



Research Article

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University Museums of National and Kapodistrian University of Athens from Inside Out - Mapping Teaching Tools

Dorina Xheraj-Subashi¹

Alexandra S. Sfyroera²

Michel Roggenbucke³

Ifigeneia Megremi⁴

Andreas Magganas⁵

¹Phd in Museum Studies, Tourism Department, Business Faculty, Aleksander Moisiu University, Albania

²PhD in Classical Archaeology, Laboratory Teaching Staff, Museum of Archaeology and History of Art, Faculty of History and Archaeology, National and Kapodistrian University of Athens, Greece

³Archaeological Conservator, MA in Museum Studies, Laboratory Teaching Staff, Museum of Archaeology and History of Art, Faculty of History and Archaeology, National and Kapodistrian University of Athens, Greece

⁴Ph.D. in Geology and Geoenvironmental Sciences, Laboratory Teaching Staff, Section of Mineralogy and Petrology, Museum of Mineralogy and Petrology, Faculty of Geology and Geoenvironment, National and Kapodistrian University of Athens, Greece

⁵Professor of Mineralogy, Petrology and Mineral Chemistry, Director of Museum of Mineralogy and Petrology, Director of the Section of Mineralogy and Petrology, Faculty of Geology and Geoenvironment, National and Kapodistrian University of Athens, Greece

Doi: 10.36941/ajis-2019-0036

Abstract

University museums are being considered as important units in the departments and faculties they belong, and during the last decade they have been discussed for their role in the 21 century regarding the scientific and educational role that their collection play for enhancing knowledge to the community of university students. The aim of this paper is to give an insight of the different tools that university museums of the National and Kapodistrian University of Athens (NKUA (Greece) have involved and adapted in order to make their museum visible and reflect how their achievements have turned them to be places of communication and inclusion based in their collections. Even though this University has several museums managed differently from each other and spread around its campus in different buildings, not all of them operate as open museums for casual visitors or tourist, but this hasn't affected in the many efforts made by museum staff, leading and expanding the role of university museums beyond the traditional cliché "only for research purposes".

Keywords: University Museums, collections, teaching tools, National and Kapodistrian University of Athens

1. Introduction

The research conducted by the first author in seven out of fourteen university museums of the National and Kapodistrian University (NKUA) started on 24 February until May 2019, for a period of 18 days, spent as a guest of: Museum of Archaeology and History of Art, Athens University History Museum, Museum of Anthropology, Museum of Education, Museum of Zoology, Museum of Mineralogy and Petrology; and Museum of Paleontology and Geology, all university museums extensively described in (Mouliou (eds) et al, 2018), which are also the most dominant university museums providing scientific and historical knowledge in various natural field disciplines and humanities.

Since this research has various purposes such as their approach with the community, aspects of conservation, students approach, management and innovative ways interpreting their collections, it was also spread in different museums around NKUA. I, as the first author but also as a guest in these museums have been able to participate actively with the museum staff observing during daily activities and different programs, activities, workshops, visits conducted by museum staff, and the information accumulated was vital for my future reflections and analyses of the research on mapping the teaching tools. Furthermore I was given permission and access in all museum activities, I wouldn't fulfill this paper in terms of authorship, without the collaboration of museum staff that have designate the case studies discussed further, therefore this paper include also the contribution of the case studies by the co-authors: A.S. Sfyroera, M. Roggenbucke, I.Megremi, and A. Magganas, staff members of university museums.

The history of creation of university museums it is known within museum history with the establishment of Ashmolean Museum, the first university museum created in the mid 17th century, where the key mission was the acquired knowledge through the use of collection, lectures and practical's in laboratory, a combination, for enhancing knowledge of students. As mentioned also in (Kozak, 2016) during the 18th and 19th centuries, the university collections rapidly expanded, partly to affirm this idea of institutional identity, but primarily to facilitate object-based instruction, thus noted professors and academics made contributions to university collections in the form of research collections, papers, equipment and personal artifacts. But XX century museums practices, put U-museums in an overall improvement and constant challenges to better incorporate the new requirements as special places for displaying collections, repositories, identification and interpretation of objects, without being overlooked degradation or losing objects. Moreover university missions are not equity appraised everywhere, and housing a large museum heritage it was indispensable shifting toward challenges where museum management constitutes an important point, despite the financial funds which has always claimed to be an issue for their assessment (Burman, 2006) and here also NKUA has been affected by the lack of funds (Dermitzaki & Doxanaki, 2018), but thanks to the dynamism of museum staff and individuals involved have find solution by overcoming these difficulties. In addition University museums are constantly aware promoting scientific values of collections they dispose by promoting them as places where scientific knowledge takes various forms of communication when combined with introduction of innovative tools, enable understanding the vital role this entities play within university environment.

The importance of all university museums stands in spreading firsthand knowledge for students enrolled in different schools and departments of this university, while they represent important support for scientific knowledge and research for students, scholars and their lecturers, and as (Ntinou & Vafeiadou, 2018) point out, the development of Greek U-museums is parallel to the historical development of the Greek university system. During the last year's University collections, museums have posed as main focus being available and more attractive first for their students and than for the entire community, in order to be inclusive place of learning through their collection and entertain through creative tools deriving from their collection. Of course these aims require not only good collaboration with museum experts but use and application of different theories that would enable museum staff applying those to specific object or group of historical objects, specimens, items, animals and archaeological artifacts, in order to provide creative programs, considering self financial practices of these university museums.

1.1 *The Museum of Mineralogy and Petrology*

1.1.1 *A short overview*

The collections of the Museum of Mineralogy and Petrology consists of rocks and minerals specimens, maps, books, archival material and old scientific instruments. The original collections of the Museum were created by the Natural History Society in 1835 and the National and Kapodistrian University of Athens acquired them since its foundation in 1837. Years later in 1979, the collections were transferred to the new University campus. In an effort to repair the 19th century wooden display cases, the collections suffered severe damages (as almost all samples became separated from their labels), and a great number of samples were destroyed. Between 1997 and 1999, the samples were identified and re-classified, so that the Museum could open again in 2000. Today the Museum's collections of samples are exhibited in an independent area in the Geology and Geo-environment Department premises in three halls, while the fourth one is for audio-visual presentations and lectures. This museum not only contains the oldest collection of minerals and rocks in Greece, but it represents also one of the international repute. Issues discussed during teaching were: the contribution of the Lavrion mines to the history of Athens, modern technology and minerals, industrial minerals, volcanoes, radioactive minerals and precious stones. The Museum of Mineralogy and Petrology, is a 'place' where a natural object (such as rocks and minerals) of exceptional rarity and importance in everyday life, the science-based information and one of the main recipients (pupils, students) and subsequent 'carrier' of information, can coexist.

1.2 *The Museum of Archaeology and History of Art*

1.2.1 *A short overview*

In the beginning of the 20th century Professors Chr. Tsountas and P. Kavvadias brought to the School of Philosophy in Athens the first collections of ceramic sherds. The Museum of Archaeology and History of Art was officially established in the interwar period, thanks to professor of Classical Archaeology, G. Oikonomos. Currently the Museum includes about 9.000 objects, derived from donations and long-term loans, mainly originals but also copies, classified in eleven Educational Collections. They include various collections dating from the prehistoric to the modern times, having been collected mostly from Greece but also from other regions of the East Mediterranean¹.

1.2.2 *The Museum's educational character –then and now*

Since its inception, the main character of the Museum has been educational.² G. Oikonomos envisioned the Museum as “a precious educational tool”, as he wrote in one of his documents. During the last decade, intensive efforts have been made in many directions. One of them was the expansion of its circle of visitors, for example, by the organization of various educational programs for school students or the regularly participation in international cultural heritage celebrations and anniversaries. Another goal was the optimum teaching exploitation of the objects which form part of the Museum on a permanent or periodic basis. The enrichment of the curriculum of the Faculty of History and Archaeology with mandatory and optional tutorials exploiting the Museum's objects had as a result its transformation into a vivid place of archaeological practice and research.³

Since 2010 two developments have contributed to the expansion of the educational character of the Museum; namely, the operation of a fully equipped Conservation Unit and the permission

¹ For an account of the Museum's history and educational collections see Constantoudaki-Kitromilides, Sfyroera 2018, 337-340.

² About the character of the Museum see Constantoudaki-Kitromilides, Sfyroera 2018, pg. 341; Sfyroera et al. 2018, pg.120.

³ See Sfyroera et al. 2018, pg. 121-124 about the 'Livari project'.

granted by the Hellenic Ministry of Culture to the professors of the Department of History and Archaeology to have their archaeological material transported from the excavation sites to the Museum for a determined period of time for reasons of conservation and study.

2. Research Methodology

The research conducted during the period of February - May 2019, in seven university museums of National and Kapodistrian University of Athens, had the purpose of understanding how U-museums are being used for teaching with their collections, their impact and role in students academic achievements. These questions would lead at the end mapping effective teaching practices pursued from U-museum.

Although there is an a vast literature (Chatterjee, H, 2011), (Simpson, A, 2017) and projects exploring multidisciplinary use of teaching and learning with museums exhibitions⁴, still University museums try to find ways on being communicative and competitive places, by enhancing critical thinking when developing educational programs or when sustaining department syllabus for their students. As it has been mentioned in (Kozak, 2018) beyond the didactic value these objects and collections bring to their respective academic departments; they help forming the material identity of the university and museum to which they belong.

The fact that they are part of Universities make their values to a greater extent⁵ and for this purpose was important seeing them in different perspectives like: a) how they do operate and serve in the tertiary education system, b) what benefits come from their collections, c) in what coherence do they operate as this entity, as their establishment is closely linked with universities. Thus beside understanding the extent of scientific importance that collections provided, it was relevant mapping the innovative methodologies and theoretical approaches designed based on their collections..

Beside the questions posed at the beginning it was relevant including as part of methodology the face to face conversations with scientific staff of museums, in person participation inside U-museums especially when educational activities were undertaken, museum designing theories for new activities, but also from long conversations with museum professors, curators, directors, and staff which generously supported me during this research.

3. Mapping Teaching Tools - Case Studies

Since their first creation the museums of this university have changed and adapted forms of museum management, focusing on object research which apparently have influenced on the promotion of their collections, enhanced the scientific study of collections and enriched the cultural life of their students, becoming more open and receptive to the cultural needs of the public by focusing their activities on educational programs, when object-based learning theory have prevailed⁶. Research on their collections and the persistence of facing students gaps and visitors needs, misconceptions and curiosity has demonstrate that critical observations can bring effective tools and successful cases where objects have been transformed in theoretical issues.

3.1 Misconceptions leading environmental issues

Among many unique and remarkable collections hosted in the Museum of Mineralogy and

⁴ See: <http://www.teaglefoundation.org/Impacts-Outcomes/Project-Profile/Profiles/Teaching-and-Learning-with-Museum-Exhibitions>, accessed 23.08.2019; https://nma.gov.au/research/understanding-museums/JGriffin_2011.html, last accessed 23.08.2019; Princeton University "Teaching with objects" <https://www.youtube.com/watch?v=aGv1OAz1qwl>, accessed 23.08.2019

⁵ See here Terje Brattli & Morten Steffensen, "Expertise and the formation of university museum collections", pg.96-97, *Forskningsprosjekter nordisk museologi 2014*, Nr.1,

⁶ For "object based learning" see Chatterjee, H. J. (2017) *Object-based learning in higher education: The pedagogical power of museums.*;

Petrology of NKUA, the knowledge and information regarding rocks and minerals' significance in our daily lives and their environmental impact is being less conceived. In particular the guided tours of thousands of visitors, pupils of primary and secondary education, university students, various social groups (artists, jewelers) more than 7,000 in total annually led to the following findings: although materials derived from the earth (like soil, stones, sand, rocks, pebbles, etc.) are familiar to young children and capture their interest, however there are great misconceptions (Science Framework of Georgia Performance Standards, 2007) regarding the meanings of mineral and rock, their origin and their usefulness in our everyday life.

Thus communicating their impact into society is somehow a challenge to be interpreted with simple explanatory text, rather than disseminating to different social groups, through interactive educational programs.

The misconceptions at the Museum of Mineralogy and Petrology were the challenges that museum scientific staff faced especially during children's visits inside the museum. This new approach needed to be clarified and at the same point led staff designing new tools of communicating objects⁷. They chose to link minerals and their impact with environmental issues, by creating educational interactive programs in order to help young visitors overcome the false impressions and raise their interest in understanding the inseparable link between the living world and the world of rocks and minerals.

One of the educational interactive programs and the most popular one, organized and implemented by the Museum's scientific staff were performed in front of a showcase of the Museum that hosts a collection of industrial minerals and the products resulting from their industrial processing (like a pencil, cans of refreshments, toothpaste, chewing gums, glass, computers and watches). So initially visitors learn about industrial minerals and their uses in front of this museum's special showcase. A "journey" through daily used items, help people understand how much their life depend on minerals and rocks. Then the knowledge gained is well established through a relay race that combines memory and speed with the purpose of matching minerals and rocks with objects derived from them.

Most of the educational interactive programs (nine of twelve) performed in the Museum are organized and implemented by the Museum's scientific staff. Three of them were the result of the interdisciplinary approach of the objective (interactive activities) through collaboration with the Departments of Informatics and Telecommunications, the interdepartmental postgraduate program in "Museum Studies", both of National and Kapodistrian University of Athens and with the Department of Educational Sciences and Early Childhood Education of the University of Patras. Thus the mineral collector through mobile applications (Androutsou et al., 2018), educational and entertaining tour for pre-school children in the Museum (Fragkiadaki et al. 2014), interviews, sessions and workshops of the staff volunteers and artists concerning the implementation of digital technologies in the museum, (Papadopoulou, 2017) are among the research conducted during collaborations.

Furthermore the educational programs are performed within the frame of events like "Sunday mornings at the Museum of Mineralogy and Petrology" implemented voluntarily at Museum's venues by the staff, the students and various social groups, like mineral collectors who exhibited their personal collections originating around the world, writers and artists with projects inspired by crystals' structure, colors and luster of minerals showcased in the museum, in an attempt to emphasize the role of the Museum in education and furthermore in the society.

Since the Museum of Mineralogy and Petrology's reopened, teaching Mineralogy has become more direct and interactive since the physical object of the Museum (rocks and minerals) constituted the main subject of the Department, with which students could come in contact and study at any time. Moreover, observations conducted during guided tours of visitors led to the designing of educational interactive programs (family and individuals, interactive and digital ones) in order to broaden Museum's educational character, connect its exhibits with people's everyday life

⁷ Dorina Xheraj-Subashi, personal information with Ifigeneia Megremi and Stathis Vorriss inside Museum of Mineralogy and Petrology

and establish an interactive relationship between the visitor and the object of observation/study/view and a constant activation of the visitor interest.

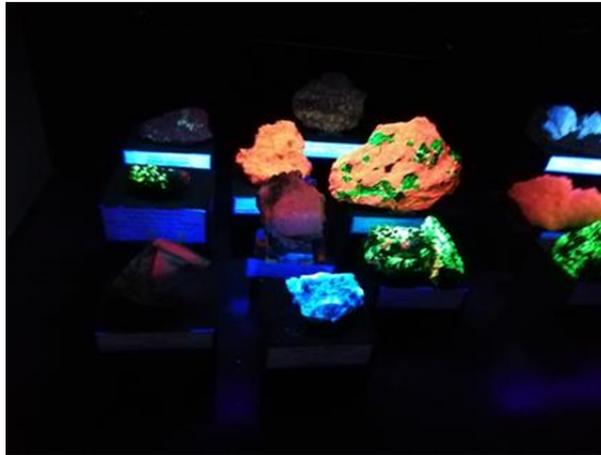


Fig.1: Fluorescence dark room, copyright Dorina Xheraj-Subashi

3.2 Undertaking tutorials focused on Museum objects-three case studies

During the last five academic years, three archaeological tutorials based on objects of the Museum of Archaeology and History of Art have been planned and implemented. It would be unnecessary to cite here theories that demonstrate the importance of objects in education. It is preferable to discuss some of the challenges that object-oriented teaching offers to students and teachers.

The first tutorial is entitled “*Archaeological description*” and it is part of the mandatory course of Classical Archaeology in the first semester. Although it is optional, more than 120 students attend it yearly. The tutorial attempts to make the first year students leave the bank of the river, where High school was located and cross the river to the other bank, where the University premises are located. There, the perception of education, learning, obligations etc; is radically different. In the Hall of Casts they are invited to have –for their first time- a very close encounter with an ancient sculpture, to confront with it –with its human or bigger size, its indestructible material, the worldview of its creation era, as it is reflected in our eyes. Exploiting pottery collections, they take in their hands an ancient vase or parts of it; they are asked to formulate typical archaeological questions about its material, technique etc, and mainly think about usability features that have survived or are lost in modern vessels of the same purpose. They are taught a method of observation, not just optical but multi-sensory; they touch all the objects, they can smell them, or appreciate the distinct sound produced by each material. They are introduced to basic concepts and terms of Archaeology. They are encouraged to use the proper terminology in their first simple university assignment, the description of a sculpture and a vase, which is orally presented. Last but not least this tutorial aims to show the students that the Museum is not just a Gallery but a place of active and interactive education, vivid learning, and a field offering chances for creativity, inspiration, cooperation, new experiences, and dialogue.⁸ All of these general teaching principles are exploited and extended to the other two tutorials.

The second tutorial is mandatory for all the Archaeology students of the eighth semester. It is entitled “*Tutorial in pottery sorting and recording*”. Undeniably its purpose is not to make all the

⁸ M. Mouliou (2018) has shown in vivo how the Hall of Casts can be turned into a lab of experimentation, unlocking the critical and creative potential of students.

students experts in pottery (it is impossible), but to give the chance to everybody to spend three hours exclusively in a guided close study of pottery sherds. First, they are taught a basic method to sort a big amount of sherds in smaller groups according to some common features (such as, their construction technique, material, decoration, shape, chronology etc) and secondly to record them on a special form. The pottery sherds have originated from the university excavation at Plasi (Marathon, Attica). It is important to realize that it is not enough to simply recognize the shapes and names of ancient Greek vases (rarely does an archaeologist find intact vases in an excavation) but they have to keep moving from the part to the whole, from the sherd to the vase, and vice versa.

The third tutorial is more specialized, being a mandatory part of a seminar lesson on Minoan pottery. Taking advantage of a complete and diachronic collection of Minoan vases and sherds dated from the Neolithic to the Late Minoan III period, students are confronted with the challenging issues of pottery typology. It is much easier for them to understand and remember different techniques, names of shapes and special terms for their parts, having these vases or the sherds in their hands. At the same time, they are provided with a special booklet including shapes and names of Minoan pottery prepared especially for the purposes of this tutorial. In the end, everyone has to prepare a detailed description of a Minoan vase.

In addition to promoting the cognitive abilities of a future archaeologist, all the tutorials trigger the students to confront -in an easy way- the question 'am I really determined to dedicate my life to Archaeology?' In their evaluation, the students rate positively the fact that the tutorials take place in the Museum (not in a classroom) allowing them to take original objects in their hands.



Fig. 2: The Hall of Cast, copyright Dorina Xheraj-Subashi

3.3 *The Conservation Unit*

The Museum of Archaeology and History of Art of the National and Kapodistrian University of Athens (NKUA) among other things achieved during the last decade and in times of major economic crisis managed to establish a conservation laboratory that offers training to students of the Faculty of History and Archaeology, by teaching them the principles of archaeological conservation.

The "Conservation Unit", as the laboratory is named, was established in September 2010 in the premises of the Museum and it constitutes the first laboratory of this type in a Faculty of History

and Archaeology in Greece. The aim of this laboratory is mainly to enhance the practical experience of students of the Faculty in archaeological conservation and “first aid” on site, as well as other related subjects, such as proper packing, transportation and storage.

During each academic year, “Conservation Unit” hosts the optional seminar “*Conservation techniques. Practical guidelines for archaeological conservation in the excavation and the lab*”, which has already been included in the programme of studies since the winter semester of the academic year 2009-2010, as well as other seminars by the professors of the Faculty, who also organize workshops and other experimental archaeology events.

Basic theory of the optional seminar is being taught during the winter semesters and as part of the mandatory course (undergraduates) “*Excavation and Study of Archaeological Materials-Museology*” (3x3 hours, Archaeological conservation and first aid on site), during the spring semesters. At the same time, students have the chance to practice the theory on site, at the Department’s excavation in site Plasi (Marathon) that lasts eight weeks in total, each year.

Additionally, “Conservation Unit” has established a close academic collaboration with the Department of Conservation of Antiquities and Works of Art (University of West Attica-UNIWA), and every year hosts at its premises the undergraduate students attending their mandatory courses “*Conservation of Ceramics*” and “*Conservation of Sculptures*”. The courses are taught by the professors of the UNIWA and the conservator in charge of the “Conservation Unit”, who is holding the position of Laboratory Teaching Staff. Furthermore, a number of final year students accomplish their internship at the premises of the laboratory, while others undertake their graduation thesis on museum collection and objects from the university excavations.

During the Academic Year 2018-2019, the laboratory offered also a short training course to Erasmus+ program students as well as the ones of the new one-year Master’s program taught in English, devoted to the advanced study of the archaeology of Greece, the wider area of the Aegean, Cyprus and the Eastern Mediterranean, including Mesopotamia. The program combines an in-depth, systematic account of the evidence, the methodologies, and the current debates on Greek and Eastern Mediterranean Archaeology.

It has to be mentioned here that the above undergraduate and postgraduate courses are offered to all the students with no exceptions. A high number of disabled students have the chance to participate without problems due to the effort made by the two Institutions and their academic staff, despite all the long lasting financial problems. The “Conservation Unit” covers a broad field of conservation-restoration training projects via informal education, internships, continual professional development and research in an interdisciplinary working environment, while it manages providing training for young students to be educated in an environment that is at the same time a professional conservation laboratory. This way, students from different fields learn not only the curriculum of each science, but also how to work together long before they graduate. This is a significant difference that makes the certain laboratory a unique case, enhancing furthermore the educational role of the Museum of Archaeology and History of Art of the National and Kapodistrian University of Athens.



Fig. 3: Museum of Archaeology and History of Art, Conservation Unit. Copyright M Roggenbucke

4. Discussion

A considered number of theories are already implemented from certain museums in NKUA, from object based learning, doing digital with collections, puppetry and role drama playing, to game based playing⁹, which have changed the way of communication with university students but also with other stakeholders as secondary schools, and turning them in vast environment of learning and entertainment in the same way. These approaches are vital for the identification of U-museums of National and Kapodistrian University of Athens, as important place when learning, self reflection and active participation are crucial for student's wellbeing.

Even though not all University museums of NKUA are opened to be visited freely every day, because some of them need previous confirmation¹⁰, they hold important objects with scientific importance as well numerous valuable objects and specimens with historic, aesthetic, artistic and social significance, which are an inestimable value for the wellbeing of scientific research, contribute for enhancing the critical thinking, improve education and admiration and affect further reflections how to better use this vast patrimony to serve as cultural bridge for students community and its surrounding campuses, for academic collaborations as well toward the criteria encompassing the concept of Third Mission of Universities.

One of the statements given by Nykänen et al, 2018 reinforce the importance of University museums and collections [as places] filled with historical treasures, glorious works of art and science. Thus, they are able to: "*provide opportunities to ignite the imagination, inspire the soul, and probe the very heart of our shared human consciousness. University museums are templates or platforms as places of investigation, inquiry, and intellectual challenge in an increasingly global society*" And, in this context the two examples of U-museum of NKUA, have contributed for changing the archetype of a merely university museum only for research and academic purposes. With the designation and interdisciplinary museum studies implemented they have turned to be vivid places of learning. The effective participatory programs created by museum staff enabled deep involvement of visitors during educational programs, particularly the practice developed in Museum of Mineralogy and Petrology, which has turned rocks and mineral in communicative objects, facilitated from the fluorescence and phosphorescence dark room incorporated to the museum. This innovation practice shows the transformation of minerals when using ultraviolet lamps with different wavelength, but in the same time provokes curiosity when enhance the comprehension of minerals by offering in the same time a unique experience for visitors. Involving students with tutorials has been demonstrated as an important tool that engage and face students not only with real artifacts, but develop their critical thinking while facing them. Thanks to the impressive collection of casts in realistic scale of original archaeological artifacts distributed in important museums in Europe, students has the unique opportunity seeing, admiring, studying and standing in an parallel environment when museum object –oriented has been considered as an effective practice for critical learning, involving and improving student's knowledge. Moreover the well-equipped conservation laboratory allows extending the practical hands-on as objects are used as teaching tools to give students a deeper understanding of ancient cultures and people.¹¹ On the other hand, the constant combined efforts of all faculty members of the Department of Archaeology and History of Art for the reinforcement of the multiple characters of the Museum have been acknowledged in the *External Evaluation Report* (2010) and the *Accreditation Report for the Undergraduate Study Programme* (2019) for the Faculty of History and Archaeology. More importantly, these efforts have resulted in the noticeable increase of the importance and reliability of the Museum, both within the communities of the School of Philosophy and the National and Kapodistrian University of Athens, and also in the circle of possible private donors and public lenders of objects which may enrich and refresh the Museum's collections. At the time that these

⁹ D. Xheraj-Subashi, *inside observations in some museums, within the period February-March 2019*

¹⁰ D. Xheraj-Subashi, *personal information during museum visits ex. Museum of Anthropology, NKUA, May 2019*

¹¹ More for this practice: Princeton University "Teaching with objects" <https://www.youtube.com/watch?v=aGv1OAz1qwl>, accessed 23.08.2019

lines are written, very important building improvements are close to completion and the reception of a large and significant collection of items is expected.

5. Conclusion

Although in the past these entities have been facing financial crises, which have been overpassed thanks to academic community commitment which invested individual dynamism for turning out U-museums as vivid places where theories combined with practice can change perceptions, University museums are able to raise new important questions for scientific purposes but they improve student's cultural life. In this context these museums have made efforts including student's collaboration as volunteers in museum activities. This collaboration has been achieved by constantly involving them, in museum research, educational activities, as museum guides, where theory and practice take action in the Museum of Mineralogy and Petrology, which consider them as a bridge fostering promotion of museum heritage within University itself, but also involving them with museum staff activities. In this way their presence contributes not only facilitating daily museum matters but also increase the reputation of the museum.

But beside the relevant achievements reached so far in innovative teaching tools, still important issues remain open among directors and museum staff of several U-museums of NKUA. Thus the creation of an effective U-museum Network, is considered as an important point that would enable further collaborations between them, would enhance the development of common scientific activities, increase U-museum visibility and participation, would require to U-museum professional posing new questions through common projects regarding 21st Century U-museum challenges. Moreover a possible creation of University museums student's volunteer network would be considered as a step toward U-museum inclusiveness.

6. Acknowledgements

This research paper is part of Dorina Xheraj-Subashi's research into the National and Kapodistrian University of Athens, already accomplished during the period February-May 2019. This paper was prepared to also gather the additional experience of scientific and curatorial staff of Archaeology and Art and Mineralogy and Petrology of University museums, in order to bring different views of behind the sciences of U-museums challenges with the aim presenting not only their overviews but also other U-museum colleagues that operate in other museums of this University. Even though their challenges on teaching tools are not thoroughly argued in our common work I would like to express my sincere gratitude to all museum directors (Andreas Magganas, Evangelos Papoulias) curatorial (Stathis Vorriss) and scientific staff (Alexandra Sfyroera, Michel Roggenbucke, Magdalini Ntinou, Ifigeneia Megremi, Fay Tsiou); which welcomed and supported me in achieving my research in their museums. Finally the entire research wouldn't have been accomplished without the generous support of Civil Society Scholar Award (CSSA) 2018/19 , grant number IN2018-44894, to whom I am very grateful for enhancing the first steps of my early scholar researches in the field of museology.

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