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**Mutual education.
Towards a model of educational co-creation around
the archaeological heritage of Mexico.**

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Abstract

Today, the area surrounding the archaeological city of Teotihuacan is suffering a gradual process of destruction due to factors such as: the uncontrolled urban sprawl of neighbouring communities, the conurbation of Mexico City, and the conflictive relationship between the State Institution which is legally responsible for preserving these remains and these centres of population. This represents a multifactorial and convergent problem requiring coordinated action and participation on the part of the Mexican state, the local authorities, and the local population.

This article deals with these problems from a generational perspective, based on the fact that, at the present time, thousands of school children and young people from these urban areas are forming criteria or opinions about the problem and learning from the positions taken by different players in the conflict. It is in this context, and via a post-doctoral study period supported by the Mexican National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnología) (CONACYT) and the Institute of Heritage Sciences (INCIPIT-CSIC) in Spain, that we have built a strategy for scientific dissemination, named 'Arqueólogos en Apuros' (Archaeologists in Trouble), which consists of a multimedia children's news bulletin presented by puppet reporters, with the aim of promoting processes of reflection among school children

regarding the destruction of the pre-Columbian city and the problems implied by this fact. However, we wish to go beyond the act of simply providing information and hope to generate co-creation processes, in which these children can make decisions regarding the topics, formats, and representation of the news bulletin and can become capable of researching the news for themselves. In this paper, the theoretical and methodological evolution of this project is analysed, along with its successes, failures, and future challenges, which may enable us to establish the ways in which these young people relate to their heritage, reaching beyond the authorized discourse, and to help them to demand their right to preserve, defend, and enjoy this heritage within the framework of the expression of their creativity and spontaneity.

Keywords

Teotihuacan, preservation, defence, young people, co-creation.

Introduction

The archaeological city of Teotihuacan has long been one of the most emblematic sites of Mexican Archaeology. It is a pre-Columbian metropolis, built around 100 A.D., on the perpendicular crossroads of two great roads (avenues) of six kilometres in length (the Avenue of the Dead and the East-West Avenue), forming four large quadrants occupying an area of 22 km², with an estimated population of between 150,000 and 200,000 inhabitants (Charlton 2002).

Neighbourhoods, temples, squares and streets, as well as more than 2,000 architectonic units, make up a complex urban system possessing archaeological information of prime importance in understanding the development of this metropolis and of the different cultures which preceded it. Following its abandonment, which occurred around 650 A.D., eight communities of colonial origin were established on the buried remains of the archaeological city. However, it was not until 1988 that the Mexican government, via the National Institute of Anthropology and History (Instituto Nacional de Antropología e Historia) (INAH), attempted to provide the archaeological site with federal protection by creating

containment belts and placing special restrictions on building through the publication of a legal document, known as 'La Poligonal de Protección de 1988'.

However, this law presents many technical limitations and a design which conceived of these modern communities as static entities, with the aggravating factor that it came into force without including these communities in a process of consultation or participation. Moreover, this law did not contemplate alternative land use or different types of construction for the property owners concerned, all of which means it borders on obsolescence. Faced with these facts, these communities have neither remained static nor have they waited passively for the law to be reformed to allow for their participation. Rather, they have developed a series of social practices aimed at bypassing the law, which they consider an imposition. Examples of these social practices include: not signing legal documents suspending construction work; pretending to be unaware of the legal situation; confronting the INAH's notifiers and lawyers with violence; and simply covering up any building work with tarpaulins and plastic sheets until construction is complete.

The result is that the area has turned into a social battlefield, in which avoidance of the law on the part of the inhabitants, and lethargic administration on the part of the authorities, has become the norm. This situation has resulted in the total or partial destruction of 50% of the buried archaeological city with predictions warning of its almost total destruction by 2035 (Vit & Miró 2009).

Considering this state of affairs, Teotihuacan must be viewed as a multifactorial and convergent problem, requiring the intervention of various government ministries and models for community participation and the use of precise methodologies (see Tully 2007). However, it is also desirable to consider this phenomenon from a generational point of view, based on the fact that, right now, large numbers of children and young people, ranging from eight to fourteen years of age, from the valley of Teotihuacan are forming criteria and opinions about this problem, learning from the positions taken by those playing a role in this conflict, namely their parents, teachers, friends and neighbours.

Faced with this situation, we are forced to ask ourselves what information these children and young people have about what is happening to help them take an informed and considered stance on this problem. In order to answer this question, we decided to carry out a survey of more than 2,500 school children and 43 teachers belonging to the 22 primary and 21 secondary schools located within the area of archaeological protection, asking the following questions:

- How big do you think the archaeological city of Teotihuacan was?
- Do you know where your house is in relation to the city?
- In which period of history did the city exist?
- What were its main characteristics?
- Mention three things which come to mind when you hear the word 'Teotihuacan' (Cid & Delgado 2013).

The outcome of this survey was extremely revealing, with 85% of the school children being unable to situate the ancient culture of Teotihuacan in the correct historical period. 87% were not able to define the area it occupied, 75% believed that it only consisted of the Pyramids of the Sun and the Moon and 56% confused the people of Teotihuacan with the Maya, Aztecs or Olmecs. A similar problem was also detected among the teachers, with 61% of them being unable to place the archaeological city in the correct chronological context and 13% confusing it with the Aztecs or the Maya.

Faced with a situation such as this, we, as professionals dedicating our lives to these matters, cannot remain passive, waiting for politicians, civil servants and different stakeholders in the community, entrenched in their conflicting positions, to agree on the wide-ranging reforms necessary to safeguard this site of public interest. Rather, we must contribute towards helping young people have more elements at their disposal in order to define and express their position regarding these events, through informed, self-aware and participative actions. Seen in this way, the scientific dissemination project presented in this paper is founded on the premise that school children, passing from childhood to adolescence, are going through a crucial stage in the definition of their political positioning, a process which extends beyond their

homes and family groups (Velazco 2002). This is no small matter, as we are speaking of around 5,000 children of between 8 and 14 years of age, who have a direct relationship with their parents (calculated at 10,000) and 360 school teachers. These figures represent more than 20% of the total population of the areas in question, and somehow, they all were reached.

Archaeologists in trouble

With this problem in mind, we made a proposal to the authorities of the National Institute of Anthropology and History (INAH) to set up a scientific dissemination strategy in order to contribute towards achieving our goal to promote processes of reflection, participation and co-creation among school children. The proposal consisted of producing a multimedia children's news bulletin entitled 'Archaeologists in trouble', presented by a group of puppets (one presenter, nine puppet reporters and a floor manager), who travel all over the place broadcasting news regarding new archaeological and environmental findings, whilst also providing accurate information on the progressive destruction of the archaeological city (Delgado 2014).



Photo 1, from the "Archaeologists in Trouble" news bulletin.

Two initial aims of this news bulletin were defined: The first objective was to generate processes of reflection among school children regarding the destruction of this pre-Columbian city and its scientific value. The second goal was to investigate how the school children of the area understand, assign meaning to and form opinions on their heritage. The style of the news bulletin was informal and fun, and was conceived especially to be used both inside and outside of the official public education system.

The theoretical framework

Before going on to present the results obtained, it is necessary to clearly define our position as anthropologists, faced with what we consider to be an "identity crisis" afflicting our discipline. It was imperative for us to define what we wanted from the children and what our role in this process would be.

With these questions in mind, we considered three possibilities:

1. To direct and control our relationship with the children based on our institutional agenda.
2. To remain in the background as observers, not as participants in the process.
3. To interact with the schoolchildren, hoping that a mutual learning process would develop via dialogue.

Ultimately, we rejected the first possibility, as it represents an outdated, vertical and instructivist relationship which, for many years, has characterized some specialists and institutions, who tend to transmit specialized declarations and discourse, in the hope that their audience will repeat them parrot-style, rather than truly taking them in. In this directed relationship, the specialists consider that the results of their archaeological research must be objective, positive, universal and scientific, meaning that disseminating them to unspecialized members of the public can 'falsify reality'. It is here, according to Manuel Gándara, that we turn our backs on the general public, forcing the people to be interested in things such as strata, substrata, layers, horizons, ceramic sequences and datings, whose relevance is clear to us but is perhaps incomprehensible

to the general public (2003: 6). This recalls what Lewenstein (2003) has defined as the deficit model, taking the point of view that the archaeologist is the 'prototype of knowledge', whereas the general public has a lack or deficit thereof. Given this fact, the specialist is expected to fill this void by supplying all the necessary information (Miller, 2001). This represents a one-way relationship, which ignores the fact that these young people have already assigned meaning to the remains on different levels, scales and degrees of intensity, influenced by points of reference in the community, before the arrival of the specialists to their schools.

On the other hand, the second position of a non-participative relationship is based on avoiding any hint of indoctrination or inculcation of dominant hegemonic discourse towards "others" on the pretence of minimal intervention. In this relationship, some anthropologists maintain that the cultural phenomenon must be understood without having an influence on it. This places the phenomenon in a serious conflict by aiming to stand apart from the cultural reference points without realizing that, by defining a group of "others" via academic means, an asymmetric relationship is automatically established (Foucault 1970). The third position, with which we identify ourselves, refers to a relationship of dialogue in which dialogue and feedback between us and the school children will eventually have an effect on both groups (Blanco 2004). Along these lines, researchers such as Wynne (1991) and Miller (2003) refer to this approach as a contextual model, which overcomes the view of an indiscriminate audience by recognizing the fact that everybody has different degrees of knowledge, opinions and positions regarding the information received. This premise has also been identified by educational psychologists such as Piaget (1979) and Ausubel (2002), who have referred to it as a process of assimilation and accommodation.

However, one particularly significant characteristic for our research purposes has been the special consideration of an 'Authority', albeit not one given by decree but an epistemic authority; in other words, an authority founded on the legitimacy and recognition of the school children themselves, one based essentially on the trust generated by interaction (Alonso 2016). In this way, and assuming that the symmetry with the school children is, by definition, impossible for ontological, ethical and economic

reasons, as has been mentioned by González Ruibal (2014: 52-54), this symmetry is extremely clear and feasible when establishing a material and symbolic negotiation of these differences on a relatively equal footing with those involved in the process.

Background

In order to achieve our initial goal, we built a multi-disciplinary work group, which was tasked with creating the scripts, characters and subject matter of the news bulletin. This was done taking into account the fact that the puppet reporters would present the bulletin live in the classroom, recreating a newsroom and broadcasting their reports on a 50-inch flat screen television. However, the true challenge was to re-contextualize archaeological discourse via the following educational methods:

1. The use of mediators (Hall, 1997: 45), thereby assuming the fact that many specialist archaeologists, although they may be excellent academics, may not necessarily be good communicators. Therefore, the decision was taken to substitute the specialist with puppets, who would look for answers in a dynamic way with the same doubts and concerns as those of young school children.
2. *The idea of affection and relevance*, which situates our knowledge in a closer position to the specific realities of children. This is a methodology also known as *junior pack*, which consists of playing at real life but on a small scale (David Perkins, 2009).
3. *Genius loci*, translated as the 'spirit of the place', consists of extracting elements from specialized archaeological discourse which allow school children to identify what makes an archaeological site unique and exceptional, with the aim of increasing their interest by taking them out of their routine and confronting them with something extraordinary (Gándara 2015: 3).
4. Finally, and with the aim of opening up the dialogue, we use the *Scaffolding Theory*, which consists of using

something that the children already know and are familiar with and channelling towards the subject in question (Vygotsky, 2009). In this dialogue, it can be observed that the archaeologists become less technical the moment they leave their field of expertise, thus achieving a higher degree of empathy with their audience.

The films

Having created the scripts, we proceeded to the creation of the characters, beginning with the puppet reporter *Kelly Importa*, who makes the archaeologists uncomfortable by asking them about aspects which have always been circumvented or ignored in their scientific research: "Did the Teotihuacans have girlfriends?", "Did they fall in love?", "Did they have pets?", etc.

Another character is the reporter on environmental affairs, named *Opuntio Espinoza*, a small cactus who lives on a hill, from which he can observe the urban growth around Teotihuacan. Nervous and paranoid, he warns the children that the urban stain "wants to devour us all!"

The correspondent *Teoreto de la Piedra* is also worthy of note. He is an old archaeologist, tormented by his theories which he feels persecute him. The cast is complemented by *Cucharacucho*, *Picoleta* and *Brocha*, the work tools of the archaeologist, who act as the translators of their boss's technical language.

Initially, there were four films made for the news bulletin, beginning with the recent finding of a tunnel beneath the Temple of the Feathered Serpent in Teotihuacan. The news was broken by the puppet reporter *Teoreto de la Piedra*, who interviewed the archaeologist Sergio Gómez Chávez, asking him about the significance of the finding and his decision to introduce a robot to explore the underground tunnel in depth. Another report, presented by *Opuntio Espinoza*, showed aerial photographs of the dramatic growth of the valley's population over the archaeological city and its surrounding environment.



Photo 2. The reporter Kelly Importa of the newscast "Archaeologists in Trouble". Photo of the author.



Photo 3. The reporter Opuntio Espinoza, green news reporter of "Archaeologists in Trouble". Photo of the author.

Finally, the reporter *Kelly Importa* provided a live link from the Avenue of the Dead, asking tourists in Teotihuacan how tall they think the Teotihuacans were and how they think they walked. The situation takes an unexpected turn when the interviewees agree to walk as they suppose the Teotihuacans did.

After presenting the news bulletin in 22 primary and 21 secondary schools in the Teotihuacan Valley to more than 3,400 school children, it was obvious that they had enjoyed the experience but did they really learn anything?

In order to provide an answer to this question, a team of eleven sociologists from the National Autonomous University of Mexico carried out entry and exit surveys for each of the school children who watched the bulletin, using the same questions in order to be able to make comparisons, in accordance with Sierra's (2003) methodology. The results were encouraging, as the children's knowledge about the extension of the city increased from 2% initially to 82% at the end. For the first time, 56% learned what the average heights of the Teotihuacan men and women were, while 75% of the children would refer to the discovery of the tunnel beneath the Pyramid of the Feathered Serpent (Cid 2013).

In addition, at the end of each presentation, we opened the debate with a question: Who do you think the pyramids belong to? The answer given by the majority of the school children was emphatic: to the ancient Teotihuacans, to their builders. This is in contrast to a survey carried out in 2008 among 280 adults from the Teotihuacan Valley, who answered that they belonged to the government, to the INAH, to "the gringos" or to the director of the archaeological area. All of this reveals the aforementioned generational contrast of the conflict (Delgado 2008).

With the results up to this point, despite technical and budgetary limitations, it was clear that we were on the right track towards connecting the children with this problematic situation. However, we could observe that the school children remained immobile, without the possibility of involving themselves in research processes. At that point we asked ourselves: What would happen if children and young people became actively involved in the research process presented in the reports?

The collaborative model

Wishing to give a more active role to the school children, in the second stage of the project we explored a collaborative model of a multi-directional nature, which would lead us down different and contingent paths. We also modified the thematic axes in order to promote appreciation for the research process itself, rather than for the evaluation of the results. In order to sustain this process, we employed John Dewey's (1995) Pragmatism theories, the Theory of Collaborative Learning (Johnson, David, Johnson, Roger T. & Smith, Karl A. 1997) and the Theory of Cognitive Development (Piaget 1979 and Vygotsky 2009), which led us to develop a collaborative protocol, which we named *Taller de Investigación Arqueológica* (the Archaeological Research Workshop). This basically consisted of seeking help from the school children in order to investigate the news, giving them the freedom to choose how to present the results of their archaeological research and including these results in a special section of the news bulletin, named 'INAH Noticias en la Escuela' (INAH News at School)¹.

A total of five workshops were carried out. Some schools organized themselves quickly, whereas others required more work sessions with the project's educational experts. However, in the end, the collaborative process was fruitful with plays, novels, models, comics and even a mass stage performance being some of the means of representation chosen by the school children. Below, we shall highlight three examples of these results.

Video 1 'The Cacaclysm'

Synopsis: Tired of being treated badly, the world's excrement takes to the streets of the main cities. To begin with, the presenter of the

1 The Archaeological Research Workshop protocol consisted of: 1) Presenting the team of the news bulletin to the children in the classroom and showing the bulletin in order to present the archaeological research problem. 2) An introductory talk in order to provide the group with the necessary elements for beginning their research (books, videos, links). 3) Organizing the children into work groups and defining topics and subtopics. 4) Accompanying the research process. This was the responsibility of the teachers, who, at all times, acted as facilitators of the process. 5) Producing a video recording of the final results of the children's research in front of the class and the teachers. 6) Interviewing the school children, their teachers, parents and school managers regarding their impressions of the process. 7) Carrying out the exit survey, with the same topics as the entry survey, with the aim of capturing and comparing data.

news, *Antonio Trincheras*, does not pay attention to the worldwide protests as he is watching funny videos on the Internet. However, after realizing the seriousness of the problem, he interviews the leader of the protests in the studio, the puppet *Cakarina Aguado*, who states that among the ancient Aztecs, feces had a life cycle and even had their own goddess. We, therefore, asked the children to help us investigate whether the Aztecs really had an excrement goddess and whether, at that time, excrement played a different role compared to the situation as we know it today.²

Here, the children produced a theatrical play, using puppets which they made themselves, in which they discovered that, indeed, the Aztecs did use human excrement to fertilize their agricultural land and even had a goddess called *Tlazolteotl*, who was a goddess of the fertility of the land. In this context, they also designed a model of a water treatment plant to clean up the San Juan River, an archaeologically important river in the ancient city of Teotihuacan, which is used today to drain the waste water of the surrounding communities. As part of this process, the children called on the local population to carry out a campaign to clean up the river.

Video 2 'The Urban Stain'

Synopsis: The little cactus called *Opuntio* Espinosa claims to have received a visit from his robot cactus cousin from the future, *Espinosaibor II*, who warns him of the future destruction of the archaeological remains and asks him to do something about the situation. Therefore, *Opuntio* goes out into the public square of Teotihuacan holding a sign warning people of the dangers of the urban stain. The rumour immediately goes around that *Opuntio* has gone mad. However, the little cactus sends a video to the news bulletin in which he proves that what his cousin told him is not only coming true in Teotihuacan but also in many other parts of the world. After watching this video, we asked the school children whether it was true that urban growth is affecting natural areas and the archaeological remains in Teotihuacan, and what the future of the valley would be like if this growth continues unchecked.

² This item of news was investigated by pupils from the 5th and 6th grades of Margarita Maza de Juárez primary school, in San Martin de las Pirámides.



Photo 4. Video of the “Cacaclismo” with the collaboration of children and young people from Margarita Maza de Juárez primary school, in San Martín de las Pirámides Teotihuacan. Photo of the Author.



Photo 5. Video on the urban sprawl with the collaboration of children and young people from Xochicalli primary school, from the municipality of San Juan, Teotihuacán. Photo of the Author.

In this case, the school children produced a short news bulletin with puppets in which they reported on the extinction of frogs, lizards and coyotes in the Teotihuacan Valley. They supplied specific data about the current population and that which is predicted for Mexico City as a result of the conurbation process. They also produced a play based on the book by Frank Tashlin named *The Bear That Wasn't* (1946), which tells the story of the life of a bear who hibernated in the countryside and woke to find himself in the middle of an enormous factory, in which he was made to work until he lost his identity³.

Video 3 'Teotihuacan Food'

Synopsis: An ear of corn, called *Nacho del Campo*, falls in love with sweet *Palomita*, but she rejects him because he does not look metallic. So, little *Nacho* embarks on an adventure, which leads him to attach to himself all kinds of preservatives, flavourings and artificial colourings and he becomes a star of the *Pop Corn* 'genre'. However, his excesses mean that he ends up in hospital due to an overdose of *trans* fat. In this context, we asked the children to help us research what the ancient Teotihuacans ate, how their food was different to ours and what substances instant soups and soft drinks contain.

In this case, the school children formed two groups. The first researched the food eaten by the ancient people of Teotihuacan and how it was different to the industrial food we eat today. The second group created a comic in which a character called *Pizza Style* has a plan to set up pizzerias all over the world until a worldwide league of vegetables, led by a carrot, stop him in his tracks.

Through these three examples, we could establish that the application of the Archaeological Research Workshop led to a largely qualitative and proactive appropriation of the information. This became clear when the school children themselves opened the debate or expressed their opinions, leaving the specialists as just another interlocutor of these reflections, not as a point of reference.

³ This topic was researched by pupils from the 5th and 6th grades of Xochicalli primary school, located in San Juan, Teotihuacán.

However, perhaps the most significant information for the development of the project occurred when we asked the children what they would like to know about the ancient Teotihuacan culture. Here, 96% expressed an interest in finding out about topics relating to the everyday life of the ancient Teotihuacan civilization. For example, they wanted to know what illnesses they suffered from; how they played; if they brushed their teeth; how they dressed; how they built their pyramids; what they ate; what they died of; how and where they buried their dead; and if they kept pets.

Having provided the answers to these questions, a conclusive fact was revealed to us: the list of topics prepared in the first and second stage of the project was not what interested the children. Faced with this fact, we wondered what would happen if Education was inverted: what if it was the children themselves who decided the subject matter which interested them as well as the contents of the news bulletin and how it was presented?

Towards an experimental model of co-creation

To respond to this new challenge, in this third stage, we will move towards a co-creation process (Hirzy 2002, Chambers 2004, Simone 2010, Connolly and Cruzado 2015), starting from the concept of co-creation as the set of reciprocal relationships that connect the assets and purposes of institutions with society (Chambers 2004: 194). This implies "giving voice and being sensitive to the needs and interests of the members of the local community, to provide a place for participation and dialogue" (Simone 2010: 187).

With this background, co-creation is in many ways a correlation of forces in the key of mutual feedback, which for the case that concerns us, is nourished by the participation of the directors, parents and teachers of the community involved in the process, emphasizing at all times the material and symbolic utility that archaeology has for the interests of the surrounding communities to the Archaeological Zone of Teotihuacan, rather than for the institutional agendas (Connolly and Cruzado 2015).

This period offered us the opportunity to think again about education. In most countries, a compulsory public education system was not introduced until the middle of the 19th century, resulting from the emergence of an industrial economy, which led to an extremely linear educational culture focused on the production standards of the era. This process was also influenced by the intellectual culture of the Enlightenment, which produced a hierarchical structuring of the Sciences, along with instrumental and practical reasoning associated to the emergence of new technologies. In this system, Mathematics, Chemistry and Engineering were placed at the top of the educational pyramid, with Social Sciences and Philosophy (when it is taught) below the former but still above the artistic disciplines.

This argument is of particular importance in this new stage of the research, due to the fact that, in our intellectual culture, there is a connection between the Sciences and a certain type of objective knowledge. In this way, it is believed that working with the Sciences is to work with facts and certainties, which is considered to be what is important in the world. Whereas the artistic disciplines are associated with feelings and personal expression, without tangible or specific repercussions. In this context, some explanation could be given for beliefs that educational or artistic dissemination may 'falsify the reality' of the 'exact sciences' (Robinson 2009).

As a result of this rift, we have ignored creativity and innovation, which are fantastic areas full of educational possibilities. Bearing this in mind, in this new phase of the research, we gave ourselves the goal of recuperating the emotional principles which gave rise to modern Archaeology; the motivation of a young detective seeking answers in the depths of a mysterious past. In other words, we wish to explore creative and experimental freedom as a powerful element with the ability to invigorate existing strategies of archaeological dissemination and their inherent anthropological knowledge.

In order to stem the one-way tide of producing knowledge of the past and favouring mutual education between archaeologists and the school community, we produced an experimental model of co-creation with the aim of promoting the ability of school children to decide on the subject matter, the sections and the ways of producing their school news bulletin. In this way, the appearance of local knowledge could be stimulated thus revealing

the way in which the children relate to their heritage from their own perspectives and circumstances-- allowing us to document the self-reflection implied in this process.

However, this cannot be achieved by simply declaring these freedoms given the fact that what lies at the heart of this new approach is the capacity of children to have fun, to make mistakes, and to lose the fear of expressing their ideas, seeing figures of authority in a different light than they are accustomed to within the compulsory education system.

In order to achieve these goals in a satisfactory manner, we must begin by breaking from the traditional methods of the education system, which is based on the capacity to get the right answer (considering making mistakes to be a sign of a lack of learning). This can be observed, for example, in the use of space within most Mexican classroom, where the pupils sit in rows with a central aisle leading towards the teacher who represents the figure of authority. In this system, the child is expected to get the right answers in front of his/her classmates in order to demonstrate his/her learning. This results in a tense situation, which ends up dissipating the magic of the journey to the past.

Faced with this situation, we proposed to carry out the workshop by reorganizing the layout of the classroom, working in circles to promote interaction within the groups. The next step was to consider the children's mistakes and rehearsals to be the seed of their creative processes. Several studies have demonstrated that the creative abilities of young people significantly improve when they make mistakes and have the confidence to correct them and start again, without making value judgements that lead to self-censorship (Robinson op. cit.).

The technique which we propose here is similar to that which occurs when somebody makes a sketch for a drawing, a test in which the capacity to create, erase and correct under one's own parameters of assessment is implicit. The metaphor of the sketch proposed here can be translated into a simulation when playing at being detectives of the past, creating puppets or playing at presenting a news bulletin. But is this enough for the children to trust us and to be able to lose the fear of expressing themselves?

It is at this point that three complementary dynamics (see Workshops 1, 2 and 3 below) become necessary, which tend to promote play as an element of relaxation and creation in which it is possible to make mistakes, correct yourself and try again, within the framework of the project's goals and of the rules of play themselves. The experimental workshop described here took place with 25 boys and girls of between 8 and 12 years of age belonging to the 6th grade of the Margarita Maza de Juárez public primary school located in the town of San Juan Teotihuacan over a period of four and a half months, with a total duration of 50 hours.

Methodology

In order to achieve our goal, it is necessary to build up co-creation processes with progressive methods. In other words, more and more complex improvisation structures must be used as we progress in these workshops, albeit always within the framework of the creative/spontaneous expression of the child and of the specialists. The workshops were as follows:

Workshop 1: BUILD YOUR CHARACTER. This activity is designed to introduce the subject matter of the news bulletin to the participants. In this phase, the children have to make their own puppet reporter from their own sketches, design, production, characterization and handling. Here, the different styles of puppets (muppets, marionettes, sock puppets, etc.) and the techniques used to produce them are explained. However, the most important point is that the children become able to recognize any object around them as a possible puppet, if they are able to include it in a creative plot.

Workshop 2: A DETECTIVE'S WORK. With a view to introducing them to the process of archaeological research, each child is given a series of documents (photos, credentials, letters, newspaper clippings, tickets and posters) found in the backpack of a young student called Francisca, who has disappeared. In this fictional story, the boys and girls have to read the police report in detail, establish the personality of the missing girl, determine her character, her tastes and hobbies and reconstruct the last moments

before her disappearance. The aim of this exercise is to construct a hypothesis that will enable us to find out where she is. This activity helps the children to identify the similarities and differences between the work of a detective and that of an archaeologist, establishing a correspondence between the two jobs.

Workshop 3: THE CIRCLE OF IDEAS. The participants have to define what they want to know about the ancient Teotihuacans and the way in which they could transmit it via their news bulletin. It is necessary to mention here that, as we have previously mentioned, co-creation implies a collective decision-making process which constitutes a break from the one-way flow from which archaeological knowledge is normally built. For this process, we use the method of Participatory Action Research (PAR), in which the children, gathered in circles, express their ideas via a series of anonymous cards, which are put in a visible place in the work meeting, until groups of general and specific ideas are made.

This technique has been successfully developed in multi-disciplinary groups such as DhiGeCs from the University of Barcelona (Spain) (<http://www.ub.edu/dhigeecs/index.php>) and in the ParticiPat project of the INCIPIT-CSIC in Santiago de Compostela (Spain). In addition, there are also reports of its implementation, through drawings, by the 'Pintar Obedeciendo' group in Chiapas (Mexico) (Hijar 2011). An advantage of this technique is that the participatory process is visible at all times. Participation is made horizontal as equality is promoted, preventing the most outspoken or impetuous children from monopolizing the debate to the detriment of more timid children.

Workshop 4: THE RESEARCH. This stage represents the axis of the project and is present in all the activities that occur. However, the research gains in importance once the subject matter of the news bulletin has been accurately defined. At this moment, the children are divided into research groups in order to multiply their search efforts. It must be highlighted at this point that the information gathered should be argued and visualized in a critical way, encouraging the children to claim ownership of the discussion process.

Workshop 5: THE NEWS SYSTEM. This is a kinaesthetic activity in which the children are able to play the roles of the characters in the news bulletin, either in the first person or via the puppets (interviewers, sound technicians, off-stage voices, make-up artists, camera operators, etc.). In the end, it is hoped that the appearance of the children themselves will reveal their level of learning as creators of historical knowledge and their ability to relate to the past by organizing and presenting discourse.

Having said all of this, it must be mentioned that, unlike the epistemic or referential authority proposed in earlier stages of the project, at this stage we wish to take the process a step further, by inviting the specialists to immerse themselves in the creative process, without losing sight of the final objective of the news bulletin, which is to speak of archaeology and the environment while putting the school children at the centre of the narrative process.



Photo 6. A rehearsal of the co-creation model in the Lázaro Cárdenas secondary school in Otumba.

With this background, co-creation is in many ways a correlation of forces in the key of mutual feedback, which for this case, is nourished by the participation of the directors, parents and teachers of the community involved in the process, emphasizing at all times the material and symbolic utility that archaeology has for the interests of the surrounding communities to the Archaeological Zone of Teotihuacan, rather than just for the institutional agendas (Connolly and Cruzado 2015).

Therefore, we wish to clarify that this project does not only seek a multimedia product which can be broadcast over social networks or public television. It is also an educational co-creation scheme, designed for children to express their point of view on the issue of the destruction of the archaeological remains of Teotihuacan, recognizing the fact that their experiences are worthy of being expressed. In addition, it is also an opportunity for the specialists to participate in an experience of mutual education, in anthropological terms (Pardoe 1992:138).

Conclusion



Photo 7. "Arqueólogos en Apuros" from Greece and Egypt.

Lighting a fire, hunting and gathering edible plants, and making recipients and weapons were activities learned by our ancestors in their daily lives via contact with others and through repetition. Yet thousands of years later, writing was invented and led to the first great revolution in learning—the ability to write and

record information to share. Texts began to direct a large part of the knowledge process, changing the things that people learned. Within the first school system, the teacher possessed a set of knowledge, which was dictated to the students, who learned and then repeated it. However, when the Industrial Revolution took place in the 19th century, education systems began to be regulated with the aim of preparing workers, who would then be responsible for the chains of production. In this line of work, people would do the same task over and over again for many hours a day and, at school, it was hoped that all children would learn by repetition certain knowledge which was considered useful for the newly created industrial economy.

Our problem is that this model has continued to the present day when it is no longer appropriate, due to the fact that the world has changed dramatically since those times. Advances made in science and technology have brought about a change from an industrial society based on the mass production of objects to a service and information society, which is driven by ideas and creativity and the capacity for innovating ways to communicate. Thus, we are rediscovering something that we do not learn through repetition but through enthusiasm.

Therefore, scientific dissemination needs a fundamental reform. It is necessary to implement a dissemination strategy which, through social and emotional learning, leads us to stimulate children and young people in subjects which may bore them, such as history. The future of the preservation and use of heritage in the world is full of new challenges requiring new solutions that depend on how creative and varied the people facing up to these challenges are.

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