COGNITION AREA

STUDENTS WITH SPECIAL NEEDS CAN STUDY IN AN ENVIRONMENT THAT SUPPORTS THEIR STUDIES AND DEVELOPMENT

In education and also in the design of daily objects, more and more attention is paid to the positive emotion experienced by the student/user. For example, it has been recognized that the emotional aspect of studying is very important, and when a student feels safe, they are able to focus much better on their studies. Assessing the emotional aspect of the user is important in the design of objects. In design we have to bear in mind that when a society moves towards an ever higher level of welfare, people are more and more interested in how to “design happiness”. When one is designing for people with special needs, the designer’s own experience might be completely different from that of the user.

When choosing **a suitable environment**, one has to bear in mind that the whole environment does not affect a person. Rather, this part does that a person has a psychical relationship with. The level of closeness of a person’s relationship with the environment can differ, depending on the interaction between a person and the environment.

And the idea started to spread …

Students with special needs can study in an environment that supports their studies and development. Primary teaching relies on the senso-motor development of the student (connection between cognition and movements). Practice takes place in minimal steps / constituent skills, acquired constituent skills are applied in a chain. Studying occurs in a real environment that is closest to the student. The development of cognition is encouraged by information being presented via different senses. At the same time, studying could be playful and delightful for a child.

The content and form of studies for students with special educational needs are closely related to a real situation. Activities from different fields are all being developed as much as possible (cognitive, motor, daily skills and communication). Based on formative activities, suitable learning environments are created. A lot of attention is paid to supporting and retaining positive emotions throughout the procedures/operations and after them. Inhibition of negative emotions, giving a positive assessment to calmer behaviour. Therefore, there could be a cognition / rest area in school that would be a pleasant down-to-earth environment where a child could learn in an experiential way with as little assistance as possible.

The purpose of creating the cognition area: Give teachers and parents of children with special needs, and other stakeholders ideas by having a practical cognition-based rest area – by using convenient materials, how to create an opportunity for children (youngsters) with special needs to experience the outside world (nature) with different sensations.
By using the cognition-based rest area, give an opportunity to children with special needs to perceive (experience) independently or with someone's help sensations coming from the outside world.

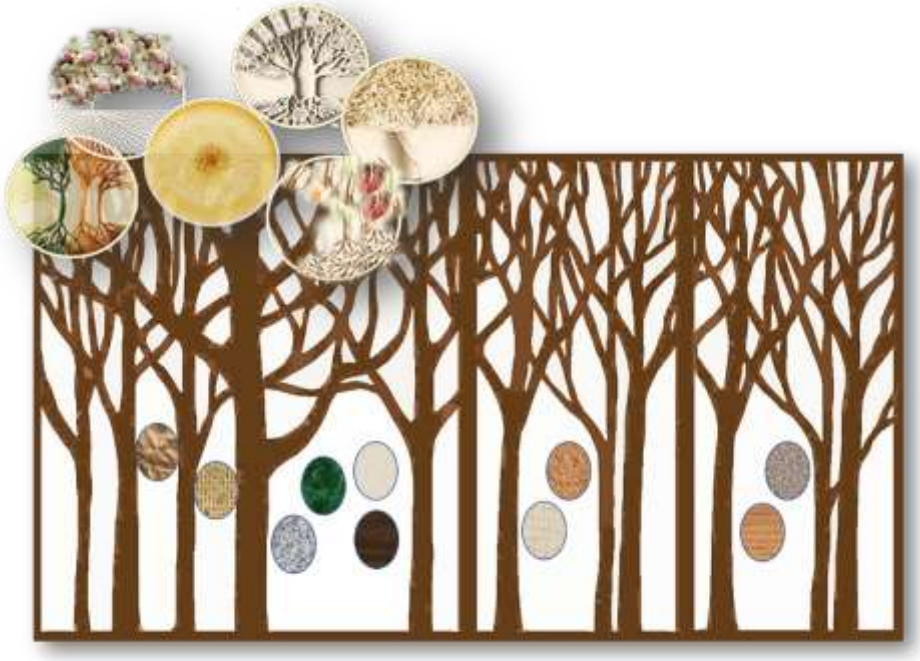
TACTILE SOUND INSTALLATION AS A COGNITION OBJECT

The creation, perception, interpretation of sounds, and expressing oneself through sounds have been one of the most pristine ways of communication in nature. Sounds with a different character and oscillation frequency have a very different impact on a living creature – the impact can be calming, warning, scary, irritating or charming. Music has played an important role in all cultures since their beginning, and music is also one of the carriers of cultural identity. According to modern beliefs, music is one of the fine arts, and its materials might include musical sounds, noises and several natural or artificial sounds.
Music consists of many components, and these have a separate and collective impact on the listeners' physical, social and mental aspects.

- Melody stimulates a person's thinking. Often, hearing a melody one used to hear a long time ago again recalls thoughts, moods, sensations and feelings from that time.
- Harmoniousness of music influences people's feelings and emotions. According to European beliefs, major music has an encouraging, invigorating and stimulating effect. However, minor music can support one in sorrow and sadness.
- Fast and rhythmic music cheers one up, encourages and stimulates. However, slow music relaxes and calms. Most people find music with 60 beats per minute most relaxing as it support the pulse frequency that calm people have. When one moves to fast-paced and repetitive rhythm music, it helps them reduce stress. Music without a certain rhythm and pace weakens perception of time and helps a person relax.
- As a rule, high-pitched sounds irritate and cheer up, low-pitched sounds have a calming effect. Herewith, interaction with other elements of music is important. For example, a calm and slow piece of music might be irritating when mainly high-pitched sounds are used.

The impact of music on a person depends on many factors – primarily the qualities of elements of music – that have a simultaneous effect. Factors related to a person (age, sex, intellectual level, character qualities, current health and emotional condition, previous experience of music, expectations to music, related associations) and environmental factors (cultural environment and background, surrounding environment and irritants during the time when a person listens to music) are equally important. It is very individual whether a piece of music feels happy or sad, inspiring or balancing, encouraging or calming to a person.

MUSICAL FOREST or SOUNDS REFLECTING TACTILITY



Prequel…

Supervised by Sten Saarits, video and sound installation “Contact Noise” was made in 2020, involving the collaboration of three students from the Estonian Academy of Arts. Inspired by listening to electromagnetic waves, practical research was carried out. To this end, sounds or noise that was created when different textile materials were touched or shredded were recorded with a contact

microphone. A person usually does not hear or notice them. Sounds created by natural materials turned out to be most pleasing to the ear. Visual was provided by a video clip that showed the game of shadows of the materials used in this experiment.

Inspired by the research done by the students of the Estonian Academy of Arts, electronic sounds have been created for the “Musical Fores” that could characterise the materials used in the installation and giving different sensations (e.g. cold, soft, sharp, etc.).

Goal: Create a sound-tactile installation as a cognitive object.

Oval textile materials with different tactility have been attached to the CNC cut plywood installation that has been fastened to the wall. When the materials are touched/pressed, sound is heard (material based, music deriving from tactile materials will be created for the installation). Each tactility is paired with a characteristic sound. Each tactile material creates a feeling in a person. The sound part that will be created would take the sensations created by some material as the basis and would look at how could the properties of a material be expressed in music. For example, when you touch silk and velvet with your hand, they are either smooth and cold or soft and warm. How could these feelings be expressed in a short musical format, so that tactility and sound would combine for the listener, and a so-called scale of different materials would be created? The idea is that when a child touches a material, then sound emerges, and this sound expresses the character of the material being touched. When choosing the sounds, attention has been paid to the match between tactile and sound contrast.

THEMES for composition: PRICKING, SHARP, COARSE, STRONG, COLD, SLIPPERY, SILKY, WARM, SOFT/FLUFFY, FURRY.

Operation of the installation: material is touched/pressed, and a sound (electronic music) is heard – characteristic of the respective material.

CLOUDS and SUN

Big hanging hoops have been fastened to the ceiling. Tree motives on it symbolise the sun and four seasons in a forest. SUN has been made in tulle embroidery technique, it is decorated with beads and flowers. CLOUDS have been made in macramé technique, effect-provoking details (seashells, beads, etc.) have been added. Spotlight illuminates the cloud motive.

Authors: Tiia Artla (Tallinn University) and Ave Liik (student of Integrated Craft and Home Economics Technologies at Tallinn University).

Collaboration: Authors of sounds – Mihkel Tomberg, student of composition at Estonian Academy of Music and Theatre, and Rebeca Vilpuu from Georg Ots Tallinn Music College. Ege Berk Akgün, student of Tallinn University of Technology, and Toomas Orumaa from TTK University of Applied Sciences helped create the technical solution.

COGNITION AREA FOR CHILDREN WITH SPECIAL NEEDS – BEACH

Goals:

- Create playful, yet pro-learning rest area aids for small children that are suitable for use also for children with special needs (e.g. in the case of severe and profound learning difficulties).
- Created aids must be high-quality, reliable and cleanable.
- The aid should not encourage undesired behaviour in a student (e.g. materials with an unpleasant texture should not be used – the child does not want to be there, throws a tantrum, etc.).
- The created aid must be universal yet allow for adaptation according to an individual (special) need.

Cognitive rest area is designed as a “beac” with different tactility. In the central position, there is a design sofa. Its parts are made by using different techniques – these provide for different sensations from materials and for emotions to be experienced. Underneath the surface of the sofa arms, there are areas that can be touched – and then sounds of nature are heard, e.g. birdsong, cries of sea gulls, lapping waves, wind, or a fairy-tale can be listened to, etc.

Inspiration: Old rotten and forgotten boat on the coast partly moss-covered and turned into turf-like object for lying on. Stones and seashells as an inseparable part of coastal milieu. Nature talks…
Recycling:

- Shredded cloth strips on the back of the sofa imitate natural turfs.
- On the back of the sofa, there are circles of textile – lower soft shred surface resembles moss.
- Sitting area created in chenille technique leaves an impression of soft grass or silky algae and symbolises rippling water.
- In the lower part of the sofa there are seashells, characteristic of a beach.
- On sofa arms, bulrush and other plants in coastal milieu are imitated.
- Wavy incrustation technique on the back symbolises seabed flora.

Authors: Keiu Martinonis (student of Integrated Craft and Home Economics Technologies at Tallinn University) and designed by Tiia Artla (Tallinn University).

Collaboration: Ege Berk Akgün, student of Tallinn University of Technology, and Toomas Orumaa from TTK University of Applied Sciences helped create the technical solution.

COGNITIVE REST AREA (at the beach, near the forest) TURFS AND POUFS

Tactile so-called turfs (poufs), smaller and bigger, should connect the forest and coastal area.

Goals:

- Create surfaces with different tactility that stimulate senses – “TURFS”.
- Objects should allow for different learning and playful activities.

A collection of so-called turfs (poufs) and stones was created – placed on the floor, they can freely be placed elsewhere in a room. The collection also includes soft cushions on the floor where one can also lie down, read, draw, play or simply rest. Smaller and bigger so-called turfs and cushions are placed in the area. Bigger cushions are for lying down, allowing for less mobility. Smaller cushions are like a set of pillows that can be rearranged according to needs. Some “turfs” (poufs) have an area under their surface where

sounds of nature are heard – for example, birdsong. Within these moss tufts, there are games for playing. One can jump on a trampoline tuft and crawl through a pipe tuft.

Authors from Tallinn University:

Mari Nittim
Keiu Martinonis
Kaidi Veller-Mägi
Ly Aurely Mekk
Ingrit Pless
Merit Peterson
Terje Kaljumäe
Katrin Kumm
Jana Kadastik
Tiia Artla

Anete Vihm (Estonian Academy of Arts)
Sarah Mia Haabma (Tallinn 21st School)

Collaboration: Aron Lips from Tallinn University helped create the technical solution. Malle Lüll from Hiiumaa weaved pillowcases from meshwork of a net on looms.