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Learning Spaces for Wellbeing, Flourishing, Innovation and Creativity: The Maltese Students' Perspective

Amanda Bezzina

Institute for Education, Malta

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ABSTRACT

Learning spaces can be conducive to student wellbeing. The study presents the perspectives of students in Malta about present and possible learning spaces. Previous research focuses on the importance of including students in the design of learning spaces. It also presents schools as one of the most central spaces for positive holistic development, thus suggesting participatory designing of learning spaces. The research presented in this paper is based on three principles as outlined by Barrett et al. (2015) which are naturalness, individualisation and stimulation, which make a difference on the impact of the learning space. For the research about learning spaces in Maltese state schools, I made use of an interpretivist paradigm guiding the qualitative methodology. The research included sixteen focus groups, held during Personal, Social and Career Development (PSCD) subject, with students attending Maltese primary (aged 8-10years) and secondary schools (11-16years), chosen through purposive sampling. In total, there were six classes with primary school students and ten classes with students from middle and secondary schools. All students who participated were given an information sheet and their parents or guardians signed a consent form ensuring that they are not subject to harm, their identity would remain anonymous and that they can stop their participation. Results from this research show that students were negative about existing learning spaces. This research confirmed the importance of the dimensions presented in the study by Barrett et al. (2015) and identified another dimension – innovative learning spaces. Evidence from this research also shows that a learning space should have adequate lighting, sound, temperature, relaxing surrounding colours, link to nature and should allow ownership, flexibility, and connection. This paper is particularly inspiring for policymakers as it demonstrates the significance of learning spaces in influencing the happiness and wellbeing of students.

1. Introduction

Learning spaces can generate student wellbeing (Morinaj & Hascher, 2019; Niclasen et al., 2018). In the Maltese Islands, students spend most of their time at school in their classrooms,

*Corresponding author's E-mail address: amanda.bezzina.2@ilearn.edu.mt

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during the hours of formal compulsory education. Research on schools as a learning space indicates that school is regarded as one of the most central spaces for the promotion of positive development and holistic wellbeing (Hamre & Cappella 2015; Huebner et al. 2014). Researchers found a positive relationship between school space and learning (Blackmore et al., 2011; Brooks, 2011; Harrison & Hutton, 2012; Rudd et al., 2008; Woolner, 2015). Kervin et al. (2019) argued that classroom spaces are not neutral and static but they can be constantly negotiated.

> Day by day and minute by minute, the children and their teacher negotiate classroom spaces in social and pedagogical ways to do the work of school. The notion of assemblage draws our attention to the complex and fluid ways things and people are gathered together in classrooms, each learning to read what is going on. In this complex process, children are also learning to relate to each other and their teacher(s), to learn the expectations associated with being together on the carpet, to listening with stillness and near silence for extended periods. This involves significant discipline as they regulate their bodies in close proximity to peers and also try to attend to what is salient as their teacher(s) speak or read or draw (Kervin et al., 2019, pp. 36).

As a result, classroom learning spaces can be meaningful and both the teachers as well as the students can negotiate and have a say in how the learning space is. Despite having Maltese students spending most of their time in the classroom, learning can occur in different contexts and spaces. As a result, the paper does not focus only on the classroom but on learning spaces, which are "more than the arrangements of classroom walls, desks and chairs… learning spaces can be thinking spaces, planning spaces and spaces for children to learn how to be active citizens in the world" (O'Gormann, 2019, pp. 40). The author further said that the learning spaces need to be well designed if these spaces are aimed for the support of children's holistic wellbeing and learning. Hughes et al. (2019) refers to a spatial wellbeing framework which includes physical, cognitive, social, emotional, psychological, existential wellbeing. The paper aims to explore the perceptions of students attending Maltese primary (aged 8-10years) and secondary schools (11-16years) about learning spaces conducive to their wellbeing, flourishing, innovation, and creativity. In addition, it aims to answer the following research questions: What is the perception of Maltese students about the present learning spaces? How do Maltese students feel with the present Maltese learning spaces? Which are the suggestions for future learning spaces?

2. Review of Literature - Participatory Designing of Learning Spaces

> Learning spaces must support children's wellbeing by providing them with opportunities for deep and broad thinking and imagination, for planning their learning in collaboration with their peers and their teacher and for learning how they can make a difference in the world (O'Gormann, 2019, p. 51).

O'Gormann (2019) further stated that learning spaces can be conducive to the holistic wellbeing of students if they stimulate multisensory development, social interaction, collaboration, empowerment, and self-expression. All these lead to broader, eudaimonic conceptualizations of wellbeing (O'Gormann, 2019). The World Health Organisation (WHO), (2017, p. 1) stated that a learning space can be conducive towards social and emotional wellbeing and can facilitate learning that is warm, friendly, cooperative, based on communication, creative and democratic. In line with the argument of the WHO, which emphasises the importance of having learning spaces that enhance the holistic wellbeing, Nastrom-Smith and Hughes (2019) emphasised the fact that students can be involved in the design of the learning spaces, thus giving a voice to important stakeholders, leading to more

ownership and engagement. They explored student participation in the design process of the Junior Secondary Precinct at Cannon Hill Anglican College in Brisbane, Australia. The authors stressed the value of the voice of students and community members even when designing. The Cannon Hill College design project sought to create a learning space:

> That would respond to the wellbeing needs of Middle Years students who experience various challenges in their transition from primary to lower secondary school. The project members recognised that student-focused spatial design can enhance their motivation, learning engagement, changing relationship dynamics and developing self-identity. As demonstrated, the participatory designing process approach led to positive wellbeing and pedagogical outcomes (p. 199).

Other researchers presented the link between student voice in planning and wellbeing (Anderson & Graham, 2016; Coombes et al., 2013; De Róiste et al., 2012). Woolner and Clark (2015) referred to participatory designing which is a collaborative process that involves different stakeholders including educators, students and school administrators working in partnership with architects and designers. Similarly, Thapa et al. (2013) indicated the "critical importance of individual and communities of educators in every school, as they always hold in their hands the power to create schools that substantially better the quality of the future lives of their students and future generations" (p. 372). Hughes and Burnes (2019) linked this participatory approach to social, emotional, and educational wellbeing. This also enhances innovative ideas, generates possibilities, and limits groupthink (Könings et al., 2017). Groupthink was coined by Janis in 1972, referring to "pursuit of agreement among team members becomes so dominant that it overrides any realistic appraisal of alternative courses of action" (p. 9). Woolner and Clark (2015) further stated that if participatory designing is managed well, it produces the space that caters for the needs of the users. Van Merriënboer et al. (2017) confirmed this and said that this has the potential to create a synergy between pedagogy and innovative learning spaces, thus creating a community of educators. Research shows that such participatory designing enhances students to contribute ideas that impact their learning (McIntyre et al., 2005; Pedder & McIntyre, 2006; Sinclair, 2004). All this helps in generating student creativity and innovation leading to flourishing, wellbeing, and positive mental health (Kern et al. 2016; Seligman et al. 2009; Suldo et al., 2012; Thapa et al., 2013). Participatory designing is essential because the learning space can be conducive to mental health. For example, through their survey research with 415 high school students attending three public high schools in a south-eastern state, Suldo et al. (2012) explored and confirmed the positive relationship between self-reported mental health and the school building as a learning space. Results showed that:

> Regression analyses indicated that students' perceptions of six dimensions of school climate (sharing of resources, order and discipline, parent involvement, school building appearance, student interpersonal relations, and student–teacher relations) accounted for a total of 15–22 % of the variance in indicators of their mental health, above and beyond between-school differences in outcomes. Bivariate links emerged between positive perceptions of each school climate dimension and better mental health (p. 69).

Despite the positive outcomes of participatory designing, student consultation is not given its due importance. This goes against their basic human right of entitlement to have a say in matters that affect them (McIntyre et al., 2005; Pedder & McIntyre, 2006; Sinclair, 2004; United Nations, 1989).

3. The Theoretical Framework -Naturalness, Individuality and Stimulation for Effective Learning Spaces

Learning spaces have an impact on learning and wellbeing. The research presented in this paper is based on three principles as presented by Barrett et al. (2015). The researchers explored the impact of the learning space of the classroom. Their research focused on physical classroom features for academic progress. Through an assessment of 153 classrooms in 27 schools in the United Kingdom, they explored such relationship with 3766 students who used these learning spaces. This study revealed the importance of three principles: naturalness, individualisation (ownership, flexibility, and connection), and stimulation (appropriate level of complexity and colour). The first contributed to 50% impact on learning, whereas the other two contributed to 25% each on learning. The light, temperature, air quality, ownership, flexibility, complexity, and colour, which make up the learning space, all made a difference in student performance and wellbeing. The researchers explained that the naturalness is about the environmental parameters necessary for physical comfort. These comprise light, sound, temperature, air quality and links to nature. Barrett et al. (2015) presented the importance of each parameter:

> Natural light is known to regulate sleep/wake cycles and what level of daylighting is optimum is still an area of active research. With regard to classroom acoustics, Crandell and Smaldino define the important metrics and Picard and Bradley note that noise levels in classrooms are usually far in excess of optimal conditions for understanding speech. It has been shown that for 10-12 years olds numerical and language test speeds increased when temperature was reduced slightly and ventilation rates were increased. In their study Daisey et al. conclude that ventilation rates are inadequate in many schools and there is a risk to health. Research also suggests evidence of profound benefits of the experience of nature for children, owing to their greater mental plasticity and vulnerability (p. 6).

Besides naturalness, Barrett et al. (2015) identified the importance of individualisation and stimulation in a learning space. The individualisation principle is how well the classroom as a learning space addresses the needs of the students. This principle includes ownership, flexibility, and connection. The authors explained that ownership is how personalised the room is, flexibility is how much the room addresses the needs of the students and connection is how readily the students can make connections with the rest of the school.

> When children feel ownership of the classroom, it appears the stage is set for cultivating feelings of responsibility. Classrooms and hallways that feature the products of students' intellectual engagements—representations of academic concepts, projects, displays, and construction are also found to promote greater participation and involvement in the learning process … Flexibility is needed to allow for different activities within the classroom and / or the needs of different users. The inclusion of Connection within Individualization is demonstrated by Tanner and Zeisel et al. who emphasize that clearly marked pathways to activity areas improve utilization of space and performance metrics (Barrett et. al, 2015, p. 7).

The final principle that Barrett et al., (2015) focus on is stimulation, which is level of excitement that the classroom creates. This includes two parameters: complexity, which measures the different elements in the room to create a coherent and structured environment, and colour which influences the emotions and the physiology leading to mood swings which can ultimately affect academic performance.

4. The Research Study and Research Methodology

The study aimed at exploring the perspectives of students about present learning spaces that the educators use at their school, and the possibility for other learning spaces. For the research about learning spaces in Maltese state schools, I made use of a qualitative methodology. I carried out sixteen focus groups with students from two Colleges in Malta. Each focus group was 60 to 90 mins long. In each College, I did 3 focus groups with students from primary (Year 4, 5 and 6 - 8, 9 and 10 years old), 2 focus groups with students from middle schools (Year 7 and 8 – 11 and 12 years old) and 3 focus groups with students from senior schools (Year 9, 10 and 11 – 13, 14 and 15 years old). During the focus groups, I asked students questions about learning spaces and I also invited them to draw their ideal learning space. In the analysis, some of these are presented to give a visual representation of an effective learning space. Focus groups have several benefits including depth of insights (Morgan, 1996), exploration of diverse perspectives and generation of ideas (Kreuger & Casey, 2009), and discussion, stimulation and empowerment (Stewart & Shamdasani, 2014). On the other hand, focus groups can limit generalizability (Barbour & Kitzinger, 1999), create social desirability bias (Kreuger & Casey, 2009), and generate groupthink through which participants conform to the dominant opinions (Janis, 1972). Despite this, through my experience of facilitating groups, I started the focus group by an icebreaker to help every participant feel comfortable to self-disclose, and I also paid attention to non-verbals of each participant whilst trying hard to include the opinions of every participant. Participants were chosen through a purposive sampling, because students were chosen from two colleges by the Heads of School. Focus groups were held during Personal, Social and Career Development (PSCD) lessons, because during this subject, students discuss different topics pertaining to their wellbeing.

Before starting the research, I was granted ethical clearance from the Institute for Education (IfE) and also the Ministry for Education, Sport, Youth, Research and Innovation in Malta (MEYR). An information sheet and consent forms were forwarded to the Heads of College Network and the Heads of School. When these were approved, respective PSCD teachers gave both documents to students and their parents. After having signed consent forms, I carried out the focus groups. Throughout the research, students were assured that they could withdraw from the research whenever they wanted, that their name will be never revealed, and that the research does not hurt them in anyway.

5. Analysing the Data

Thematic analysis, as outlined by Braun and Clarke (2006), is a flexible and systematic approach for identifying, analysing, and reporting patterns (themes) within qualitative data. For the analysis of my data collected through focus groups, I engaged in a multi-phase process to deeply explore and make sense of the perspectives shared by the students. Initially, I immersed myself in the data. This phase involved reading and re-reading the transcripts of the focus group discussions to become intimately familiar with the content. Immersion was critical in thematic analysis as it helped me to gain a holistic understanding of the data before beginning formal analysis. During this process, I focused on capturing the students' views, experiences, and interpretations regarding their learning spaces. The next step was coding, where I manually assigned codes to relevant passages in the text. According to Hunter and Schmidt (2004), coding involves linking specific sections of the text to particular categories, capturing key points or recurring ideas. I highlighted different arguments and perspectives raised by the students, aiming to reduce the data into smaller, more manageable chunks. Each code represented a meaningful unit of data that pointed to a certain aspect of their experiences.

As I proceeded with coding, I reached a "saturation point"—a stage where no new codes or insights were emerging from the data. This concept of saturation indicated that I have captured the majority of the relevant information, and additional coding would have not yielded significant new findings. After generating a comprehensive set of codes, the next phase involved categorizing them into broader themes. Themes represent patterns of meaning across the data that are important in relation to the research question. From my analysis, three primary themes emerged:

- Theme 1- Innovative Learning Spaces – This theme reflects the students' need for learning environments that break away from traditional classroom designs, incorporating modern and interactive elements that facilitate engagement and creativity.
- Theme 2- Naturalness for Effective Learning Spaces – This theme refers to students' preferences for learning environments that incorporate natural elements such as light, air, greenery, or open spaces, which may enhance concentration, comfort, and overall learning effectiveness.
- Theme 3- Individuality and Stimulation for Effective Learning Spaces – This theme highlights the importance of personalizing learning environments to cater to individual needs while also providing stimulation, through visual or sensory elements, to encourage active learning and engagement.

Throughout the analysis, all the names are fictitious to protect the identity of the participants. Some participants answered in English, and others answered in Maltese. For the latter, I am presenting a translation of their answer.

6. Theme 1: Innovative Learning Spaces

O'Gormann (2019) and WHO (2017) emphasised the importance of the learning space for holistic development and wellbeing. On contrary to this, a major argument that was presented by the students who participated in the focus groups was that the present learning spaces at school tended to limit their participation and their creativity. Students from Years 10 and 11 emphasised the fact that at times they felt prisoned in class and learning spaces at school limited their voice and self-expression. On the other hand, children from Years 4, 5 and 6 tended to experience more positive learning spaces, despite their negative experience which was similar to that presented by students in secondary schools.

> *I feel that we do not have spaces where we can voice our thoughts and beliefs (Fabio, Year 10).*

> *The space at school allows us to speak and this makes me feel respected. We use different areas: indoor and outdoor, and teachers take us to outings and fieldworks (Carla, Year 6).*

Nieħu gost nitgħallem f'ambjent fejn jien inħossni involuta.	*I enjoy learning in an environment where I am involved (Loredana, Year 5).*

From this research, it is evident that the lack of spaces that allow student voice makes them feel sad and does not cater for their own wellbeing. This goes against the Maltese and European educational policies that stress student involvement (Council of Europe, 2021; EURYDICE, 2021; Ministry of Education, 1999; Ministry of Education, Youth and Employment, 2005; Ministry of Education and Employment, 2012; Ministry for Education and Employment, 2014; Ministry for Education, Sport, Youth, Research, and Innovation, 2024; OECD, 2015a, b, 2019).

Students from secondary schools (Years 9, 10 and 11) tended to feel more hopeless about learning spaces at school, which are not allowing them to focus on themselves and their needs. This is causing them to have lack of meaning (PERMA model, Seligman, 2018) and lack of optimism (EPOCH model, Kern et al., 2016). When asked to present suggestions for learning spaces which they would like to have, several students mentioned learning spaces that allow their involvement, creativity, and hands on activities. In fact, they mentioned labs, open, outdoor and nature spaces for fieldworks, as well as outings where they leave school and learn directly from experience.

Iktar outings għax tista' titgħallem mill-esperjenza, tinteressa ruħek u tista' tissoċjaliżża.	*More outings because we can learn from experience, we can interest ourselves and we can socialise (Michelle, Year 8).*
Spazji fejn nitgħallmu hands on ... titgħallem b'relevanza għall-ħajja.	*Spaces where we learn hands on ... learn with relevance for life (Claudio, Year 6).*
Għalijja importanti li nitgħallmu barra. Eżempju tal-Ġografija jkun qed jgħallimna fuq biedja u minflok nitkellmu fil-klassi, jagħmlilna outing. Jgħidilna ejjew ħalli naraw dak li qed nitgħallmu.	*For me it is important that we learn outdoors. For example the Geography teacher teaches us about agriculture and instead of tackling it in class, he organises an outing. He tells us come and see what we are learning (Saviour, Year 9).*
Nitgħallem bl-esperjenzi għalhekk importanti li nkunu f'ambjenti differenti u jkollna esperjenzi differenti f'dawn l-ambjenti.	*I learn by experience so it is important that we are in environments that are different and that we have different experiences in these contexts (Cody, Year 11).*
Il-fatt li dejjem ħafna mill-lezzjonijiet ma tantx huma fiżiċi, taqbad biro u tikteb fuq pitazz. Jien ma nħossx li nitgħallem hekk. Jien nitgħallem bil-hands on, b'affarijiet li rrid naħseb. Li għandi sagħtejn u nofs nikteb, dik ma toġgħobnix.	*The fact that most lessons are not physical, you grab a biro and write on the copybook. I do not learn like that. I learn with hands on, with things that makes me think. I do not like the fact that I have two and a half hours writing (Dorita, Year 8).*

Students who participated in the focus groups seemed to agree that they need different innovative learning spaces. When I asked students to design their own learning space, they were very creative and wished that they are involved in the design of their learning spaces. In line with the research by Nastrom-Smith and Hughes (2019) and O'Gormann (2019), students expressed their wish to have a say in the space where they will learn and develop themselves. In her drawing (Figure 1), Eve emphasised the importance of outdoor learning spaces since she included the ball pit, the playground, the slide and the swimming pool. On the other hand, she designed a special area for the 'nerds' who are interested in traditional learning spaces, rather than outdoor spaces. During the focus group, she explained that present learning spaces at school are too traditional and restrict creativity, movement, and participation, since they consist mainly of classrooms with tables and chairs and surrounding white wall. She further said that such spaces are suitable for academic students who are interested only in grades. As a result,

Eve suggested different learning spaces at school where they can socialise, have fun and learn in outdoor spaces. Research also shows that learning outdoors has several benefits including socio-emotional learning.

> Social and emotional skills also develop through the shared and solitary activities of a developmentally appropriate, enriched child care or preschool setting, including the opportunities for outdoor experiences that it provides. In such settings (as well as at home) young children develop understanding of other people's feelings and needs, are encouraged to feel empathy and caring, learn to manage their own behavior as responsible group members, and acquire a variety of other prosocial skills. Second, and perhaps most importantly, play is a central context for social and emotional development in early childhood … Natural outdoor environments provide a context in which each kind of play is often more complex, extended, and self-determined. In natural spaces, children have a freedom to play in ways rarely possible in even the most developmentally appropriate indoor environments (Thompson & Thompson, 2007, p. 46)

This requires adequate training for teachers. Passy et al. (2019) concluded that "any policy change needs to be underpinned by culture change at the grassroots/practitioner level … it is essential to provide time and resources for training new teachers and supporting more experienced practitioners in taking their teaching outdoors" (Passy et al., 2019, p. 77). In addition to outdoor learning spaces, students emphasised the importance of having enough space for different sports (Figures 1 and 2). They explained that sports help them to focus and to concentrate in their learning. Joe's drawing is an example of this. Marvic, in Year 11, said that:

> *Kurutturi kbar, twal, wesgħin, kurutturi magħmulin minn rampi biex inkunu nistgħu niġru ftit. Rampi tondi. Grawnd enormi, pool, trampolin ... l-isport importanti għax jgħinek tkun healthy u meta tkun healthy tkun tista' tiffoka iżjed fuq l-iskola. Treadmills minflok siġġijiet ... biex meta trid tiġri u tiċċaqlaq ftit, tkun tista.*
>
> *Large, long and wide corridors made from ramps where we can run. Rounds ramps. Enormus ground, pool, trampoline ... sports helps you to be healthy and you can focus more on school. Treadmills instead of chairs ... so when you can run and move when you want.*

In light of the research presented, participatory designing of learning spaces (Nastrom-Smith & Hughes, 2019; O'Gormann, 2019) is required as these students clearly show that the present learning spaces are somewhat different from those that they would like to have. "A student-centered space cannot be created or improved without the users' voices. Students, even at a young age, are capable of describing likes and dislikes, and can help the teacher-designer make decisions about their space and evaluate prototypes or other proposed changes in the classroom" (Henao, 2017, p. 63).

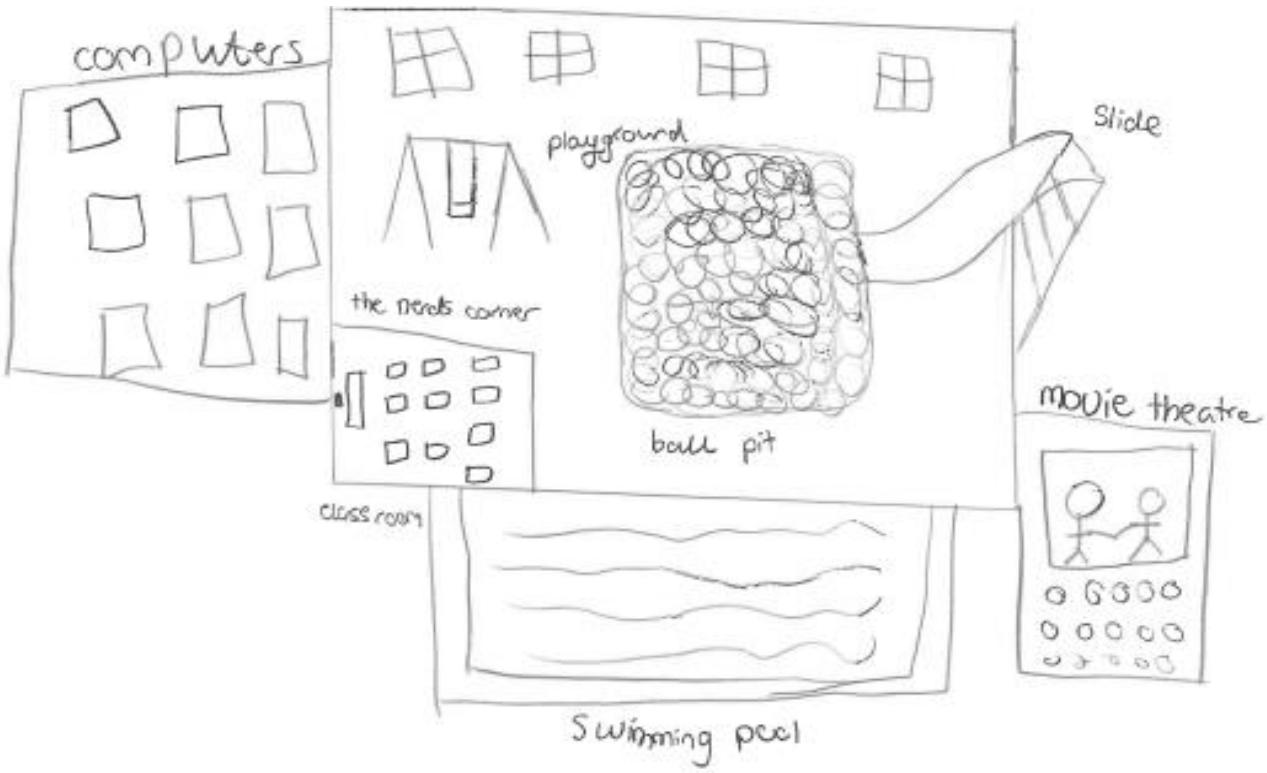

Figure 1 (Eve, Year 8)

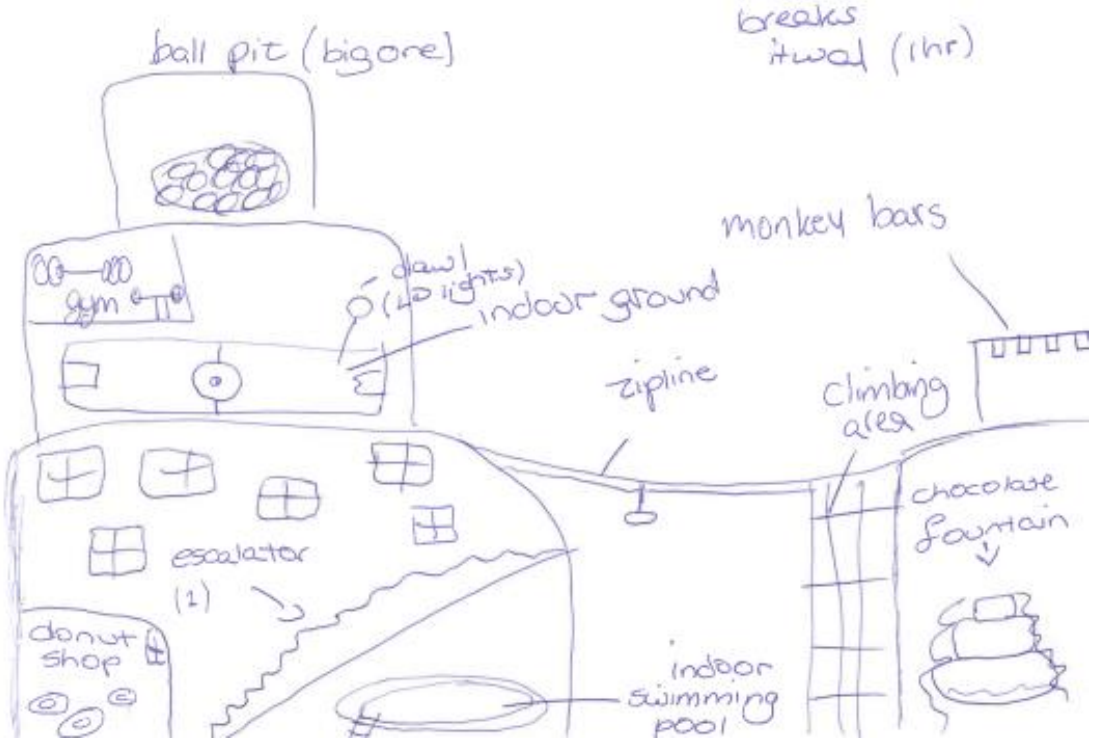

Figure 2 (Joe, Year 10)

7. Theme 2: Naturalness for Effective Learning Spaces

> Recent studies asserted that lighting with different correlated colour temperatures (CCTs) has profound effects on both the physical and mental conditions of humans. In support of these arguments, research have shown that lighting can influence human physiology, such as heart rate, blood pressure, and brainwaves. In addition to physiological effects, variable lighting CCTs exert a potential advantage indoors with respect to psychological state. Besides the physiological and psychological effects of lighting, studies have also indicated positive effects of specific lighting conditions on behaviour, such as working speed, productivity, and accuracy (Choi & Suk, 2016, p. A908).

Another major emerging theme was that of the dimension of naturalness which comprises light, sound, temperature, air quality, and links to nature (Barrett et al., 2015). In line with the outcomes of the research held by Barrett et al. (2015), students who participated in the focus groups mentioned the importance of adequate light. Research done by Barrett et al. (2015) shows that natural lighting influences alertness, with ongoing research on optimal daylighting for classrooms. Similarly, in my research students mentioned that their learning spaces should have natural light or yellow light which can be dimmed, so that they feel more relaxed and focused, thus positively affecting their wellbeing and their willingness to learn.

Darba kien hemm studju- studenti għal 90 jum- studenti b'dawl abjad u studenti b'dawl safrani. Fil-fatt ġie ppruvat li tal-A kienu iktar distratti u tal-B kienu aktar iffukati. Jiena nħossha din ukoll.	Once there was a study- students for 90 days- students with white lights and students with yellow light. It was actually proven that the A's were more sitracted than the B's who were more focused. I experience this as well (Carla, Year 11).
Dawl... jien niddejjaq ... ma naħdimx b'ħafna dawl. Dawl baxx nħossu jirrilassani.	Light... I feel annoyed ... I do not work with a lot of light. Dimmed light make me feel relaxed (Carla, Year 11).
Il-klassijiet tagħna għandhom wisq dawl , bit-twieqi b'kollox, nixtieqhom iktar mdallmin. Importanti għax inħossni iktar relaxed.	Our classes have a lot of light, even the windows, I wish they are more dimmed. It is important as I feel more relaxed (Cedric, Year 5).
Jista jkollok dwal li tista' tiddimjhom ... il-kamra jew tkun bright wisq ... qishom iweġġgħulek għajnejk. Il-ħitan ikunu ftit iktar skuri ... tkun tista' tikkalmak.	You can have light which you can dim ... the room might be too bright ... hurts your eyes. The walls should be darker ... you feel more calm (Ritienne, Year 8).

In line with these arguments, Heschong et al. (2002), Choi and Suk (2016) and Viola et al. (2008) focused on the impact of light and suggested natural and articial yellow or blue lighting. Clochet (2022), who is a multi-curriculum graduate in architecture, structural and environmental engineering, found out that:

> In addition to lighting controls, the complementarity of natural and artificial lighting is recommended, specifically with a lighting level of 400lux. Recent studies advise the use of 6500K yellow lights or 17000K blue-enriched LED lights, but further research is needed ... The renovation led to increased workers' attention and decreased headaches

> (which can be caused by non-adequate lighting conditions). Similarly, school retrofits could allow not only to reduce operational costs, but also to improve student academic performance and overall wellbeing (para 5.).

In addition to light, students participating in the focus groups also said that learning spaces need ventilation, the right temperature and relaxing sounds. Research by Barrett et. al. (2015) links improved ventilation and optimum temperatures with enhanced test performance in children. They further found out that sounds can make a difference because if the noise level is too high or distrubing, there might be difficulty in speech understanding. As a result, Barrett et al. (2015) emphasise the importance of having learning spaces that include nature that guarantees good air and relaxing sounds (Barrett et al., 2015). This was also confirmed by the research participants who participated in my study.

Ikollna iktar siġar u pjanti- greenery brightens the mood. L-iskola kullimkien abjad, arfiċjali.	We have more trees and plants – greenery brightens the mood. At school, everywhere is white and artificial (Maria, Year 8).
In-natura tagħtina arja tajba.	Nature gives us good air to breathe (Alicia, Year 5).
In-natura tferraħni u nħossni aħjar ...	Nature makes me happy and I feel better ... (Rose, Year 9)
Nixtieq li meta nħares barra nara s-siġar u n-natura ... għax qisek ikollok something to look forward to li tara s-sabiħ ... n-natura.	I wish that when I look outside, I see trees and nature ... because it is like you have something to look forward that you see something nice ... nature (Rose, Year 9)
n-natura tikkalmani ħafna u tgħinni ...	Natures calms me a lot and helps me ... (Ray, Year 10).
Importanti n-natura għax ikollok post fejn tieħu nifs.	Nature is important because you have area where you can breathe (Alan, Year 5).

Several drawings of students included nature. Adriel, in Year 5, also expressed the wish to have pets like for example rabbits (Figure 3). Alan, in Year 8, wished to have horses. He said that:

Nixtieq area fejn inżommu ż-żwiemel, għax inħobb iż-żwiemel, nħoss li jirrilassani ...	I would like to have area where there are horses becaise I love them, they help me to relax ... (Alan, Year 8).

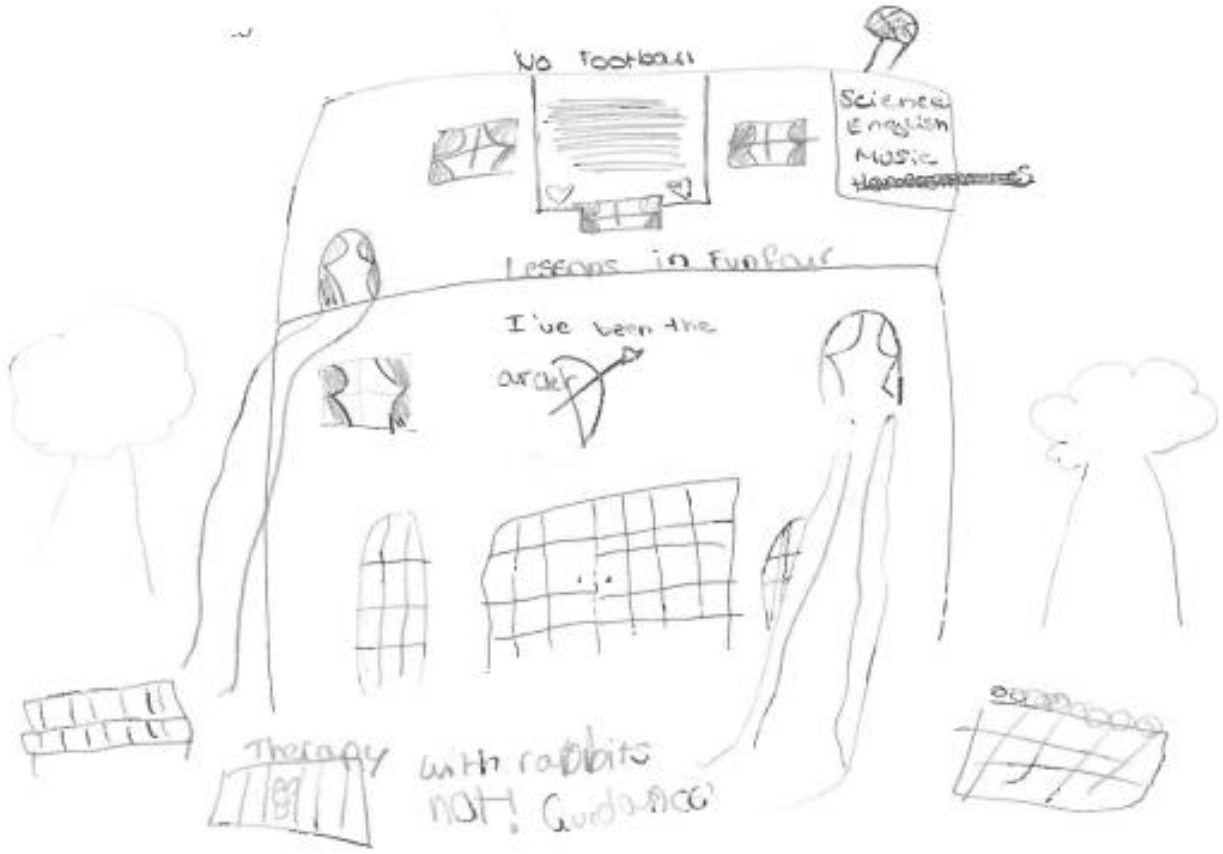

Figure 3 (Adriel, Year 5)

The importance of having nature in learning spaces was addressed by different researchers. It seems that nature can enhance wellbeing, fosters social and emotional development (Thompson & Thompson, 2007), improves concentration and focus (Kaplan, 1995; Tennessen & Cimprich, 1995), stimulates creativity and imagination (Wells, 2000; Beatley, 2011) and facilitates active learning (Passy et al., 2019). Wells (2000) stated that:

> The nearby natural environment plays a far more significant role in the well-being of children residing in poor urban environments than has previously been recognized. Using a premove/postmove longitudinal design, this research rules out the effects of various extraneous variables that have plagued previous studies and explores the linkage between the naturalness or restorativeness of the home environment and the cognitive functioning of low-income urban children. Both before and after relocation, objective measures of naturalness are employed along with a standardized instrument measuring the children's cognitive functioning. Results indicate that children whose homes improved the most in terms of greenness following relocation also tended to have the highest levels of cognitive functioning following the move. The implications with respect to policy and design are also discussed (p. 775).

Barrett et al. (2015) show that exposure to natural elements can support children's mental health and learning. In addition, pets seem to also have a positive effect. Arnaudova-Otouzbirova (2022) confirmed the benefits they have since they contribute to the children's psychological well-being, enhance empathy and interpersonal skills, improve motor skills and adherence to instructions, increase motivation, and provide opportunities for responsibility. However, the researcher warns that pets should "not be encouraged since it can easily jeopardize animal welfare" (p.56).

8. Theme 3: Individuality and Stimulation for Effective Learning Spaces

"Space matters... new educational trends advocate for more collaborative, engaging classrooms to fulfil the needs of 21st-century students" (Henao, 2017, p. 1). This is why different researchers (McIntyre et al., 2005; Pedder & McIntyre, 2006; Sinclair, 2004; United Nations, 1989) advocated about the importance of including students in the design of the learning spaces, which leads to more ownership. A major theme that emerged from data elicited from focus groups with students was the importance of owning the learning space. Thus they stressed the fact that educators should be flexible to include different learning spaces that stimulate holistic development. For several students, ownership meant that around the learning spaces there is their artwork expressing their feelings, thoughts, and beliefs, and that the surrounding environment stimulates creativity. In her design of a castle (Figure 4), Elise explained the importance of having a learning space that stimulates belonging and creativity.

Kieku jien nagħmel iktar arti fl-iskola ... arti li nagħmluha aħna. L-arti tagħti iktar enerġija u ssebbaħ l-ambjent.	I would include more artwork at school ... art that we would do. Art gives energy and it makes the environment more attractive (Luca, Year 8).

In line with this, the research held by Berrett et al. (2015) outlines the importance of having students who can personalise their learning space. In addition, Henao (2017) states that: "the space can also communicate that the student belongs to the learning space and the learning space belongs to the student. This space displays the student's work, interests and culture, the student is able to use and adapt the space to her individual needs. This learning place thus feels like home" (pp. 12-13). For others who participated in the focus group, ownership and flexibility meant having learning spaces where they can relax and socialise (Figure 5). From the study carried out by Henao (2017), round tables were found to be more effective as they encourage more collaboration. "Switching from individual desks to round tables changed the dynamics of my classroom, and helped my students to collaborate more, negotiate their space, and share ideas and materials. But even though the round tables were a positive change, they are not ergonomically ideal furniture" (p. 57). This was also found in my research with students. The importance of connection was mentioned by several students who expressed their wish to have more learning spaces where they can interact with their friends.

Nixtieq recreational room ... ikun hemm affarijet fun biex fil-brejk min ma jkunx irid joqgħod barra, ikun jista' joqgħod hemm u jissoċjaliżża.	I would like to have a recreational room ... there would be fun so during break those who would not like to stay outside, they can stay inside and socialise (Daniel, Year 8).
Fun room ... tkun kamra fejn jistgħu joqgħodu l-istudenti jitkellmu. Tkun bil-bean bags, jkun hemm xi kotba jekk iridu jaqraw, ikun hemm televixin għal xi film, u jkun hemm xi bandla. Importanti biex tinsa l-istress u l-anzjeta'.	Fun room ... it would be a room where students can stay and can speak. It would have bean bags, there would be some books if they want to read, there would be a television for a film, and there would be a swing. This is important so you forget stress and anxiety (Rita, Year 9).

Ikun hemm area fejn hemm bean bags, min iħobb jaqra jista jmur hemm. Wieħed jista' jissoċjaliżża u jiltaqa' ma' ħbieb oħrajn.	There would be an area wth bean bags, those who like to read can stay there. One can socialise and meet other friends. (Carla, Year 11).
Inkludejt spa għax meta jkollna l-istress tgħinna.	I included a spa becuase when we are stressed it helps us (Jonathan, Year 9).
Jien inbati ħafna bil-migraines. Nemmen li għandu jkun hemm relaxing room għax lili tgħinni kieku.	I have migraines. I believe there should be a relaxing room because this would help me (Ana, Year 10).

Figure 4 (Elise, Year 4)

Figure 5 (Tony, Year 5)

Research shows the importance of relationships for student wellbeing. This learning spaces should be designed for facilitating such connection. "By examining people's daily interactions and social bonds, it is clear that supportive relationships cause a certain degree of well-being" (Deiner & Ryan, 2011, p. 24). This connection was recognised by Seligman (2018) and Kern et al. (2016) in their PERMA model and the EPOCH model. Belonging and connection were prevalent in developing the individuality and stimulation dimension of the learning space. These two aspects also make part of the individualisation component of Barrett et. al. research.

Another important element that emerged from the focus groups was the colour of the surroundings that helped or hindered stimulation. In line with the research held by Barrett et al. (2015), students tended to prefer pastel colours which helped them to feel relaxed and focused.

Nippreferi pastel colours għax jikkalmawni.	I prefer pastel colours because they calm me (Claudio, Year 8).
Wisq kollox abjad... il-ħitan bojod...	Everywhere is white ... white walls (Mariella, Year 4).
Jien nixtieqha kuluri differenti għax abjad bla ħajja.	I wish that it has different colours because white does not enhance life (Kenneth, Year 10)
Il-foyer nagħmlu bil-kulur imma l-kmamar fejn nitgħallmu l-oħra nagħmilhom bojod jew pastel colours.	I would do the foyer with a colour but the rooms where we learn would be white or pastel colours (Rita, Year 11)

9. Reflections on the Outcomes of the Research

The students' insights emphasized the significant role of learning spaces in fostering holistic development and well-being. Younger students (Years 4-6) generally found their spaces positive, whereas older students (Years 10-11) expressed feelings of restriction, highlighting a progressive dissatisfaction with traditional, rigid classroom settings as they advance in school. The qualitative responses from students illustrated their desire for "hands-on" and experiential learning environments. Findings by Barrett et al. (2015) advocated for spaces that support student-centered learning through natural light, ventilation, and outdoor access. This also resonates with Seligman's PERMA model (2018) and Kern et al.'s EPOCH model (2016), as the lack of autonomy and meaningful engagement in static environments can negatively impact students' well-being and optimism.

This study challenges traditional views of learning spaces by revealing a strong student desire for environments that prioritize flexibility, natural elements, and hands-on engagement over rigid, teacher-centered designs. Students expressed dissatisfaction with fixed classroom structures, preferring spaces that allow movement, personalization, and connection with nature to support their well-being and creativity. This challenges the conventional emphasis on uniform, controlled settings, suggesting that effective learning spaces should offer autonomy, opportunities for social and emotional development, and multisensory experiences.

10. Implications for Policy Makers

Learning spaces can make a different in the learning experience of students. My research confirmed the importance of the dimensions presented in the study by Barrett et al. (2015) and identified another dimension – innovative learning spaces. My research shows that a learning space should have adequate lighting, sound, temperature, relaxing surrounding colours, link to nature and should allow ownership, flexibility, and connection (Figure 6). As shown in Figure 6, these were categorised in four different aspects of learning spaces: the physical, the psychological, the social, and the natural aspects. In the light of these findings, participatory designing of learning spaces is suggested. Nevertheless, as Henao (2017) argued:

> To create a real 21st -century learning space requires not just a physical change, but more importantly, a philosophical change. The teacher needs to be part of the design process, and the space must be a reflection of the teacher's educational philosophy. The best furnished space won't improve the student experience if the teacher insists on dated practices, like expecting students to be quiet, immobile, and in the same place the whole day. The biggest change starts within the teacher (p. 70).

Thus, another important aspect in learning spaces is the student centered educator philosophy (Figure 6). This is very inspiring for policy makers because this paper shows that learning spaces matter for the happiness and wellbeing of the students.

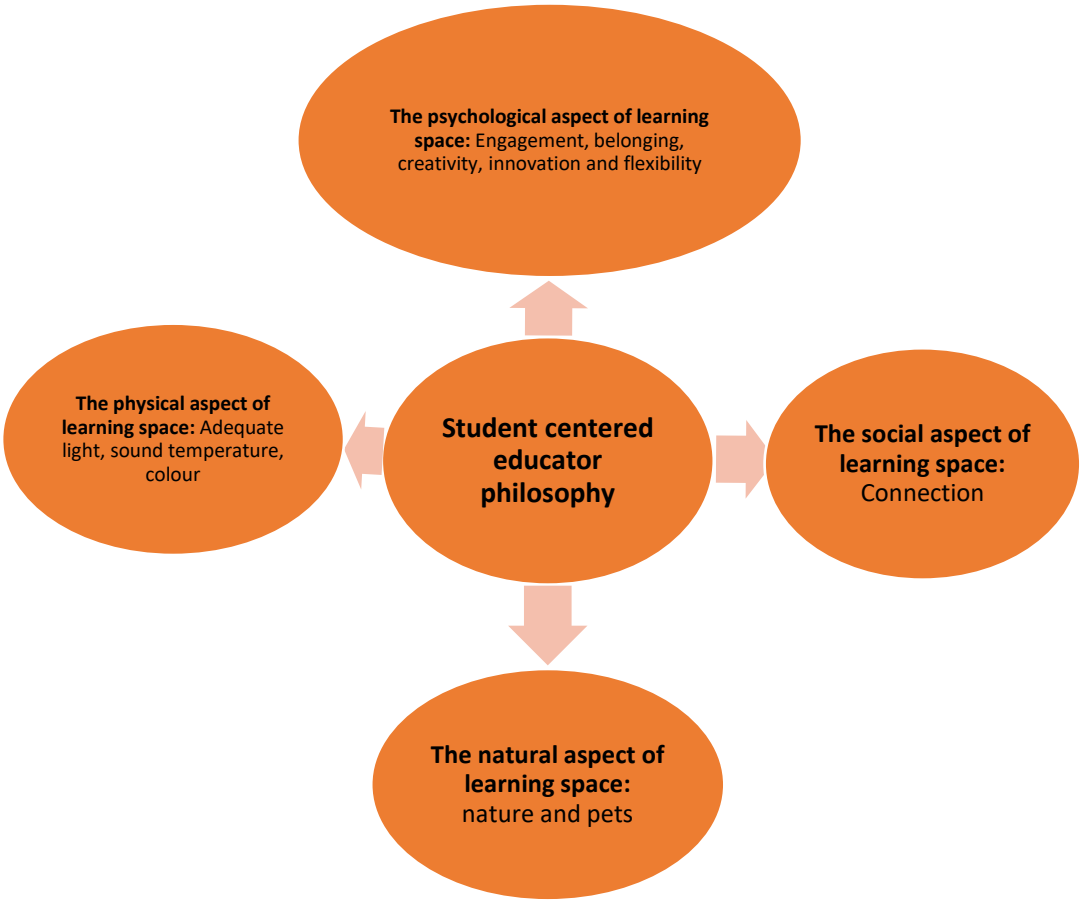

Figure 6. The link between the psychological, natural, social, physical aspects of learning spaces led by a student centered educator philosophy

11. Conclusion

In conclusion, this study provided valuable insights into student perceptions of their learning environments and highlighted the impact of innovative, flexible spaces on well-being, engagement, and holistic development. While the findings are limited to a specific sample, future research with larger, more diverse cohorts and the inclusion of perspectives from additional stakeholders—such as teachers, administrators, and parents—could provide a more comprehensive view of how learning spaces impact the school community as a whole. Furthermore, the limited availability of local research on learning space design restricted the potential for comparative analysis, highlighting the need for more context-specific studies in this field.

This study's results align with broader literature on the significance of designing student-centered learning spaces that support both cognitive and socio-emotional development. Consistent with Barrett et al.'s (2015) framework, which emphasizes naturalness, individualization, and stimulation, students in this study expressed a preference for environments with flexible configurations, improved natural lighting, and access to nature—all of which are recognized as factors that promote focus and reduce stress. Similarly, the importance of social and emotional development aligns with theories like Seligman's PERMA model (2018), which emphasizes the role of relationships and positive emotions in learning environments. Student feedback indicated that traditional, restrictive spaces in secondary schools were perceived as limiting, while those in primary settings, which offered more freedom for movement and self-expression, were seen more positively.

The findings of this research underscore the importance of participatory design and policy reforms that prioritize student voice and agency in shaping learning environments. Spaces that encourage hands-on activities, socialization, and relaxation cater to diverse learning needs, as seen in Kern et al.'s EPOCH model (2016), which links engagement and optimism with positive developmental outcomes. Thus, creating spaces that support varied learning styles and developmental needs has far-reaching implications for educational policy, underscoring a need to move towards more inclusive, adaptive, and well-being-centered educational environments.

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