THE IMPACTS OF PHYSICAL CLASSROOM SPACES ON STUDENTS' INVOLVEMENT
HOW CAN STUDENTS' ENGAGEMENT BE PROMOTED BY PHYSICAL CLASSROOM SPACES?

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Abstract. *This article is devoted to identifying the significance of the classroom design (moveable furniture and convenient color) to students` engagement, disruptive, stimulating and psychological factors of the physical environment. It is mentioned the ways to build positive teacher-student relationships, erode students` negative feelings, increase students` attention span, creativity and divergent thinking, and positive sides of organizing classrooms with flexible furniture.*

Key words: *physical space, students` performance, technological equipment, classroom design, moveable furniture, flexible learning environment, learning spaces, teacher-centered traditional classroom, fixed furniture, group-discussion, attached-chairs, convenient learning environment, psychological factors, disruptive factors, academic performance, convenient color, convenient desk arrangements, colorful classroom design, divergent thinking, visual stimulations, competitive environment, active classroom space.*

ВЛИЯНИЕ ФИЗИЧЕСКОГО ПРОСТРАНСТВА В КЛАССЕ НА ВОВЛЕЧЕННОСТЬ УЧАЩИХСЯ
КАК МОЖНО ПОВЫСИТЬ ВОВЛЕЧЕННОСТЬ УЧАЩИХСЯ С ПОМОЩЬЮ ФИЗИЧЕСКИХ КЛАССНЫХ КОМНАТ?

Аннотация. *Данная статья посвящена выявлению значимости дизайна классной комнаты (передвижной мебели и удобного цвета) для вовлеченности учащихся, а также разрушительных, стимулирующих и психологических факторов физической среды. Упоминаются способы построения позитивных отношений между учителем и учеником, ослабления негативных чувств учащихся, повышения концентрации внимания, творчества и дивергентного мышления учащихся, а также положительные стороны организации классных комнат с гибкой мебелью.*

Ключевые слова: *физическое пространство, успеваемость учащихся, технологическое оборудование, дизайн классной комнаты, передвижная мебель, гибкая учебная среда, учебные пространства, традиционный класс, ориентированный на учителя, стационарная мебель, групповая дискуссия, приставные стулья, удобная учебная среда, психологические факторы, отвлекающие факторы, успеваемость, удобный цвет, удобное расположение парты, красочный дизайн классной комнаты, дивергентное мышление, визуальные стимулы, конкурентная среда, активное пространство в классе.*

INTRODUCTION

The importance of active physical space is increasingly becoming a principal part of learning progression. This is because lessons have begun to be replaced by technological devices due to their colorful nature. The percentage of students` performance declined when they started applying cell phones or laptops. According to Younkins, technology improves people`s standard of living

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and increases the amount of leisure time…(2000). In fact, some technological equipment has educational feature stimulating students` engagement in the lesson. However, Carr states that [1]"there is a risk to lose more time on scanning and skimming online". This means that technology is not always used wisely. Influential marketing strategies and fashionable designs of technological devices are appealing mostly to children. Holding their interests to the lessons is becoming increasingly difficult that is requiring making everything active in the classroom. Because of this, teachers and researchers are trying different ways to increase students` focus level to the lesson and ensure their participation.

One of the effective methods that promotes students` engagement is classroom design having several features, such as the rearrangement in a circle for grouping and face-to-face discussion, fitting tables with wheels, and coloring the classroom with appropriate hue. Students spend most of their time in the classroom. Hence, classroom design should be organized such a way that motivates students emotionally, physically, and psychologically. The five physical factors, such as complexity, flexibility, color, choice, and light were selected as having positive effects on children`s learning (Barrett et al, 2012). If these key elements are implemented in the lesson, the productivity of the lesson and the scale of student engagement can improve. The active classroom layout makes positive impacts on students` engagement by three ways: removing obstacles between a teacher and students, making psychological effects and improving creativity of students.

Erases Lines Between a Teacher and Students

Moveable furniture facilitates students to group together for any cooperative work in the class and removes physical and emotional barriers between instructor and learners. It makes them alert to the activity; as a result, they feel more in control of their education, which can enhance productivity and focus. Flexible learning environment gives a teacher a chance to rearrange the class according to the game or activities she/he is going to play with them. During class activities, a teacher can walk around the class freely answering questions and checking the student`s collaborations. He or she is able to implement various learning strategies, such as peer instruction or team work that gives a way to better transfer of knowledge. Students can sit facing each other which works to their advantage as directing their attention at their fellow students is more conducive to feeling encouraged to partake in the activities.

There are always reserved students in class who feel shy to ask the teacher questions among other students who can laugh at them due to the insignificance of their questions. Grouped tables instead of rows make students who are introvert and shy feel empowered to get a help when a teacher moves around the classroom asking whether they need any help. Following that, students are convinced that if problems with comprehension emerge, they will have a chance to ask teacher directly, not in front of the class. Moreover, It increases a teacher`s opportunities to monitor students by walking around the classroom. She or he is able to identify students who do not understand the topic or the rule of the task through observing their engagement in a group.

Learning spaces can impact positively on reinforcing bonds between a teacher and students by enabling students to feel a part of the class and teacher to evaluate students` participation effectively. Nevertheless, there are still schools with fixed physical classroom spaces which make students feel less motivated since this limits their active participation. Students at the end of the

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[1] Nicholas Carr, Does the Internet Make You Dumber?, 2010

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rows feel less engaged with the lesson, and easy to be interrupted by every single noise or signals of new messages in their phones. They can reckon that if they do not feel themselves as parts of the lesson and are not active during the lesson, they can be active in social sites or playing mobile phone games. These distractions make them less attentive, and difficult to understand the lesson. Because people continuously distracted by emails or messages understand less than those who have long attention spans (Carr, 2010). As a result of this, students stay unaware of the lesson. They reckon that a teacher is busy with students who are sitting in the front row, and skip teacher`s explanations or orders. Owing to less engagement having fun replaces the lesson and topic turns to be of no consequence to them.

The schools` old system to organize classrooms with the same colored tables with attached chairs is not adaptable to change. Borba et al(2019) in his research gives some comments on this issue. "… in a teacher-centered traditional classroom where students sit in the rows both teacher and students would be sad because of the limit in the class……simple elements, such as the adjustable classroom chairs, emerged as essential elements in the classroom". Fixed furniture poses some troubles to adapt the classroom to the goals of the lesson. If the teacher wants to make circles for group-discussion, attached-chairs make it impossible. Particularly, kids are curious about the perception of constantly moving around the classroom and playing different games, because they feel exhausted if they are always demanded to sit in a room. They represent one student`s explanation about the opportunity of having active learning environment: "…it makes students feel more comfortable to talk to the teacher and to their fellow group mates…" From this point, it is obvious that hesitations whether to ask questions, and shyness to partake in the activities can be overcome by convenient learning environment.

The classroom should not be organized by separating the teacher and students, mutual respect and relationship between them is essential to have an impact on engagement. The teacher needs to be accessible to students at all times, namely a teacher's desk or space should be inviting and set up such a way that students can easily approach it. If it is, children do not hesitate to visit teacher`s desk and ask topic-related questions. Particularly, if the teacher knows students` interests and ideas, she can adjust the classroom to their interests, which enables students to engage the lesson and strengthens their ties with the teacher.

Allowing students to be a part of the decision-making process and make choices for their classroom design is what gives only advantages to facilitate learning process, reinforces teacher-student relations, makes students active, and gives them a sense of necessity of their ideas. Students should be able to be as active as the educator in setting up a learning space. Letting students be a part of the design is of great importance to them. They should explain their thoughts about convenient learning environment for them, and they are responsible for applying reasoning to organize the space. If they are granted a chance by the teacher to design the classroom, all have a voice and feel that their input is valued, students will have a sense of respect towards the teacher, and a sense of accountability to use the classroom effectively, and feel privileges of being a part of the classroom.

Psychological Effect

Physical environment is of the essence in psychological factor of students. The environment affects all senses which are highly connected each other and brain filters them according to their importance to the person, otherwise, a person will be completely overwhelmed with the data

coming outside. This filtering is called attention which can be impacted by external signals. Attention, for instance, can be interrupted by knocking the door or students` personal life problems or music playing at the street. It, on the other hand, can be returned back through more interesting task or environment. Active classroom spaces make students forget disruptive factors in class. Namely, [2]mere changes to the perimeter or the floor plan of the room allow students to find comfort in the classroom, and help control conducts, and foster hardworking and deep thinking skills. It makes it possible for students to enhance their enthusiasm, interest and engagement in the lesson.

If a student enters the classroom, everything—the color of the room, posters on the wall, words that are written on the white or blackboard, the layout of the desks, the light level, a teacher, group mates` behavior—affects his or her psychology. Students carry a variety of stresses which come from different sources, such as pressures in personal or family or academic life. In one of his articles, Dr. Tim Holmes [3]mentions that learning spaces should be organized to provide with caring and healing to learners. When they feel safe or cared, they begin to adapt and trust the learning process. Convenient learning spaces can erode students` negative feelings-isolation or loneliness-which are considered students` constant challenges. To avoid some bad effects, Robert Dillon (2010) in his article "Becoming More Intentional in Classroom Design Can Help Teachers Manage Behavior, Build Community and Improve Learning" says that teacher should spare the time to teach students to move furniture into several configurations, and make certain that students realize the different levels of choice around where to sit or stand, or how to change moveable tables. Moreover, she or he should let them know they can also move the furniture, but not always. Following that, students embrace the classroom as their own space where they can learn new things.

Student involvement and their curiosity and passion for learning are tied to various positive educational outcomes. According to the common rule, the color of classroom should be painted in white. However, it is not valid any longer owing to the established sterile and non-encouraging effects of white color on children. According to Hettiarachchi et al, children are very sensitive and interested in colors. In consequence, there is the effectiveness of colors to stimulate them in their visual learning environment. Some scientists did a research on the different effects of colors on children and found useful effects on children`s psychological and behavioral aspects (2017). Colors, for example, generate a positive school ambience creating supportive feelings, emotions and psychological behavior, increasing academic performance, and attention and reducing disruptive behavior of children. People own deep understanding of the positive influence of the color on space and its potential to affect students` conduct and spirit. The number of colors makes different impacts on the learner. Additionally, academic performance can be determined by the coolness, warmth or neutrality of colors. For instance, warm colors are defined as stimulating and cool ones are pacifying (Stone, 2001). Because of this, integration of warm colors in the classrooms is suggested as a basic principle in setting up an inspirational environment conducive for learning.

The convenient color of the room and natural light can stimulate brain function, neurological pathways in the brain and put children in an amiable mood. Feelings, attention and behavior can

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[2] Robert Dillon, Becoming More Intentional in Classroom Design Can Help Teachers Manage Behavior, Build Community and Improve Learning, 2018
[3] Timothy Holmes, The Neuroscience of Classroom, 2016

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be seriously affected by employing the right color, placement and correct selection while learning. Due to the right color option, students feel motivated with inspirational shades of the room and spontaneously their participation in the lesson is activated. Classroom should be painted with the color which can make students forget about their anxiety, pressures and depression. However, particularly, some dark colors, such as navy, saddle brown, medium blue, crimson, maroon and so on can arise students` level of tiredness and put them in low mood and decline participation rate in the lesson. This factor is what should be taken into consideration while setting up the physical environment.

Through understanding the relationship between environment and behavior, teachers can organize and equip the classroom to make an optimal learning space. The physical space setup can influence conduct and learning. Furniture placement, learning materials, bulletin boards, and application of technology can impact profoundly on the students by sending messages for powerful learning. Conveniences around them generate a greater sense of security where students can feel emotionally and mentally supported. In addition, moveable furniture can be rearranged according to students` mood by themselves. If one day a student wants a quiet space or does not want to sit in a group, there can be an option for sitting solo. On the contrary, having desks which gives opportunities to move into a circle can promote fruitful and equal discussions provoking their feelings of liveliness, and supporting their choices if they want to collaborate.

Improving Creativity

Classroom design enables students to gain the potential of new ideas and discoveries as well as the ability to use critical thinking and problem solving that are essential elements of children`s learning progression and factors of the improvement of their involvement. Teachers realize that creative thinking is not easy to find. Because of this, schools should emphasize the factors that are killing creative thinking so that we have a possibility to change them. Influential factors which can decrease the level of creativity are dry teaching methods and inappropriate learning environment that students are placed in. The students who get lessons from the teacher, who always carries out lessons monotonously, and stay in a white-colored room where there is not adjustable furniture or inspirational, visual stimulations can lose their potential of thinking critically or making discoveries. Mobility of the classroom space can absolutely help increase the level of collaboration which enables children to generate new ideas since the best ideas come after cooperative working. Students encourage each other while grouping due to its competitive environment where children try to overtake each other by their great ideas which are praised by the teacher.

Most countries` standardized their public schools design where there are fixed tables and chairs and symbols of the country hanging on the white walls which are intended to foster children`s patriotic pride and duties. By this way, it is meant to have students produce the same work and show the same results. However, "students are not robots who repeat the data from rote memorization, and creativity is a trait which can be taught by providing them with tools and right conditions to practice. The correct learning environment can stimulate creativity" (Gallagher, 2017). Convenient desk arrangements, colorful classroom design and amount of free space grant children opportunities for choice and help teachers avoid educating by imitation. According to Beghetto and Kaufman (2014), the flexible application of inside and outside spaces, sources, and time can foster student creativity. Ultimately, the classroom feature, namely its adaptability in small groups, individual learning, and whole class experiences, can produce creative thinkers. By

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making changes in desk organization or "centers" around the room, physical environment will devote itself to innovative learning. For instance, Gomez (n.d.), a researcher from the University of Alabama, represents differences between divergent (creative) and convergent thinking. There is fluency, flexibility and originality in creative thinking process (Gomez, n.d.). To spur this kind of thinking we should own a flexible, original and easily-manipulated classroom space. This means that the desks and chairs should be moveable. Desks with unattached chairs can be one example of flexible objects. Bartel (2008) defined that "I put so much emphasis on the essence of divergent approaches by changing habits of work". If students are not changing their attitudes towards learning and are not considering about studying, and thinking uniquely, a teacher should change the way of teaching removing constant disturbance in the learning process. Many more examples need to be employed to make physical classroom spaces conducive to creative thinking. Keeping the classroom functional can reduce the barriers to creativity.

The environment may be intentionally generated to stimulate divergent thinking and production. Factors, practices, conditions, stimulators and environment can either positively or negatively impact on it in both scale and frequency (Hennessy, 2004). She also explained that creativity can be developed if there are connections between a person and the environment. Factually, there are staggering effects of classroom design on inspiration and creativity of performance. So the classroom should be such a place where students are able to ask questions that they are genuinely interested in. Classroom layout provides freedom and security where students can share their ideas with one another, develop and learn together as well as independently. This kind of flexibility is a key element of creativity. Ultimately, creativity requires an adaptable space and appropriate learning environments which moveable furniture, color of the room and light level enable to foster it.

Conclusion

Technology made everything possible helping people increase their lifestyle, simultaneously brought about the decrease in the proportion of students` participation. Even though there are several factors which can discourage students to learn, physical environment of the classroom can pave the way for the growth in their engagement by influencing them from different parts. Classroom layout is of the essence since the pupils spend a huge amount of their time there. It should maximize their performance, support and inspire morally, foster their divergent thinking, and make them forget their anxiety. The flexibility of furniture and the convenient color of walls in the classroom enable the space to be easily matched to the goals of the lesson, adapting to any activity or games, such as performing individual tasks, holding discussions involving the whole group, and showing work results of different groups. It is an important factor for facilitating the construction of ties and interaction between students and teachers. Active classroom space is not an isolated element, but its significance should be realized as a facilitator of the learning process, and should be carried out.

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