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A Common Engagement towards Effective Communication**

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Preface

Museum education is considered nowadays as one of the core functions of a museum. But how are the various messages to be delivered to the museum audience conceived? Where do the researchers, curators and educators meet? How does each see their role as mediator? How to operate the magic encounter which will allow any visitor to understand the most difficult topics in order to be able to enjoy the wonders exhibited in museums?

For the first time two ICOM international committees: Committee for Education and Cultural Action (CECA) and Committee for University Museums and Collections (UMAC) have decided to combine their efforts by organizing a joint conference in the outstanding venue of the Bibliotheca Alexandrina. They have discussed during four days all the above issues so crucial for any researcher wanting to disseminate their knowledge and all educators conscious of the importance of spreading messages which are both scientifically correct and accessible to the public at large. Some 135 participants from all continents have attended the conference. The variety of papers has been grouped thematically allowing for both university researchers and museum educators to meet not only physically but also intellectually, revisiting the museum collections through multiple perspectives and interpretations. Surprising, engaging and involving the visitor, analyzing how his/her imagination functions or how to best reach him/her by efficient translation of research, without forgetting the core idea at the base of all good communication were topics which opened the conference. The reality of Egyptian museums was presented by both Egyptian researchers and museum curators and educators together with foreign curators who analysed the way we see the use of museums to promote inspiration and creativity taking into consideration that both mutual respect and cultural identity awareness are key issues and the success to all. Enhancing curiosity and imagination through exciting examples from Brazil, Denmark, Egypt, France, Germany, Iceland, Ireland, Mexico, the Netherlands, Turkey, Taiwan, the UK, to mention but few have been pointed as main issues for a positive experience of the museum in times of crisis. A very inspiring conference, the outcome of which may lead to the creation of a Master in Museum Studies at the University of Alexandria.

Such a success has only been possible thanks to the strong engagement of our colleagues from Alexandria at the Bibliotheca Alexandrina, the Centre d'études alexandrines and the Faculty of Arts at the Alexandria University.

July 2015

Mona Haggag & Nicole Gesché-Koning

Préface

L'éducation muséale est considérée de nos jours comme occupant une des fonctions principales du musée.

Mais comment les différents messages livrés aux différents publics sont-ils conçus ? Où s'opère la rencontre entre chercheurs, conservateurs et médiateurs ? Comment chacun conçoit-il son rôle de médiateur ? Comment réaliser la rencontre magique qui permettra à chaque visiteur d'avoir accès aux sujets les plus complexes afin de pouvoir apprécier chaque objet présenté ?

Pour la première fois, deux comités internationaux de l'ICOM – Comité pour l'Education et l'Action culturelle (CECA) et Comité pour les musées et collections universitaires (UMAC) – ont décidé de s'unir afin d'organiser une conférence conjointe dans la prestigieuse Bibliotheca Alexandrina. Les différents points énoncés si importants pour tout chercheur souhaitant diffuser et partager sa recherche et tous les médiateurs soucieux de véhiculer des messages à la fois scientifiquement corrects et accessibles à un public le plus large ont été longuement débattus au cours des quatre jours de la conférence. Quelque 135 participants de tous les continents ont pris part aux débats. Les communications fort variées ont été groupées par thèmes permettant ainsi tant aux chercheurs des universités qu'aux médiateurs de musée de se rencontrer non seulement physiquement mais également intellectuellement. Ils ont ainsi pu revisiter les collections muséales selon de multiples perspectives et points de vues. Surprendre, engager et impliquer le visiteur, analyser le fonctionnement de son imagination ou comment simplement le toucher et l'émerveiller grâce à une transposition adéquate de la recherche et de son idée fondamentale indispensable à toute bonne communication. La réalité des musées égyptiens fut traitée tant par des chercheurs, des éducateurs et des conservateurs égyptiens et étrangers qui analysèrent comment utiliser les musées afin de promouvoir l'inspiration et la créativité sans pour autant oublier que le respect mutuel et la sensibilisation à l'identité culturelle sont des idées clés à la base de la réussite de toute activité muséale. Comment éveiller la curiosité et l'imagination ? Des exemples inspirants ont été présentés entre autres par des collègues d'Allemagne, du Brésil, du Danemark, d'Egypte, de France, d'Irlande, d'Islande, du Mexique, des Pays-Bas, du Royaume-Uni, de Taiwan, de Turquie. Une conférence des plus enrichissantes qui pourrait conduire à la création d'un Master en études muséales à l'Université d'Alexandrie.

Un tel succès n'a été possible que grâce à l'engagement et l'enthousiasme de nos collègues à Alexandrie de la Bibliotheca Alexandrina, du Centre d'études alexandrines et de la Faculté des Arts de la Alexandria University.

Juillet 2015

Mona Haggag & Nicole Gesché-Koning

Prefacio

Se considera hoy día la educación museal como una de las funciones principales de un museo. ¿Pero como se conciben los varios mensajes destinados a los diferentes públicos? ¿Donde y como se encuentran los investigadores, los conservadores y los educadores? ¿Como se logra el encuentro mágico que debe permitir a cada visitante de poder acceder a los discursos los mas complejos a fin de poder apreciar cada objeto?

Por la primera vez dos comités internacionales del ICOM – Comité para la Educación y la Acción cultural (CECA) y el Comité para los museos y colecciones universitarias (UMAC) – se han unido para organizar juntos una conferencia en la prestigiosa Biblioteca Alexandrina. Los diferentes puntos enunciados tan cruciales para cada investigador deseando compartir sus investigaciones y cada educador conciente de vehicular mensajes que sean a la vez científicamente correctos y accesibles a un máximo de visitantes fueron debatidos durante los cuatro días de la conferencia.

Algunos 135 participantes atendieron la conferencia. Las presentaciones fueron grupadas temáticamente permitiendo axial el encuentro tan físico que intelectual de los investigadores y de los mediadores que pudieron visitar las colecciones de los museos desde múltiples puntos de vista y perspectivas. Sorprender, enlazar y involucrar al visitante, analizar como funciona su imaginación o simplemente estudiar como tocarlo y emocionarlo gracias a una transposición correcta de la investigación y de su idea fundamental indispensable a toda buena comunicación fueron sujetos discutidos. La realidad de los museos egipcianos fue analizada por investigadores, conservadores y mediadores egipcianos y extranjeros que debatieron para saber como utilizar los museos en fin de promover inspiración y creatividad sin olvidar el respecto mutuo y la sensibilización a la identidad cultural que son ideas claves de suceso de cada actividad en el museo. ¿Como estimular la curiosidad y la imaginación? Interesantes ejemplos fueron presentados entre otros por colegas de Alemania, de Brasil, de Dinamarca, de Francia, de Egipto, de Irlanda, de Islandia, de México, de los Países Bajos, del Reino Unido, de Taiwán, de Turquía. Una conferencia muy enriquecedora que conducirá eventualmente en la creación de un Master en estudios en los museos en la Facultad de Artes de la Alexandria University.

Un tal suceso fue solo posible gracias al entusiasmo de nuestros colegas en Alexandria de la Bibliotheca Alexandrina, del Centre d'études alexandrines y de la Facultad de Artes de la Alexandria University.

Julio del 2015

Mona Haggag & Nicole Gesché-Koning

The Common and Interdisciplinary Itineraries of the Italian University Museums Network: A Challenge for Sharing Scientific Education

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Abstract

The network of the Italian University Museums, constituted in 2012 among 37 museums, 36 collections and 7 botanical gardens through an agreement program approved and financed by the Ministry of the University and Research, is working to realize this year four interdisciplinary itineraries about four common themes: stories, history of the scientific instruments, landscape, environment (www.pomui.unimore.it).

A still in progress bilingual web portal, stopping the discontinuity and the variety of their current presence on the web, will promote a connection between different kind of audience as well as students of different levels of schools, including University students.

In particular, a second project, presented by the enlarged network among 47 museums, 39 collections and 12 botanical gardens, approved and financed this year by the same Ministry will offer to the Italian University Museums network the possibility to become a privileged seat for the realization of educational paths for lifelong guidance toward the scientific culture and method, which is common to all the scientific disciplines, thanks to the cultural heritage and to the competences existing in the University Museums. These educational guiding paths are addressed to the last two classes of the secondary schools, in coordination with the School Offices, the school directors, and with the Guidance Offices of each participating University: the educational guiding paths will involve not only students but also their families.

Keywords: *scientific culture education, digital technologies, stories, scientific instruments, landscape, environment, student guidance*

The first project of the Italian University Museums network

Since 2012, the first network of the Italian University Museums, constituted by the 13 Universities (Bari, Cagliari, Chieti-Pescara, Ferrara, Firenze, Napoli II, Parma, Perugia, Roma, Salento, Siena, Tuscia, coordinated by Modena and Reggio Emilia), is working for a project entitled “The computer technologies and the new realities for the knowledge, the networking and the valorization of the cultural heritage: the role of the network of the University Museums”, approved and financed by the Ministry of the University and Research in 2013 (www.pomui.unimore.it). Through the network, the museums want to reclaim their role of scientific and educational institutions, by promoting their cultural status, inherited from the past,

of places for research promotion through the activities of distinguished professors, without whom their role in society would be very limited.

This first project displays a growing interest on the part of the institutions and a continuous effort to improve both quantitatively and qualitatively their years lasting work. It is noteworthy that through this project the Italian University Museums wish to claim, according to the old philosophy, their role as communication “hubs” between the sciences and the public. The professors of the various disciplines have taken the task of developing contents linked to their researches which enable to interpret and to contextualize differently, in an up-to-date manner, objects and specimens with the collaboration of the museum staff in order to activate inter and cross-disciplinary paths able to making their contents better understandable.

In fact, as recently Giovanni Pinna pointed out, citing the new guide of the Museum fur Naturkunde of Berlin “only the combined knowledge of various disciplines (...) will prepare us to find solution strategies for the most pressing problems of our time” (Pinna, 2013). The major aim of the first project of the network has been the use of the new media technologies (O’Neill and Dufresne-Tassé, 2012), for the web portal with the four interdisciplinary itineraries - stories, histories of scientific instruments, landscape, environment - that will be published before the end of this year.

Through the themes of these four itineraries, the objects and the specimens of the University Museums can be explained in many new contexts. Not before being catalogued into the national catalog of the cultural heritage using the General Informative System for the Catalog on the web – SIGECweb, managed by the Central Institute for the Catalog and Documentation of the Ministry of Cultural Heritage and Tourism (www.iccd.beniculturali.it). The new interpretations and hypertext constructions, which may arise from these new contents, shared by many museums and collections that constitute the network, are one determinant stimulus in order to realize new museum education paradigms to share the scientific culture (Adams and Falk and Dierking, 2003). These itineraries are the testimony of the active participation of the University Museums for the realization of shared contents, which will help the exchanges and the access to information from the diversity of user’s communities. At the same time, they will stimulate participation and dialogue for a larger number of administrators, curators and mainly learners for collective dialogical engagement to enable transformative processes of engagement strategies (<http://www.publicengagement.ac.uk/do-it/techniquesapproaches/upstream-engagement>).

Digital storytelling combines multimedia and Information and Communication Technology (ICT) tools in order to enrich written stories into the four interdisciplinary itineraries in the web portal of the University Museums network. Consequently, it will make the experience more engaging for both museums and the audience. The use of ICT tools has been thought for these itineraries, aware that the identification of the most appropriate technologies to be used should aim to the contextualization and understanding of the objects/specimens. The particular usefulness of a dynamic conceptual framework, based on the interdisciplinary approach of the contents, provides interesting augmented virtual cultural spaces using numerous simulations. The use of the digital technologies, characterized by a good usability and accessibility level, allows involving a lot of different kind of objects, specimens and collections to realize the educational paths in the most relevant scientific disciplines represented by the collections of the museums: anatomy, chemistry, physics, botany, mineralogy, geology, paleontology, zoology, anthropology, medicine. Digital technologies and the use of social network facilitate many kinds of collaboration among museums, teachers (Seligmann, 2014) and students, among different institutions and among learners themselves, and also facilitate customization: by doing this, the learning potential of a versatile and mobile information source, that is under the control of the learner, is very big. The use of the new media is growing during the last two decades, providing more opportunities for interpretation and education more quickly

and effectively and to a wider audience. Their main aim seems to be serving communication between institutions and their public (Bounia and Economou, 2012) but much more quickly and effectively and to a wider audience by offering new possibilities for a much more democratic and adaptable approach to the scientific knowledge – can become catalysts for changing and redefining knowledge itself and the whole educational process. Some studies indicate that ICT can and do indeed influence learning in a qualitative way by bringing forward new and different issues and by encouraging people to reflect on previous ideas.

The four itineraries of the web portal will endeavor to develop specific topics around which the scientific interest of the different museums, trying to create a continuous contact with the public, making it stakeholder in the same time of the results of scientific research and museum activities so that he can open his mind and increase his individual knowledge. Through these, the museums of the network become fundamental actors for developing awareness, knowledge and critical participation of citizens in dialogue on science.

The second project for the students' lifelong guidance to the scientific method and culture

Considering young people's disaffection towards science from the Lisbon agenda to the latest PISA results (<http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>), the Italian University Museums network have decided to reconsider their role as agents of guidance to the scientific culture within a rapid development of the world, according to one of the fundamental strategic objectives of Italian Universities.

In this perspective, the Italian University Museums network enlarged including two more Universities (Genoa and Pavia) and two more museums (the Civic Museums of Reggio Emilia and the Regional Museum of Natural Sciences of Turin). The so enlarged network decided last year to present a new project for the students' lifelong guidance to the scientific method and culture to the Ministry of the University and Research, which approved and financed it this year.

The Italian University Museums become then places where to build a system of interpretation of scientific instruments, specimens and exhibits, able to produce and transmit meanings by involving and making students aware of this process: the museums become spaces of coexistence, dialog and meeting to engage the students, to motivate them and to provide knowledge (Rubiales García Jurado, 2012). They have to be perceived as a team of experts, which promote a methodology and engage learners with scientific knowledge (Falk and Dierking, 2000).

Starting from their disciplinary specificity, the University Museums, through the activities of education and cultural mediation, can unfold their crucial role in contemporary society as public space where the comparison with objects, instruments and specimens of other times and other places and their contextualization contributes significantly to the individual and collective growth about the scientific culture (Nardi, 2007).

For this second project, the most important output is to combine the experience within the constructivist assumption of the museum objects and specimens meaning with the educational technology (Nardi and Angelini and Wintzerith, 2014). The objects and specimens are not regarded as immanent to try to satisfy the special needs and expectations of the secondary school students, especially of the last two years, for the guidance to the scientific culture for a lifelong learning. This project involves the creation, within the Museums and University collections, of contexts that encourage the participation of the students, their motivation for learning (Garcia, 2012), and that enhance, from the Lisbon the students ability to explore,

observe, investigate, experiment, also through the use of the laboratories with the rigor of the scientific method. In such contexts, especially made for the project, the cognitive tools based on the use of new ICT, which must also take into account the emotional dimension of the student and the relationship that is created with the others, will support the direct relationship with the objects.

The aim is to provide a multiform learning, based on experience, exploration, investigation and experimentation but also on imagination and intuition. Based on the philosophy of Franz Oppenheimer, which was decisive for the creation of the Exploratorium in San Francisco (Bevan and Dillon, 2010), the new educational pathways of the University Museums, as in science centers (Rautela, 2007), will be based on the observation of objects and specimens, coming from the collections, and on the implementation of experience through the organization of interactive laboratories in areas closely related to those of the exhibition, to integrate historical objects and exhibits, dating from the nineteenth century, with methods of research of which those objects and specimens of the University Museums are witness. In particular, the museums will emphasize their role as places of learning through objects, and not about objects, encouraging the process of discovering the information.

This project will allow some interesting challenges, at the basis of which are connected two fundamental and interconnected questions: what does learning in the museum mean, and how can this be supported through the use of new media ICT technologies (Clari, 2012). We must take into account the changes at the education and teaching level, the increase of the centers and of the means of knowledge and the new dynamics of scientific knowledge, developed at the international level, by many museums of science or the science centers of recent construction (Rodari and Merzagora, 2007), and intended to increase.

The project is certainly a unique opportunity to experiment new models of learning in science field, in particular of active learning, in which knowledge and experience complete themselves and let young students approach the big topics of science (http://informalscience.org/research/ic-000-000-009-203/Learning_in_and_out_of_school_in_diverse_environments), becoming a means of knowledge, scientific communication and ground of continuous reinterpretation in a society that is changing so rapidly (http://informalscience.org/research/ic-000-000-010-743/Learning_in_structures_of_social_practice).

The objective of this multiform learning, not only cognitive but also emotional, is that each student becomes a researcher in a path of exploration and search for personal meaning (Xanthoudaki and Torelli and Cerutti and Calcagnini, 2007). This path, which is closely related to his whole life and founded not only on a process of formal education (<http://www.inspiringlearningforall.gov.uk/learning/index.html>), must become crucial in order to offer him the possibility to decide what and how to learn (Falk and Sheppard, 2006) and in particular how to orient the future choices of his career. For this project the use of new ICT is crucial both for the use of the contents of the network web portal and for the implementation of the new four interdisciplinary itineraries about stories, history of scientific instrument, landscape, environment of the web portal of the University Museums network. Nevertheless, it will be necessary to consider the impact and the effect of the new ICT context in the way students go, use and process information taking into account the specific purpose of the project. The use of new ICT can support the museum interpretation and the ability of learning both inside the institutions, using interactive exhibits, mobile technologies (Economou, 2007), and outside with the web. Deep attention has to be paid to the visual technologies: their quality is very relevant to transmit cultural value and to promote learning especially in University Museums where is crucial to contextualize differently the objects/specimens both in relation to the areas of origin and with respect to the contexts of research for which they were used. For this reason, it will appeal to different levels of interaction from the cinematographic techniques to the virtual reality, the augmented reality, and the 3D reconstructions, in order to improve the existing documentation including

also the use of the videogames to differentiate levels of learning. These interactive spaces become contexts of methodological research, which the participation of all in first person with the aim to trigger real learning processes.

Concluding remarks

Compared with other educational proposals, this project has the advantage of providing a regular educational path and a course of a certain time, through the organization of seminars, workshops, laboratories and internships. Through these, the University Museums not only enhance their specific educational role but corroborate one of their social function with respect to a public, which is that of adolescents between 17 and 19 years old that is not always easy to involve. So the students will become aware that in University Museums understanding, capacity and in particular knowledge will be enhanced and can be shared for a democratization of knowledge and the improvement of the quality of life.

Moreover, the achievement of educational kits useful for experimental practice in the classroom, training courses for teachers, seminars and meetings with teachers and families concerning scientific issues, meetings with experts of the scientific community and the museums, are essential part of this educational/formative process. A process based on experiential learning and informal education methodologies, on the opportunities and challenges associated to a system that connects informal learning contexts (Friedman and Mappen, 2011), where the students are intrinsically motivated, non-linear and self-directed to the formal education.

Players of this project are cultural mediators which, identified between people who already work together in various capacities for the activities of museums, are purpose trained to design interactive laboratories, educational exhibits and special events, activating digital connections for the pedagogy on the cultural heritage (Toulomis, 2010).

A big interest of this project will be the new scenarios involving efforts of reinterpretation of roles and engagement dynamics more consistent with those typical of web 2.0 that enable online sociality (Fuchs, 2012). For example through the creation of folksonomies, a bottom-up classification system in complement to traditional cataloguing, by inviting students to digital tag online University Museums objects or specimens with keyword (Cairns, 2011).

In particular, through the mediators, the students will be involved in learning as a creative dialogue and not a passive transference of knowledge: in this dialogue, they adopt the role of some privileged partners (Bevan and Xanthoudaky, 2009). Moreover, they facilitate the lifelong learning (Claxton, 1999), and the development of independent initiative and self-motivation, by providing free-choice environments that support multiple learning pathways: objects, specimens and/or interactive exhibits, analogue and/or digital media, real and/or virtual space: it will be interesting to evaluate their different models of participation.

To make this project a truly valuable learning experience for the students it's relevant also support not only the teachers and the school directors but also the families for a direct participation by understanding and designing intergenerational learning experiences about scientific method and culture.

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