The Digital Museum as a Third Space: Giving Shape to Conceptualization

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Abstract. MOdE - Museo Officina dell'Educazione is a virtual and multimodal museum. It is multimodal not due to the presence of different languages, but also the presence of different action spaces. The museum has exhibition rooms, documentation but also "blank" rooms, where the visitor can assemble materials that are already in the museum or collected in their own informal contexts, to produce meanings. The museum therefore becomes a third space in that formal and informal contexts are hybridized and new artifacts are constructed - thus proving that it is generative. This work seeks to draw the attention to the function of the MOdE blank rooms as active spaces that contribute to the production of common threads that can be used to overcome the fragmentary nature of current contexts and the identities that they house, whilst also highlighting how hybrid spaces, third spaces, are the keys to education in a complex society.

Keywords: Virtual museum · Digital artefacts · Digital environments · Multimodality · Fragment · Layout

1 Introduction

The study analyses the meaning and sense of digital environments to understand if they can be third spaces. Some digital environments can be seen not as separate from the real, but as *third spaces* in which, according to Flessner (2014), the formal and the informal, presence and distance, the "real" and the digital are combined to build new meanings. In these third spaces it is possible to work to aggregate and re-process materials and experiences from the first and second spaces, to reflect on them, to understand the experiences encountered in the informal with the lenses of theory and to rethink theories based on experiences. In this sense, digital environments as a third space are virtual museums offering tools for the customization and construction of new artifacts.

In particular, the analysis focuses on the virtual museum, starting from the experience of the MOdE and its blank rooms, to understand if and how a specific digital experience can reify the third space.

The research question is the following: can a virtual museum in which the user can aggregate materials and process their own emergence of meaning, become a third space in which common threads are built connecting knowledge fragments building both the meaning of specific themes and individual pathways?

2   Theoretical Framework

Today's society is characterized by the fragment, that is, by the presence of many blocks that are difficult to reduce with the characteristic logics of both the Aristotelian syllogism and the Hegelian dialectic. The fragments can be aggregated, but the absence of meta-narratives militates against the possibility of hierarchies or reductions to the general and also against unique and unambiguous narratives. The fragments must therefore be connected with common threads that do not reduce differences, but connect them with weak ties often based on topological logics. In particular, the fragment is one of the elements that characterize current culture and communication. Today, the first page of a newspaper consists of fragments or multiple inputs, often over twenty, comprising squares in which there is a title, often an image and a brief text. The reader moves between these items and must construct an overall vision by tracing recursive trajectories across the page. A further example of fragments in the school environment is provided by the knowledge in a classroom in which each student has his/her own baggage constructed from a range of sources, including informal sources. In fact, the information and knowledge which a student brings to the classroom is different from those of his or her colleagues and while at one time it was possible to identify a certain number of narratives that were shared by all the students, today the narrated "stories", increasingly conveyed by the media, belong to an infinite, multicultural catalogue with no common background in the classroom, just as there is no single shared story. All of which produces the complexity of the classroom and the difficulties of teaching which today require the construction of meanings based on the fragments that are present.

The fragments are self-validating and non-reducible: it is impossible to place them on a single scale, based on a classification or using a Hegelian synthesis. The fragments are distant from one another, but not different, which would still provide comparability. Distance it is easier to address with topological methods than logic. The fragments in fact require the presence of a structure, a layout, which has its own autonomous logic. The layout connects and builds meanings, very often with a limited rationale or a context-linked rationale. Layouts function with a spatial logic through aggregation, proximity and position, often without starting from a unifying idea and proposing a bottom-up process. So the ability to produce meaningful, culturally and socially relevant aggregations is today an important civil competence. In this regard, Flessner proposes the third space as a locus for hybridizations between unresolvable dualisms.

In particular, for Gutiérrez et al. (1999) the third space becomes a place in which the availability of forms of mediation and resources and the organization of activities is reflected in the opportunity to learn and participate to support the development of new trajectories of meaning.

Digital can be seen within third space theory as a meeting point of worlds, where they are combined and produce understandings. Digital technologies contain fragments

and at the same facilitate actions. They are repositories of different media - texts, images, videos, sounds, graphics - that offer many ways to manipulate individual fragments or build networks that aggregate them: creating outlines and maps, assigning keywords and tags, linking various objects and building complex patchworks. As Flessner suggests, in the third space, not only do physical and cognitive artifacts come from the other two spaces, but outputs emerge that add meaning and sense (Luigini and Panciroli 2018). Therefore, digital and multimodal environments are third spaces when they act as a bridge between different environments: formal and informal contexts, real and digital spaces, spaces of experience and working practices and spaces for reflection and learning. The role of digital and multimodal environments as third spaces is not only that of aggregating, connecting, inserting materials from different outputs, but also of bringing out new meanings, evidence, reflections and sense networks (Rossi 2010, Rivoltella 2014).

It is important to clarify the meaning of multimodality.

The first definition comes from *cultural studies*, in which multimodal depends not only on the presence of different languages, but also on modes that are simultaneously languages, actions, sociality (Kress 2009). In this sense, multimodal is an area of action.

The second definition comes from neuroscientific research. In particular, *Embodied Simulation* theory holds that sensory and motor systems are intrinsically multimodal because they respond to and process information associated with multiple sensory modalities and that multimodality can be seen as an intrinsic property of the vast majority of brain areas (Cuccio and Gallese 2018).

Both approaches to multimodality, while derived from different perspectives, focus on action and this centrality shifts the focus to the process. This shift is not irrelevant: if aggregation is considered to be a process that exalts the spatial position of concepts seen as objects, it can be assimilated into sensory-motor processes and is connected both to research in embodied cognition and to analogies identified in the neurosciences between sensory-motor processes and cognitive processes, in addition to affective and emotional ones.

3   Modes of Inquiry

The MOdE, Museo Officina dell'Educazione, created in 2008 by the Department of Educational Sciences of the University of Bologna, is a digital and multimodal space in which users can not only browse and view materials, but also build their own rooms: blank rooms (Panciroli and Pizzigoni 2013). The MOdE consists of two main areas - exhibition and documentation - supported by an additional area dedicated to education. The exhibition space involves setting up virtual rooms and workshops dedicated to specific thematic areas (art teaching, history of education, children's literature, special education, etc.) and is marked by significant relationships between galleries of images, video, audio and textual analyses. The documentation space seeks to disseminate and enhance good practices with cultural heritage (Panciroli 2010).

Inside the exhibition area there are blank rooms that offer visitors a space for reworking contents where they can aggregate artifacts internal to the museum or external materials, collected from their own experience. In fact, the itineraries offered

by museums increasingly off the visitor the opportunity to participate in the same way as those who design and produce contents, in a shared writing. In this regard, the personal spaces offered to visitors by some important digital real museums, such as the Prado and the Rijksmuseum (*Mi Prado and Rijksstudio*) are significant. In these areas users can either collect images of works that stimulate their interest, or create galleries/albums within sequences that they consider to be particularly significant.

In terms of the architecture of virtual museums, in the blank rooms each new object inserted in addition to or replacing another involves a re-formulation of meaning, just as the blank rooms are not rigidly defined, but can be continuously transformed and implemented (Manovich 2013). In this sense, the blank rooms can be considered to be artefacts, part of an ecosystem that must be conceived and analysed as a complex system and not as an isolated entity.

The research intends to investigate what meanings and what methodologies are used in the creation of a blank room, in relation to two contexts: university teaching and school education.

There are 22 blank rooms, each of which has been designed and built by a university or school class. 1125 students have participated in the experimentation in the last two years.

The survey was carried out by 3 researchers who were present while the students created the blank rooms and interviewed them in groups at the end of the work. All students also completed a questionnaire to identify the skills acquired.

Research data	
Number of researchers involved in the research project	3
Number of students involved in the experimentation	1125
Number of blank rooms created	22

3.1   Experimentation

The visitors/students mainly used two room construction approaches, characterized by continuous recursiveness between the real and the virtual:

– Thematic/textual approach. The expert suggests a theme and, through interactive visits in challenging cultural environments (real and/or virtual museums), the students come to the definition of a project to set up a blank room through a specific profile. During the cultural pathways the students are led to look for images and information as "hooking and memorizing elements", necessary to convey the meanings that they wish to communicate through this environment.
– Object/visual approach. Students start by exploring tangible and/or intangible works in the rooms of the MOdE virtual museum and/or other museums and digital and/or physical places of cultural interest.

The objects act as iconic, symbolic mediators, giving form to conceptualizations.

From the analysis of the rooms, two types of output emerged:

– *the simple artifact* configured as a semantically self-validating unit, in the form of an image, video and/or text and which, therefore, represents a museum object that can be catalogued and described;
– *The complex artifact*, a set of objects related to a theme, linked together by a complex network of meanings, able to propose original narrative pathways.

An example of a simple artifact is a single photomontage *The first porticoes in the XI century* (Fig. 1), created by the students starting by reworking several images. This artifact has its own semantic autonomy and shows the historical reconstruction of the ancient porticoes of Bologna in a new and personal way.

The first porticoes in the XI century // Immagine 7 di 10

Fig. 1. Image re-worked by students for the preparation of the Blank Room *The Evolution of Bologna*

A second work, *The Evolution of Bologna* (Fig. 2) is a complex artifact created by the students starting from more simple artifacts (videos, images, audio, texts), also including *The first porticoes in the XI century*. It was interesting to see that the students did not juxtapose these products, but created a semantic and narrative network to reconstruct the heritage of the city by showing each characterizing element (building, monument, etc.) based on a double vision of past vs present.

In both cases the underlying processes are similar and recall many of the cognitive operations indicated above. First of all the artifacts produced can be seen as a *patchwork* i.e. an aggregation of different materials coming from multiple sources. Sometimes they are fragments taken from museums or the web; on other occasions they are independent productions of the students, their photographs or videos. And this perhaps better emphasizes how the museum can be seen as a third space: in the artifact, the elements derived from the cultural heritage connect with the elements that come from the students' everyday lives (Panciroli and Macauda 2017). Personal experience therefore

becomes the instrument for re-reading and reinterpreting the works of museums, in the same way that the works of museums become the tool for observing their own experiences from another perspective, for assigning new senses and re-processing them emotionally and cognitively.
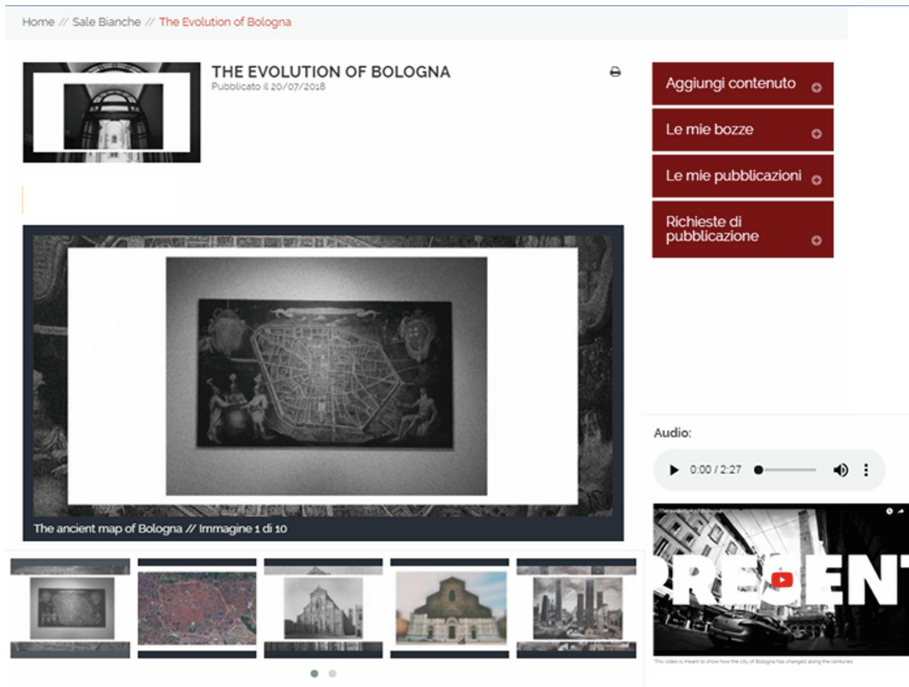

Fig. 2. Blank room *The Evolution of Bologna*

Data Analysis

The reading of the questionnaires and the interviews revealed the following outcomes. Many students stated that the proposed activity led to an active learning process, based on a constructivist and problematic approach, on exploration, research and planning in relation to the intellectual and socio-relational dimensions (collaborative learning). 65% of students said that the virtual visit required them to be creative and provided tools and guidelines for productive activity. Furthermore, 48% of students emphasized that the production made it possible for them to gain awareness of their experiences and encouraged the re-processing or collection of various materials in their personal experiences.

72% also highlighted how the immersion required by the work was an innovative educational experience that the students found stimulating for building and processing knowledge. To this end, multimodality had a strongly generative role capable of activating previously unforeseen relationships and connections (56%). Some students in fact underlined how some relationships and meanings emerged during the processing

of materials and how, in particular, it was actually an extensive use of images and videos that promoted reflections on themes that were not present in the initial phase of the work.

During the preparation of the room which facilitated group activities, some students highlighted how working on the blank room facilitated a focus on individual and collective identity and the construction of shared pathways, resulting from the integration of different experiences.

Finally, the majority of students highlighted the importance of accessing a large number of systems of resources and tools to facilitate cognitive and identity processes and of making contact with different cultural agencies, real and virtual.

4 Conclusions

With the dissemination of digital environments enabling the user/visitor to design and produce content in a shared writing, based on new possibilities of interaction, the virtual museum becomes a third space in which formal and informal contexts, real and digital spaces meet, combine and produce new meanings and where instances of creativity and expression and of citizenship and identity development can be connected.

The blank rooms as artifacts act as iconic and symbolic mediators to give concrete form, based on a narrative approach, to the conceptualizations deriving from the experiences of visiting museums. This mediation activity requires that visitors edit content to write original narratives and the narrative process that develops from multiple fragments, processing meaningful aggregations, takes account of the way in which the user relates to, understands and internalizes the museum objects. Every object in fact needs a story, a point of view, an experience that gives it meaning and at the same time gives sense and meaning to the experiences of the students. The key element is precisely the interaction between personal experience and shared, culturally relevant objects that play the role of boundary objects between different identity trajectories and different processes within each subjectivity. The fragments that the blank rooms present for collection and development, by linking the assets to their own lives, are the fundamental prerequisite for the construction of an active and responsible citizenship by young people and of complex identities open to a plural future.

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