Arquitectonics
Mind, Land and Society

International Workshop COAC Barcelona 2013 - Jornadas Cientificas COAC Barcelona 2013. 29-31 May 2013. Universitat Politécnico de Catalunya: Barcelona; (ISBN 978-84-695-9424-7) (http://www.pa.upc.edu/Varis/altres/arqs/congresos/international-workshop-coac-barcelona-2013-jornadas-cientificas-coac-barcelona-2013/comunicaciones-isbn-in-process/Sebla%20Arin.docx/view)

ARCHITECTURAL EDUCATION FOR CHILDREN; A CASE STUDY: EXPERIENCING ARCHITECTURE BY YOGA

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ABSTRACT:

This study presents an educational programme called "YogArch" which aims to teach the structural principles of architectural elements by body experience. In this programme which is designed by the author, "yoga" is used as a medium for exploring the limits of the body and relating human body with building structures. This paper includes the schedule of the programme explaining all asanas and the structural elements in architecture that are matched. Some examples from the practise of YogaArch schedule in a number of workshops are also mentioned in the paper. Being carried out particularly or as a part of a chain of workshops, YogArch is found to be a beneficial educational programme in arising awareness on built environment.

KEY-WORDS: Childhood Architectural Education, Environmental Cognition, Architecture & Yoga, Built Environment Education

1. ARCHITECTURAL EDUCATION FOR CHILDREN

Architectural education designed for non-professionals is an issue of great importance. The main point of this education is that it should be started at an early age. Architectural education which starts in the childhood and which is designed for a long-time span might be adequate for obtaining best results. Each individual who takes a part in the social life is also effecting the architectural environment. Providing basic education on different aspects of architecture for whole members of the society starting from the childhood would raise the quality of built environment and it is the best investment for a sustainable future.

Architectural education for children can be evaluated from many different aspects. These aspects might be classified as follows:

- Sustainable Development: Children are the future users of the architectural environment. Therefore raising awareness of todays children would result in better outcomes for the future environment. Only a generation that is conscious about the benefits of a qualified built environment would act in protecting environmental and natural resources.
- Democratic Rights & Participation: Generally there is an intention to perceive children as passive users of the environment. But many international agreements such as "United Nations Children's Rights Convention" emphasise that children should also be admitted as active members of the community and have the same rights with the adults especially about their own living spaces. It should never be underestimated that children have the potential and right to participate in the designing process of their environments. This kind of participation would raise their self-confidence and sense of belonging to the society. The researches show that this situation also decreases the percentage of teen-age vandalism in public spaces [1].
- Providing Environmental Cognition for Everybody: Architectural practice is not only under the initiative of professional architects, but it is also related with other public figures such as users, clients, contractors, legislatives, municipalities, non-governmental organizations, etc… Each member of the civic communities becomes a part of this process. Consequently a qualified architectural environment can only be obtained in case all of these actors raise adequate level of consciousness for environmental issues. Each member has the right to mention his/her opinions in democratic societies. But it requires plenty of knowledge in order to have an idea on any subject. In other words environmental cognition is fundamental for an individual to execute his/her social role.
- Make the Individual Comprehend his/her Own Existence: This issue can be referred to Heidegger who relates the essence of existence with "being in the world" (Dasein) [2]. As far as built environment is a reflection of "being in the world", understanding architecture would help to solve the mysteries of human-being's existence. Man describes his existence through being a part of the world. Building and dwelling can be interpreted as human-being's attempt of putting down his roots on earth with an urge to provide his survivability.

Besides all the civic rights and social benefits of built environment education, providing necessary information on all values of architecture is an important part of children's environmental education. Architecture is a wide discipline which is deeply related with many different subjects. Consequently there are countless programmes and activities designed in order to introduce these various areas to children. In the UIA Built Environment Education Guidelines: 2002 it is stated that *"critical thinking, responsible citizenship, cultural literacy, social relevance and environmental sustainability all can be addressed through using issues*

of the built environment to teach traditional curriculum material." Architecture has also another potential in education. It is not only a tool for teaching built environment, but also useful for interdisciplinary studies. Built environment topics make excellent vehicles for educating and motivating students in areas as varied as mathematics, literature, music or home economics [3].

2. BODY EXPERIENCE IN PERCEIVING ARCHITECTURE AND YOGARCH

The "YogArch" programme that will be adverted in this essay intends to clarify general structural rules and elements of buildings. It might be an abstract issue for a child to realise how a building finds its space, erects on earth. It is generally difficult to embody these rules on mind. The activity that is mentioned is designed to make it simpler to internalize this subject. The constructive principles of the human body and the architectural construction do not differ so much. Indeed, in both cases it is only a matter of balance and power. The first constructive instrument that the human-being faces with is his/her body. The skeleton system supported by muscles is an enlightening guide to comprehend the laws of balance. The mind's effort to conceive the environment should be supported with physical perception.

Merleau-Ponty was an inspiration for designing this activity. For many centuries it was believed that the mind was the only source of cognition, but he claims that the body should regain its notability. The experience of the body/flesh is absolutely important in perceiving space as it is the main mediator for creating an engagement with the human being and the rest of the world. According to Merleau-Ponty the architectural environment can't be reduced to a representational Cartesian world, it is much of an experiential world. One of his most famous quotations is: *"Body and the world are of the same fabric – the same flesh"* [4].

Understanding and perceiving space and environment through human body; relating the human physiology and structural components of the building is an old tradition. Vitrivius presents the proportions of human body as a key to design an aesthetically perfect temple [5]. Because the human body is the nature's design and the laws of proportion & symmetry which is called "Golden Division" can be seen in every creature. In order to reach an excellent beauty these proportions should be adopted to the building. Francesco di Giorgio matches church plan and castle plan design with human body, the column capital with human face in "Trattato di Architettura Civile e Militare" in 1470 [6].

In the designing process of the activity mentioned, there was a requirement for a basic tool which combines physical awareness and balance. This necessity opened the way to concentrate on "yoga". Yoga is a discipline of searching one's own limits. The physical section of yoga is constituted of "*asana"*s which are poses investigating body's possibilities. They are mainly related with three topics: flexibility, balance and power. These can be interpreted as a human-being's research on his own existence. In other words it might be seen as an effort of understanding how the human body survives its integrity. From this

point of view yoga asanas are practical tools for comprehending physical laws of balance. A person can experience these laws on his/her own body by practising yoga asanas. In this respect, this practice raises awareness on his body and the overall balance of the things and the world.

3. YOGARCH SCHEDULE

The qualifications of yoga which are explained on the previous part gave an inspiration to design a programme which is called "YogArch" (Yoga + Architecture). The programme is constituted from a set of yoga asanas supported by visual materials. The set is designed in the norm of an ordinary beginner-level yoga class, which means the order of the asanas is not coincidental. The set starts with simple warming-up asanas, continues with more complicated asanas of balance & power and finishes with relaxation poses. Each of these asanas symbolizes a constructive principle or an element. Before practising the asana, this working principle or element is explained on the visual material of a building by the instructor who is experienced both in architecture and yoga. The two-level learning (first listening and then practising on his/her own body) makes it much easier for the child to perceive these facts.

The schedule is constituted of 21 different asanas which take approximately an hour to practise with the group. These asanas, the principles/elements they symbolise and the explanations of these combinations are as follows:

1. Column: *Tadasana / Mountain Pose:* The column, which is one of the main structures of architecture is symbolised with the natural posture of human body. Whereas the column bears the load of the building, spinal column bears the load of the whole body.
2. Balcony: *Vrikshasana / Tree Pose:* The tree pose, in which human body maintains its balance with the support it takes from one leg while the other one is twisted from the knee, is similar to the balcony.
3. Pointed Arch: *Ardha Kati / Side Bend:* In this pose the practitioner stretches his/her body and leans to a side by extending his/her arm over the head. When this pose is practised with a partner catching the leaning hand, it resembles a pointed arch.
4. Flying Buttress: *Anuvittasana / Standing Back Bend & Tadasana / Mountain Pose: This* combination practised by two partners is used to visualise this load-bearing element which is generally used in medieval buildings.
5. Arch: *Anuvittasana / Standing Back Bend:* This combination which is realised by two partners siding back resembles the arch structure.

6. Dome: *Anuvittasana / Standing Back Bend:* This combination is a repetition of the previous one by at least 6 people. It is used in order to visualise the dome structure which is a circular covering element.
7. Supported Dome: *Anuvittasana / Standing Back Bend & Balasana / Child Pose:* The side supports to the circular form is generally needed in huge domes covering a large space. The support given to each member of the group practising back stretch in order to form the dome structure is easing their work and let them stay in the pose for a longer period. By this way the practitioners can understand the function of the supporting elements. A similar position is also available by practising front side stretch by the ones forming the dome.
8. Column & Beam: *Utthita Hasta Padangusthasana / Big-toe Hold, Side:* In this position practitioners are holding up their legs meanwhile supporting their partners' leg with their hands and this is a good example for understanding the column-beam working principle. When the practitioners are closer to each other and the space between their bodies is shorter, they can stay stand comfortably for a longer period. By this way the effect of column spacing in stability of the construction becomes more obvious.
9. Cantilever: *Ardha Chandrasana / Halfmoon Pose:* In this pose with the support from one leg and one arm, the other leg is held up to 90° angle position to the other. This position is proper for understanding the logic of cantilever and which element is bearing the load.
10. Mushroom Building: *Virabhandrasana III / Warior III:* In this pose the practitioner stands on only one leg and keeps the other leg and arms up parallel to the floor. It is similar to the constructional principles of a mushroom building in which there is a central load-bearing element.
11. Tunnel: *Adho Mukha Svanasana / Downward Facing Dog:* All members of the group are aligned side by side practising "downward facing dog" pose. This combination resembles the tunnel structure and the principle of creating the gap in a tunnel.
12. Arch: *Ustrasana / Camel Pose:* The position is the combination of two individuals practising "camel pose" back to back. The outer contour is another way of visualising the arch structure. The camel pose when practised alone also resembles flying buttress.
13. Tensile System: *Navasana / Boat Pose:* When the boat pose is practised with a partner, it creates a tension on the arms of the practitioners. This strength clarifies the working principle of tensile systems.
14. Folding Bridge: *Anantasana / Side-Reclining Leg Lift (Vishnu's Couch Pose):* In this exercise the practitioner holds up/down his/her leg while lying on one side. It is a good way of animating the opening/closing action from the bearing point in folding bridges.

15. Bridge: *Setu Bandhasana / Bridge Pose:* In this pose the body is bended like a bow with the support from the feet & the shoulders. It is practical for understanding the constructive principles of a bridge which crosses a long distance with the support from two edges.
16. Bridge: *Urdhva Dhanurasana / Wheel Pose:* This pose is similar to the previous one but in this one the support is coming from the feet & hands. It is another way of visualising the bridge structure.
17. Table: *Ardha Purvottanasana / Table Pose:* This pose is named after one of the main objects that we use in our daily-life. It resembles a panel parallel to the floor standing on four support points.
18. Chair: *Utkatasana / Chair Pose:* Another popular object of daily life is chair and this pose makes it possible to experience the constructive principles of the chair with the human body.
19. Column: *Salamba Sarvangasana / Shoulder Stand:* Another pose resembling the column structure. In this pose the whole body is carried by the support from the shoulder and the body is held up in a linear posture. It emphasises the importance of the spine in carrying the body load.
20. Pillar: *Viparita Karani / Legs up the Wall Pose:* This pose is based on keeping both of the legs up in the air with 90° angle position to the rest of the body. When it is practised by four people keeping the legs together, the group is symbolising the pillar which is a powerful constructive element used in mosques and cathedrals in which a wide space is covered with a huge dome and there is a necessity of carrying this giant structure. In order to comprehend the logic, a load is beared on the feet of an individual in this pose. Later when the group come together a bigger load is put down on the surface of the feet of all. By this way it is proved that the load bearing capacity can be increased by the increase in the surface area.
21. Removing Tensile Strength of the Load-bearing System: *Shavasana / Corpse Pose:* This pose is based on clearing all the tension of the body away, loosening and releasing it. It shows that when the load-bearing function of the spine is removed, the body can't stay stand any more. Because of this it is called "corpse pose". Whereas the physical integrity of the human body can't be protected when the spine doesn't function anymore; when the skeleton system of an architectural building (the constructive system) is injured and loses its integrity, it can't bear the load anymore and it collapses down. The reason behind the destruction of a building after an earthquake or another natural disaster is this loss of integrity.

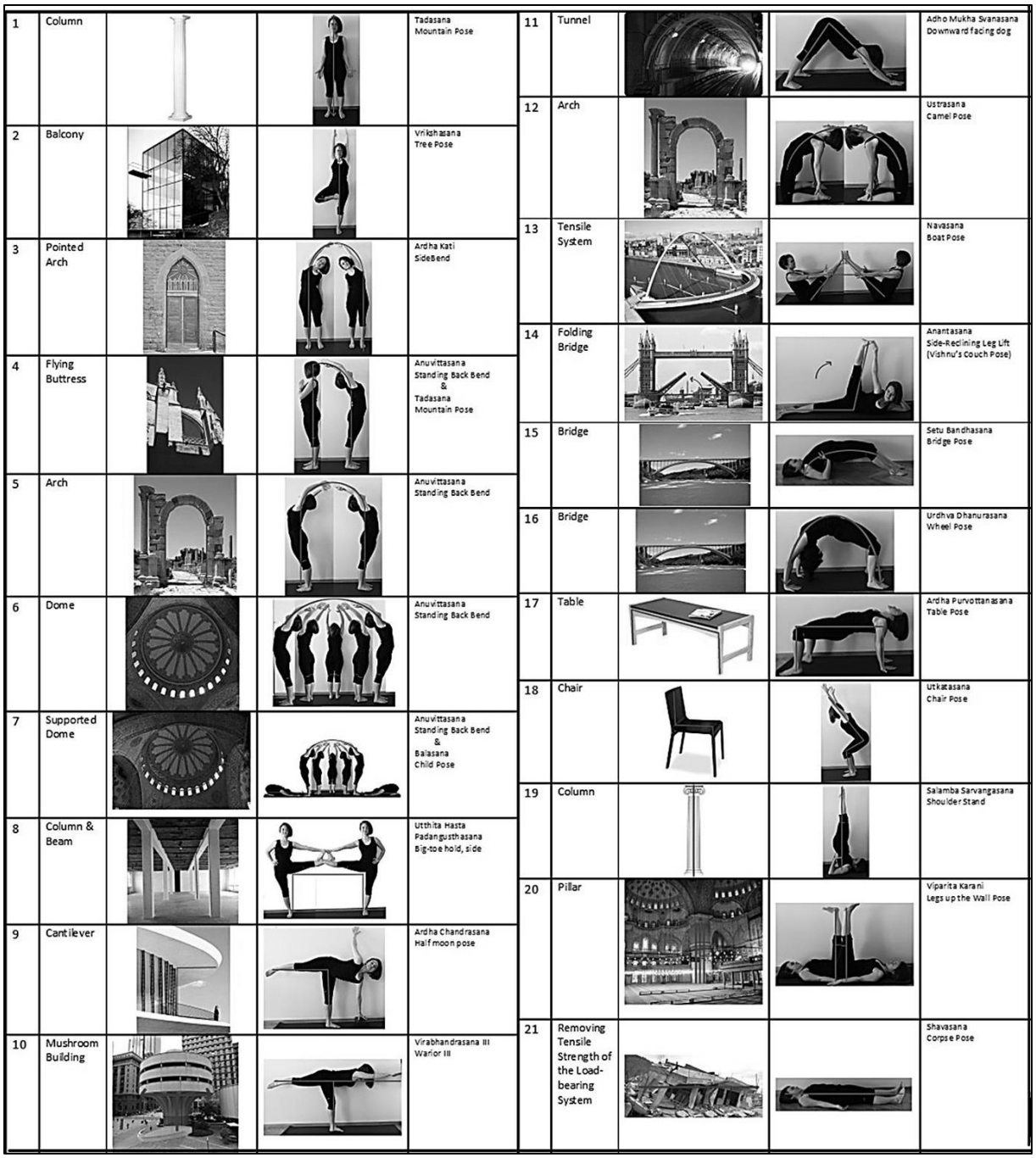

Figure 1: YogArch Schedule Diagram

4. EXAMPLES FROM YOGARCH WORKHOPS

YogArch workshops have been carried out on many occasions both as an individual practice and as a warm-up exercise of an extensive activity. The children who have attended to these workshops were aged between 8-13 years old. In both cases (applied as an individual activity or as a part of a series) YogArch Programme is confirmed to give fruitful results. After discussing on visual materials all of the poses in the schedule are carried out in order, individually or in a group depending on the requirements of the pose and the matching structure.

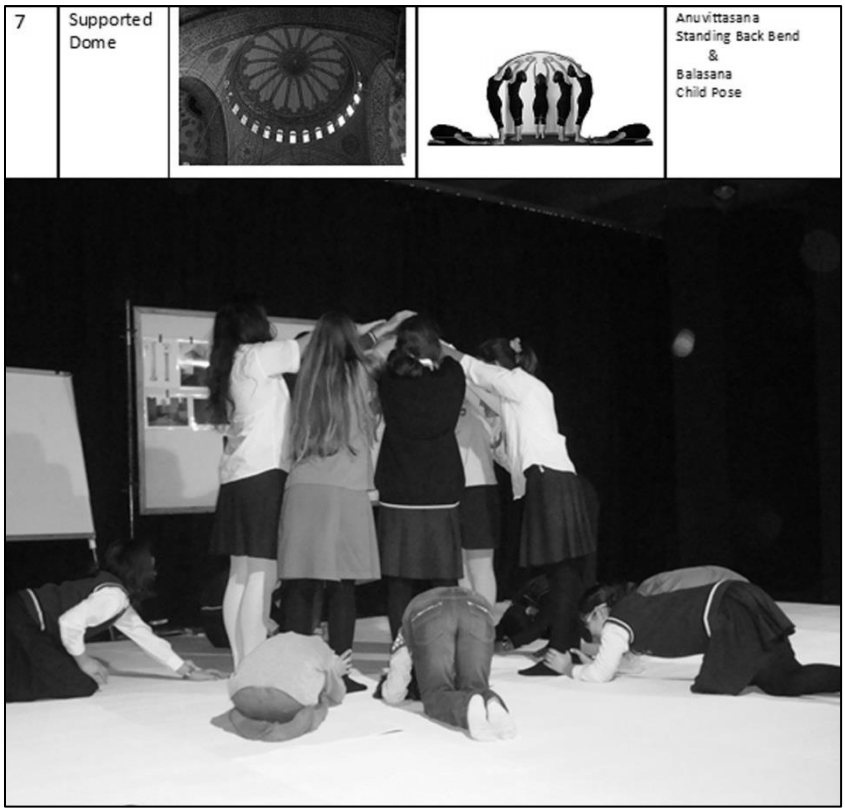

Figure 2: Supported Dome

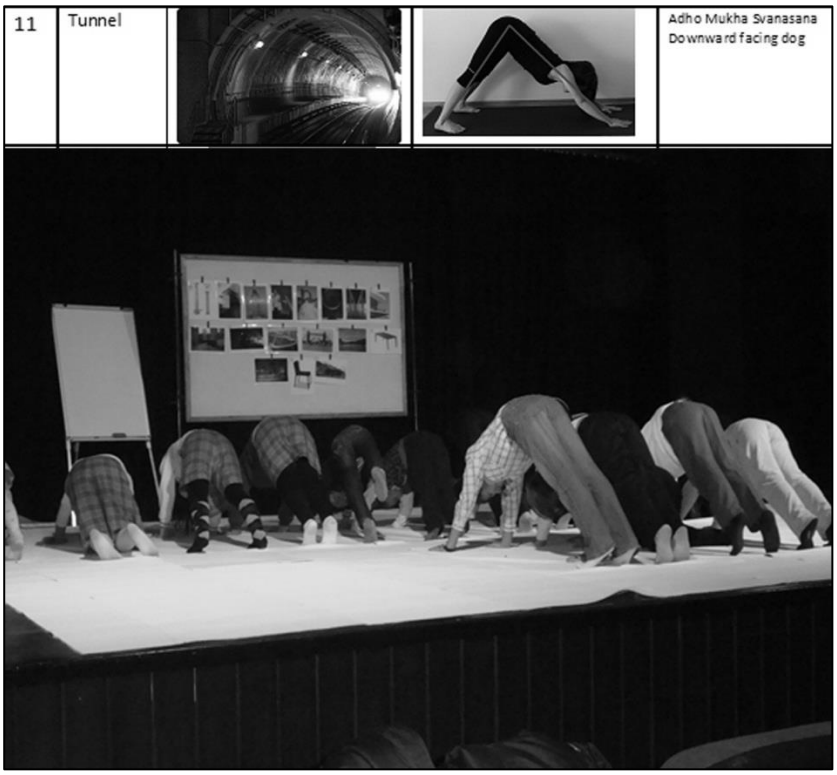

Figure 3: Tunnel

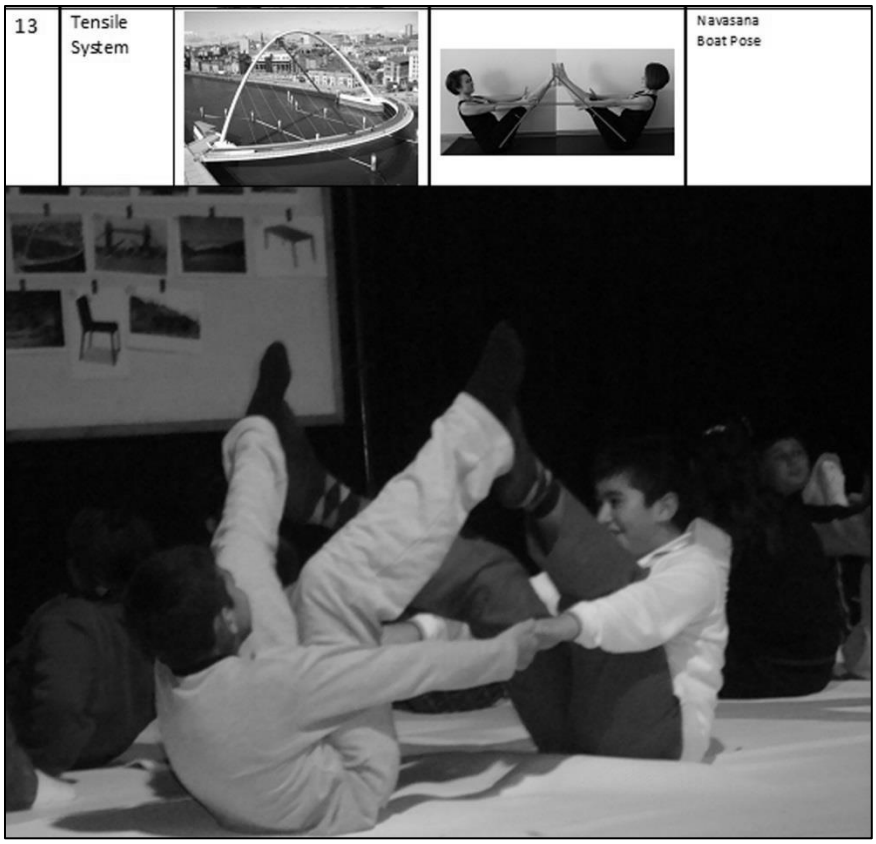

Figure 4: Tensile System

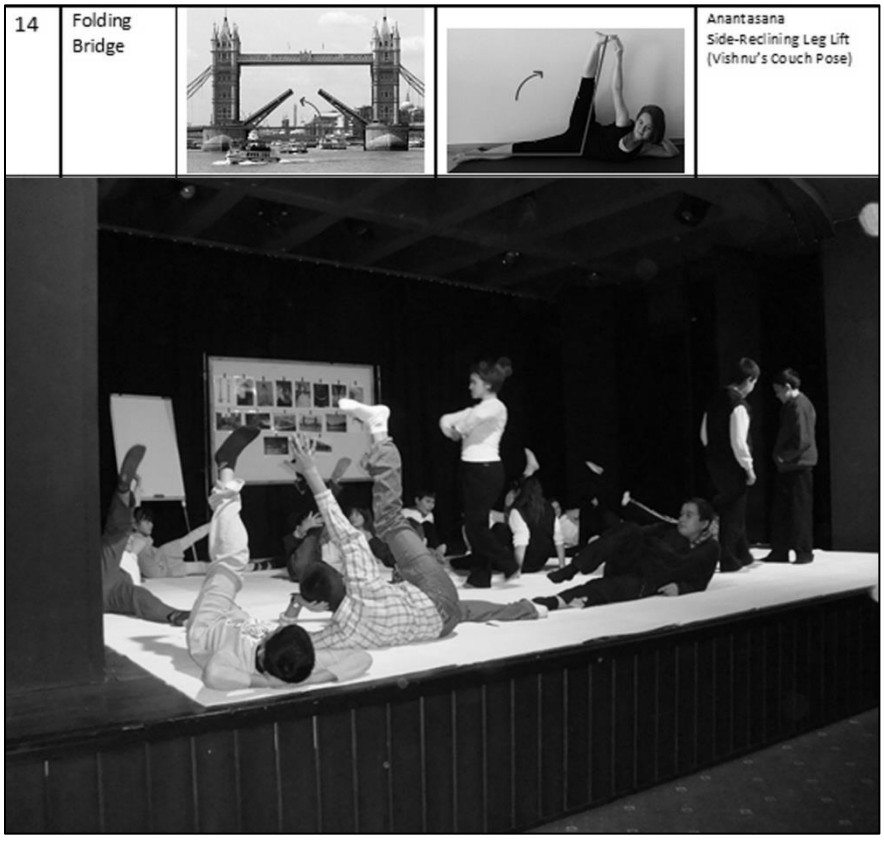

Figure 5: Folding Bridge

5. CONCLUSION

Built environment education techniques have a very wide spectrum. There is countless number of activities designed for different purposes. Each of them focuses on different aspects of architecture and built environment. Substantially, all of them are aiming to create awareness on citizenship and urban culture. Therefore built environment education is a matter of great importance as a whole, as far as it enriches the quality of social life.

Particularly YogArch focuses on structural principles of architecture. This issue is important for understanding how buildings erect on earth and how do they protect their integrity. This consciousness is vital especially for the countries like Turkey on seismic risk zone. Being more alerted about the weakness of their built environments, not only the professionals but also the users of these buildings become more sensitive about taking the right precautions against natural disasters. It is distinguished that the children who have attended to YogArch workshops reflected the knowledge they obtained to their latter designs. In the following workshops when they are asked to design a building they show a deeper understanding of structural principles compared to their previous works. Narrated by their parents, in their latter daily-life they become more critical about their environments. For example they are more attentive to constructive weaknesses or advantages of the buildings they are living in, they evaluate their built-environment more consciously. Meanwhile the fun and the joy they took from the activity make the cognition they obtain become more permanent.

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