

RESPONSE, ACCEPTANCE AND IMPACT OF THE DEVELOPMENT OF EARTHEN ARCHITECTURE WORKSHOPS FOR CHILDREN AT THE UPV

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Abstract

The work presented was developed in the framework of educational and dissemination activities promoted by the UNESCO Chair of Earthen Architecture, Constructive Cultures and Sustainable Development at its headquarters at the UPV (directed by F. Vegas and C. Mileto), and in collaboration with the UPV Summer School and Children's School. Within this framework a series of activities were carried out at the Children's School, aimed at children aged 1 to 3, and at the Summer School for those aged 6 to 12. These activities focused on the learning, promotion, and development of earth as a material associated to a wide range of sustainable and ecological construction techniques. This resource is both ancient and contemporary, and linked to numerous cultures.

These activities were carried out in June and July 2016. For the most part they consisted of practical workshops adapted to each level, where students were able to learn about earth and the different earthen construction techniques through experimentation and active methodologies proposed. This promotion of the learning of all facets of alternative techniques favoured aspects which highlighted unconventional constructive systems as possible tools for generating economic and cultural wealth through a sustainable economy.

To ensure objective responses and feedback on the immediate and mid-term impact of these activities among the children, a series of surveys were drawn up and completed by the workshop monitors and the parents to assess the impact of these workshops among children. Ultimately, this aims to obtain a series of guarantees to ensure the correct development of the activities for each level and matching the intellectual growth and development of the children. This direct feedback is essential for the consolidation of some activities, as well as for the modification, adjustment, or even replacement of activities which may not have properly attained the initial objectives.

Keywords: earthen architecture, workshops for children, impact.

1 INTRODUCTION

Architecture is an important part of the cultural expression of a country, region or given geographical setting. The materials used in construction in a specific region are a basic reflection of its culture. In the particular case of earthen architecture in its different constructive varieties, it is a fundamental part of our culture due to its remote origins, varied techniques, and adaptation to natural and cultural contexts. However, earthen architecture and its constructive techniques have gradually disappeared, been abandoned, or replaced by new standardised techniques. This has been brought about by a lack of knowledge and the loss of prestige of this traditional architecture, viewed as of poor quality and linked to underdevelopment. This situation has resulted in the progressive abandonment of earth as a building material even though it can also be used to develop numerous cultural and social values associated with sustainability and the way in which available resources are currently managed.

Earthen architecture is intrinsically linked to concepts such as local tradition, the development of trades, adaptability to the environment and 0 km architecture. Learning about earthen architecture can encourage debate on these topics. Therefore learning about this type of architecture can bring society closer to its cultural, social and environmental values.

In addition, in order to ensure the development of a progressive cultural recovery process these values must be transmitted to children and teenagers, the representatives of the society of the future. It should be noted that a large part of each individual educational journey occurs in childhood, a key time in the global definition of individual emotional intelligence and mental skills.

In line with this, pedagogic research [1] has confirmed that children's minds are far more receptive to experiences and learning of all sorts. Children are often ruled by their subconscious need to absorb through observation, participation, and exploration [2]. This gradually increasing awareness influences children in decision-making and actions. Children's education is without a doubt one of the main tools for prompting the social changes essential to sustainable development. Therefore, promoting a series of proposals for early stimulation and using earth as a construction material gradually increases children's awareness of contemporary energy, construction, and social issues.

In keeping with the concept of the full development of the absorbent mind that is characteristic of childhood [3], a series of workshops were organised within the framework of the UNESCO Chair of Earthen Architecture, Constructive Cultures and Sustainable Development. These workshops covered all stages of education, from early education (1-3 years) holding activities at the UPV Children's School to the more advanced stages (4-15 years) at the UPV Summer School.

This text therefore presents the experiment carried out in the UPV Children's and Summer School in 2016 and the feedback on the activities carried out.

2 RESEARCH OBJECTIVES

The two main aims of this project, which follow below, were to answer the need to raise awareness of earthen architecture among the youngest sector of the population as well as to focus on how these activities have really generated a process of true learning:

- To raise awareness on the constructive and expressive potential of earth, as a traditional, economical and ecological constructive resource found in numerous different cultural and geographical settings. Earthen architecture in its different forms is part of the cultural heritage of many countries worldwide. In each of these places and cultures vernacular architecture is born from the setting itself, using local materials and blending with the environment. Although at present earthen architecture is a cultural heritage element, it also paves the way for a new contemporary construction with sustainable materials and processes.
- To obtain the most objective feedback possible from various participants in the teaching-learning processes: the monitors who have contributed to the development of activities and the parents of the children who took part.

3 METHODOLOGY

The activities proposed share a common methodology based on active learning, especially with their hands ("Learning by doing") so that students are able to deduce and acquire theoretical knowledge on a specific subject based on their own experiences.

The theoretical content of the activities, not as extensive as the practical aspect, has been supported with graphic material (bits of intelligence), as well as play material (games, puzzles). This has led to faster, easier and more entertaining learning that is visually appealing to the children. Several bits of intelligence, units of information or visual information cards were designed to help children to further explore concepts that are exercised in the activity.

In addition, a series of summary fiches were designed for each activity, game or experiment carried out, as an aid to the teacher-monitor in charge. Each fiche features a description of the materials needed for the activity, the main ideas for how it should be developed and a series of images to help visualise it (Fig. 1).



Figure 1. The fiches developed for each activity.

Moreover, in order to obtain the most objective feedback possible for the response and impact of these activities among participants, both monitors and children, an analysis methodology was developed based on a series of anonymous surveys completed by participants.

The *Google Forms* application was used to draw up the two different surveys: one with questions designed for the monitors and the other with questions on the children's experience answered by parents.

In both questionnaires simple questions were used to obtain information on the knowledge of earthen architecture of both monitors and parents prior to the activities (Do you know about earthen architecture as a construction technique?). In both cases the second part of the survey focused on questions regarding the perception which both monitors and parents might have had regarding the children's response to the activity (Did the children in your group show an interest in the activity? / Did your son/daughter/ward show an interest in the activity?; Do you think they had fun and learnt during the activity? / Do you think your son/daughter/ward had fun and learnt during the activity?). The last question in the surveys was devoted to finding out how the execution of the activity had influenced monitors' current perception of earthen architecture (To what extent has this activity affected your opinion of earthen architecture?) while in the case of the parents this last question aimed to establish whether the activities had made a lasting impression on the children (To date, does your child remember the activities carried out in "The corner of the earth"?).

When drawing up these questionnaires we took into account the fact that the monitors were active participants in all the activities, while parents found out about the activities from their children. We believe this to be particularly important as learning is usually associated as being from parents to children, but in this case the aim was for children to teach their parents by sharing their workshop experiences with them.

4 APPROACH TO THE ACTIVITIES CARRIED OUT

This experience was developed for two education groups from the early stages of development. The first stage, from birth to the age of 6 (early and pre-school). In this stage children's minds are absorbent, they unconsciously learn through impressions. In this case the activities carried out relate to plasticity and the sensory perception of earth.

In addition, a second development stage, from ages 6 to 12 (primary), was worked on. This stage develops the acquisition of culture [4]. Activities carried out relate to sensory perception of earth and cover social, cultural and economic issues transmitted by earthen architecture.

The workshops are divided into several sessions and adapted to each level teaching about the use of earth as a material through different practical construction activities.

The students from the UPV Children's School carried out an activity drawing a mural with clay and natural pigments on white cotton fabric using their hands, feet and/or other body parts. This mural was set up in the school playground area so that the workshop also helped to stimulate self-expression, while improving and developing gross motor skills. This type of activity encourages creativity, imagination and self-expression for all children, both individually and in group play.

The activities carried out during the UPV Summer School were tailored to each level and age group. These activities were carried out in a specially selected area of the UPV campus which is known as "The corner of the earth".

The activities were structured into three blocks. The first block worked on the plasticity of earth; in the second block intuition was used to understand the *raison d'être* of earthen architecture; while the third block focused on learning one or several earthen architecture construction techniques. These blocks were organised by age group to ensure long-term learning continuity, given that many of the students return to the UPV Summer School year after year.

The youngest children (5 to 6) worked with earth to learn about its plastic properties and also carried out artistic activities such as the design of a mural or small drawing using earth and their hands and feet. The older children in this group also learned how to mould earth, learning about the properties of clay and its artistic potential.

Children aged 7 and 8 built their own houses to scale using different natural materials, earth, straw, leaves, twigs... The aim was for them to use their imagination and intuition to build a shelter with the available materials. This activity allowed children to understand the most primitive aspects of earthen

construction, survival and building a home with nearby materials, in what was assumed to be a natural setting.

The oldest students, aged 9 to 15, worked together on a small earthen construction. Different construction techniques - adobe, cob, rammed earth, formwork, rendering and finishes, etc. - were worked on depending on the level and age group. Technical difficulty was adjusted to suit each age group.



Figure 2. Activities developed in the UPV Children's and Summer Schools.

5 ANALYSIS OF THE RESPONSE, ACCEPTANCE AND IMPACT OF ACTIVITIES

As stated, two surveys were carried out to analyse the response, acceptance and impact of the activities, one for the parents of children who took part and the other for the monitors.

Some interesting conclusions can be extracted from the surveys completed by parents (99 responses). Firstly, the responses obtained are representative of the total participating levels as approximately the same number of responses was obtained from the participants of each year.

44.8% of parents stated they had very little or no knowledge of earthen architecture, although the responses highlighted the possible importance of these activities in their children's education and how they believe these were carried out. In the questions regarding interest in the activity and the children's enjoyment and learning, responses tended to be very positive, with three quarters of those interviewed expressing greater satisfaction (Fig. 3).

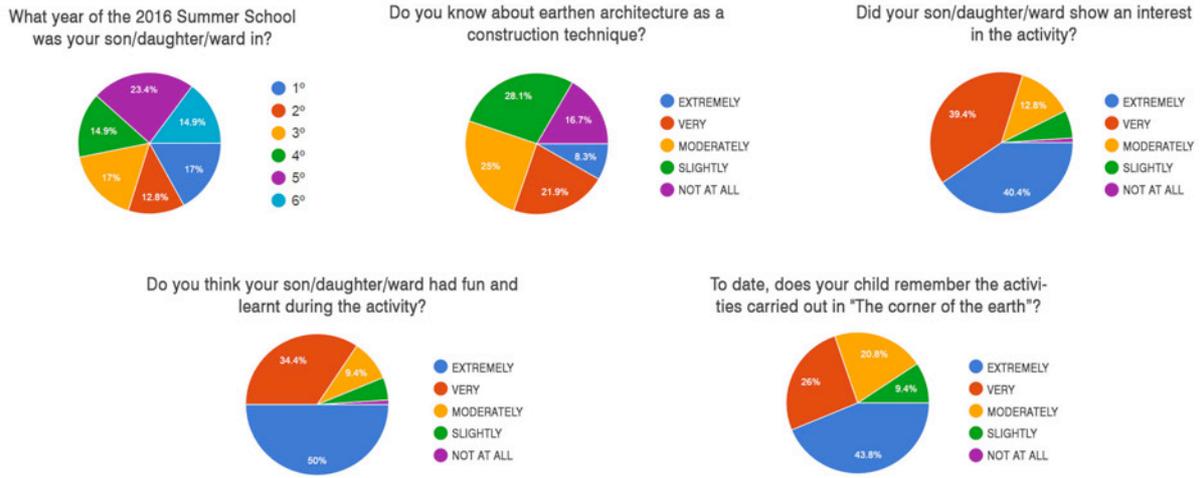


Figure 3. Results of surveys carried out among parents.

The survey was completed by 33 of the 48 monitors who took part in the activities and this sample is fairly representative. As in the case of the parents, the monitors had little or no prior knowledge of the subject matter. Regarding the children's interest and enjoyment in the activity, responses were very positive in almost 80% of cases. However, it should be noted that the lowest scores in these questions came mostly from monitors of groups from the first stage (5 and 6). Both activities in this stage were carried out in the classroom and were less "constructive" than in other stages and this may well have affected the assessment (Fig. 4).

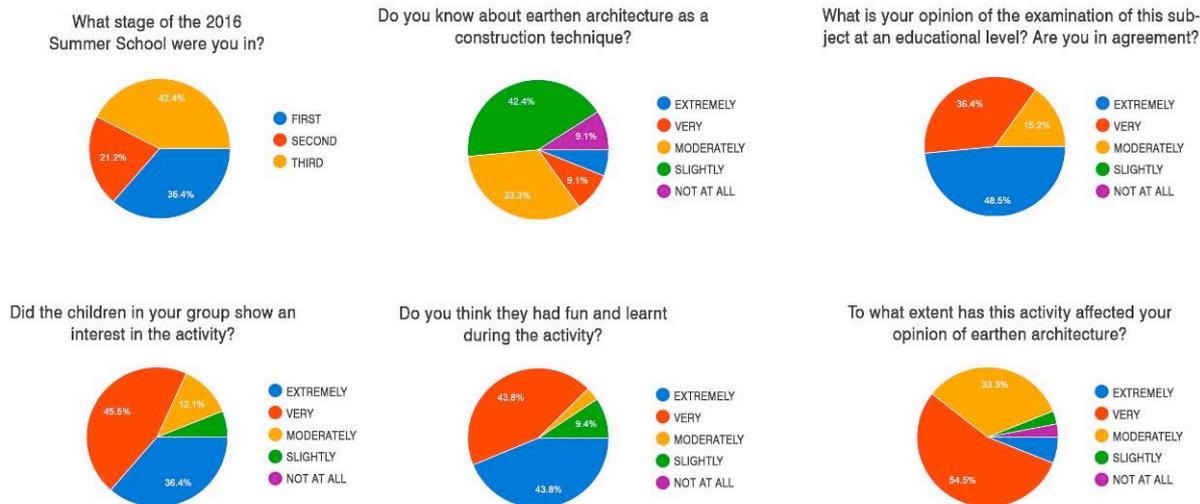


Figure 4. Results of surveys carried out among monitors.

6 PUBLICATION OF A TEACHER'S GUIDE

As a final product of this experience a teacher's guide [5] is to be published on the activities carried out in the workshops in order to raise awareness of earth as a building material. This guide offers the possibility of continuing to transmit this knowledge, bringing these activities closer to different collectives. In addition, the activities proposed can be carried out in any educational setting to raise awareness of earthen architecture in younger people, while bringing them closer to its cultural, social and environmental values.

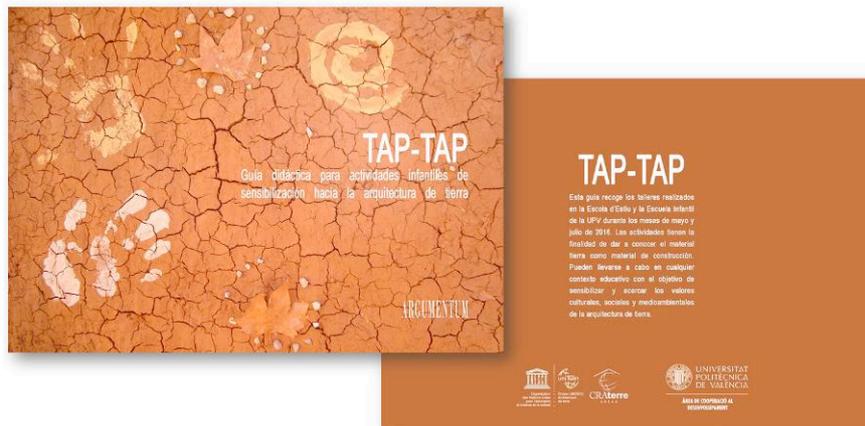


Figure 5. The teacher's guide for children's activities to raise awareness of earthen architecture.

7 CONCLUSIONS

Childhood is a key period in personal development. Children's minds are much more receptive to experiences and learning of all sorts. These activities are not designed for in-depth and precise learning about the specific constructive technique of earthen architecture, but rather for general reflection and learning about this technique and the social repercussions of this type of architecture, largely unknown and subject to much prejudice. This activity promotes learning about alternative technology in all its forms and encourages elements which could be useful to the valorisation of non conventional building systems as possible economically sustainable tools to generate economic wealth and culture in disadvantaged settings.

The questionnaire results from parents and monitors were highly satisfactory and provided important feedback for adjusting and adapting some of the activities (particularly those from the first stage) to ensure greater success and learning.

Within this framework of development objectives the activities encourage a direct and intuitive approach. This is based on the Reggio Emilia approach (Lori Malaguzzi) which aims to create a kind, active, inventive, habitable, documented and transmittable school, a place for research, learning and reflection where children can have some control on the direction of their learning.

NOTE

These activities were carried out within the framework of the UNESCO Chair of Earthen Architecture, Building Cultures and Sustainable Development, with teachers Fernando Vegas López-Manzanares and Camilla Mileto in charge of the Spanish branch. They are also included in the research project "SOSTierra. Restoration and rehabilitation of traditional earthen architecture in the Iberian Peninsula. Guidelines and tools for a sustainable intervention" funded by the Spanish Ministry of Economy and Competitiveness (BIA2014-55924-R, main researchers: C. Mileto and F. Vegas).

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