"TELARES DE LA MEMORIA": A DYNAMIC HYPERMEDIA DEVICE FOR GOVERNANCE FROM THE APPROPIATION OF CULTURAL HERITAGE

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ABSTRACT

This paper aims at communicating significant aspects of perspectives, actions and technological developments over the years, which have built the uniqueness of the current proposal now appears as a first prototype. The project implemented in the village of Wheelwright (Argentina), was aimed at an open and collaborative writing of a complex physical-virtual dynamic object, called *Telares de la Memoria*, conceived as an emergent learning process towards the production of *civitas*. The various physical-virtual activities are conducted jointly by an interdisciplinary research group belonging to a national research centre and a significant group of neighbours and local institutions. The prototype presents an original development called "Book of Plural Memory" that makes writing hypermedia about plural memory really easy, capitalizing plural memory benefits of Moodle Glossary Tool. Finally, this prototype clearly shows perspectives on the political potential of *Telares de la Memoria*. In this sense, the gradual formation of the "Plural Management Council" is seen as an innovative tool for management and local ownership and cross-cutting proposal by members of different organizations / institutions. What has been undertaken as a possible way to innovative physical and virtual practices on governance and asset management is evaluated, giving meaning to the work to link memory with current citizenship practices.

KEYWORDS

Dynamic Hypermedia Device, Cultural Heritage, Governance, Physical-Virtual Context

1. INTRODUCTION

Building an inclusive virtual-physical context in Argentina presents a scenario of increasing diversity and complexity. In the light of this paper, the processes of integration of Information Technology (ICT) are conditioned to many educational, political and social factors. While significant government actions are performed in the area of ICT, there are still strong differences in the availability of infrastructure, services and applicability. In addition to this, there is a marked fragmentation of community groups in local governance practices and poor educational experience on issues of memory and heritage.

Internationally, UNESCO promotes activities for safeguarding intangible heritage, collective memory that is directly related to promoting a better quality of life in communities. Also, it promotes respect for diversity, human rights, integration of ICT and development of participatory practices in community governance. In this regard, the "Convention for the Safeguarding of Cultural Heritage" (UNESCO, Paris 17.10.2003) states that communities should participate in the identification and definition of intangible cultural heritage, since they are the ones who decide what use is part of their cultural heritage.

An inclusive physical-virtual context is conditioned by the type of appropriations that each subject can do in relation to another one (Thomas and Buch, 2008). While there are national programmes that provide laptops to the schools, connectivity infrastructure and software applications, today it is necessary to

emphasize the creation of socio-technical networks for the production of open knowledge and innovative strategies that promote civic participatory practices.

"*Telares de la Memoria*: a Dynamic Hypermedia Device for governance from the appropriation of Cultural Heritage" is a theoretical, methodological and technological development proposal, carried out over a decade of interdisciplinary research, development and innovation related to ICT, for mainly formal educational settings and non-formal higher education in the public sphere. The perspective adopted confronted with instrumentalism operative focused only on technology, promoting ownership and valuation of cultural heritage as an enabler of community governance processes.

A Dynamic Hypermedia Device (DHD) is defined as an heterogeneous network (Foucault, 1991) formed by the combination of technologies and social-networks, enabling socio-technical subjects of participatory actions –responsible interaction- for management, education, research and cultural production in the form of workshop, using the potential of the ICT (San Martin, 2008).

Next, we will present a brief description of the First Experimental Prototype (FEP) of the DHD, located in the Commune of Wheelwright, Santa Fe, Argentina. Then, an outline of the theoretical framework will be described including what was done from recollection of different projects for Research, Development and Innovation. After that, we will discuss the progress on the development of processes of citizen participation and their appropriation of the physical-virtual public space to finally comment on some conclusions about new developments and territorial spread of diverse *Telares de la Memoria*.

2. BUILDING *MIXTOPIAS*

The project implemented during 2010 and 2011 in the village of Wheelwright (7000 inhabitants) was aimed at an open and collaborative writing of a complex physical-virtual dynamic object, called "DHD *Telares de la Memoria*", conceived as an emergent learning process towards the production of *civitas*. The relevance of DHD consists in proposing new practices and agreeing on actions which question the notions of citizenship, seeking to re-signify from the processes as a community or organization to manifest around the construction and the re-writing of memory. It tries to open a path to new relationships, narratives, voices that support the composition of the public as broader citizen participation. A singular space cross rooted to its time, unique practices, in memory / forgetfulness and concrete actions. Thus, you could make tangible wide governance processes, where responsibility concerns everyone (Borja, 2004).

Traversa (1994) defines *mixtopías* as those utopias, which media societies articulate in two places always in tension (places or no-places reverse and disjunct), proposing to discuss whether to refer Utopia and *Mixtopía*: discourse on plans, projects, systems or doctrines connatural to our psychic existence; necessary for their excesses of excellence, to enable any social practice (Traversa: 1994).

In this sense, *mixtopías* operate as logical links between the evolution of desire and its imaginary arrests, being possible to say that currently, the utopian text that the author has termed as "mixtopic" is presented as articulating a precise behaviour and its effects and not with the completeness deferred to another world. Then, the various texts that relate to digital inclusion in the framework of the Information and Knowledge Society, centred to the ICT access could be described as "mixtopic". They are an evident paradigmatic confrontation between the different models of digital inclusion, realising the political sense of the *mixtopías*.

In the Wheelwright case, both aspects were addressed in an integrated social and technological manner, which were setting the FEP "DHD *Telares de la Memoria*". The various physical-virtual activities are conducted jointly by an interdisciplinary research group belonging to a national research centre and a significant group of neighbours and local institutions. The methodology is developed under a qualitative ethnographic approach and methodologies of software engineering (San Martin and Martino, 2010).

In regards to the social construction of the prototype, we developed field survey work, training in the physical-virtual mode for teachers and students from three high schools of the village. At the same time, about 400 people between 12 and 95 years were trained with roles of responsibility distributed under the dynamic workshop. Among the collaborators and disseminators of the project highlights the participation of retired teachers, members of various cultural organizations and local radio programmes, district officials, families of migrants from the north of the province of Santa Fe, which are part of what today has been called as "new town".

In April 2012, the new application system was installed on a server of the Wheelwright Commune (http://www.wheelwright.gov.ar/Telares) having Moodle (version 2.1.1) as its collaborative framework. At present, we have completed specific physical-virtual training to the group of citizens, for both system and management administration of social, political, technological and educational device. The various institutions and organizations of the village can have a virtual site management for education purposes, by request through a simple form the "Plural Management Council *Telares de la Memoria*."

The FEP presents an original and innovative development called "Book of Plural Memory" that makes writing hypermedia about plural memory really easy, capitalizing plural memory benefits of Moodle Glossary Tool.

In relation to processes of governance, the "Plural Management Council…" has the task of activating participatory approaches and strategies, management and sustainability of the DHD. Its members are leaders chosen from local organizations with general permits in the environment of *Telares*.

From the portal (Figure 1), highlights the internal icon access to the "Plural Management Council ..." and the public space "Looms citizenship" for the discussion of current issues in the region and / or proposals to be developed in the "Book of Plural Memory". This space allows "guests" for reading and exploration. The external links point to the official site of the "Commune of Wheelwright" and the "Virtual Campus of the National University of Rosario", UNR (http://www.campusvirtualunr.edu.ar/). Fulfilling one of the objectives of the project, the Commune has signed an agreement with the UNR, which was instituted "Regional Headquarters Campus".
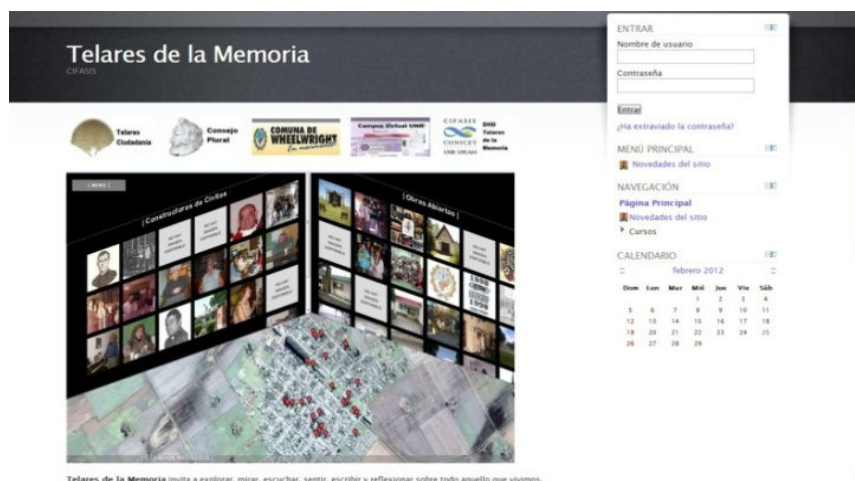

Figure 1. *Telares de la Memoria* Portal

The "Book of Plural Memory" (Figure 2), is innovative in the simultaneous display of data, navigation and usability for collaborative editing contributions. It presents the script of the plural memory through three related categories: "Builders of *Civitas*," "Open Works" and "Inhabited Areas." These categories constitute paths that allow writing, loading, spatial location and simple real-time indexing of all material collected the public can provide (resources in different formats). The system for charging collaboratively developed with simple pieces and brief *ad hoc* tips by category. In turn, in the editing stage, you can tick down in the relationship between uploaded objects in different categories, from an object generating the synchronous opening of all those to whom it relates. It was considered very important that each tab users can make comments. Thus, the general public can view, explore, discuss and contribute to the net of the plural memory in a friendly, interactive and hypermedial way.

Thus, the *mixtopía* "*Telares de la Memoria*" displays dynamic status of open work in the incomplete, plural and multiple. In this work emerges the uncertainty, the memory and the forgetfulness (Candau, 2002). Infinite as a "Book of Sand", which has no first or last page. The direction may vary each time and is unique in its context because the links are woven, unwoven or overlapped in the plot of the subjective memory of every reader-publisher. An open work which in turn inspires a certain fear: *I thought of fire, but feared that the combustion of an infinite book were evenly infinite and suffocated the planet with smoke…* (Borges,1998).

However, the same construction gives those who experience it, brief moments of certainty or horizons to where navigate.
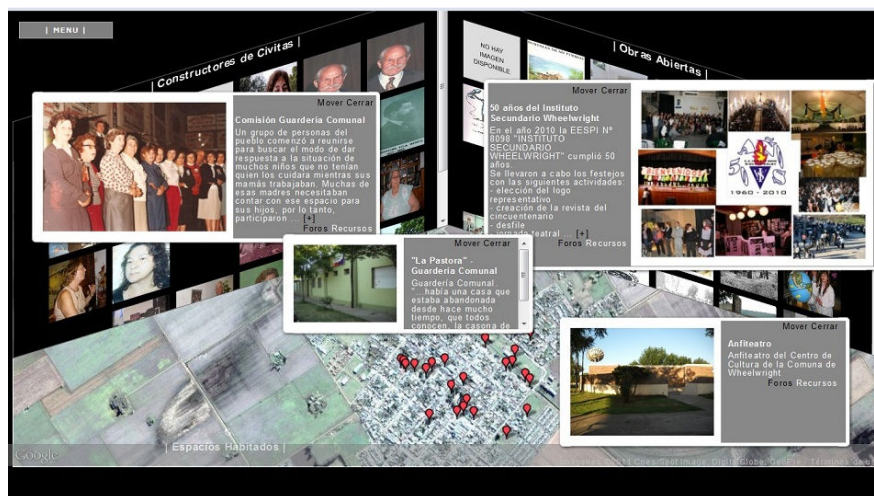

Figure 2. "Book of Plural Memory"

2.1 From "*El Libro de Arena*" to "*Telares de la Memoria*"

Globally, the development of Web technologies provided in the last decades of the twentieth century, brought new spaces that allowed a large number of users, communicate complex texts given to the multiple intervention and infinite composition. At that time, the classic short story of J. L. Borges, "*El Libro de Arena*", led to a significant "mixtopic" deployment into the hypermedial text. During the 90's and with reference to this paper, we designed and implemented a hypermedia system in CD-ROM call "Book of Sand". This system clearly differentiated from the encyclopaedic hypertext products of that time, presented in the educational virtual space, an active educational approach of Artistic Education. On metaphorical grounds, the "Book of Sand" was born in 1998 an open hypermedia electronic book, which could be used both as a material for teacher training as well as by anyone interested in art. This proposal was one that allowed "mixtopic" experience:

  * The infinity of knowledge: exploring those who could add and expand content through various virtual physical edition activities, leaving their footprints in various digital formats (new pages of sand).

  * An in-depth education to integrate new communication possibilities of collaborative virtual environments and hypermedia language, re-signified in the values of the "Six Memos for the Next Millennium" by Italo Calvino.

  * An upgradable system in content-enabled bi-directional communication with other components and technologies: it had a system that required an installable on PC CD-ROM, which provided communication via WEB (FTP) to a public institution of teacher education.

  * Musical content, graphics, audio, textual Argentine and Latin American heritage with a poor circulation in the market, not very accessible to the academic community and general public.

  * An interface inviting playful exploration of resources and sound immersion in hypertext navigation tools, friendly to the different user levels: made possible the recovery of all the way and the option to resume from any point a new journey.

  * A system that when installed allowed to choose and integrate the graphic editing software, verbal, aural, visual to be used on the PC.

The software application "Book of Sand" was a web of texts: leaves daughters, granddaughters, great granddaughters that were deployed in the system tree, a book that should grow from the interests of user management and compositional activities proposed. So what "mixtopic" hypermedia as an object, proposed various trips to the exploration, interpretation, integration and composition of the poetic, literary, visual, musical, scientific, etc. Reporting on it voyage of the plural and the possibility of signification, which is not

limited to saying that has several meanings, but performs the same plurality of meaning: an irreducible plurality (Barthes: 1987).

In early 2000, the system "Book of Sand" was used as a complex system in successive interdisciplinary research and development projects. This undertaking made in the field of public education and research in a country devastated by an economic crisis that affected enormously to health, education and employment of the population, became effective by a working group, despite the discouraging discourse and political corruption, a "mixtopic" vocation. The system "Book of Sand" in CD-ROM was configured as a course for teachers through the Web titled "Oblique Polyphony: music education at the frontiers of century XXI". The course was implemented in 2001, from the Virtual Campus of the National University of Rosario (UNR) exclusively through the Web, being carried out for two years. We counted with the requirements of organizational and technological order management, communication, teaching and an e-learning platform. Later evolved into its latest version, both in pedagogy and in optimizing technology, with most Digital Object Education (ODE) in different disciplines, being called "Polyphony of Time". This device in its physical-virtual mode is integrated into the "Infinity Space" of the "Island of Inventions" located in the city of Rosario, Santa Fe, Argentina, which is configured as a public educational and cultural space, non-formal mode, open to the entire community.

The systematic study on the issue of interactivity and interaction, started from the testing process and evolution mentioned, where different shaped sociotechnical networks that interact in the form of workshop. In this direction, we have defined the "DHD-Interactivity" as a responsible inter-subjective link mediated for the ICT, which forms a socio-technical network of exchange and generating and multi-trip editing of messages and objects in a collaborative framework, open, democratic and plural (Guarnieri, 2011). Under this premise, we developed a software tool originally for Monitoring and Evaluation Interactivity DHD called "SEPI-DHD" (Rodriguez, 2011), currently deployed in the virtual space of *Telares de la Memoria*.

2.1.1 Six Memos for this Millennium

The theoretical and methodological "Polyphony Oblique" (San Martin, 2003) based on the "Six memos for the next millennium" (Calvino, 1988), constitutes the sustaining plot developments and implementations in successive DHD that gave singularity to *Telares de la Memoria.*
"Lightness", "Quickness", "Multiplicity", "Exactitude", "Visibility" and "Sonority" instead of "Consistency" (sixth proposal that Calvino did not write) were re-signified as values to be considered for education and writing in the current physical-virtual context. So "Oblique Polyphony" emerges as "Model of the models" (Calvino, 1985) considering a compositional option open for education, a plot of the hypermedia infinite book: the sand, validating their status as object in the dynamic conception of its flow: the art, speech, action, thought, works, knowledge of the public, memory, expression, the sensible, the intangible, the ineffable ...

"Oblique Polyphony" recovers the classicality of Heraclitus in the knowledge that everything is fluid and is in perpetual motion, but at the time, asked to be aware that submerged in the torrent of information, are parts of that content that can be transformed as social construction open knowledge. Everything flows and memory changes but brings to question only those changes that have led to violence and exclusion. The metaphor of the river is not linear, a network of canals, we live in "*Smeraldina*" (Calvino, 1988), discovering new cities seeking to trace invisible daily sailings by the multiple dimensions that overlap and intersect in the current physical –virtual context.

The complexity arises in respect of that permanent "through" where it is usually only possible to support, accepting the words of Bauman (2009), an ethical responsibility to take responsibility for this responsibility, resulting in the subjective and symbolic presence, enabling the eye to the other in a multidimensional space-time that eludes all positivity.

2.1.2 A place in the physical –virtual context

In the task of thinking and experiencing the event (Badiou, 2005) innovative projects arise in different parts of the world from social commitment, which propose governance actions arising with unique ways of integrating ICT (Laddaga, 2010). The enhancement of regional educational experiences of high significance censored by totalitarian governments (Bianco, 1996), multiplied interdisciplinary physical-virtual action from a continuity of projects, mostly referred to as "*Obra Abierta: xxx ...*" where "Book of Sand" could be still written and discussed an unlimited "Sand Table".

Open access to Web 2.0 technologies and the extensive development of collaborative environments brought to mind that sand table used as educational technology movement "Active School" in the early twentieth century, marked a fundamental difference in ideology space, temporary and traditional pedagogical interaction exemplified in the immovable rows of single school desk.

The "Sand Table" was conceptualized as a multiple object, following Deleuze and Guattari (2001) through various levels and intersections of philosophical, scientific, artistic and technological epistemological anchors to providing unique interdisciplinary framework theoretical, methodological and technological development DHD (Garcia, 2007). It was then, that in 2008 the DHD perspective was recognised institutionally through an interdisciplinary programme of research, development and transfer in its own field of study, forming their own socio-technical network of scholars belonging to the system of Science and Technology of Argentina. Among the objectives proposed by the DHD programme (http://www.cifasis-conicet.gov.ar/index.php?grupo=5), the focus is on training of graduate students qualified in the subject, the development of innovative projects, dissemination of Open Access content and the development of Open Source tools.

Calvino's 'Invisible Cities' work, published in 1972, encourages endless re-reading further imagine invisible new cities or potential *mixtopías*. Recalling the invisible city *Andria*, the visitor stressed two virtues of its citizens: the self-confidence and caution, because convinced that any innovation in the city influences the pattern of the sky before every decision calculated risks and benefits for themselves and the whole city and of the Worlds (Calvino, 1988). It is in this direction that the *mixtopía* "*Telares de la Memoria*" can be interpreted as a place where governance is possible, being *Telares de la Memoria* an ethical stance on a good government.

Likewise, the invisible city *Zaira* appears linked to the memory configured for the relationship between the measurements of its space and the events of its past. In its inhabitants' memory, the city is embedded like a sponge and expands: *a description of Zaira as it is today should contain all Zaira's past. But the city does not tell its past, it contains like the lines of a hand* (Calvino, 1988). Then, we can expect the inseparable links that constitute the physical-virtual context, as the layout of *n*-dimensional complex.

N-dimensional outlined in the physical materiality of the vast field that involves the body, actions and objects at a time and place set for the virtual in its dimensions of thought, action, speeches and artefacts. This conceptual representation (invisible) exceeds the simple distinction that generally refers to positive externality of cyberspace encouraging the inside "Visibility" to the production of other texts...

In Telares, each of its streets and neighbourhoods take the form of the universe. Bubbles in the inflation process to produce more bubbles, which in turn generate more, and so on "ad infinitum". In fact, both the traveller and the people of Telares wonder if the city tree of bubbles, is formed as a single, complex and diverse or as many coexisting with other incomprehensible logic. All this of course, leads to uncertainty when drawing or reading maps and thinking about moving: scanning the sky and the map of Telares, do not know if referring to a complex and diverse universe or the existence of multiverses.

As expected, this situation creates endless conversations that raise more and more interconnected bubbles. About this construction inflation mode, people told me that the old cranes, pulleys, blades, scaffolding, lime and cement, were insufficient when it came to start building the new construction process. This is only possible just letting memory flow.

And they said:

-The empty space is not totally so, but it is one filled with power fluctuations caused perhaps by our conversations. These fluctuations activate the memory and create a critical point that could be the result of regeneration. The strong difference among the scalar fluctuations may also vary the number of dimensions of space and time.

I went round old and new bubbles of Telares. On my way, I found buildings with ludic walls, houses with spaces of autonomy, schools roofed of freedom, spaces for "mixtopic" people, parks of diverse logics. The most curious of all was that the roads interconnecting the multiverse of the city were paved with emotionality.

Then I asked:

- And these innovations do not disturb the astral rhythm of Telares?

- The body of knowledge is now advancing in three fronts: the very large, very small and very complex. After each new bubble a group of older and younger people, scrutinize the spaces once built and testify if the changes have left their mark originated in primitive materiality. Knowing the effects that have opened new grounds, which have made visible the invisible, being possible to listen to the silenced.

I can remember the "Sonority" of the inhabitants of Telares, through the laborious presence of older and younger people ensuring that the new construction process was assumed as a place for everyone.

2.2 Towards the appropriation of DHD

The experience of the Wheelwright study case clearly shows perspectives on the political potential of *Telares de la Memoria* from the FEP. In this sense, the gradual formation of the "Plural Management Council ..." is seen as an innovative tool for management and local ownership and cross-cutting proposal by members of different organizations / institutions. What has been undertaken as a possible way to innovative physical and virtual practices on governance and asset management is evaluated, giving meaning to the work to link memory with current citizenship practices.

After making a map of the community, non-formal educational space of the Community Centre of Culture was considered important to call the citizens who remained outside of the training to teachers and high school students. This led to the construction of new access and opportunities for community inclusion especially those who are farthest from the use of ICT and social representation such as migrants from other neighbouring towns or rural areas.

During 2010, the collaborative writing of memory in the DHD encouraged discussions within the local political parties on levels of representation that provoked strong analysis and rethinking of the presence political parties. This resulted in organizational strategic actions towards the writing of new content from different sectors, enriching the DHD in its plurality.

The local government responded to community demands on access to Distance Education, bringing citizens to the pedagogical and technological linkage of the National University of Rosario. UNR is a public institution located in the south of the Santa Fe province, 155 km away from Wheelwright, granted the model of sustainability *Telares de la Memoria* as their regional headquarters provides free training on the DHD (San Martin, Guarnieri Rodriguez, Bongiovani, Sartorio, 2010). In this regard, public universities in Argentina perform academic tasks and knowledge transfer to mitigate technological and social isolation experienced by different populations distributed in the vast rural areas. Note that the Wheelwright Commune has consolidated free Wi-Fi services to the community as well as improving the ICT connectivity and infrastructure in the locality.

The collaborative generation of Educational Digital Object (ODE) with regional content, enables educational institutions of the Wheelwright village and the region count with a significant bank of digital content indexed in different formats, absent in the bibliographies and digital publications currently use. Nationwide, this is an invaluable resource in terms of increasing the intangible heritage.

In recognition to what has been done, the Ministry of Science, Technology and Innovation of the Government of Santa Fe, the Commune of Wheelwright has got the "Award 2011 at the Commune Innovation" by the experience of *Telares de la Memoria*. This distinction enables the Commune to have economic resources to continue its development.

3. CONCLUSION

Sociocultural and economic diversity in Argentina and worldwide requires countless people worldwide to build their "Visibility" and "Sonority", by highlighting the challenge of collaborative writing Plural Memory.

Currently a new study of the FEP is being carried out as a first phase of a new project and in the next two years it is expected to set up a second prototype in other locations within the region. In this sense, the integration tool "SEPI-DHD" enables both researchers and members of the "Management Plural Council" to perform qualitative analysis of interactive engagement strategies carried out, in the reflection of the governance processes. In turn, this process is expected to enable optimize "SEPI-DHD" as a tool for qualitative analysis of sociotechnical networks. These activities have motivated young professionals in the region to run in upcoming national graduate fellowships for the study of social networks in the framework of the DHD.

Telares de la Memoria invites us to think the plot of inseparable links that constitute the current physical-virtual context. This *mixtopía* articulates *n*-dimensional outlined in the physical materiality of the vast field

that involves the body, actions and objects at a time and place set for the virtual in its dimensions of thought, action, speeches and artefacts.

"Invisibles Looms", where you can browse who explores the multiplicity of the singular and collective dynamics tangled texture polyphonic time. Our work so far, although not enough in relation to the proposal, intended to enable new insights and questions in terms of promoting better governance. Political responsibility is beginning to change with the participation and presence of a committed group of young students from mostly High School Wheelwright, in the development of the experience they called themselves *Juventud Telares*.

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