Interaction in the museum: Observing, supporting, learning
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2. Methodology

2.1 Defining a class of institutions

What people do and how they behave is determined largely by the structure of their environment. On the one hand, this statement may appear trivial in the light of the richness of that environment: the language one's mother speaks, the way one is housed, the means by which one meets one's needs for food and love, the culture that is at once the summary of a people's experience and the background against which new culture is created and measured. On the other hand, it is less trivial when one considers the many institutions that make it possible to maintain the environment, and to create new elements in it: schools, universities, hospitals, banks, roads, communications networks. An important feature in the landscape of the cultural environment is the museum, which has structured and supported the cultural life of the Western world since at least the latter part of the 16th century. The museum is one of a family of institutions of informal learning, which includes libraries, zoological gardens, aquaria, and science centres, that shares a mission to make available a body of information, most commonly a collection, to unknown and in principle unknowable users, who need as their only qualification the desire to use the information.

There is widespread agreement about the kinds of institutions that belong to the museum family, if it is viewed as a heterogeneous class. They often share the same kinds of public architecture, the same sources of support, and the same kinds of staff. Often the same kinds of people take advantage of them as places to enjoy the pleasure of sharing new experiences, learning new information, practicing new skills. They are often places, in the words of Jonathan Miller, 'to discover that the life of the mind is a pleasure'. Depending on the distinctions we make, the family of museums can include some institutions, and exclude others. As with any boundary, some institutions remain at the margins, their inclusion uncertain or ambiguous, their role problematic or transitional. However, while it may be easy to say what existing institutions are called, or call themselves, museums, it is much less easy to determine whether a new institution is a museum.

But is there not a stable and agreed upon definition of what is a museum and what is not? In his 'Museum Manifesto' of 1970, Joseph Veach Noble, later president of the American Association of Museums, defined the museum's five principal responsibilities as: to collect, to conserve, to study, to interpret and to exhibit.
These, he said, ‘are like the five fingers of a hand, each independent, but united for a common purpose.’ This definition has been widely used and admired, and is often cited in discussions of the role of the museum. The most current definition of the museum by ICOM (the International Council of Museums, based in Paris) dates from 1975: ‘The museum is a permanent, non-profit, institution, at the service of society and its development, open to the public, which conducts research concerning the material evidence of man and his environment, acquires these, conserves them, and notably exhibits them to the ends of study, research and enjoyment.’

What is wrong with these definitions?

The answer is that they don’t help. Consider the examples cited in the introduction above. All of the institutions fit comfortably within the accepted definition of the museum. But clearly the interests of the participants are being served better in some cases, worse in others. The young boy is stymied by the resistance of the ‘interactive’ exhibit, while armed with a flashlight the neophyte discovers an unknown world for the first time. A definition of the museum is needed that captures its specificity, but more importantly, allows us to say with confidence that one setting is better, or worse, than another. In technical terms, we need a referent that does not depend on an authority such as ICOM – but preferably depends on what develops in the interaction with users. That is to say, we need a more powerful tool in order to study museum settings – and a means to use this research to create better museums.

2.2 The museum as support system – a research model

The focal point of any study is the choice of the ‘unit of analysis’ – the choice of what one will look at, what observations one will try to improve, what form of language will be used to talk about and transfer what has been observed. A wrong choice does not necessarily mean that it is impossible to study and explore an interesting set of examples, but quite often the reverse. It may mean that one can not identify what has not been studied as belonging to the same category. Or in more technical terms, it can mean that it becomes impossible to ‘close’ on one’s ‘scientific object’. In this case the only option that remains is to have such an object ‘officially’ defined, by some authority or a group of experts such as ICOM (the International Council of Museums), a weak option at best.

Unfortunately, merely being aware of the importance of choosing a fruitful unit of analysis does not help by itself. Usually one has to explore many possibilities, go some distance in exploring them, and more often than not, retrace one’s steps and
start again. This phase appears to be characteristic of all studies of social phenomena, and as I experienced, perhaps especially of the study of museums. Museums and similar institutions clearly can be analysed in many ways. They can be studied in terms of their resources or collections - their function as the repository of the material culture of a city, a country, or a people. They can be studied in terms of the resources they provide to supplement the formal education system. They can be studied as a locus for the generation of new knowledge by means of research.

They can also be studied as support systems. This possibility revealed itself after a lengthy consideration of the literature, and eventually seemed to offer the most fruitful basis for the research model to be employed in this study. By definition, a support system is open to any individual without any form of prior constraint other than the desire to use the system to maintain or increase their competence. A support system suggests to users a specific form of use, and possible extensions to these uses, where a flow of information will provide the user with the additional resources needed, and be available to other users. A support system supports the activities of the user, which stem from the user's own interests, experience and existing competence. A support system does not impose a model of the user, nor a model for the activities on the variation brought by the user. A support system is immediate, and supports the user throughout her activity, although certain support systems may have further extensions over time. A support system operates in such a way as to maximise variety among the users, and to maximise the continued use of the support system in such a way that this activity, and other activities, is augmented and encouraged. In this way, the support system can be said to serve as a means of recognising, responding to and enhancing the user's competences, without leading to conflicts with other users.

Obviously, not all institutions that we normally call (or that call themselves) museums are support systems in the sense defined above. Many, perhaps even most, explicitly base their activities on a model of the user, often of a restricted nature. They may cater, for example, to the intelligent, the educated, the knowledgeable, or the specialist - or alternatively, to the lazy, the superficial, or merely occasional visitor.

What I am looking for is something else. I want to know what institutions need in order to become support systems.

This depends first on institutions being able to identify if and when they are successful as support systems, and second, on others being able to participate in this
development. This approach would mean that what a museum is would no longer need to be defined by an external authority such as ICOM. What seems to be involved is a form of self-organisation of the interaction between what is in the process of becoming a museum, and its users. In other words, an organisation that develops as a support system makes itself recognisable as a museum (perhaps initially by simply declaring itself to be a museum), and becomes recognised by its visitors as an institution that helps them develop certain properties (and, as a consequence, can develop itself further in becoming a museum, etc.). The 'scientific object' I am looking for is therefore of a somewhat unusual kind: its boundaries are not stable and discoverable, but rather the product, as well as part of the process, of an organisation inventing itself as a particular type of 'object'.

In the next two sections the notion of a support system will be developed further. What needs to be made visible is how such a system interacts with its users, and what constraints are needed to make this interaction effective. This depends, firstly, on the notion of a label (section 2.3), and secondly, on the notion of a user-language (section 2.6).

2.3 The museum support system – the label

As a support system, the museum aims to make its resources available to a wide variety of unknown and unknowable users – the visitors to the museum – in such a way as to support the widest possible variety of informal opportunities for use. Once someone becomes a visitor, which is to say once she has entered the museum, she can be considered an observer – an observer of all that is around her – and these observations are shaped by the elements that the museum use to create the museum environment.

To the extent to which the museum deliberately chooses to dispose elements in a particular way – to display an object, to light it, to describe it – and not others, the observer is constrained in her observations, while remaining free to act in any way she chooses. For the purposes of this study, the sum of all the intentional activities on the part of the museum to constrain the observer, and thereby create a high-quality support system will be called the label. The label is the means by which the museum supports use. The label is understood in this study as a constructive device: it allows the museum and its professionals to ‘place’ something before the visitor in order to interact with it. The label thus may refer simply to some object or set of objects, like paintings, curios, furniture, memorabilia of military campaigns. It also may
refer to that which connects objects, such as a 'storyline' that addresses and invites the visitor to look at objects in order to reconstruct, for example, the maturing of a famous painter. Or it may refer to a set of operations that the visitor is asked to perform, as in the case of a science museum that tries to help the visitor reconstruct how notions such as atoms, pressure, electricity, or computing, developed and are employed. The label is at the heart of the museum enterprise. As George Brown Goode wrote already in 1888, 'An efficient educational museum may be described as a collection of labels, each illustrated by a well-selected specimen.' Nowadays the emphasis has changed, though, often even reversed, and we may find labels designed to generate what the visitor can use, and what can be illustrated by the museum.

What exactly does the label do? Let us look at the museum setting in more detail.

In the museum, a visitor, as an observer, comes into contact with the objects and settings created by the museum. As a consequence, the observer is brought into a relationship with the object, setting, or other visitors, in a particular way – constrained, shaped, and structured by the label. The first consequence is that the property of interaction is created between the observing entities. This interaction has the further consequence, as a support system, of creating properties in the observers – the observer could become more active, more competent, more knowledgeable – while the observed object (itself a kind of 'observer' – a stand-in for the absent curator, the object's history, other observers etc.) could become humorous, precious, or relevant. This relationship warrants a closer look. It is comprised of three distinct parts: the activity of structuring the museum environment, the implementation of constraints in the museum; the label itself, intentionally constraining the field of the observer and the properties created in the user, desirable or undesirable.

Can different labels elicit different properties, even desirable properties? What properties are desirable is function of a set of beliefs. A Fascist might find the properties of obedience and passivity desirable, whereas a Democrat might prefer the properties of independence, activity, or spontaneity. Whatever properties are defined as desirable, we take it that a better label will create more desirable properties. If the museum is considered to be a support system, certain properties can be defined to be desirable, such as agency, competence, curiosity, and engagement. A museum with labels that create more of these properties will be considered a better support system, and as a consequence, for the purpose of this study, can be considered a better museum.
2.4 Defining the research question

As a consequence of the above, the following question seems to be central: what needs to be studied in order to be able to identify labels which give rise to desirable properties in the user? As it turns out, the answer is that we must create or construct what is to be studied. What we are looking for, therefore, are not only the settings in which such properties are conferred, but also how these settings can be created. The research question thus may be formulated in terms of two questions, the answers to which should converge. First, what labels consistently create specific desired properties in what specific settings – and only in those settings? Second, and conversely, what settings uniquely support specific labels in consistently creating specific desired properties? Convergence then is taken to mean that the settings will both allow the labels to function, and the labels to maintain the settings.

Let us look at these questions in less abstract terms.

A loaded gun, lying on a table in an empty room, has certain properties in terms of which it can be described – its weight, size, calibre etc. If this loaded gun is given to a person in a crowded railway station, the gun confers the property of being dangerous. A 'new' entity is created – a person with a loaded gun. Neither the person with the gun, nor the gun, remain the same. The person has become dangerous, certainly, but the gun too has a new property – its trigger can now be pulled. The properties conferred, both to the gun, and to the person, are largely independent of the individual character of either. The person need not be a psychotic to be dangerous. The gun need not be a particular calibre in order to be fired. Moreover, these properties are only conferred in a specific kind of setting. If the gun is handed to a person at the bottom of a swimming pool, the property of being dangerous is presumably not conferred, nor even, perhaps, the gun the property of being able to be fired.

What is true in the example above is true in all support systems, which is what gives the notion its strength. Supports convey properties independent of the specific particularities of the user. All the user has to do is to choose to use the support. The person could refuse to accept the gun, of course, just as a user can refuse to accept a support. The two questions above can then be restated: what settings do we have to create or identify to study supports that confer specific properties to the user – and what supports give rise to specific properties in a particular setting? A further concern derives from this: what contributes to the support being accepted by the user?
2.5 Making messages

If we continue to use our metaphor of the gun, it can be argued that most professionals would prefer to concentrate on describing a gun (and other objects) 'as is' – in terms of its size, its make, its use, or its origin, for example. This is to say that when creating labels they concentrate on stylistic distinctions, which in the world of the museum professional include voice, narrative, structure, style, and medium. These distinctions facilitate the writing of exhibition texts, and the production of labels (in the most literal sense) that are interesting, accurate, and engaging. However, as we will see in the examples below, there is more to it than meets the eye. Good texts do not only describe the object they purport to be describing, just as good storylines do more than just tell the story. To date, there has been little or no serious work done to explore the other ways in which label texts work, in other words, how texts are implemented as labels. Without such an understanding, it is impossible to answer the research question formulated above, which is at the heart of this study.

In a literal, as well as figurative, sense, the label serves to give a 'voice' to the museum, as well as to the visitor. The museum speaks directly to the visitor from the time she arrives. Texts tell her where to check her coat, where different exhibitions are, where she can get a coffee, when she has to leave. In the exhibitions themselves, texts also speak to the visitor. These elements need not always be written (they can be projected, or video presentations), but insofar as they are embedded in a natural language, they structure a relationship with the visitor by means of their grammatical 'voice', or person, as it is conventionally described by museum professionals and professional writers.

For example, one could imagine the following texts about dinosaurs (based on an article about Robert Bakker discussed below), each one structuring the visitor through what she sees by means of the label, in different ways. On the surface, what is important about each of these texts is the information it provides to the reader about the subject, in this case evolutionary palaeontology. The rest – how this information is conveyed – is normally just considered 'style', a means to the end of ensuring the visitor's interest. However, as we shall see, more is going on than is normally recognised.

**First person/viewpoint:**

'When I was studying I often wondered why a pronghorn antelope needs to run so fast? Evolution does not paint a lily, and it does not turbocharge a browser for no reason. It didn't make sense until I realised that fifteen thousand years ago the continent teemed
with predators – giant wolves, sabretooths, panthers – that ran like the wind. When I look at a pronghorn, I see invisible predators, I know its oldest threats.'

In addition to the 'content' of the text, here the voice of the scientist relativises the information from the outset. A scientist is just a person like the visitor, with experiences, insights, and opinions. On the other hand, the scientist is also an authority, and the label's authority depends on the visitor accepting the authority of the scientist in particular, and of science in general.

Second person/viewpoint:

Imagine you’re a dinosaur. You’re cold, you’re hungry. How in the world are you going to get anything to eat? Now imagine T. Rex, a ten-thousand pound roadrunner from Hell. Would he just sit around waiting for lunch to walk by? No way.

Here the visitor is confronted directly, as if she is being spoken to by the writer of the label. The colloquial language would imply that it is the museum's voice speaking, not the scientist's, although there is some ambiguity in this respect. Second person appeals are often rhetorical, and followed by third person information. Once again, in addition to the information contained in the text that relates directly to the exhibition's subject, there is an implicit appeal to authority. The question is not really meant as a question – it is a rhetorical question, part of an argument, intended to persuade.

Third person/viewpoint:

Maintaining high body temperature is very expensive. In fact, dinosaurs could enjoy the advantages of high and constant body temperature 'on the cheap'. Because of their enormous bulk dinosaurs retained the heat generated by normal, everyday activity, such as walking. They did not have to add to it by processes that required additional food, as birds and mammals do. Perhaps this is why so few kinds of dinosaurs were small.

Nothing allows the visitor to corroborate, challenge, or question the authority of the text, nor relativise the information in terms of its origins. Is it the museum that guarantees the truth of the statement? Is it the community of palaeontologists? Is it one palaeontologist? The visitor has no way of knowing – but whatever the case, there is an appeal to authority that goes beyond the mere information content of the text. By means of its 'voice', text can express a number of different viewpoints, each locked into the others, thereby conferring the constraints – the figurative blinkers – of each on those who take these points of view. Each of the three viewpoints can be
said to 'implement' the label differently – by suggesting to the visitor what role she should take with regards to the label and the museum. It is this implementation – how the text functions as a label to confer different properties on the visitor – that is the central concern of this study.

2.6 Labels and their user-languages – a theoretical tool

In trying to create new and more effective labels, the museum professional can contemplate manipulating a wide range of aspects. The overall physical setting can be changed, the lighting can be altered, the positioning of the exhibited elements changed. The information environment can be enhanced, texts added or subtracted, videos presented. The ways in which the exhibit elements are presented can be re-configured, vitrines opened, interactivity introduced. It is the position of this study that however useful it may be to modify the physical setting, enhance the information environment, or re-present the exhibit elements, what can be most profitably manipulated is the relationship the label implicitly and explicitly seeks to establish with an unknown and unknowable user – the label's 'user language.'

As defined by De Zeeuw, a user-language is the 'collection of constraints that helps shape the variation generated by an actor into patterned behaviour.' \(^{14}\) The advantage of such a definition is that it can be used to describe both the intentionality of natural language, and, more importantly for this study, the structuring of other languages, both natural and non-verbal.

As we saw in the examples about dinosaurs above, a label can be said to have two components, its manifest content, and the relationship it proposes to the potential user – its intent. We shall therefore use the term user-language to describe all the ways in which the infinite variety of possible interaction is constrained by the label – a definition which allows us to distinguish between the syntactical and lexical constraints of a natural language (related to the content of the utterance), and the illocutionary and performative constraints of the user-language (related to the intent of the utterance). User-languages order information by limiting the sorts of operations that have meaning, and by allowing multiple starting points to be equally legitimate, which is to say that they remain open to variation.

As in the example of the gun cited above, labels can be studied by looking at the user-languages they employ, the properties these user-languages confer on the user, and the properties the user confers on the label. This study argues that it should be

possible to consistently develop labels that confer desired properties on the user, and that these properties are largely the consequence of the choice of user-language of the label, insofar as particular user-languages are more effective at conferring certain properties.

In the museum, looking at the user-languages of the label gives us the tool we were seeking for making new meanings available for analysis. A user-language describes what counts - what can be included, and what is invisible. The user-language constrains the user's interaction with the label, and in so doing confers specific properties. In the museum, the most significant user-languages are 'textual authority', 'observation', 'variables', 'problems', and 'games', insofar as these user-languages impose constraints that confer certain desirable properties in the museum setting. The notion of a user-language allows us to describe and analyse the museum label in terms of both its content and its intent. For instance, a text about a given subject written in the first person could use any of a number of different user-languages - it could cite canonical texts, recount observations, weigh different possibilities, propose a murder mystery, or suggest a game.

For the purposes of this study, user-languages can be ordered in terms of the ways in which they support variety generated by actors - from the user-language of authority at one end of the scale, to the user-language of infinite games at the other. In the user-language of authority, effectively the label has only one dimension - that of the voice of somebody else as an authority. In the user-language of observation, the user is addressed as an observer and hence conferred the property of being her own authority. The user-language of variables, an extension of the user-language of observation, marks the emergence of the modern museum, as it confers the ability to see, not only the visible, but also invisible relationships among things. The user-language of problems confers actorship on the user, while the user-language of games makes this actorship an indispensable condition of the experience, and confers the additional property of other players - with only one player, there is no game.

Although the user-languages described are not all the user-languages that exist, each of these languages appears to subsume the preceding one, and to enrich it. Thus the user-language of observation can make appeals to textual authority, while nonetheless leaving the final word to observation. The user-language of variables subsumes that of observation, as the user-language of problems subsumes that of variables. The user-language of games encompasses and structures
all user-languages, and can be said to acknowledge and structure a world of discourse, a world in which players are recognised and their activities supported. It can be further argued that the user-languages of games, and of problems, are the starting point for better labels. Especially when combined with strategies that enhance the probability of the label being accepted by the user, labels which employ the user-languages of games and problems support the greatest amount of self-initiated, self-sustained, and self-directed interaction on the part of the user.

2.7 The benefits of a new museum theory
The benefits of looking at the museum as a support system, and how it can be constructed so as to confer certain properties to the user—in particular through the label—are threefold. First, such an approach serves to identify, describe and explain the function of labels. Second, by having identified label development strategies that create desirable properties, ways can be suggested to create more effective labels, and, as a consequence, construct more effective museums. Finally, it will become possible to recognise which institutions can be included in the class of museums.

It seems proper to call the results of the study a ‘theory’, or a ‘museum theory’. It should be realised however that this notion is not used in its traditional sense. It does not refer only to the observations that can be made of the elements of a well-defined and well-recognised class, that is, institutions that are called museums. As indicated above, simply defining such a class (e.g. by an authority such the International Council of Museums) is neither sufficient nor satisfactory. What is needed in addition is some way to have the elements of the class constructed in the process of their use. This implies that results of the theory will consist of basically two parts: ways of constructing labels so settings develop that address users, as well as forms of addressing that help users maintain the settings in which the properties they desire are being conferred on them.