



the way in which the entertainment value of museums can stir interest even for less popular matters. Entertainment means consumption, and of course the ever-practical Leibniz kept an eye on the cash register. But at the same time, the other intention was not pushed into the background. In the midst of the fun, things were collected, scientific research was conducted, discoveries were made and human fate was worked on. Leibniz was even afraid that because of insufficient written reports and original fieldwork, important and invaluable information would be lost. He also felt that there was no time to waste.

We could argue that the model of fair suggested by Leibniz easily complies with the ICOM definition of a museum that collects, preserves, examines, shows and explains. This ancient idea of combining entertainment and collections, offers an inviting answer to the problems of modern-day museums. If museums were to exploit their entertainment value, they would be more viable financially and they would reach a broader public. Museums can be lively and sensational and still maintain their scientific status, and for that they don't need to muddle with their objects.

### 1.7 The object for children

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Even if a museum does not have the ambition to act as a first-hand attraction, it remains difficult to find the right balance. Without visitors there is no museum but how far should you go to attract visitors? Where to draw the line between a scientific institution and an amusement park? Not one museum seems to be prepared to do anything to attract more visitors, even if nowadays people aren't scared away with colours and commotion. Museums are cautious – and rightly so – because of their obligation to take care of their objects and to inform with scientific seriousness. Collecting and preserving objects is not always reconcilable with showing and explaining in a trendy and attractive way. Some objects should literally not be exposed to daylight in order to be preserved; sometimes you need more than four lines to make sure your explanation will be interpreted correctly.

Things change though in the case of young visitors! Traditional reservation and restrictions yield in front of children. Dressed up as Romans or monks, children break the sacred silence of museums. The signs "Do not touch" lose their meaning, since hands on workshops are introduced. Museums provide monstrous sandpits for kids to indulge in excavation practices. Whatever they find can be kept as a souvenir. The fact that their archaeological experience lacks scientific precision and looks more like Indiana Jones' demolition habits is beside the point. Despite fire regulations, they wonder around the museum holding candles or oil lamps and can assess the evolution in lighting technology firsthand. Camping is allowed as well, which can be extremely exciting in an unfamiliar room filled with obscure objects, even if this means shutting down the standard security system temporarily.

It seems that museums have less qualms when dealing with children. Objects are no longer untouchable, duplicates are very useful and regulations are not always there to be met. Suddenly, difficult issues such as taxes or magnetism can be explained in a comprehensible way. Museums will do anything to avoid coming across as uninviting and boring – a reputation belonging to schools – and therefore present themselves as an appealing alternative – a fun place to be, where you can try things all by yourself.

Youth workshops in museums fit the Leibniz project perfectly. They combine fun and seriousness and turn sacred and respectable museum rooms into true amusement

provide the perfect laboratory and testing ground for the museum to experiment its visitors. Children are difficult but appreciative visitors and as museums, they collectors. We should feel lucky that they are there, and they should be there every museum.

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# CHAPTER ONE

## ENTERTAINMENT VALUE OF MUSEUMS: ON THE DIFFICULT RELATIONSHIP BETWEEN A MUSEUM AND ITS VISITORS

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### 1.1 Introduction

The French philosopher and scientist Blaise Pascal (1623-1662) once claimed that "man creates his own misery because he feels restless staying in one room" (Pensees, 143). The meaning of this statement is obvious: man is constantly searching for distraction and diversion; he wages war: plays cards or chases a ball. Sometimes, he decides to visit a museum. Yet, museums are often blamed for not being very keen of visitors. They would prefer to bask in complacent isolation, as if they were intended for a handful of specialists or for their own personnel only. But even when museums throw their doors open in an attempt to gain popularity, the vast majority of the population is often not impressed and does not show up.<sup>5</sup> One of the reasons for such behaviour seems to lie on the strange relationship between museums and their objects. A museum removes objects from their original surroundings and isolates them in a supposedly neutral space. No longer revealing their obviousness, these objects need explaining; and sometimes this is a difficult task since it aims at rousing people's interest in an explanation that is often bound to be long-winded and boring.

In the context of the increasing educational mission of museums worldwide, I would like to discuss issues concerning the relationship between the museum and its visitors, having as a starting point museological arguments on objects. Are museums able to change a disadvantageous position – as collectors of estranged and incomprehensible objects – into an advantage? What liberties can a museum take with its objects? Are objects really as important as generally accepted? In the last part of the chapter Cremers lets the philosopher G.W. Leibniz propose a way to make museums more appealing to the broad public. And finally, what about children – the often unruly visitors with itchy little fingers? Should they be allowed to touch anything they like for the sake of a unique educational experience? The chapter concludes with some considerations as to the relationship between children and museums.

### 1.2 The original object

An object placed in an museum makes no longer part of its original surroundings and

<sup>5</sup> A survey carried out by the European Union revealed that in only one country out of nine 50% or more of the population (from 15 to 75 years old) visits at least one museum a year: in Denmark, 55%; in Spain and Italy the percentage is less than 30%; in France, the Netherlands and the UK is between 30% and 40%; in Finland and Belgium between 40% and 50%. Figures reported here are not all very recent or accurate, but meticulously as Holland. The important point is not the accuracy of figures here, but rather the implications what these data indicate: the majority of Europeans do not visit any museum at all, and in some cases "at least one" literally means just one... (Source: *Cultural Statistics in the EU*, 2000).

From such new perspective, the original object is no longer seen as the 'possession' of the expert who exclusively decides the content and means of communication but, rather, constitutes the basis for a meaning-making educational process built on the inter-relation between the object-document and the personal knowledge and experience of the visitor (Pearce 1990; Falk and Dierking 2000).

Visitor-centred learning has also brought attention to the existence of different audiences (schools, young people, adults, families, people with special needs, etc.), that come to the museum with diverse agendas, interests and needs. Provision of diversified services for each of those audiences contributes to improving access to the museum as well as learning methodology and outcomes.

### C. Museums in education

School groups are among the audiences most present in the majority of museums as well as, in many cases, the priority of museum education services. Children are seen not only as the future museum visitors, but also as citizens and community members, of an age characterised by strong need as well as ability for learning. Museum visiting is considered an important educational tool for the development of pupils' awareness of cultural heritage, of skills and knowledge (cognitive and historical), and of aesthetic and scientific understanding (Matorzi 2000). On the other hand, building familiarity with such an experience helps the development of a regular relationship between the pupils and the museum, which is hopefully going to continue throughout their lives.

A step forward has been taken not only in the content of educational programmes for schools (no longer limited to the traditional guided visit), but also in the objectives and methodology of learning through objects:

"Whereas museum visits had previously been commonly regarded as an end-of-term treat and a chance for the teacher to relax, the museum is now considered an important learning resource, a teaching support, and a means for developing a lasting relationship between the school and its surrounding territory. Following this period, recent work in the field of museum education for schools has been marked by an increasing realisation of the possibilities for cross-curricular, cross-disciplinary and inter-disciplinary learning" (Sekules and Xanthoudaki, 2003).

Situations of mere 'tours' around the museum or 'unfocused' participation in activities and workshops are increasingly given up in favour of collaborative work between schools and museums and of projects that extend the boundaries of work in school, broaden subjects of study, and recognise a wide range of both expected and surprising outcomes.

Collaboration means, or should mean, work on the basis of an *educational project*, that is, a framework within which the learning process integrates the work carried out in classroom and the needs of the 'receivers' (teachers and pupils) with the museum experience and the new knowledge to acquire. The learning aspect of an educational project implies a fundamental role for factors related to meaning-making and understanding of pupils, such as the already-acquired knowledge, personal experience, interests, motivations, social interaction with the other members of the group; while the teaching aspect integrates intentions, objectives and teaching methods, decisive for the orientation of the project. These two aspects relate to the work of both the teacher, who

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The museum is defined by the International Council of Museums (ICOM) as a 'non-profit-making permanent institution in the service of society and its development and open to the public which acquires, conserves, researches, communicates and exhibits for purposes of study, education and enjoyment material evidence of people and their environment'. Drawing attention to the purpose of 'enjoyment' means it is alright to laugh again. A museum should be able to entertain, this vision being perfectly in line with today's entertainment culture, in which long discussions, difficult phrasing and dry information are increasingly undermined by high ratings and ready-made entertainment.

In this context, modes other than text are used for bringing objects out of isolation, for presenting them in relation to other objects, for building settings which reconstruct the original surroundings of the object. Zoos seem to be susceptible to this evolution. Cages with false plants are considered old-fashioned, and zoos now prefer to immerse their visitors in a miniature jungle in which animals walk around 'freely'. In some museums, replicas are made available so that visitors can touch and use the objects. In other cases, museums take this scene-building to extremes adapting to it even their restaurant's menu.

Visitors – always keen to a bit of variety – seem to appreciate this type of progress. The latest media offer the perfect solution to museums, by duplicating objects without a problem, or by turning archaeological ruins into intact cities. It is possible that visitors often do not even notice that these media create a false sense of availability and proximity, since they are used to viewing the world through such type of 'glasses'.

This ever-progressing technology – financially sanctioned by the government in certain countries – is taking museums by storm. Traditional aversion to duplicates and copies is becoming meaningless, whereas Internet manages to reconcile the thullest visitor with 'real' objects in the sense that it provides a level of comfort and accessibility that can hardly be reached by any other medium.

A taste of the possibilities of virtual reality already exists in institutions specialized in reconstruction and imitation, such as wax museums. Admittedly, there is a wide gap between those and computers, but wax models imitate an invisible reality using old techniques, in the same way that virtual images using the latest techniques evoke a reality that is non-existent. The collections of wax models serve a mix of reality and fiction, yet they try to create a sense of authenticity by using "real" clothes and accessories. At the same time, they exceed reality because they improve the dismal aspects and explicitly show what you don't see or cannot see. As a matter of fact you don't really want to run into the gruesome hands of a serial killer...

Wax museums are not the only ones to disguise reality, more 'traditional' museums reconstruct reality as well. In *The Cloisters* (New York), elements of medieval European buildings were reconstructed into something that never existed, could not have existed, but might have existed in another world. It is perhaps no coincidence that mainly the United States and Canada are masters at this, since those are the places where traditional museums have to compete with numerous amusement parks, pure fantasy-worlds (e.g. Disney), "Believe it or not" museums (presenting the most incredible things), or "The Greatest Criminals of History" type museums (including complete reconstructions) (Eco 1985, 7-70). This is where European torture museums have gotten their inspiration from. Virtual reality reinforces the power of museums. It allows museums to show "perfect" reconstructions on the basis of which visitors can reflect and learn more. This in no case means that it replaces reality but remains a second-hand on-screen experience.

# CHAPTER THREE

## EDUCATION IN THE NATIONAL MUSEUM OF NATURAL SCIENCES OF MADRID

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### 3.1 Introduction

Contemporary museums are considered important cultural and communication centers, a function with special relevance when talking about scientific institutions such as the Museo Nacional de Ciencias Naturales (MNCN) in Madrid. Reasons for this lie in modern society and its scientific advances which govern our daily lives. It is important that society, the greater public, develop scientific culture that is a body of basic scientific knowledge regarding the continuous progress of sciences such as ecology, environmental science, biotechnology or genetics necessary to make decisions, including ethical ones.

The MNCN belongs to the Consejo Superior de Investigaciones Científicas (Superior Council of Scientific Research) and to the Ministry of Science and Technology. With more than two centuries of history since its inauguration in 1771, it is currently one of the most important research centres in the field of natural resources in Spain and has one of the best and most extensive collections of specimens in the field of the natural sciences. More than six million insects, molluscs, fish, amphibians, reptiles, birds, mammals, fossils, rocks and minerals form a heritage of great historical and scientific value.

A priority function of the contemporary MNCN is scientific dissemination and education. Museum education has solid roots that go back almost to the foundation of the museum when, in 1787, the study of natural sciences was established, and lessons in these disciplines were offered by the museum, thereby developing important scientific and academic work. Education addresses not only university level, since the 19th century, high schools all over Spain have been offered copies of objects, and teachers have been selected for contributing to the sampling of the Spanish fauna.

Continuing in this educational line but following a modern pedagogical approach, the Department of Public Programs was established in 1990, developing a range of programmes and activities for informal education and dissemination of knowledge. The main objective of education activities has been from the very beginning to encourage the participation of the public. Particular attention is paid to schools, a great number of which visit the museum throughout the year. Specific education programmes are devised, while the choice of the one appropriate for each class is made in collaboration between teachers and museum educators at the beginning of the school year.

The presentation of museum services, activities and materials in this chapter aims to analyse the educational methodology adopted and the contribution of the museum in school teaching and learning.

# CHAPTER TWO

## MUSEUMS AND SCHOOLS: A REVIEW OF THE RELATIONSHIP

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### 2.1 Introduction

The relationship between museums and schools in Germany (like in some other countries as well) is looking back to a long tradition. Children were invited to participate to Sunday lessons at the Senckenberg Museum at Frankfurt/Main as early as 1826 (Fingert, 1992). At the end of the 19th and beginning of the 20th century, natural history and science museums took a leading role in the opening of collections and exhibitions for the general public and in formulating an educational mission. In Munich Oskar von Miller founded the Deutsches Museum of Masterpieces of Science and Technology aiming to explain developments in these fields to a broad audience. Showing the machines in motion was supposed to help gain better understanding of their function. Dioramas were made with great care for detail in order to show exhibits in their original surroundings, while replicas, demonstrations and experiments were meant to encourage the visitors' curiosity, sense for endeavour and interest in scientific phenomena. Miller was supported by Georg Kerschensteiner, at the time well known teacher and head of a new pedagogical movement, the "Arbeitschule". Influenced by John Dewey, Kerschensteiner wanted to introduce more "Anschaulichkeit" (clearness) in schools – something that nowadays has come to the forefront again. He was convinced that the museum can strongly contribute to education by using "Anschaulichkeit" (amongst other methods) in an era when the conception of the new museum was attracting the general public as well as many schools.

During the 1970s education became the centre of debate amongst museums, a product of which was the book "Museum: Place of Learning contra temple of the Muse" (Spickernagel and Walbe 1976), reflecting already in its title the two dominating approaches. One result of that debate – which was perhaps more challenging for art museums than natural history or science and technology museums – was the establishment of the so-called 'museum pedagogical services' and a small progress in conviction and readiness to employ educators in the museum. The majority of personnel in those services and of educators in museums were (and are still) originally trained as teachers! This implies the tendency to develop a strong connection between schools and museums.

In 1976 the Deutsches Museum founded the Kerschensteiner Kolleg – equipped with rooms for week-long stays – aiming to invite school groups to use it (Gottmann 2001). However, at that time, about 20,000 school groups visited the Deutsches Museum per year, and this made the Kerschensteiner Kolleg decide to address instead teachers and other kinds of educators, target groups that could act as multipliers.

Frank Jürgensen (1995) mentions that about 20% of museum visitors are school groups, and as such representing the highest percentage of group visitors to museums. On the other hand, a survey of the Institut für Museumskunde (Hagedorn-Saube 2001) shows that schools constitute the priority target group for museums – followed by tourists and children in general – although museum visits usually take a small amount of time

offer both expertise and tools in order to improve teachers' knowledge and skills in this field and to offer (new) programmes for pupils using the museum as a place of experience in science and technology.

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## 2.4 How schools use museums

The majority of visits of school groups to museums can be divided into two categories: a) day-long visits with an excursion character without a specific purpose; and b) visits with a precise educational aim. In the visits of the second category, the ground is offered for developing links between the contents of teaching and the experience of the museum visit, especially at the following three points:

- a) When a new topic is introduced to class, the museum visit could motivate pupils to concentrate on it. In this case, the main goal of the visit might be to raise curiosity and give the pupils the opportunity to develop questions by observing the objects on display; questions which in most cases can not be answered at once in the museum but can be the starting point for further discussions and work at school.
- b) In the course of teaching a certain topic, the museum visit can offer pupils the opportunity to use their already-acquired knowledge as the basis for developing interpretations of the objects. They can compare what they have learned at school time, they can also find out that different interpretations are possible, that there is not only one truth. This can allow for the development of new points of view and as such influence the progress of discussion at school.
- c) At the end of a teaching sequence, the museum visit aims to repeat what pupils have learned through work in class, and to give them a more vivid impression of the topic. This seems to be of relevance especially for scientific topics, e.g. for physical phenomena and their use in technological inventions (Mathes 1998).

Working in groups of two or three often proves to be an efficient method for exploring the exhibition and learning in the museum. If pupils are expected to discover, describe and find out e.g. the function of unknown or perhaps strange objects, it is important for them to have somebody to share their thoughts with, to talk about what they observe, to discuss their own interpretations. Any instructions for carrying out activities in the museum should be devised with flexible approach, in order to consent pupils to develop their own questions, to make their own observations and to create their own interpretations. Answering open-ended questions, such as "What do you think this is made of?" "What would you do with the object if you could own it?" makes children feel powerful and enthusiastic (Cole 1984). Such questions also invite them to develop personal connections to the objects and thus helps them to remember better and for a longer period of time.

Many teachers seek information and support when planning a museum visit. This means not only advice concerning the scientific content of the visit, but also help with determining often also important for successful learning. Some important points

- a) Unknown surroundings may not always be exciting and motivating, but some times even distracting for children, especially for the younger ones. They may feel

get something to eat, find the toilet, or because they don't know what they are to do, how they should behave, how much time they can spend at a specific place.

- b) Children begin a field trip with two agendas. The child-centered one, which is on what they will be doing at the museum - seeing objects, having fun, being in having a day off from normal school routine. The second agenda is more school and museum expectations: the children assume that they will learn to be meeting people who work at the museum. The outcome of an agenda is affected by the interplay between these anticipations and the actual field and Dierking 1992).
- c) The teachers may often not be aware of their own expectations. With the example, that the aim of the visit is to make a change of pace and to have experience, they give out worksheets to the pupils to be used in the field oriented visit. Bailey reports findings of research by Jeanette Griffin which that the teacher's objective of the museum visit influences the student's vice versa (Bailey 1999).

Preparation and the identification of a well-defined objective are necessary for the success of a museum visit.

## 2.5 What the Deutsches Museum Munich offers to schools and teachers

Most of the educational activities at the Deutsches Museum are the responsibility of the education department, but many other departments of the museum offer their work to the development of the programmes. The main initiatives offered by the museum are the following:

### 2.5.1 The Kerschensteiner Kolleg

The Kerschensteiner Kolleg was founded by the Deutsches Museum in 1976, equipped with meeting room, laboratory and hotelrooms. The majority of the Kolleg courses are teachers, either in-service or student teachers, but also college students, scientists and museum professionals. The courses are one week, and aim to present science and technology not only in terms of facts, but also as part of cultural history. Courses for teachers are meant to increase their knowledge of science and technology; and the particular field to focus on is advanced by the participants. The contents of the courses are connected to the work of the museum and aim to familiarize teachers with the museum as a place of learning for groups. The courses also include information about the possible forms of a visit to the museum could take.

### 2.5.2 Publications

The museum catalogue of exhibitions can serve as a first orientation in the museum. More than that, guidebooks to single exhibitions and CD-Rom give a more complex description of the contents. Teachers can also use booklets entitled "Enhancing Knowledge", which provide information about an exhibition of the museum or one chosen topic, and assist them in preparing their own. Vocational school (berufsbildende Schulen) teachers can use the

Handwritten signature: *Deutsches Museum*