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Art experience, education and technologies: interactions and influence processes

Experiencia artística, educación y tecnologías: interacciones y procesos de influencia

Experiência artística, educação e tecnologias: interações e processos de influência

ABSTRACT

This research is focused on the role of technologies in the educational dimension of the art experience, starting from questioning the links between educational experience in general and art experience in particular. By technologies we mean "new technologies" based on the Internet and related communication devices such as smart phones or tablets, and more traditional devices such as video, computers and television. This paper was the result of the post-doctoral research about new media and art reception carried out at the *Escola de Comunicações e Artes* (School of Communication and Arts, ECA, USP). The methodology is ethnographic, consisting in ten public and thirty professional interviews as well as participant observations, photographs and a research diary. The information collected was submitted to a global content analysis based on interview coding and a semantic study, followed by a photo analysis and a study of the observations and diary notes. After a theoretical review of the concept of experience – interpretations, forms of art experience, and a reflection on the educational approach of arts –, the results of the field research analysis dealing with some aspects of the concept of arts education are introduced. Finally, the discussion is a dialog between theoretical elements and the information gathered from the field, from which a few conclusions regarding the relationship between education, the art experience and the use of technology are drawn.

RESUMEN

La presente investigación se basa en el papel de las tecnologías en la dimensión educativa de la experiencia artística, partiendo del cuestionamiento de las relaciones entre la experiencia educativa, en general, y la experiencia artística, en particular. En este trabajo se han considerado las "nuevas tecnologías" basadas en internet y dispositivos de comunicación (*smartphones*, *tablets*, etc.) y también tecnologías más tradicionales como vídeo, ordenadores y televisión. El artículo es el resultado de la investigación postdoctoral en medios de comunicación y recepción del arte, desarrollada en la *Escola de Comunicações e Artes* (Escuela de Comunicación y Arte, ECA, USP). La metodología es etnográfica se basa en diez entrevistas introspectivas con el público y treinta entrevistas con profesionales de las artes, además de observaciones participantes, fotografías y el diario de investigación. Los datos del trabajo de campo se sometieron a un análisis de contenido basado en el estudio semántico de las entrevistas, seguido del análisis de las fotografías y del estudio de los comentarios resultantes de las observaciones y del diario de investigación. Después de una revisión teórica del concepto de experiencia – interpretaciones, forma de la experiencia artística, reflexión acerca del abordaje educativo del arte – la investigación de campo presenta aplicaciones empíricas del concepto de educación y arte, resultados de los análisis de las entrevistas y observaciones. Por último, la discusión es un diálogo entre los elementos teóricos y la información procedente de la investigación de campo y sugiere algunas conclusiones con respecto a las relaciones entre educación, experiencia artística y uso de las tecnologías.

RESUMO

Esta pesquisa tem como foco o papel das tecnologias na dimensão educativa da experiência artística, partindo do questionamento sobre as relações entre a experiência educativa, em geral, e a experiência artística, em particular. Neste trabalho, foram consideradas as "novas tecnologias" baseadas na internet e em aparelhos de comunicação (*smartphones*, *tablets*, etc.), e também tecnologias mais tradicionais como vídeo, computador e televisão. O presente artigo nasceu da pesquisa de pós-doutorado sobre novas mídias

e recepção da arte desenvolvida na Escola Comincações e Artes (ECA, USP). A metodologia é etnográfica e foi desenvolvida a partir de dez entrevistas introspectivas com o público e de trinta entrevistas com profissionais das artes, além de observações participantes, fotografias e diário de pesquisa. Os dados da pesquisa de campo foram submetidos a uma análise de conteúdo baseada no estudo semântico das entrevistas, seguida da análise das fotografias e do estudo dos comentários oriundos das observações e das notas do diário de pesquisa. Após uma revisão teórica do conceito de experiência –interpretações, formas de experiência artística, reflexão acerca da abordagem educativa da arte–, a pesquisa de campo apresenta aplicações empíricas do conceito de educação e arte. Finalmente, a discussão é um diálogo entre os elementos teóricos e a informação oriunda da pesquisa de campo, e sugere algumas conclusões a respeito das relações entre educação, experiência artística e uso das tecnologias.

1. Introduction

In this paper we seek to understand how technologies can fit in the educational dimension of art experience, and what kinds of relations exist between educational experiences in general and art experience in particular. Our research was carried out in São Paulo, a culturally restless city, featuring numerous museums and enjoying art events all year long.

The museum experience was chosen as fieldwork for several reasons. First, museums are clearly associated art experience; they also provide an accessible way to carry out participant observations. Second, museums are both a place for exhibition of technology as part of the presented artworks and a place for technology use in an educational perspective. In that case, the goal is to offer a quality experience and also to encourage the public to learn more about art, thus improve public knowledge. Therefore, it seemed meaningful to associate a study about art experience in the current technological context to a reflection on educational questions in the same context, and to promote a conversation around those subjects.

This work is based on a parallel study of theoretical concepts associated to current artistic experience and problematics related to the use of technologies in education. It results in a reflection about the roles of these technologies in the educational dimension of art experience.

The methodology is ethnographic, characterized by the process of immersion in the field, with in-depth interviews, participant observations and the use of pictures mainly as illustrations for the themes emerging from the field. The research, a study on the educational aspects of contemporary art experience, is based on the perceptions and experiences of actors both from the public attendees of museums and from the professional art world. The discussion confronts information derived from the field to theoretical concepts and leads to a reflection on several topics: the forms of the educational art experience, the questions raised by technology use in an educational perspective, and the evolution of public behavior in the context of art experience.

2. The forms of art experience in the current technological context

The artistic offering is characterized by a wide variety of events, supports and media (Couture, 2003), a questioning on the role of art in society (Rolnik, 2001). Following Couchot and Hillaire (2003), in spite of the expansion of digital media, the need for physical objects is still present in the public, as testified by the current success of traditional exhibitions.

New possibilities of art experiences were born out of the multiplication of sources of images and their means of circulation (Santaella, 2005; Argod, 2013). Thus, the diversity of artistic offering and the development of information and communication techniques impact both the way the public takes hold of artistic contents and the educational approaches to art (Donnat, 1994; Lahire, 2004; Coelho, 2008). Public heterogeneity (Pequignot, 2005; Salzstein, 2006; Crane, 2009) means different expectations (Peterson, 2004; Fabiani, 2007): people for creativity (Bernardino, 2010) exploration (De Certeau, 1990; Ginzburg, 2006) and identity building (Goulding, 1999). The concept of total art experience is based on appealing to sensorial perception and alteration of public perception, and also on the relation between each installation, the environment and the public. (Sogabe, 2011). This logic underlies the search for the best form of interaction, in an attempt to offer the public an experience which according to Dewey (1934) should present "a situation flowing smoothly, in such harmony that its end appears as a perfect finalization and not as a cessation".

KEYWORDS

Art experience;
education;
technologies;
interactivity;
ethnography

PALABRAS CLAVE

Experiencia
artística; educación;
tecnologías;
interactividad;
etnografía

PALAVRAS-CHAVE

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Likewise, Csikszentmihalyi (1990) describes optimal experience as “flow”, or “engagement in an activity as a source of immediate gratification that demands great concentration on the part subject”.

If experience implies the subject’s active role in the activity, then mastering this activity has an impact on the level of satisfaction. In the case of art experience, the quality of emotion felt and the level of interaction of the visitors depend on their level of immersion but also on their familiarity with this kind of artistic offering (Fornerino, Helme-Guizon & Gottland, 2008).

It is possible to draw a distinction between technology as part of the artwork, as a medium for interaction between the artist and the public (social networks, websites) or between the artwork and the public, and finally as “mediators” of art experience in the use of technological devices such as mobile phones, audioguides, videos, etc. Some authors brought up a reflection on how these technological devices influence art experience: Von Lehn, Heath (2005) discuss the profitability of Personal Digital Assistants (PDA) in museums regarding public satisfaction; Kaptelinin (2011), the contribution of technologies to a meaningful experience for museum visitors; Hsi (2002), the effects of technologies on exploration, search for information, and the communication on experience; Charitonos and Scanlon (2012), the development of learning design and its different contexts (offline-online; individual-collective; formal-informal). Similarly, according to Trant and Wyman (2006), tagging gives the possibility to order collection objects online by creating links between them and the observer, thus turning the process of online access to art more human; finally, the concept of museum collection and the relations between museum and public are reformulated through the use of digital technologies (Cameron, 2003).

and learner is quite helpful understanding the challenges of technology use.

Pedagogical mediation relies on different semiotic instruments and forms (Vygotsky, 2007), defined by the intervention of the subject in the learning process, either physically or, in the case of online education, remotely (Machado, Teruya, 2009). Finally, technological mediation applied to education can be understood through a more or less traditional approach (connection process between a few learning supports, or between the class and the teacher) or an innovative (using technological means and supports to create a situation of interactive learning).

The emergence of new technological supports entails an innovative pedagogical action, in order to develop concepts relying on a variety of information types (Catapan, 2003). Therefore, technological devices prompt other ways of thinking pedagogical mediation, which also requires different approach to teaching and learning (Brito Prado, 2006).

However, technology in itself does not necessarily entail a better understanding, nor a greater interest of the learner, and thus does not guarantee a better realization of the educational mission of the institution. It also involves the use of short-lived devices that might break down and carry a replacement cost. Also, the way they are used can vary from one place to another. These are elements to be taken into consideration before investing in technology.

Finally, according to Costa and Oliveira (2004), knowledge-building depends on the integration of teaching materials, the relation between teacher and learners, and methods and teaching strategies. This underlines the importance of knowing how to adjust all educational devices in a triangulation process.

3. The relation between education and technologies

The literature regarding the role of technology at school and in the relation between teacher

4. Technology and educational approach in the art field

Art education can be linked to different themes: how the public access the art offering, its background

in enjoying art experiences, the extent to which increasing knowledge of art can improve public experience, and which educational approaches should be adopted. Salzstein (2006) mentions the development of interactive technologies fostering empathy between artworks and the public in a general context of technologization of daily life, an evolution which could be considered a positive point from an educational point of view.

The idea of access to art can be related to the concept of cultural capital (Bourdieu, 1979) that the individual can rely on to take hold on art offering. This capital would be "socially-built and based on a successive socialization" (Choi, 2011), but does not depend only on the individual social class (Peterson, Simkus, 1992). Also, the concept of "practices legitimacy" is questioned by the diversity of what is considered a cultural reference (Lahire, 2004; Bellavance, Valex, Ratté, 2004). The access to an abundance of cultural products through many media has a blurring effect on the definitions of art and culture. Finally, "access" can also be understood in a geographic and financial perspective, or in terms of communication. Do people live far from cultural centers? Was the information sufficient, and the communication adapted to the audience? (Koptcke, Cazelli, De Lima, 2006). Koptcke (2012) also raises the question concerning the difficulty to find a single definition of the "democratization of culture", since culture is by nature multidimensional and implies different objectives.

The concept of interaction appears as a link between contemporary art experience, new education methods, and the communication logics of social networks.

Moran, Masetto, and Behrens, (2000) distinguish between teaching as a social process of education involving a collaboration between teacher and learner, and learning, defined as a permanent process including knowledge, but also other types of know-how related to being, doing and living in society. According to Brito Prado (2006), learning implies giving priority to interaction: exchanging information and experiences, sharing and confronting ideas among a group of participants.

Following a similar path, Pareyson (2001) and Barbosa (2007), through the links they respectively

make between "doing, knowing and expressing" and "doing, reading and contextualizing", reinforce the fact that the empirical, theoretical and expressive dimensions of art are complementary and therefore must be placed at the basis of an educational approach (Guerson, 2010). According to Barbosa, the ability to read and analyze an image goes hand in hand with understanding the production context of an artwork, and the development of a relation between art and society depends on this association.

Thinking about the basis of art education in light of the conception of learning mentioned above gives insights about the role of technologies in the art area: in particular, how they can stimulate curiosity and interaction, and therefore have positive impacts on public art education.

In talking about public education and interactivity in the digital context, the objective is to offer information about the technologies used in the composition of artwork or to present the artwork environment, so that visitors can enjoy the suggested interaction. The idea is that optimal use of these technologies enables the public to better immerse into the art experience. We suppose that the better the experience, the greater the probability to be remembered and therefore to have a positive effect on the building of the visitor's artistic culture.

Social networks can be considered an interesting tool for diffusion, keeping links and fostering interaction (Benghozi, 2011) between the art institution and the public, and among the public itself. This is the case for example for museums on Twitter, or Facebook pages used as platforms for organizing events, posting pictures and responding to the public, thus extending the museum experience. At the individual level, beyond the subjective dimension of self-exposure and identity building (Coutant, Stenger, 2010; Granjon, Denouël, 2010), posting pictures on social networks creates an interaction between the visitor physically present in the art event and the online community that can comment and circulate pictures (Proulx, Choon, 2011). These social practices became part of the art experience and also prepare the potential visit of those who do not know about the event or have not been there yet.

From this point of view, the role of social networks, more in the case of Facebook and Instagram which rely mainly on picture posting, seems to be close to what was coined “edutainment” (resulting in the convergence of education and entertainment) (Addis, 2005). Recreational use is indeed an important aspect of social networks practices, but through posts and pictures, members can also discover new places and topics of interest, which creates new educational perspectives.

5. Methodology

This research is based on an ethnographic and interpretative methodology (Glaser, Strauss, 1967; Mauss, 1967; Arnould, Wallendorf, 1994): immersion in fieldwork thanks to in-depth interviews with 30 professionals (curators, directors of communication in museums, art events organizers, artists, performers, researchers in arts and social networks, marketing directors, educators, organizers of education projects and professors) and 10 people from the general public who participate in art events and/or exhibitions, some of them active on social networks (Facebook or Instagram) (Spiggle, 1994; Miles, Huberman, 2003); participant observations during art events and exhibitions; picture taking as illustration and observation joint practice or to enhance a meaningful detail (Holbrook, 2006; Spinelli, 2007) and research diary (Kates, 2006). Observations were carried out for 150 hours during one year, in ten museums (Paço das Artes, USP; FILE 2015, São Paulo; Museu da Casa Brasileira; Pinacoteca do Estado de São Paulo; MASP; MAR (Rio de Janeiro); Museu de Artes Afro-Brasileira; Museu da Imagem e do Som; Museu de Belo Horizonte; Inhotim) 3 events (St Gobain 350 Caminhos pro Futuro, Parque Ibirapuera, São Paulo; Bienal de Artes de São Paulo 2015; “Made by...feito por nós Brasileiros”: september-october 2014, Hospital Matarazzo, São Paulo) and 1 performance: o “Metodo Abramovic”: SESC Pompéia, São Paulo. They were chosen according to opportunities during the year 2014-2015 and the type of museum. Beyond interviews, participant observations rely on researcher interaction with the field and aim at immersing in the reality experienced by the subjects of the field (Wacquant, 2002). Finally,

the information from the field was submitted to a global content analysis (Spiggle, 1994; Miles, Huberman, 2003) based on interviews, semantic study and coding, picture analysis, and the study of observations and diary notes.

6. Field analysis

6.1. From art institution to the public: communication and educational approach

According to E.S Gomes, former communication and event manager for Tofiq House (place of artistic residence for young Brazilian artists and art events, São Paulo) social networks are essential for communication in the art world, especially if the goal is a personalized communication based on word of mouth.

In general, the museum educational approach starts with its communication strategy which, beyond providing information and stimulating visitor motivation, also aims at creating a first contact between potential visitors and artistic content. Website and presence on social networks are key elements of this strategy. According to A. Kunsch, communication manager at the Pinacoteca do Estado, São Paulo, communication about exhibitions is a tool to develop pedagogical aspects. This museum is working on individualizing the relation with the public, in the attempt to improve museum action and thereby to better realize its educational objectives.

As far as exhibitions are concerned, technology enables to enrich educational content, to turn information more lively and foster interaction between the public and artworks: *in this exhibition, you could see works from the artist, there were interviews, videos of him painting... you could understand the whole process* (R., 36). For M. Chiovatto, director of the Education department of the Pinacoteca do Estado, São Paulo, when talking about public art experience, there is a difference between a *good experience* and a *meaningful experience*. The latter means that the visitor experienced a moment that made him/her think and deepen his/her perception, beyond the duration of the visit.

The museum role is therefore to search for the most adapted forms of intermediation in order to fulfill these objectives: educator, audioguide, tablet, material supports, games, etc. (R. Coutinho and S. Yamauti, Education area of the Centro Cultural Banco do Brasil). The coherence of elements and the contextualized choice of formats are paramount: *we are not a cinema, we are a museum* said C. Caroli, sociologist and administrative coordinator of the Museu de Arte Brasileira (FAAP University, São Paulo), about the use of the video format in exhibitions. At the Pinacoteca, the educational approach is based on games related to concepts explored by the artworks exposed, communication panels and an interpretation room which explains classification logics and collection in a playful way. (Picture 1 and 2).

However, the educational approach of museum still depends on the presence and action of a dedicated staff delivering this educational content to the public. Respondents underline the importance of promoting the transmission of knowledge in a playful way. Pedro, educator in the Inhotim art

complex (Minas Gerais), thinks that his role is to guide visitors into the educational dimension of Inhotim, beyond the magical experience. At the same time, according to C. Caroli, the experiential aspect of an art exhibition is related to the creation of emotions prompting all kinds of sensations and references, and experiencing these emotions can also be considered a form of learning.

7. The educational role of the artist

The educational role of the artist can be related to their wish to make their creation accessible to the public, and to guide the visitor to a certain reflection, the discovery of an esthetic, poetic or social message. Throughout the interviews, this aspect was particularly present when talking about interactive expositions: the idea was then to give keys to the public, as subtle indications about how to interact with the artwork (G. Prado, professor at ECA and plastic artist). According to M. Sogabe, a visual artist and professor at UNESP University, the artist should take into account public reactions as well as their potential relations to the artwork when choosing forms of interaction and creating interfaces. Beyond the concrete aspect of dealing with the interaction devices in a proper way, the idea is also to facilitate the access to the deeper meaning of the artwork, and to point the perception of the public to a diversity of interpretations.

During the “Metodo Abramovic” (SESC Pompéia, São Paulo), Marina Abramovic offered an almost meditative experience, aiming at teaching participants to reconnect with themselves and their environment.

Participants received instructions from the artist to facilitate the experience and ensure that it went smoothly. It is interesting to notice that, in this case, technologies were used to convey information to the public, even though the whole experience was about disconnecting the participants for two hours. Mobile phones had to be put away in a locker and everybody was barefoot so that participants could better reconnect with themselves, thanks to silence, direct contact to the floor and magnetic crystals.



Picture 1. Exhibition *A propaganda no tempo de Vivian Maier*. Museu da Imagem e do Som, São Paulo, Maio Fotografia, (may 2015).



Picture 2. Educational game available for the public. Pinacoteca do Estado (São Paulo, 2015).



Picture 3. *Método Abramovic*. SESC Pompéia, São Paulo (march-may 2015).

Social networks offer an opportunity for the artist to publicize their work thanks to comments and, in the case of Facebook, “likes”. According to the visual artist S. Niculitcheff, thanks to this *showcase*, artists can attempt to catch the attention of a new audience and retain the existing one by making people feel more inclined to *look for exhibition places or learn more about a specific art trend* (F. Rosenthal, researcher on social networks, FGV, São Paulo).

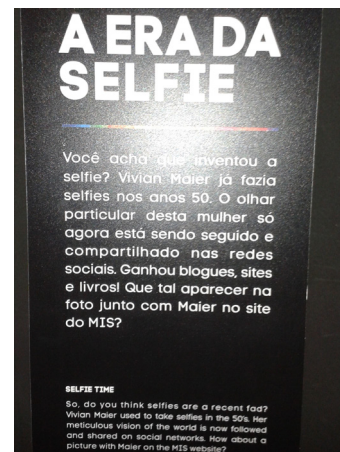
8. Content and information sharing among the public

Although visiting an exhibition with friends and sharing knowledge about it is nothing new, social networks have created the possibility for the exhibition to dematerialize and expand itself while turning the art experience in an opportunity for self-promotion. It is thus possible to distinguish the transmission of information which has the objective of improving one’s reputation on social networks from communication aiming at sharing knowledge and actually giving others the opportunity to enjoy an interesting art experience. According to M. Bandeira, professor of communication and digital culture at the Federal University of Bahia (UFBA), social networks have an expansion effect in the sense that they facilitate access to culture.

As an art and communication manager in the Samba Marketing Ao Vivo agency, G. Llontop thinks that sharing information and pictures related to

events and art trends on social networks is often a matter of *social reassurance* and of improving self-image. Pictures are often selfies based on self-theatralization in an artistic setting. According to A. Kunsch, however, these pictures increase public interest for the event which becomes *personalized*. Besides, selfie practice is sometimes stimulated by museums, in a more or less explicit way, when the exhibition provides a setting which seems to have been created for pictures.

The exhibition on Vivian Maier at the MIS displayed a panel dedicated to selfie practice, and enabled visitors to be part of a self-portrait of the artist (see below pictures 4 and 5).



Picture 4. Exhibition *O mundo revelado de Vivian Maier*. Museu da Imagem e do Som, Maio Fotografia, São Paulo (may 2015).



Picture 5. Exhibition *O mundo revelado de Vivian Maier*. Museu da Imagem e do Som, Maio Fotografia, São Paulo (may 2015).

9. Impact of technology on art perception and educational experience

Overall, it can be assumed from the interviews that the educational approach in the art area aims at encouraging a critical vision of art from the public, and at fostering a wider understanding of the concepts embodied by artworks, thanks to adapted and accessible devices.

To reach this objective, different contexts of implementing the educational offering can be developed. In the case of educational services provided by external agents, the difficulty of application control was raised when the contract does not include the availability of a team of educators (E. Onodera, cultural manager of educational services for museums).

Through trivialization and daily use, digital techniques democratized the access to art. They indeed rely on devices which became familiar to the public (tablet, computer, etc.) and are often associated to a context of leisure. In M. Bandeira's view, technology enables delocalizing art experience as in the case of the virtual museum, but also extends the experience through posting comments related to it. *We can have access to a world which used to be available only to those who could travel, or buy an expensive book....today you can take a virtual tour, you have access to specific artworks* (S., 36).

At the same time, the value of technology might be questioned when it is not justified by the creation of an artistic, social or human message aiming at *shaking up the public* (S. Cavaliero, researcher on contemporary arts): *there are lots of very vague things...ok, it is technology, but so what?* (R., 32).

Moreover, daily use of technological devices puts the individual in a state of permanent connection which *keeps speeding up people* and appears as a factor of loss of concentration and difficulty to contemplate things (R. Coutinho, S. Yamauti, Education area of the Centro Cultural Banco do Brasil). *People cannot stop in front of a masterpiece just to look at it...in case of moving images, if you are interacting, it means, in theory, that you are looking at the artwork....but if it is just an artwork to be contemplated, well, people don't stay* (M., 22).

Technological devices can immerse visitors in a specific atmosphere, or make them go back in time, associating information content, emotions and sensorial stimulation. In that sense, they are a powerful tool to put the public directly in contact with the art offering. *You can access information in a much quicker way...you can touch the texture, the form....you have movies, videos... it is a whole complex* (G, 24).

Nevertheless, it was said that technology can be counter-productive if the public ends up being more captivated by the device itself than by the artwork it is supposed to enhance (M. Chiovatto, Director of the Education department, Pinacoteca do Estado, São Paulo). Also, if technology is needed to bring artworks to life or to contextualize them, a feeling of saturation might arise following the accumulation of digital devices. *There are things to read, to listen to, to touch...in the end it can be tiring* (E., 35).

Respondents from the educational domain also point out that technology does not always need to be digital, and that games, play dough or cards are sometimes more meaningful, particularly because they create an immediate link between participants, are easy to use and put the public in contact with the material element.

The diversity of potential devices enables a "bricolage" (Levi-Strauss, 1962) of art experience, each visitor using the means that best suit him, according to his time, affinities and level of art literacy. *In Ouro Preto there were physical objects from Brazilian history, but in general, the exhibition was digital...so there was a projection, a video, a screen to touch...some people love it, some people are more interested in the objects* (R., 33).

Beyond individual preferences in terms of artworks and favorite kinds of learning devices, the evolution of technology means new possibilities for exhibition and reception. Nevertheless according to R. Coutinho and S. Yamauti, it still depends on initial interest for art and culture. For example, virtual exhibitions may be available, but interest is linked to familiarity with this kind of offer, and to the fact that activities related to arts are considered an option in terms of leisure. It was also underlined that nothing can be compared to

a physical visit, even though virtual exhibitions can be an interesting option in case it is impossible to attend the exhibition.

10. Discussion

Arts today rely on many kinds of events and media (Couchot, Hillaire, 2003) and also on the cohabitation of physical and digital objects. The relation between "material" and "immaterial" seems to be characterized by complementarity, following technological logics and the cross, inter and transmedia narratives, but also the "bricolage" typical of postmodernism and the "serendipity" of the internet (Ginzburg, 2006): while searching for something specific, one ends up discovering the unexpected. This vision of reality entails great possibilities in terms of creativity and experiences.

Consequently to this expansion of the offer, the public expectations, the ways to take hold of art experiences and the forms of art education also get more diversified.

Art experiences address the public in a more or less contemplative or participative manner, thus requiring different types of perception. But is contemplation necessarily calm and immobile? Can participation be considered a kind of active contemplation? This question follows an observation made during the fieldwork: the increasing inability to contemplate would be characteristic of the public nowadays and it is perceived negatively and even considered worrying. In a certain way, this supposed inability is also related to a perception of arts as demanding purely contemplative behavior, being connected to individual habits and, therefore, to education (Bourdieu, 1979; Choi, 2011).

At the same time, depending on the technologies involved, the visitor is encouraged to adopt an attitude that is either more interactive and participative (creating a sound that everybody will hear, releasing a visual process, using the technology of social networks to publish informative contents on art events or post one's own pictures of an exhibition), or one that is more individual

and focused on the artistic offer (such as using audioguides). This vision is based on a more open and extended definition of art and, therefore, of art education (Lahore, 2004; Bellavance, Valex, Ratté, 2004), thus questioning the notion of "high" (classic and theoretical) and "low" or "popular" culture (based on consumption, fun and participation of the public) (Lynch, 2005; Maffesoli, 1990) and the systematic devaluation of the latter which would not be "culture" in the elitist sense.

It is possible then to foster a more contemplative attitude towards art, or on the contrary, to invest in other exhibition devices. For the public, interactivity learning goes beyond living immediate art experience. It also means learning to interact with different media related to art experience: the audioguide, for example, is a tool to organize one's own visit; a large screen enables silent sharing with other visitors; multimedia devices introduce an animated content, etc.

Likewise, in an educational perspective, we can think of different assimilation styles one more or less focused on listening, reading or watching, or one more interactive, based on games or other kinds of simulation involving group decision process or distribution of roles to solve a problem, using technologies in a more or less individual or collective fashion.

The notion of experience according to Csikszentmihalyi (1990) and Dewey (1934) implies the dimension of immersion and the satisfaction related to such state. It seems that both contemplative and interactive art experiences follow this conception. If considered in an educational perspective, increasing one's knowledge about arts can enrich individual experience, making it more enjoyable and providing the individual with elements for self-growth.

Whether related to art or educational experience, a few questions can be raised: what is the contribution of technology to these experiences? In what forms, with what kinds of devices, and for what audience? In the case of artwork creation, which poetics does the artist want to articulate? In the case of communicating art, what ties is the institution trying to establish with the public, and through what devices? In the museum, which kind

of interaction is expected? Which kind of devices should be used, digital or traditional?

According to one respondent, visitors in an exhibition do not always use the totality of the technological devices available, and they do not necessarily have the feeling that their visit was any less enjoyable.

The notion of mediation implies a reflection about the role of professionals in charge of providing a framework for artistic or educational experience. In a general manner, how important is the human element in the implementation of educational methods based on technologies? It appears that technological devices do not make human presence superfluous, since it continues to orient interaction and facilitate communication between participants in the experience, be it art experience, educational experience, or both.

All the more in a context of availability of various pedagogical tools, the educational approach implies a triangulation of these tools, whether digital, computational, traditional or human. This triangulation is also conceptual, according to the theories of Pareyson (2001) and Barbosa (2007), "make, read, contextualize".

Interaction can be viewed as the requirement for implementation of education methods, as the basis of numerous exhibitions, and as their object: the fieldwork and our own experience of teaching lead us to the conclusion that one of the problems that both artist and art institution have to deal with is how to help the public understanding how to interact with the artworks, while at the same time letting visitors enjoy their freedom of perception and assimilation of the artistic offer. The question can also be raised in the case of social networks used for information and artistic content diffusion, to strengthen consumer relationship and catch public attention (Caruth, Bernstein, 2007). Regarding the museum, how should it interact with the public? Regarding the artists, which pictures should they post in order to give the best idea of their work? For someone wishing to incite other people to visit a place, what should be told? Which pictures will convey the best feeling?

As far as the institution educational tools are concerned, using non-electronic devices can

be a way to enable the public to rediscover material objects, anchored in physical reality. It can be considered as an alternative to the daily technological world, and thus an experience of disconnection. Several respondents asked themselves when digital technology is really a source of added value for the public in terms of knowledge or creating emotions. Moreover, there might be a risk of saturating the public, since people are consistently immersed in a paradigm of digital interactivity and screens. Therefore, the use of these technologies in the museum context should be carefully evaluated and needs to be meaningful in the specific context of the exhibition.

Paradoxically, technological devices were often described positively when they were dedicated to multi-sensory exhibitions. In that case, technology does not make things more "virtual" in the sense of "abstract"; it rather aims at making reality "more real", all the more if it belongs to the past. In that sense, technology is used to increase the authenticity of art experience (Camus, 2002). It is the case of museums based on the revival of a region or culture, such as the museum of Belo Horizonte in which it is possible to witness a real conversation between historical characters of Minas Gerais, and thus to plunge in the context of the social and historical development of the region.

The "bricoleur" (Levi-Strauss, 1962) behavior associated to postmodernity consists in finding one's way amongst an infinite stock of references, centers of interest, cultural or consumption objects. This orientation is consistent with the development of various educational approaches, from which the visitor can choose what suits him better according to his affinities. At the same time, the educational approach should also put the learner in contact with what is unknown, unusual or even uncomfortable. Therefore, as in any educational situation, it seems important to know when and how to intervene in the public experience to subtly orient it towards new questionings.

11. Final considerations

Throughout our research, education was understood as a process of improving public

awareness and interest and creating and sharing knowledge. This perception of educational approach involves artists, professionals of culture and the public itself. This paper emerged from our post-doctoral research on the evolution of art experience in the digital era, and as the domain of education is a relatively new field for us, we consider this work a first exploration. Additional interviews with education specialists and immersion in salient literature would serve to deepen understanding of this topic. This field of research was a challenge, due to the fact that we did not belong to the art domain, which implies a lack of familiarity with the subject. However, in the attempt to learn about the theoretical context of the field, we reviewed substantial and relevant information, which we consider a fruitful investment, mainly in sociology of arts and culture, anthropology of digital practices, communication and sociology of education. Nevertheless, some related references might be missing. Also, we wish that we had carried out more public interviews; nevertheless finding respondents interested in the topic and with the adequate profile proved to be difficult.

Starting from a field research focused on educational aspects of art experience in the current context of a plethora of available experiences and of artistic and technological profusion, our work reflects upon the role of technology in art experience and in modern educational approaches. Interaction in its various forms seems to be common to a certain trend of current art experiences, new educational methods and the communication logic of social networks.

After a theoretical review of the concepts related to art experience in the current technological context, we presented a reflection on the role of technology in modern educational approaches. Then, concepts of art experience, education and technology were observed in a joint study in an attempt to better understand the relationship between art experience and educational experience and to what extent technology influences them.

The fieldwork analysis enabled identifying different educational processes, from the institution to the public and from the artist to the public, and also behaviors of knowledge and information sharing among the public. Finally, the last part of this analysis considered the impact of technology on

art perception by the public and on educational experience in the arts.

As a conclusion, the following topics seem to be of interest in the perspective of a future research: the different ways people approach artwork, in a more or less contemplative, interactive or participative fashion, which entails reflecting upon notions of interaction, participation and contemplation and their potential evolutions and relations of complementarity; the diversity of art experiences and the necessary adaptation of educational approaches to the different contexts and publics; the strategies of cultural institutions regarding technological choices, depending on the kind of relation they wish to create with the public; and finally, the triangulation of technological devices in an educational perspective.

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