Supporting Online Teaching in Art Education with Museums' Digital Tools: a case of study for Childhood Education

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Abstract: This work is a case study of an example of teaching art education remotely for Childhood Education and making use of the digital resources of art museums. It is the result of a Master's thesis at the University of Jaén (Spain), defended in July 2020, which had to be adapted to an online context due to the Covid-19 pandemic. It focuses on the pedagogical strategies adopted to introduce the digital tools of museums into the teaching programmes and discusses the adaptation of in-person teaching to online contexts. The conclusions contribute some critical observations about how to transfer pedagogical criteria and skills to distance learning: children's autonomy, active participation and meaning-making.

Keywords: e-teaching, art education, childhood education, museums, digital tools

1 Context

This paper is about what we have learned from online teaching skills in arts in Childhood Education during the lockdown due to the Covid-19 pandemic. In Spain, it lasted around four months, from March to June 2020. This past 14 March 2020, the Spanish Government declared a state of emergency throughout the country and, consequently, all in-person activities at schools and museums were suspended (from kindergarten to university). However, teaching had to continue and had to be done remotely, but no one was ready for it: not children, nor students, teachers, nor schools, parents, nor the laws on education, etc. We faced many new challenges, developed new ways of thinking and teaching. Now, we want to contribute one of our examples in response to this crisis.

This work is the result of a Master's thesis (Montiel & Tirado, 2020), defended in July 2020 at the University of Jaén (Andalusia, Spain). Initially, our original proposal was about encouraging schools and local art museums in Jaén (Andalusia) to collaborate in order to promote common long-term learning projects. We started working on it in January 2020, when the risks regarding the Covid-19 pandemic were still unknown. Suddenly, the Covid-19 pandemic lockdown interrupted everything. It was time to look at art museums from a virtual standpoint and think what they could offer schoolchildren and teachers from a distance.

Art museums are suffering greatly from the Covid-19 pandemic. While this crisis lasts, health measures make it difficult for them to recover their normal agendas. Museums were closed for a long time as well, and now access is restricted to very small groups. That makes it difficult for them to continue their educational programmes, and many enterprises, which are in charge of the museum education service, could apply for public subsidies due to the Covid-19 pandemic, but staff are not able to return to work yet. In other museums, decisions were extreme: it is widely known that the entire educational staff at the MoMA were dismissed, saying that "months or years will pass before we recover the previous levels of findings and operations to require educators' services" (Fuchi, 2020).

On the other hand, this crisis due to the Covid-19 pandemic has been an opportunity for the digital tools of museums. Visits to museum websites and virtual collections increased exponentially and beat records. For example, the Museo del Prado's website was visited two million times during the lockdown in April 2020 (García, 2020). However, this crisis has also revealed that the digital resources of museums are still lacking, especially those of local museums. Many local art museums in Spain do not have their own website. In some cases, the artworks of local art museum collections are uploaded to other, bigger digital archives about heritage[1]. This means that examples of local artworks on these platforms are accompanied by some specific information but they are excluded from complementary information and digital tools for learning. So, for online teaching based on the digital tools of Spanish art museums, we finally looked at national art museums, as we will see later.

Regarding the school context of this case study, it corresponds to the second cycle of Childhood School Education (from 3 to 5 years old) in Andalusia, in the south of Spain. The school curriculum (Consejería de Educación, 2019) is divided into three main areas of learning for children: (1) Self-knowledge and personal autonomy, (2) Knowledge of the environment, and (3) Languages: Communication and representation. The different educational levels are divided into two sub-levels: from 0 to 2 years old, usually found in kindergartens not affiliated to schools; and from 3 to 5 years old, found in pre-schools affiliated to primary and other higher education schools. For the latter, the teacher/student ratio is commonly 1/20.

School teaching was altered very much during the Covid-19 lockdown. Due to the urgent need for change, the general tendency was to follow the same pedagogy but adapting times and activities. There was no time to do anything else. We interviewed one schoolteacher in childhood education in Spain who said that one morning working at school was equivalent to one week of distance education during the lockdown. Another challenge that teachers found was the digital divide in

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[1] Like the Digital Guide of the Cultural Heritage of Andalusia: https://guiadigital.iaph.es/inicio

Spanish families. Some families had limited access to internet and to the online downloading of content. Teachers thus had to use multiple tools to assist everyone.

2 Schoolchildren-5-years-old

The social group of this case study is young children around 5 years of age who attend formal childhood education at schools in Andalusia (Spain). Regarding teaching, the way teachers think about and understand children is relevant. In the field of this work, we consider children as active figures in our society and recognise their autonomy in taking decisions, intervening and doing things by themselves. We rejected the naïve images of young children (McClure, 2009). For children, playing implies discoveries in a space that they control (Durkheim, 2001). Medina (2010, as quoted in Medina, 2011, p. 85) said that she was in a family meeting where a rope had been left on the floor; the children picked up the rope and, in 30 minutes, they found five ways to play with it. We can therefore understand that playing and art are ways of acquiring knowledge as well.

Cooper (2005) studies children with a focus on characteristics of development: cognitive, physical, social and emotional; concludes that targeted digital environments should take into account balancing the familiar with the novel, be built on prior knowledge, offer rapid feedback, involving various senses and be participatory and friendly.

3 Objectives and contents

Art education corresponds to the curriculum area called Languages: communication and representation. The specific artistic objectives in this area are "To approach the different arts" and "To develop artistic sensibility and creative skills" (Consejería de Educación, 2019, p. 39). It also comprises four blocks of content: 1. Corporal language, 2. Oral language, 3. Artistic Language: musical and artistic, and 4. Audio-visual language and ICT. Educational methodologies are based on principles of global education and meaning learning. In this sense, the curriculum encourages bringing together interrelated affective, intellectual and expressive processes of education (p. 47), for example, by methods of work projects that involve activities like searching for information in the library or on internet, exploring different resources of information, and making numerous links between prior and new knowledge. On the other hand, the curriculum does not encourage activities to "colour, cut or paste shapes (…), sing songs or imitate". (p. 47).

Art museums play several roles in that curriculum's framework: as place of experiences with artistic and cultural heritage, sources of information, approach to different everyday contexts, to find out about and take part in some artistic and cultural expressions. It is said that "school functions as a

window to the artistic and cultural world." (p. 23). In short, museums must play a role as educational resources to "stimulate exploratory and inquiring behaviours." (p. 18).

Regarding the previous art curriculum framework at schools in Andalusia, we considered an educational proposal from a global perspective, integrating the three areas of the childhood curriculum, and looking at the objectives and contents of each one (Consejería de Educación, 2019):

1. Area of Self-knowledge and personal autonomy:

    Objectives: OBJ-1[2]. To recognise and identify one's own feelings, emotions, interests and needs, expanding and perfecting the multiple resources of expression, knowing how to communicate them to others, recognising and respecting those of others. (pp. 24-25).

2. Area of Knowledge of the environment:

    Objectives: OBJ-2. To know some of the artworks and manifestations of cultural heritage, give them meaning and generate attitudes of interest and appreciation; OBJ-3. Relating with others in an increasingly balanced and satisfactory way, gradually taking into account the needs, interests and points of view of others, and adjusting their behaviour to them. (p. 30).

    Contents: CONT-1. Plurality of customs and cultural manifestations that currently occur in our society, generating attitudes of understanding and respect towards them; CONT-2. Andalusian and universal artistic and cultural artworks (artists, museums, etc.). (p. 37).

3. Area of Communication and representation:

    Objectives: OBJ-4. To use oral language as an instrument of communication, representation, learning and enjoyment; OBJ-5. To develop their artistic sensitivity and creative ability, approaching the manifestations of body, musical and artistic languages and recreating them as codes of personal expression, values, ideas, needs, interests, emotions, etc. (pp. 38-39).

    Contents: CONT-3. Spontaneous representation of characters, events and situations through symbolic games (p. 39); CONT-4. Recognition of sounds from natural and social environments. (p. 44); CONT-5. Exploration and interpretation of artistic works, and the life and work of great artists (p. 45); CONT-6. Exploration and manipulation of diverse materials and objects in the production of artistic works; CONT-7. Location and use of digital images.

4 Description of the solution

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[2] We add a code to each objective and content, in order to identify them later in the description of the sessions, and avoiding to repeat the whole sentence again.

We present an online teaching proposal in art education for schoolchildren around 5 years of age that is based on the digital tools of art museums. In particular, it comprises examples of two Spanish national art museums. These are: Museo Thyssen[3] and Museo Reina Sofía. Nowadays, museums and schools both use active and meaning-making methods for education and learning. The educational methodology is based on various principles for Childhood Education, which Martín (2013) summarises as follows: 1. Activity principle: activity must be oriented so that it produces its results, and not be limited to action with objects, but must be extended to interactivity (with teachers, classmates, parents, etc.); 2. Individualisation: the construction of their knowledge, identity and self-esteem must be considered individually, but without losing sight of social interactions; 3. Socialisation: social interaction is essential for the acquisition of affective and cognitive learning; and 4. Globalisation: starts from the interests of the students and contemplates the facts based on their world, taking into account the connections between the new and the already known. (p.123).

Following the quality criteria for museum education of CECA (2012), we look at how to ask questions by observing objects (asking open-ended questions) and constructing meaning (linking prior knowledge that students have with new and relevant questions about art, society and culture for critical thought). These criteria are in accordance with the roles that museums play in the school curriculum framework as places of experiences with artistic and cultural heritage, sources of information, approach to different everyday contexts, etc., as we referred to in previous paragraphs. The method used is mixed and combines experiences and activities from different perspectives (Fernández, 2006), like inductive, going from the particular to the general to discover the general principle; dialogical, teaching based on questions that provoke an interaction with and between students and their critical thinking (Kim, 2017); and analogical, comparing and contrasting different things and trying to find similarities common solutions.

4.1. Working with an art museum's virtual visit in Childhood distance Education

The design of our proposal is based on the virtual visit[4] to Museo Thyssen. This type of art museum tool is perhaps the digital tool that the public most expects museums to have. It offers a 3D reproduction of the actual rooms of this museum in Madrid. It follows the same order of rooms and contents. Using the right, left, up and down buttons of the computer mouse simulates a walk through the galleries. A picture can be looked at in detail and clicking on the image opens a new window with a description and other information about that artwork.

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[3] Official web page of Museo Thyssen: https://www.museothyssen.org/
[4] Official web page of virtual visit of Museo Thyssen:
https://www.museothyssen.org/thyssenmultimedia/visitas-virtuales?gclid=EAIaIQobChMIi_77_dTq6wIVlRoGAB2cYAHhEAAYAiAAEgKePPD_BwE

For programming the order of sessions and regarding the context of education, we consider sessions before and after the virtual visit to the museum's collection. In this way, we programme three main sessions: the first session deals with children's prior knowledge; with the second, children access the museum's virtual visit; and, finally a third session re-makes meanings (Hernández, 2007). We used a general and transversal theme, deciding to work with the genre of landscape. It has several advantages for schoolchildren: it is familiar to them, is very present in contemporary and ancient artworks and leads to links with other areas of the curriculum, like Knowledge of the environment, in order to offer a global education.

Session 1: "Sweet Dreams"

The first session is called "Sweet Dreams". It consists of listening to different sounds from nature and modern human life, imagining what they are and trying to talk about them. To better encourage this activity, children can lie down and close their eyes (as can the parents).

Duration: 20-30 minutes.

Objective: OBJ-1.

Contents: CONT-4.

Resources required: digital library of images and sounds of the *Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado* (INTEF)[5].

Description: Children and parents lie down, close their eyes and try to relax their breathing, too. Then, they play the first sound, listen carefully and try to talk about it. More than one sound can be heard. To encourage the conversation, parents can ask open questions, like Is it big or small? Is it an animal? Which one? Where might it be? Does it make you feel happy, nervous, sad, etc.?

Fig. 1. Bank of Images and Sounds of INTEF

Session 2: the virtual visit to the Museo Thyssen

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[5] The Bank of Images and Sounds is an initiative of the Spanish Ministry of Education, Culture and Sports carried out through the *Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado*, whose main objective is to provide the educational community with audiovisual resources. Types of audiovisual resources: photographs, illustrations, animations, videos and sounds.
http://recursostic.educacion.es/bancoimagenes/web/

The second session consists of exploring landscape artworks along the virtual visit of the Museo Thyssen's permanent collection.

Duration: 20-30 min.

Objectives: OBJ-2, OBJ-4.

Contents: CONT-2, CONT-5, CONT-7.

Resources: Rooms 32 to 36 on the virtual visit of the Museo Thyssen permanent collection on European painting from the first half of the 20th century (impressionism, post-impressionism, expressionism).

Description: The teacher offers the internet link to access the virtual visit, and indicates which rooms are especially dedicated to the theme of the session; this selection is also wide, about five rooms, but it is also positive that children and parents can explore the whole museum if they like. The tool is very intuitive, but the teacher should offer a short introduction as well, as follows: the virtual visit of the Museo Thyssen represents the real museum rooms in 3D, and the sensation is like walking through the actual building; once you centre on one image of a picture, there is an icon that directs you to another window with specific information about that work and another HD image of the work. The main activity consists in children exploring the museum rooms on their own, stopping at the artworks that catch their eye and, then, trying to talk about them. To encourage this conversation, parents can start asking open questions, like: what do you like in this picture? What do you see? What do you like about this landscape? Which animals do you think might live there? Does this picture make you feel happy, sad, free, afraid, etc.? What do you see in the picture that makes you feel that? Etc. Before finishing, the children must choose one artwork that they talked about and liked, and then download a copy of the picture to share and exhibit in the following session.

Fig. 2. Virtual visit of *Museo Thyssen*

Session 3: sharing and exhibiting children's artworks

The third session is about socialising and exhibiting the selection of artworks from the previous virtual visit with the rest of the class.

Duration: 30 min.

Objective: OBJ-3.

Contents: CONT-1.

Resources required: online meeting platforms.

Description: Firstly, children and parents upload the picture of the artwork on the school's online platform (or on another platform that the class is using: Google Drive, WhatsApp, etc.). On the day and time of the meeting, children access the online platform to meet up again. Children present the pictures they chose and talk about it with the others. Children with the same picture can talk together.

Session 4: visual childish story

The fourth and final session is about telling a visual children's story about landscapes.

Duration: around 30-40 min.

Objective: OBJ-5.

Contents: CONT-3; CONT-6.

Resources required: paper, coloured crayons or pencils, digital camera and internet connection.

Description: First, the children freely create a main character and think about different places where it might go. Then, they think of characteristics regarding that character: where they are, what there are, etc. Alternatively, if the children have any difficulty in getting involved in this activity, they could start by representing the view from a window at home. To finish, children take a picture of their work to send and share with the rest of the class. Parents can help them to upload the pictures to the school's online platform. Then, the third session can be repeated. An alternative way of sharing could be to write comments about each other's work, assuming that the online platform allows it.

4.2. Video tutorials of art museums

We want to consider one more example that could be relevant for online teaching with schoolchildren: video tutorials from art museums. EducaThyssen[6] is the YouTube Channel of the Museo Thyssen. It has a wide variety of content. These are organised into different playlists, and it is quite easy to navigate. The playlist entitled "Become an artist" gathers many video tutorials about art techniques. In particular, there is a group of videos about painting techniques. We found these relevant for working with schoolchildren. It contains 23 video tutorials, each one about a different technique: colour, collage, tempera, watercolour, finger painting (similar to the pointillist technique), and others. The videos last around four or five minutes, and less than ten minutes. Young children

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[6] Official YouTube Channel of EducaThyssen: https://www.youtube.com/channel/UC4gaNd5I6mnhkZ36JS-TJeA

are able to execute these art techniques, and the materials needed are easy to find and inexpensive. These videos are therefore optimal for working with schoolchildren.

Fig. 3. Video tutorials about the colour on EducaThyssen's YouTube Channel

Regarding a general teaching plan, one video and art technique can be sent every two weeks in order to encourage children and parents to repeat different artworks with the same technique. Start by watching the video about colours[7]. It is about mixing different colours and learning about primary and secondary colours. This video can be combined with the one called "finger painting", so children can use colours freely and in a way that is very familiar and comfortable for them. Next, different practices can be used to explore other examples of the aforementioned art techniques, like collage, tempera or watercolour, among others. The session could be divided into three main activities, as follows: 1. Video viewing, 2. Art practice, and 3. Art exhibition among all the children in the class.

5 Reflections of the project

Reflections of this case study focuses on the pedagogical strategies adopted to introduce the digital tools of museums into the school teaching project and discusses the adaptation of face-to-face teaching to online contexts. The Covid-19 pandemic took everyone by surprise in Spain in March 2020. From one day to the next, all in-person activities were suspended at schools and museums. Schoolteachers used to introduce ICT in the classroom, but now the context is different.

We learned that online meetings for sharing children's artworks and online exhibitions of children's artworks was an opportunity that should not be missed in order to reduce the social distance of online teaching. One of the main problems of online teaching is the real physical distance that exists between children and teachers, and between peers (Palloff & Patt, 2013). This distance is even more emphasised when teaching young children because social interaction is even more important. Some examples of solutions to apply for online teaching to deal with social distance are chats, forums and videoconferences, etc. However, young children have two main problems regarding these. On the one hand, young children do not have total autonomy to access online meetings and manage tools, such as computers and smartphones, or software like Skype, Google Meeting, WhatsApp, etc. On the other hand, young children are not attentive in synchronous virtual activities. So, we considered short virtual meetings between children, families and teachers after each art practice session in order to encourage communication and exchange feelings and opinions between peers.

We considered programming online teaching in series of several short activities. Timing and the engagement of parents were crucial when teaching children remotely. Young children find it hard to stay attentive for a long time in a virtual meeting with the teachers. We interviewed a schoolteacher of Childhood Education during those days and she told us that virtual meetings with children could

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[7] https://www.youtube.com/watch?v=RDZRyS2kOzs&list=PL4C283394D90B264F&index=18

not last more than 30 minutes. Using virtual videoconferences for online teaching for young children is not feasible. Parents were also required to organise their children's homework, to encourage children to start and follow activities, to provide materials, to provide access to digital tools, etc. In this regard, none of the main participants – neither the children nor parents – were able to work for long sessions. The schoolteacher interviewed also said that one working morning at school should correspond to a week of online teaching. We thus designed specific art education programmes of three to four sessions. Depending on the rest of the subjects, the work to do for one session can last one week, with each session requiring around 30 or 40 minutes (but children can continue working on their own for longer).

We found that the digital tools of art museums were important to both children and parents. When introducing ICT into the physical classroom and from a student-centred perspective of learning, teachers only consider the specific skills of children because it is only them taking part. Teachers acquire the role of education managers, providing spaces, tools and content. However, with children's distance education, parents not only function as managers, but also as participants. Although the content of childhood education is general and basic, many parents only have a basic education and they are not familiar with some topics, materials and practices that schools and teachers propose to children. So, teachers must provide a general introduction and presentation about the digital tools. YouTube Channels (or videos in general) from art museums can be very useful tools for parents to easily understand what they are about. Our proposal based on EducaThyssen's YouTube Channel is follows this idea. These video tutorials about art techniques function for both children and parents, and introduce them to materials and processes.

6 Conclusion

The conclusions contribute some critical observations about how to transfer pedagogical criteria and skills to distance learning. The first conclusion is that a new paradigm of teaching emerges. It consists of refraining from thinking of introducing ICT in the classroom, but to think about teaching virtually. Our educational paradigm was originally physical, but we had to become remote workers very quickly and in just a few days in order to organise the academic year. In the words of Hoffman & Hoffman (2014): "technology never really determines the teaching; it is the instructor's approach to the technology that matters" (p. 14). In this sense, technology is not the purpose, but a tool, and learning should not be conditioned very much to it.

The learning environment is largely student-centred on online courses (Baeten, et al., 2010). Students are encouraged to carry out research activities on their own: searching for information, critically judging information, creating descriptions and complex reflections, etc. For children in childhood education, online teaching is the same, but pedagogical strategies require series of very short activities in order for concrete and clear work to be organised and done. Then, during the

programme, children come into contact and experiment with very different materials, tools, contents and ways of thinking, communicating, expressing, doing, etc. Younger children become explorers and discoverers like older students but work on more specific and shorter activities.

For the future of the study, we want to put into practice these proposals of online teaching in art education in childhood education that we designed in this work. It would be very interesting to know more about children's autonomy in following a series of art activities through digital tools, and which other combinations of tools enrich their learning. It would therefore be very useful to compare other tools from art museums in the international arena in order to open teaching up to multicultural expressions of art. As we mentioned before, regarding art museums in Spain, we found that the digital tools of national museums indirectly impose a certain elitist and restricted selection of art content.

The manuscript concludes with the following statement: 'The paper and its more coherent passages have not been published and have not been submitted for publication in another journal, proceeding or monograph.'

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