Co-Design with Children to Create a Sustainable Learning Space

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Abstract

With the increasing population and limited natural resources, we, as individuals and societies need to learn to live together in sustainable ways. We need to take action responsibly based on the understanding that what we do today can have implications on the lives of people and the planet in future. Until recently, education systems have mostly prepared students to perform certain social functions in a relatively predictable world. However, the world is changing and we can no longer expect the same old. Today's students will soon need to deal with complex sustainability challenges, which requires totally new skills and attitudes to be developed. This paper aims to formulate the framework for sustainable learning space that will help empower students and build good social skills or the future. The research follows participatory design method in which in which various techniques of communication with children was conducted on the basis of literature review. Qualitative data were analyzed on the basis of the data collected during the period of two workshops. The findings revealed that children's perception of space is different to that of adult and it can influence their growth and knowledge. Thus including children as the design partner can be beneficial for the society in terms of sustainable education.

Keywords

Co-Design, Sustainable Education, Social Sustainability, Children, Participation

1. Introduction

Research in participatory design with children shows that where students learn can make a huge difference in how well they learn[1]. The shift from passive to active learning emphasizing student participation, as well as new educational initiatives of the modern time are challenging the educational institutions, from school to university level. The landscape of design and design research has moved closer to the user over the last couple of decades. As a result of this, the term co-design has emerged from the well-known participatory design movement that started in the early 1970's. Co-designing with users indicates collective creativity applied across the span of a design process [2].

Most of the people think sustainability as related to concerns about the environment, while people, especially children are often neglected in discourses on sustainability. Needs of children are frequently ignored in an adult-centered society; most of the time adults making the majority of their decisions for them and choosing what is in their best interest [2].

Children as users and designers as adults who design products for children have distinct intellectual advancements as well as different ways of experiencing the world [3]. Thus, inviting children to the design process as partners is critical for developing an understanding about this special user group.

Co-designing with children can enhance design student's grasp of the design process, enable them to develop an understanding of children as users, and help them to overcome unique challenges of designing for children. By educating citizens, especially young generations within the formal schooling system, the hope has been to effectively address the issue of sustainable development. Students represent the largest group of people on school [4]. A student is the definition of a person who is learning [5]. You study to learn something that you can use for further studies and work situation. Author Susan J. WAKE has argued that co-design with children is not just a worthy deal; it is an essential goal if we are to influence children positively about creating environmentally sustainable places and

spaces. Reggio Emilia states that children have rights and not simply needs, they therefore possess strength and competence to make decisions about their own education. So, Co-designing WITH children, FOR children can empower them and be better equipped to grasp an opinion in their everyday life in the coming future.

Co-design, or collaborative design, is rooted in the tradition of participatory design (PD); hence it typically refers to an activity in which potential users are empowered to bring their ideas into the design of new solutions [6].

1.1 Rationale

Children view the world in a completely different way from adults. This is not just because they are small in size, but also because their cognitive, social and emotional intelligence is developed on a different level compared to adults. Through their curiosity and imagination, they are exceptionally creative and less restricted by reality. Designers can benefit and learn from including children as expert users in cooperative design sessions. Children are honest and playful, and can expand a designer's product design horizon. Studies focused on exploring children's perspective have gained prominence since the late 1990's. In general, such studies have identified children as important contributors to the investigation of their own reality [7]. Listening to children's opinions enables researchers to understand social phenomena with greater clarity and to access completely new world of meanings about the lives of children. Sustainable built environments for education are not only a necessity for sustainable development, but it also helps shape citizens and society more broadly [8].

1.2 Problem Statement

Students represent the largest group of people in school and they spend most of their time at school. The students are still not recognized as the design-partners. Their opinions are still not interrogated and incorporated. The classroom interior archetype is in which all the students have an appointed desk facing towards teacher and the blackboard symbolizes an educational philosophy that is modeled on the industrial principles of the early 20th century [8]. While many schools in the world are adopting student-centered learning, the

teacher-centered education is still a core activity in modern schools of Nepal.

So, why aren't children being included as the design partners for their own learning environment?

Why isn't sustainability being integrated in the lives of the children as part of their regular learning experience?

The following sections try to respond to these questions. The analysis and findings are based on work with the first author's master thesis written in 2020 titled "Co-Design with Children to create a Sustainable Learning Space." The research purpose and studies refer to this master thesis.

1.3 Research Purpose

Main Objective:

• To formulate the framework for sustainable learning space through co-design method.

Specific Objective:

• To gain perceptive on student's knowledge, attitude and behavior of their learning space.

• To empower children.

• To impart knowledge about sustainability during the process.

2. Literature Review

2.1 Designing for Children and Adult

Many of the present methods and techniques for designing with children grew out of or built on ideas from Participatory Design and Contextual Inquiry and Design as developed to be used with adults. While there are many similarities in co-design involving only adults and co-design for adults and children, there also are some considerations for reforms when children become part of a co-design process.

2.1.1 Similarities in Adult and Child Participatory Design

While all adult designers were once children, our memories fail us and we cannot possibly hope to remember what it means to be a child. Additionally, even if we could entirely recall our childhood experiences, we are not children in present world. We do not know what it means to grow up knowing that parents always have a phone in their pocket, or

assuming that every screen is a touch screen. Childhood has changed and will continue to change [9]. Including children in our design process is the only way that we can keep up with it as designers [10].

2.1.2 Modifications Needed for Children to Participate in Co-Design

Developmental differences between children and adults requires different methods of design when working with children rather than working with adult users. Due to developmental differences, children need different supports in order to accomplish design activities than adults do. Many of the changes that need to be made to adult-centered participatory design methods in order for them to work with children stem from the very different developmental abilities that children have from adults [10].

Children have different cognitive, motor, social, emotional, and communication abilities than adults [11]. The difference in each of these areas must be considered when undertaking participatory design with children. The cognitive level of a child may mean that s/he needs abstract concepts to be explained in a more concrete manner [11].

A child's motor development may mean that he needs to work with an adult design partner in order to complete the fine detail on a low-tech prototype. Socially, children may require help adjusting to working in small, ever-changing teams [10]. Emotionally, children may need support in understanding that although their individual ideas are not instantly apparent in a final product, they nonetheless contributed to the design of that product and can feel pride in their contribution. Children may need support in communication, may it be from an adult who helps them remember what to say when presenting an idea, or from an adult who helps them to write design ideas.

2.2 Why Co-Design with Children?

The reasons to co-design with children are two-fold: first, by co-designing with children, more diverse ideas and technologies can be accomplished; and second, by providing power to marginalized groups, which children often are, it will empower them [10]. Over the years of designing with children, it has been found that children offer honest feedback, as well as ideas and technology directions that could not have come up with

as adults working without children [12]. Additionally, as with the original movement in PD that was intended to empower workers in Scandinavia, it is to be believed that co-design with children empowers children. That PD movement supported the innate right to have a say in the design of the environment in which one lives. Co-design with children extends this concept to children. Seymour Papert supported the concept that empowering children politically and intellectually has existed for quite some time, even before computers existed [13]. By allowing them a voice in the design of their technology, it supports their empowerment. Empowerment as an experience of co-design has been supported in literature [14].

3. Methodology

To achieve the objectives of the research, a qualitative research method were used as this method was best for the research. Epistemologically, the study is follows Constructivism and Interpretivism. The constructive–interpretative methodology allows a nonlinear relation with the field of research and its participants. Data are not taken from the participants, but rather produced and interpreted considering reflections, dialogs, and an entire communication system that grants significance to those involved in the research.

3.1 Methods adopted

Based on the ways in which researchers gain information from children, these methods and techniques can be grouped into five as observation-based methods, narrative-based methods, documentation-based methods, art-based methods, and game-based methods [15].

Observation-based methods aimed at obtaining an understanding of users' actual work environment and their needs by observing and interviewing them while they are doing their regular everyday activities.

Narrative- based methods aimed to facilitate expression and verbalization of the views and ideas of children.

Documentation-based method aimed to discover different aspects of the topic area and to gain information about the context.

Art-based methods intended to enable children to materialize their ideas and generate solutions based on hands-on activities.

3.2 Techniques for Co-design with Children

Techniques are design activities that are used at varying points in a design process to address certain sub-design goals [15].

3.2.1 Frictional Inquiry

In Fictional Inquiry, children are asked to participate in a make-believe scenario through which a narrative is set up to gather many requirements from children. The primary design goal is to research the problem and gather requirements that may help later in creating and evaluating solutions that are created further on in the design process.

3.2.2 Mixing Ideas

The Mixing Ideas technique grew out of Cooperative Inquiry work with young children. The primary design goals in mixing ideas are to create and refine multiple solutions.

3.2.3 Layered Elaboration

By its very nature, the elaboration process involves changing, extending, adding to, and subtracting from the ideas of others. The primary design goal is to create multiple solutions.

3.2.4 Sticky Notes

The goal of the technique is to evaluate prototypes and provide feedback and direction for future improvements of a given technology.

4. Case Area

Located on three acres of land, Kopila Valley School serves more than 400 students from nursery through 12th grade. The school was built to expand on the nonprofit's existing primary school and create a safe and nurturing environment that is not only a place of learning but also offers children nutritious meals, basic medical and dental care and after-school activities, such as sports and cooking classes. The school employs more than 100 Nepalese teachers and administrators. The campus also includes a Mental Health and Counseling Center, the Kopila Valley Health Clinic, a tutoring room, a computer lab, a stage and a small library.

Figure 1: Kopila Valley School

Sustainability is at the center of the school design. Locally sourced rammed earth, chosen for better thermal mass and temperature control, was used to construct the thick walls reinforced with steel bars for stability and earthquake resilience and a small amount of PPC cement to protect against dampness. Natural ventilation and lighting were also enhanced in the positioning of the buildings and windows, while covered terraces at southern-facing walls provide shade. The school is solar-powered with a solar PV system and a off-grid battery system.

The underground cistern stores rainwater harvested from the rooftops that is filtered for potable use. The landscaping and permeable paving ensure rainwater is also used to replenish the groundwater system. All waste-water is treated on site with constructed wetlands and then recycled. Gray water from sinks is used to flush the toilets; black water is filtered for plant irrigation; solids are converted in a pressurized tank into bio-gas fuel for cooking. Solar cookers are also used for cooking.

The students are at their best when their creative energies are encouraged. They thrive at science fairs and theater performances, art and poetry. They love dancing and moving, reading and learning. Kopila Valley School focuses on Montessori methods over teaching to a test. On helping students become doers and future leaders. Most of the students in Kopila Valley School come from the rural part of the region and poor socio-economic backgrounds that are living in mud huts, abandoned or lacking access to basic needs such as food, shelter, health facilities and education. Kopila Valley School serves much more than just as a place to learn.

The methods by which this school has been constructed offer a compelling model for other schools looking to grow in responsible ways, and a lesson for all the students at Kopila Valley that environmental sustainability is something that they should take seriously. That principle is reflected throughout the school's curriculum. Students learn

not just how their school operates with care for the environment, but how they interact with the food system by planting their own food that they consume each year.

5. Analysis and Discussion

The analysis is based on the drawings produced by the students of Kopila Valley. The drawings are the result of their imagination and depiction of their own learning space. The drawings were then narrated by the students themselves, which has been used as the main source of analysis. Among the 8 drawings produced by students during the first workshop, 6 have been presented in the paper. All the drawings from the second workshop have been presented in the paper.

5.1 First Workshop

In this section, the drawings of the students from the first workshop are explained:

Figure 2: Drawing 1

The most important point in the Figure 2 is the location of the school in the natural environment. The presence of the hills with the river along with the trees surrounding the school premise is significant in the drawing. Other student's drawings show the similar location characteristics. The emphasis in this drawing is more on the creative spaces such as the playground, pool, computer lab, and canteen. The classrooms are clustered in the single space. The presence of the neighborhood is also viewed as important.

Figure 3: Drawing 2

In Figure 3, we can the great distant between the main building and the toilet. When asked, the result was due to the foul smell. This was the very common concern among the students. The main significance of this drawing is the mention of "The Girl Power School" and the portrayal of the principal as female even when in reality the principal was male.

Figure 4: Drawing 3

Similarly in the Figure 4, the emphasis on the main school building is less in relation to the creative spaces such as meditation space, playground, vocational site, garden area and hangout space for students.
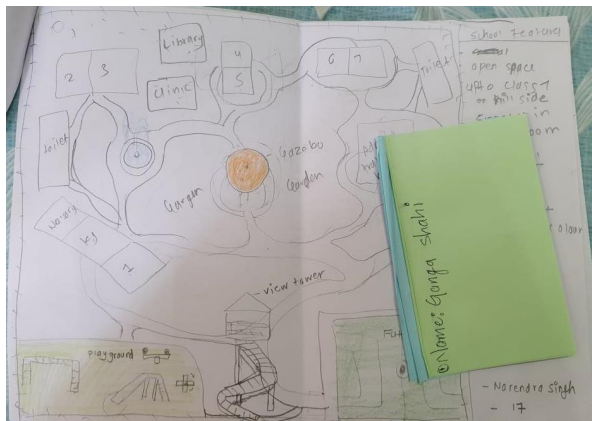
Figure 5: Drawing 4

The different view on the Figure 5 was found to be the presence of the view tower with big garden space and gazebo. The separation of the playgrounds for the senior and junior students was stated to be for more flexibility and safety. The classroom arrangement of the juniors and seniors is also mentioned. This is also mentioned in the other student's drawing. The reason stated was due to noise produced by the juniors.
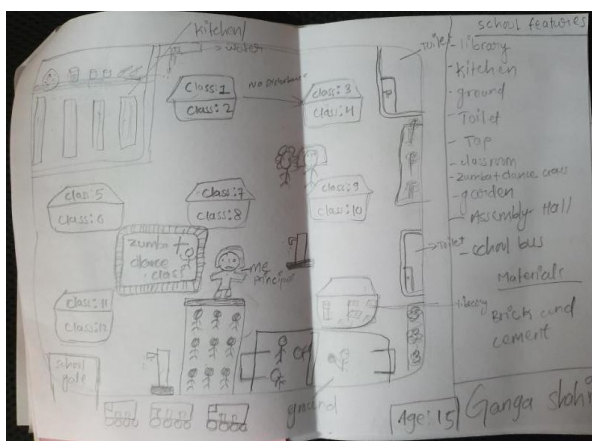

Figure 6: Drawing 5

Figure 6 also displays the separation of the classrooms for the junior and seniors. The placement of the drinking water taps in various places was also viewed as an important factor.

Figure 7: Drawing 6

The big emphasis in the swimming pool is visible along with the view tower and the separate grounds allocated for different sports. The part of the flower garden as in other drawing is also mentioned in Figure 7.

5.2 Second Workshop

In this section, the drawings of the students from the second workshop are explained:
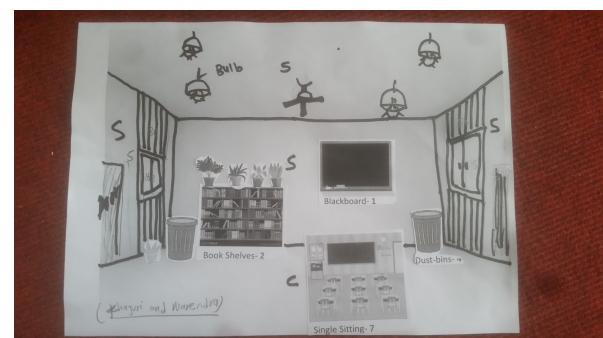
Figure 8: Drawing 7a
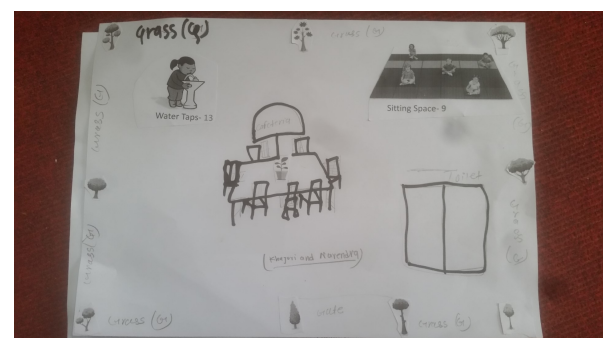
Figure 9: Drawing 7b

Figure 8 is the typical classroom with the twist of interior design. The group wanted the classroom to

be beautiful with bamboo-designed window, flower arrangements and stone wall. The row sitting was selected for the greater concentration on studies and flexible movement. The group's emphasis on Figure 9 was the outdoor sitting under the tree-shade. This location was allocated for multipurpose use such as outdoor study, yoga and simply hangout space for students. The big open cafeteria surrounded by trees and flowers can also be seen in the drawing.
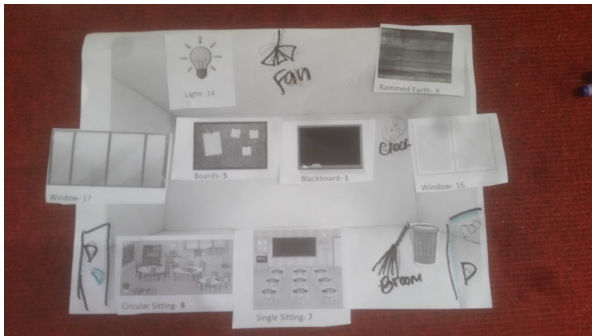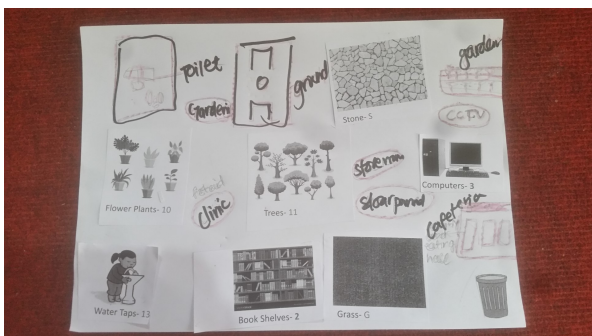

Figure 10: Drawing 8a

Figure 11: Drawing 8b

Figure 10 suggests the classroom sitting arrangement to be according to the work. They wanted circular setting for the group work and individual sitting for the individual work.
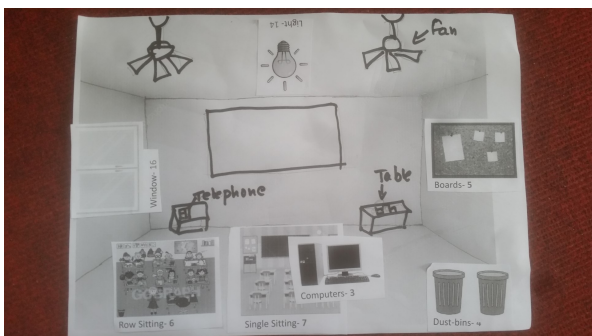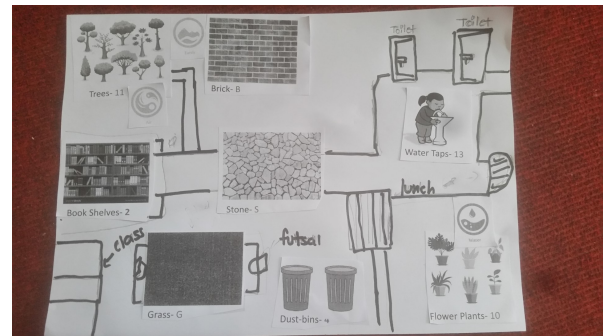

Figure 12: Drawing 9a

Figure 13: Drawing 9b

Figure 12 shows more focus on the presence of the individual computers on the classroom to perform their group projects and learn new things. The other focus was on the large window to get more natural light and row setting for the other studies for greater concentration. Futsal ground was common in all the drawings along with the natural vegetation of flower garden and shaded tree areas.

5.3 Discussion

Analyzing the data and information from the workshops, conversation and observation, the works could be divided into three sections and explained further on the basis of stakeholders who can contribute, how can they contribute and when is the possibility.

5.3.1 Safety and Comfort

Whether we are adult learners or only beginning our journey through academia, we look for learning environments that are safe and positive. If we are going to optimize interaction among our learners, which can have tremendous effects on learning, all learners must feel that they can safely take those risks that are part of exploration and constructivism [16].

The lists of objects are as follows:

a. Healthy choice:- Cycle lane, Meditation/Yoga space, Swimming pool

b. Flexible movement:- Separate playground for juniors, two doors, security camera

c. Health clinic

d. Toilets:-hygienic, clean, odorless

e. Classroom:- Noise reduction, concentration

WHO? School Administrator and Teachers

HOW? Be clear, reflective and explicit about the

children's vision, needs and their requirements; and find structures, processes and operating systems for an ever-growing group of individuals for them to take responsibilities for sustainability practices.

WHEN? While the topics such as hygienic toilets and proper classrooms can be achieved in short span of time. The others such as cycle lane, meditation space, security cameras etc can be achieved with proper planning, degree of importance and within a certain period of time. Some mentioned such as swimming pool in schools can be difficult to manage in every schools. The list is further managed in Figure 14.

5.3.2 Physical Space

A school's physical place includes the built environment, surrounding natural environment, and the resources that flow through the school. It provides both the context for an educational experience and a visible representation of school values. To best harness the power of physical place, it must be engaging and active, be progressively more efficient, and embody systems that enhance human, environmental, and economic health [17]. Dul, Ceylan, and Jaspers reviewed recent studies in this field and summarized the features of space that are relevant to creativity, such as: any view from the window, furniture, privacy, lighting, plants, physical indoor climate (humidity, temperature), sounds (positive: music, absence of noise, silence), odors (positive: fresh air, absence of bad smell) [18]. McCoy and Evans identified a view of the natural environment, the presence of natural materials, the complexity of the space and the number of objects in the space as creative space characteristics [18]. A school's built and natural environment provides immense opportunities for students to learn about sustainability, science, technology, conservation, the history of their community, and more.

The lists of objects are as follows:

a. Beautiful Interior

b. Flower garden

c. Sports grounds:-Futsal, Football, Tennis etc.

d. Attractions:- View tower, Gazebo, Bridge

e. Location:-Natural surrounding

f. Large windows

g. Building Materials:-Familiar or unique

WHO? School Administration, Designers, Children and Parents

HOW? Create energy and enthusiasm for sustainability by inspiring each other; encourage children to learn sustainability from their environment; although it starts with one or two individuals, learn to find ways to involve more people and to grow, hence creating strength in numbers and ever-growing.

WHEN? Physical spaces when already in existence can be difficult to manage. Thus the mentioned lists may take time with proper planning and system. Thus to realize the possibilities, it is further explained in Figure 14.

5.3.3 Social Skills

According to the psychologist Lev Vygotsky, the way children learn is by internalizing the activities, habits, vocabulary and ideas of the members of the community in which they grow up [19].

The lists of objects are as follows:

a. Multipurpose common space

b. Open cafeteria

c. Social Club

d. Vocational training space

e. Active engagement

f. Learning space:-Kitchen garden, water taps and rain water harvesting.

g. Mutual learning:-Sitting arrangement, display boards, computers

WHO? Parents, Teachers and children

HOW? Create a community of practice and sustain interest. Search for ways to support the integration and implementation of sustainability across the whole school system.

WHEN? Children learn and grow with each other. Providing them with space to grow is not difficult in the school environment. Thus in Figure 14, we can see the lists of possibilities to achieve within certain period of time.

5.4 Result

The variety of elements suggested provide evidence for the assumption that the children understand their learning as something that can happen everywhere in the school, in the material spaces available to them. Additionally, children referred to their learning experiences when using the various tools designed to create a child-friendly informative environment, such as playgrounds, display boards, or specific elements from the school infrastructure, such as windows and water taps in the toilet. The study showed that the children's perception of learning are intimately connected to how they explore objects and places, indicating that children create opportunities to freely construct knowledge based on their adoption and multiple uses of objects. It is noteworthy that the place for children's learning is mainly the space where everyone is together: the classroom, the playground. The results in this category reveal a co-learning environment and an understanding of learning experience in which children recognize peers as models worth observing either in free activities or in adult-driven situations [20].

Figure 14: Research and Analysis Framework

This shows that children not only reproduce meanings but produce it; they do not just adapt to the modification and co-construction of social values and norms, but also influence them. This finding supports previous research that has shown how children are active co-constructers of culture. The study supports the argument that children must be featured as design partners in their learning processes. This study utilized the opportunity to listen to children's voices and given the results, the expectation is that teachers, experts in education, and other professionals involved in developing alternatives to potentiate learning may gather ideas to reflect upon their understanding of children's learning, as well as the role of peers and the various spaces within that learning.

There is a global dimension to every aspect of life and communities and sustainability isn't something that can be achieved in isolation. The decisions we make on a daily basis have a global impact. Children growing up today can look forward to spending their working lives as citizens of an increasingly difficult world. Today's children are part of a global society and need to be familiar with global issues and to feel empowered to play a part in sustaining our world. Sustainability in schools can bring together a wide range of people and ideas that have a great opportunity to foster global perspectives. Students experience and act on sustainability issues in an individual and local way, while exploring the "ripple effect" through which local actions affect the wider world.
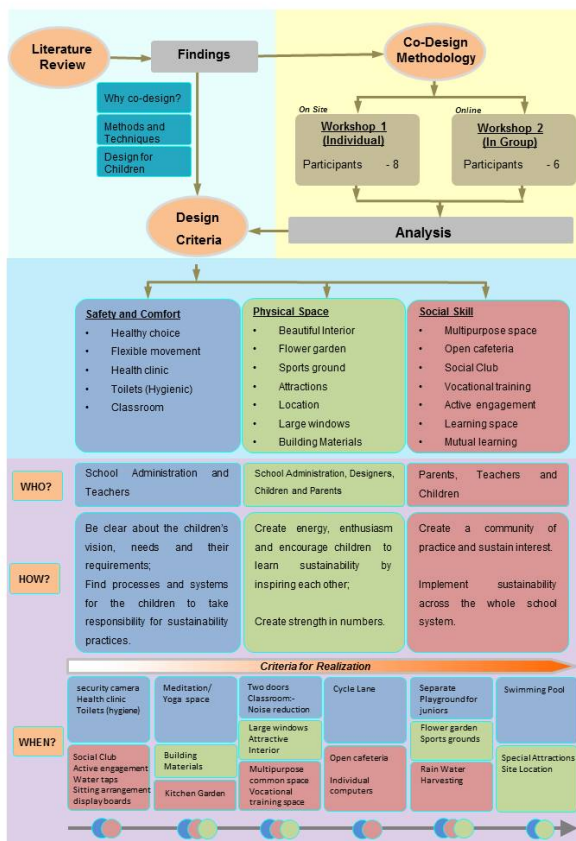
6. Conclusion

This research was undertaken to develop a framework for sustainable learning space with the help of co-design methodology. Findings can inform the school administrators, policy makers, parents and the wider education community of the current state of sustainable development in schools, indicating the skills and qualities required by school to move forward. Sustainability in schools can encourage new models of leadership. Early learning and experience of sustainability helps children to grow into better human for the future society. It can help them make their informed decisions regarding their ways of living and contribution to the sustainable development.

The children's narratives showed how learning implies action, done something with an experience here and now. They contextualize in their immediate interest

and experience. This is a very important aspect of how children in this study represented and constructed the meaning of their learning experiences as independent work or group work.

The findings can relate to the possibility for children to be design partners and make material changes in their learning environments, as they recognized their own competence for learning, exploration of places, manipulation of objects, and transformation of their surroundings to potentiate new experiences. In doing so, the children feel empowered and motivated. The children are curious; they seek to learn new things and are fascinated when they come across new experiences.

7. Recommendation

Recommendations for the policy makers, school administration, parents, and teachers are listed as below:

7.1 Recommendation for Policy Makers

Short-Term

a. Provide incentives for the school that includes and promotes sustainability and helps student to learn about it.

b. A consistent and coherent approach to sustainability has to come from all parts of the education to reduce school leaders' initiatives burden and to demonstrate the integrative and supportive nature of sustainability in delivering other priorities.

Long-Term

a. Make policies to include school children in sustainability programs.

b. Develop the capacity of local authorities to support schools in developing sustainable schools.

7.2 Recommendation for Teachers

Short-Term

a. They can create a classroom environment that includes group work spaces where resources are shared.

b. Effective teachers can help students to grasp relationships and make connections. They can do so by providing a model or a scaffold that students can use as support in their efforts to improve their performance.

Long-Term

a. Increase the amount of time teachers spend on learning as sustainability can be new topic.

7.3 Recommendation for School Administration

Short-Term

a. Students must be provided with observations and experiments that have the potential of showing to them the importance of sustainability in daily lives.

b. Start to model sustainable practices, for example through energy savings, growing food and inclusive behavior.

c. Integrate sustainability across the curriculum.

d. Enable shared resources, contacts and practice by coming together around a focus of sustainability.

Long-Term

a. An important aspect of social learning is to link the school to the community. In this way, students' opportunities for social participation can be enlarged.

b. Create school policies and plans based on sustainability.

7.4 Recommendation for Parents

a. Be in contact with teachers so that they can learn to provide richer educational experiences for their children at home.

7.5 Recommendation for Designers

a. Include children as the design partners.

References

[1] Sue Wake. Bringing schools to life through a co-design learning approach with children. 2015.

[2] Anja Stedjeberg Hansen. Co-design with children: How to best communcate with and encourage children during a design process. 2017.

[3] UMULU Sila and KORKUT Fatma. I-wonder-how: A method for co-designing with children in design education. 2018.

[4] Jelle Boeve-de Pauw, Niklas Gericke, Daniel Olsson, and Teresa Berglund. The effectiveness of education for sustainable development. *Sustainability*, 7(11):15693–15717, 2015.

[5] Anna Cecilie HEISTAD. Sustainability at ntnu: How to get students to contribute to a more sustainable ntnu campus. 2016.

[6] Kirsikka Vaajakallio, Tuuli Mattelmäki, and Jung-Joo Lee. Co-design lessons with children. *interactions*, 17(4):26–29, 2010.

[7] Emilie Saure Hagen et al. Co-designing with children: Collecting and structuring methods. In *DS 71: Proceedings of NordDesign 2012, the 9th NordDesign conference, Aarlborg University, Denmark. 22-24.08. 2012*, 2012.

[8] Arne Henden Aaraas. Spaces for learning: An empirical model for measuring the effect of the built environment on learning. 2017.

[9] Allison Druin. A place called childhood. *Interactions*, 3(1):17–22, 1996.

[10] Jerry Alan Fails, Mona Leigh Guha, and Allison Druin. Methods and techniques for involving children in the design of new technology for children. *Foundations and Trends in Human-Computer Interaction*, 6(2):85–166, 2013.

[11] Richard M Lerner. *Concepts and theories of human development*. Psychology Press, 2001.

[12] Allison Druin. The role of children in the design of new technology. *Behaviour and information technology*, 21(1):1–25, 2002.

[13] Seymour Papert. Child power: Keys to the new learning of the digital century. *Retrieved August*, 15:2001, 1998.

[14] Mona Leigh Guha. *Understanding the social and cognitive experiences of children involved in technology design processes*. PhD thesis, 2010.

[15] Tuula Nousiainen. Children's involvement in the design of game-based learning environments. In *Design and use of serious games*, pages 49–66. Springer, 2009.

[16] Timothy C Clapper. Creating the safe learning environment. *pailal Newsletter*, 3(2):1–6, 2010.

[17] Stephanie K Barr, Jennifer E Cross, and Brian H Dunbar. The whole-school sustainability framework. *Center for Green Schools at USGBC*, 2014.

[18] Marta Galewska-Kustra. Space and creativity: Students' opinions on school space as a component of the creative environment. *Creativity. Theories–Research-Applications*, 3(1):84–93, 2016.

[19] Stella Vosniadou. How children learn. *Successful schooling*, 16, 2003.

[20] Juliene Madureira Ferreira, Kirsti Karila, Luciana Muniz, Paula Faria Amaral, and Reijo Kupiainen. Children's perspectives on their learning in school spaces: What can we learn from children in brazil and finland? *International journal of early childhood*, 50(3):259–277, 2018.