaces that are more suitable for students and updated to the current needs for learning and teaching practices.

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