CosmoCaixa-UEC: an innovative educational and museum proposal for social change

CosmoCaixa, May 2016

Abstract

This project situates itself within the general action guidelines of CosmoCaixa as an instrument for direct social change, bringing science to society and participating in creating a high-quality science culture for everyone, through varied educational spaces and proposals.

However, to develop this line of action in depth, one needs to be highly aware of the fact that not all sectors of society have the same opportunities or the capacity to take advantage of the educational programmes offered there and, based on that awareness, a commitment should be made to giving realistic and methodologically adequate answers to that capacity.

Among the groups that benefit least from science culture and pedagogic innovations, there has been a focus on youth that for one reason or another do not follow the normal rhythm of the Compulsory Secondary Education and are schooled at Inclusive Education Units (hereafter UECs, after their Spanish abbreviation).

The youth get a new opportunity to graduate at the UECs, where they work in very reduced groups with professionals who specialise in the difficulties specific to these types of groups with the focus centred on practicality and handling. At the UECs youngsters receive support and guidance which they would not benefit from within the normal educational system, and so access to new information – such as scientific information – becomes a new opportunity for growth and empowerment.

Therefore, this is a project by CosmoCaixa, specifically for these youngsters from the UECs, bringing them closer to science, to technology, but also to creativity, art, and to personal development through the space called Creactivity.

The Creativity space (which has the subtitle “the art of thinking with your hands”) is based on the concept of “Tinkering” which has been extensively developed at Exploratorium (The Museum of Art, Science and Human Perception in San Francisco, USA). This space stimulates creativity, curiosity, practicality and innovation through challenges centred on the handling of real materials and tools, and on building objects.

In this type of activity there isn’t a “right way” to do things, there is no rationally assessable objective: the goal is the connection that that young person (or child, or adult) makes with the materials and with themselves; the aim is to enjoy experimenting and allow to oneself to arrive at solutions that are neither pre-established nor pre-designed.

Two years of after the project began, the conclusion is that this proposal generates useful and necessary experiences for developing a scientific culture among youth that are at risk of social exclusion, while valuing their creative potential by helping them become empowered and feel like part of society, increasing their skills and self-esteem.
1. Introduction

The CosmoCaixa-UEC project started in 2013 and was created out of the will “to link the narrative of the exhibit and the activity offered at CosmoCaixa (scientific method, technology, research, workshops, activities, etc.) to groups with varying functionality, and their daily reality, giving a special emphasis to the value of CosmoCaixa as a tool for direct social change”.

In fact, CosmoCaixa has offered activities adapted to different groups with varied functionality for many years, but in 2013 it took the initiative to bring the project closer to new groups, such as groups with mental health issues on the one hand, and groups at risk of social exclusion due to unfavourable socioeconomic circumstances on the other.

We understand that society changes and that we change with it. We also understand that at CosmoCaixa we must be able to respond to new social problems, with new languages and new proposals that adapt to these new needs.

It is within this context that an assessment was made regarding what the needs for each group would be and what type of activity was more suitable for the social circumstances as well as the organization’s possibilities. This assessment, in which many experts took part, produced various proposals.

After dedicating a big portion of 2013 to analysing and considering the different options, a decision was made to create an educational project specific to youth at risk of social exclusion – in particular, those who are part of the Inclusive Education Units.

In the process of designing and realising this project, we would like to mention and thank various professionals that participated in 2013, whose engagement and knowledge have project granted this project with a high pedagogic and methodological standard from the outset.

Finally, the pilot project included a visit by the youth to CosmoCaixa to participate in a workshop about electricity and later, once they were back at their centre, they built one of two projects that had been proposed to them around science and creativity: “The Smoke Box” - a wooden box especially designed for seeing the pathway of beams of light travelling through a smoke-filled box through its glass lid – or “The Optic Sculpture” - a creative proposal in which an object with a magnet “levitated” in a wooden frame, due to the magnetic fields created by the magnets placed inside the “levitating” object itself, within the wooden frame.

This proposal served to assess the suitability of the methodological approach with its target audience and has been evolving up until this year’s proposal – CosmoCaixa-UEC 2016 – which uses an already extant space at CosmoCaixa: the Creativity, especially suitable to the methodological level for bringing scientific creation and technology to children and youth.

The UECs are regulated spaces within the Catalan educational system whose aim it is to promote the educational and socio-occupational integration of students aged 14 to 16 with severe difficulties in adapting to the school environment, through a comprehensive and personalised intervention that enables the improvement of academic, personal and social skills.

At the UECs we can obviously find special educational needs, but also special emotional and support needs. They are spaces where we can encounter desperation, stigmatisation, destitution, the lack of tools for social interaction, etc., while at the same time we can also find a high degree of cultural diversity, a high capacity for potential leadership, a strong sense of belonging to disadvantaged communities, etc.
From the certainty that our society and the welfare state can leave the most disadvantaged behind, those who “do not adapt”, we believe that it is important to become aware of the potential of these “margins” of society, those places where creativity often goes unseen or is relegated to survival and is waiting for an opportunity or favourable conditions to emerge.

The Creativity is a space designed for all these potentials to emerge, whatever the starting point of the person taking part.

The Creativity is an educational space within CosmoCaixa designed in line with the concept of Tinkering, widely developed at the Exploratorium in San Francisco. This originates from the idea that with the adequate materials, and the assimilation of transgressive ideas in the world of education (like children being much more capable of creating things than adults – and they themselves! – think, like banishing the idea that mistakes are “bad”, since it is only from the freedom of making mistakes that we can rethink a situation with an unforeseen ending, or that “building” something needs not have any other purpose than the enjoyment of the process or the aesthetic aspect of the result), we can be a part of creative and creating experiences without any practical application. The basic aim of the space is to develop the creativity and the intrinsic innovation of the participants (especially, but not exclusively, in the 7 to 12 age-bracket) through challenges centred on the handling and building of objects with tools of different types. This space is somewhere the visitors can build, create and play with very simple technology, use real tools and explore the concept of “making something”.

One of the other ideas which lies at the heart of the Creativity is that, when we are not under pressure, we work more and better, and that is especially true of children and youth who have not yet developed many of the tools for handling pressure: when the demands of being productive, practical and of examinations disappear, we allow ourselves to engage in creative processes that are much more enjoyable, unknown, and nourishing. This outlook has a lot to do with experiential learning – a debate our society is currently completely immersed in – and with the degree of knowledge we have today about neurological and emotional processes involved in the processes of meaningful learning.

Hence, all these specificities of the Creativity (among which we also want to highlight attaching value to attitudes and processes such as collaboration and awareness of one’s own thought-building process, which may not be sufficiently present in formal educational environments) make it ideal for offering a “no-pressure” space, for creativity and enjoyment, for inventiveness and surprise for youngsters that have been left out – momentarily, we hope – of the formal education system.

2. Objectives and Methodology

These are the general objectives of CosmoCaixa-UEC’s programme:

- To participate in the process of empowerment of our youth that is at risk of social exclusion.
- To improve people’s lives through innovative proposals from the area of museums.
- To offer inspiring experiences based on humanist thinking and positivism.
- To value the different types of aptitudes in youths as they create their own life path.
- To generate innovative projects and to consolidate CosmoCaixa’s role as an active agent of social change.
• To bring science closer to adolescents in a situation of social disadvantage or who have difficulties entering the job market.

• To consolidate many of the skills from the science activities experienced at the Creativity in the (UEC) centres, based on designing and developing a project proposed by CosmoCaixa.

• To strengthen the scientific and technological scope of UECs, through content-wise and experientially.

• To consolidate these lessons within a skills-based approach to learning, in accordance with the new Compulsory Secondary Education syllabus.

• To awaken vocation in the sciences among the UEC students.

3. Project Methodology

This section focuses on the part of the project currently consolidated and that is being carried out in the Creativity space.

The methodology includes different moments and different levels of realisation; the proposals and actions at every stage are assessed ongoingly and are readjusted to fit the specific needs and requirements of every situation.

In this particular case, we want to highlight the phases of analyses and the evaluation of the chosen groups – with the involvement of different groups and experts – choosing the target group and the available tools from the CosmoCaixa itself, elaborating an appropriate design – having in mind a specific group at risk of social exclusion – making the project known in collaboration with the Departament d'Ensenyament de la Generalitat de Catalunya (Education Department of the Catalan Government), the continued support during the proposal, and the closing and celebration of the experience.

Although the CosmoCaixa-UEC project was initially set up to be carried out over the course of the whole school year (in its first year it was carried out from September 2014 to June 2015), the second year (2015-16) the part of the proposal in which the users have participated in the project has been more concentrated (lasting from January to April, 2016).

Once the UEC has registered with the programme, the project is carried out in three clearly differentiated phases with their own methodology for each moment. This article centres on the experience of the second year of its implementation (2015-16):

a) Phase 1 (January-February) – The visit to Creativity at CosmoCaixa:

During this first phase the UECs visit CosmoCaixa. They can choose to visit the spaces in the museum that interest them or carry out any of the school activities that are on offer, but the main activity of their visit is the Creativity.

At the Creativity, the students are accompanied by 2 educators that contextualise the space and guide them in the creative processes without giving operational indications or asking for specific results. The length of the visit is about two hours and it ends with an exchange of thoughts where they can share their experiences.

Before leaving the space, they are given instructions about how to do a new Creativity module at their own centre, and a pack with different kinds of materials to carry it out. Hence, the participants leave CosmoCaixa with a project proposal in line with the activities at the Creativity so that they can develop it at their UEC.
b) Phase 2 (February-March) – Carrying out the proposed activity at the centres, in two parts:

**Part 1 - Creativity:**

Once they are at their UEC, following the indications given during their visit and using the materials we gave them at CosmoCaixa, they will develop a project of their own (their Creativity) during a specified time of one or two months.

Through this activity they relive the experience and the challenge at CosmoCaixa, with new materials and new possibilities; following on from the premise that all options are good ones and, therefore, it will depend on each person’s imagination and the interaction that takes place in the classroom, as to whether the outcome of the proposals are more, or less, complex, practical, and aesthetic.

**Part 2 – Communication:**

Finally, to spark the communicational skills of the students and to have material for ongoing review, they will record a video where they recount their experience in order to share it at the event acknowledging their project, toward the end of the year.

This methodology allows for the continual revision and improvement of the recording until they are satisfied, thus improving their communicative skills and minimizing the fear of being put in a vulnerable situation.

c) Phase 3 (April) - Acknowledgement, the Final Meeting at CosmoCaixa:

The main objective of the meeting is to show each UEC’s "creactivities" to the other participants, to share knowledge and experiences and to acknowledge all the work that has gone into the whole process.

In the classrooms, it has been important to work on the premise that it is not a competition between UECs, but an occasion to share experiences, give value to oneself, and see how many hidden capacities have emerged in each one of the participants.

In order that this discourse can be given value it needs to be shared with the referential adults at the UECs and there should be a follow-up, to a greater or lesser degree, by CosmoCaixa in supporting this last part of the project.

Before the meeting, the whole team responsible for the project also followed-up on the work made at the UECs to assess the development of motivation and the difficulties that may have arisen.

This methodology in 3 phases promotes the creation and consolidation of the following learning processes:

- **Creativity:** Quality spaces are made available keeping instructions minimal and “freeing”.

- **Collaborative attitude:** it is a common project of the whole UEC, and not only of each participating individual, although the creative process in the classroom may be divided or personalised when setting up the work.

- **Personal initiative and participation:** there is no assessable requirement, no specific result is demanded, rather, there are suggestions, assistance and guidance.

- **Non-existence of failure:** when one accepts that an error is the strongest link in the chain of learning, when people are freed (especially younger
people) from the responsibility of “not failing”, one learns to how to properly situate everything that has not turned out “well”, one bestows it with the positive value that it should have in the learning process and one values everything that has happened during the process and its importance in the result.

- **Action without rules**: Being used to an education system that needs to control the proposal, the continuous assessment, the non-freedom of movement and the objectives, offering these young people a space for creativity with very few, but clear, rules, means giving them an opportunity to become individuals and to find their self-worth.

- **Value in trial/error**: the recording of a video allows trying and retrying what one wants to say and how to say it; the exam pressure disappears, of having only one shot at succeeding, to allow the experimentation and playing with the result.

- **Acknowledging the work that has been done**: the closing event is conceived as a space for valuing the work that has been done, as a participative and celebratory meeting, as a moment to see each other and acknowledge the work done by all.

- **Value in communication**: to communicate is very powerful; because it implies not only sharing an idea, it implies showing oneself, trusting, recognising oneself in the words of others, adapting one’s thinking, feeling, and intuition to the common language of the “community”.

On the other hand, it is necessary to point out that during the whole CosmoCaixa-UEC project (during this 2nd year), we have had the participation of different professionals that have overseen the proper functioning of the project and have provided it with the form it now has.

### 4. Human Resources

The staff involved in carrying out the project has been the following:

<table>
<thead>
<tr>
<th>Company or entity responsible</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>CosmoCaixa’s SAVI Department</td>
<td>2 people</td>
</tr>
<tr>
<td>Education Department of the Catalan Government</td>
<td>2 people</td>
</tr>
<tr>
<td>Science area of “la Caixa” Bank Foundation</td>
<td>1 person</td>
</tr>
<tr>
<td>Focus – Technical services for image, sound and lighting</td>
<td>3 people</td>
</tr>
<tr>
<td>Peny - Logistics</td>
<td>2 people</td>
</tr>
<tr>
<td>Lavola – Creativity education team</td>
<td>2 people</td>
</tr>
<tr>
<td>Magma – Event coordination and supervision</td>
<td>1 person</td>
</tr>
<tr>
<td>Arcasa – Catering service</td>
<td>Restaurant staff</td>
</tr>
<tr>
<td>Photographic report</td>
<td>1 person</td>
</tr>
<tr>
<td>TecnoAdventure Company - DEFLYdrone, display at the closing act</td>
<td>---</td>
</tr>
<tr>
<td>Laie - Gift</td>
<td>Museum shop staff</td>
</tr>
<tr>
<td>Randstad – Hostess service</td>
<td>1 person</td>
</tr>
</tbody>
</table>

### 5. Results

The sum of the results is centred on the participant information and different evaluations that have been gathered while the proposal was being developed.

In terms of participation, the outcome of the CosmoCaixa project is shown in the following table, which also reflects the means communication channels used:
Date | Communication channels | UECs | Students | Territory
--- | --- | --- | --- | ---
2014 (pilot test) | Meeting in July 2014 with various organisations to assess the suitability of the groups with which one wants to work. | 1 (UEC Martí Codolar) | 18 | 
2014-15 | Contact was made directly with known UECs. | 3 (UEC Pes Mataró, UEC ADSIS, UEC Infants del Raval) | 28 | Barcelona area
2015-16 | Mailing list of the Education Department of the Catalan Government. Presentation event for the project (December 2015). Contact made with the UEC that participated the year before. | 15 (see annexed table) | 202 | Catalonia

Annex – Table of Participants from UECs in the year 2015-2016:

<table>
<thead>
<tr>
<th>Name</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEC Esclat Bellvitge / L’Hospitalet</td>
<td>51</td>
</tr>
<tr>
<td>UEC La Clau (Manresa)</td>
<td>7</td>
</tr>
<tr>
<td>UEC Col·lectiu Cultura Popular (Sant Vicenç dels Horts)</td>
<td>11</td>
</tr>
<tr>
<td>UEC Borges Blanques i Segria</td>
<td>1</td>
</tr>
<tr>
<td>INS Escolar Balmes (UEC Vilafranca)</td>
<td>7</td>
</tr>
<tr>
<td>INS Escolar Balmes (UEC Vilanova del Camí)</td>
<td>12</td>
</tr>
<tr>
<td>INS Escolar Balmes (UEC Martorell)</td>
<td>6</td>
</tr>
<tr>
<td>UEC Fundació ACIS (Barcelona)</td>
<td>23</td>
</tr>
<tr>
<td>Fundació Main (Sabadell)</td>
<td>9</td>
</tr>
<tr>
<td>Fundació Main (Terrassa)</td>
<td>9</td>
</tr>
<tr>
<td>UEC Mataró</td>
<td>14</td>
</tr>
<tr>
<td>UEC L’ESCAC (Tarragona)</td>
<td>18</td>
</tr>
<tr>
<td>UEC Casal Infants del Raval</td>
<td>6</td>
</tr>
<tr>
<td>UEC ADSIS (El Carmel, Barcelona)</td>
<td>8</td>
</tr>
<tr>
<td>UEC PES Martí Codolar (Barcelona)</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL PARTICIPANTS</strong></td>
<td><strong>202</strong></td>
</tr>
</tbody>
</table>
6. Project assessment

At the end of the second year, each participating UEC was asked to send in a general assessment via email and afterward it was followed up over the phone to clarify and/or reinforce some of the feedback. There is a report containing this assessment.

Firstly, it is important to highlight that, in general, the degree of satisfaction, both in the participating youth as well as the referential adults, is very high. In the evaluations received there are words of gratitude, encouragement, requests for training to be able to further the learning process, etc. In other words, in every sense the feedback confirms the validity of this project.

a) Student assessment of the visit to Creactivity:

The fact that there are no standardised questionnaires means that the results of the evaluations cannot be presented in a way that is manageable from a statistical perspective, but bearing in mind that the project is at a stage of consolidation and growth, the assessments obtained do provide us with “power ideas” with which to work to develop the next project.

These are some of the ideas:

Most of the students that participated in the project comment that they liked the activity very much or quite a lot and they found particularly interesting the idea of “thinking with your hands”.

On the other hand, when asked if they considered the visit to the Creactivity to be a scientific activity, around 40% of participants answered “not much” (they were given the choices: Very, a bit, not much, not at all). This, however, gives us an idea of the degree of experientiality (in youth, possibly more related with concepts such as technology). Furthermore, it also gives us information about the possible prejudice toward the term “science” (since it is not explicitly mentioned in the Creactivity as to whether they are engaged in science or not), therefore their answer relates more to the idea they have before their visit.

Their assessment in terms of the space is very positive. They talk about the surprise effect the room has, about the separation of the different zones, about the spaciousness and how organised it is.

They also gave positive feedback about the materials: the fact that every-day and recycled materials were used, which could not be given new uses, was highly valued. Nevertheless, they have expressed their need to have access to more varied materials for some specific module (specifically the module about shadows and the one on Stop-motion).

Both the students and their coordinators agree that the role of the educator is very important in this type of very innovative activities, especially to arouse curiosity and spark experimentation. It is also noteworthy, in a positive sense, that they have perceived these figures more as guides than educators, in the sense that they helped them occasionally, avoiding giving them too many instructions.

b) Evaluation of Creactivity by referential adults:

The teams responsible from the participating UECs have given a very positive assessment, of the CosmoCaixa-UEC projects as a whole, as well as the visit to the Creactivity.

Regarding the visit, they emphasise especially that the method of the Creactivity enables to potentiate work in small groups and favours the creation of small projects made by a group.
The adaptation of the Creativity to the UECs has been evaluated positively in all cases, and the non-cognitive aspects developed by the students, the cooperation, respect for the material, and adjustment to the group energy, among other things, have been especially well-praised.

Finally, we would like to highlight a few contributions that talk about the specificity that UECs bring and how they can be taken advantage of with a view to future editions of the project.

c) **Assessment of specific aspects for part of the educational team and the teachers**

- **Time-frame**: The referential adults verbalise that in the case of the UECs, the proposal for the visit to last 2 hours seems slightly excessive. The length they suggest for the activity is between one hour and an-hour-and-a-half. However, the education team recommends time-management to adapt to the needs of each group.

- **Number of participants**: Both the referential adults of the UECs and the education team, consider that the ideal size of the participating group for the visit is: more than 8 youths (to ensure diversity, motivation, facilitate work, etc.) and less than 20 (to avoid peaks of excessive energy in the room that may hinder the activity).

- **Welcome speech**: The education team values that, given the specifics of the visitors (age, aptitudes, expectations, etc.), the guidelines of the welcome speech or the presentation of the Creativity, should encourage concepts like “DIY” and “creative freedom” and one’s own, or free, learning process.

On the other hand, they consider that the welcome speech should be much shorter, and leave the maximum amount of time for freely experimenting.

- **Guidance during the activity**: Some of the referential adults from the UECs, despite being glad about the result, show some doubts as to the efficiency of an educational methodology based on the absence of directionality and wonder if it would not be more “effective” to show examples in order to motivate.

Contrarily, there are other guides that express how happily surprised they are about the positive results of taking the students out of their ordinary role of observer (clearly exemplified in the use of communication technologies and in the advertising they are so used to, etc.) and leaving them in a vast field of freedom.

- **The materials**: The referential adults have given positive feedback about the perfect tidiness in the state of the materials of the Creativity: they talk about a feeling of “tidiness that breeds tidiness” and believe that it makes all the youth care for the materials and/or put back the objects after they have finished using them.

They refer to the aesthetic aspect, about working with recycled materials, about the simplicity of the tools, and about the technology applied, etc.

In the assessments made at the centres, the referential adults comment that opinions vary regarding the spaces, but most students agree that the most popular modules are the ones on electricity, Stop-motion, vertical circuits and wind tubes.

Conversely, the part about cogs in the mechanical zone and the zone about shadows are the ones they find the least exciting.
7. Discussion

This document is conceived as the opportunity and the responsibility to give value to an innovative project that CosmoCaixa began three years ago and that is becoming an opportunity for pedagogy and direct social change for groups at risk of social exclusion: the CosmoCaixa-UEC project.

The information presented demonstrates the suitability, not only of the project, but also of the group that has been chosen, the proposed methodology, the time and the developmental processes of the project, while being the gateway to implement improvements and readjustments for future editions.

The conclusions of this work can be summarised in two paragraphs:

- The responsibility of museums like CosmoCaixa in Barcelona, that are international referents, toward underprivileged groups must continue to be transformed into concrete, realistic, innovative and inspirational proposals that have a positive impact on society, as is the case with this project.

- The elements that define this project and which make it unique (the participation of UECs, the proposed methodology, the visit to CosmoCaixa, the activity at the Creactivity, the follow-up project, the recording of the process and the meeting of acknowledgement) have generated a highly satisfactory result, from which one must harness the essence and apply it to other projects.

8. Final thoughts

We believe that both the essence and the success of this project lie in the realm of those things which are subtle: it is neither the expensive materials, nor their complexity, nor the technical skills used, nor the degree of technology available, that has made it a success, rather it has been possible through the “little” things, which are nevertheless “big”, like the motto of having the freedom to make a mistake, the careful guidance but without directionality by the education team, the suitability of a safe and exciting space, creativity without a purpose, but as a motor for empowerment. Ultimately, the possibility to discover new things and to positively reinforce their self-perception.

As always, there are points left to discuss and fine-tune. These include to what degree the objectives and scope of the project can be broadened, to what extent do referential adults need specific training or prior guidance to maximise the positive effects of the project, what is the exact discourse the Creactivity education team should follow, what the follow-up could be like during the building phase of the project at the centres themselves, etc. These are some of the issues that we will keep in mind in configuring the new stage of the CosmoCaixa-UEC project.

As for the continuity of the project, the prospects are that it will keep being implemented in Catalonia and that suggestions for improvement will be incorporated into this document to increase the social impact, on the one hand, and the level of satisfaction, on the other.
9. Bibliography and documents of reference


- **KdV. CULTURAL consultants** (July 2013). *Accions pilot per a museus i diversitat funcional. Obra Social “la Caixa”. [Pilot activities for museums and functional diversity. Obra Social “la Caixa”].*

- **KdV. CULTURAL consultants** (December 2013). *Museus i diversitat funcional. Presentació del projecte d’acció social. Obra Social “la Caixa”. [Museums and Functional Diversity. Presentation of the project for social action. Obra Social “la Caixa”] Design and analysis where various options for activities and suitable groups for the project are evaluated.

- **Lavola** (2016). *Informe de valoraciones del programa CosmoCaixa-UEC. [Assessment Report of the CosmoCaixa-UEC programme]* Document property of CosmoCaixa which gives us non-standardised data about the assessment received from the UECs during the school year 2015-16.


- <http://tinkering.exploratorium.edu> The website of the Museum of Art, Science and Human Perception in San Francisco where the concept of Tinkering is explained and with examples of visitor activities.

- <http://xtec.gencat.cat/ca/recursos> Educational resource website belonging to the telematic network of the Education Department of the Catalan Government.

- <www.oecd.org/edu/ceri/50300814.pdf>

- <www.tinkeringschool.com> Educational centre in California developed by Gever Tulley based on the idea of Tinkering applied especially to children and youth.

10. Other documents of interest

- **Acaso, M.; Manzanera, P.; Piscitelli, A.** (2015). *Esto No Es una Clase; Investigando la educación disruptiva en los contextos educativos formales. [This is not a Class; Investigating Disruptive Education in Formal Educational Contexts]* Ed. Telefónica.


- **Casas, F; Montserrat, C.; Malo, S.** (2010). *Young people from a public care background pathways to education in Spain. The case study report (WP8).*


- [www.museumsassociation.org/](http://www.museumsassociation.org/)
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