Evaluating the Moving Dinosaurs: Surveys of the Blockbuster Exhibition in Four European Capital Cities

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Introduction

Animatronic dinosaur models are spectacular technological creations with movements in the limbs, heads, and jaws powered by compressed air, and speaker units installed in the chest cavities controlled by computer programs. They are high-profile public attractions designed as commercial operations to create new audiences. During the 1990s, natural history museums have seen this kind of temporary exhibitions become a recurrent form of blockbuster.

Opinions on this type of exhibition are controversial: a scientist said that while there is a need for more "more hands-on science education, we must resist the terrible current trend to confuse museums with theme parks (wonderful things in their proper domain), and to replace real specimens with large, throbbing, blinking glitz, in order, ultimately, to pack more bodies in the gift shop" (Gould, 1994:18). For a museum professional, "There have been dinosaur exhibitions for a long time, but they never generated this huge awareness until they were loaded onto a truck and moved around the country. "...Wherever it goes, it attracts unprecedented visitor numbers and intense media interest" (Lowe, 1992:22). Another museum professional considers that the robotic movements seem already slow, tame, and unconvincing, and that these entertaining innovations, as many others, suffer from a rapid effect of diminishing returns prone to happen in the museum environment. "*Jurassic Park*...changes forever public perceptions with regard to the portrayal of dinosaurs, and nobody who has experienced Steven Spielberg's creations on the film screen will twice go out of his way to see conventional animatronic displays in a museum" (Cannon-Brookes, 1993:243).

During the showing of an exhibition called *Megabugs* in September, 1993, visitors were asked if they would be interested in a similar exhibition of robotic dinosaurs for the next summer. The results pointed to a considerable interest in such a temporary exhibition (McManus, 1993). Findings in other studies confirm the characteristics of blockbusters:

- great impact, the attraction of more visitors from outside the greater city area and more local visitors, (Sobol, 1980);
- positive financial impact coming from attendance fees, added shop sales, new memberships (Bunch, et al., 1988);
- great mass media attention.

Kelly (1996) states that the increasing media surrounding art blockbusters is making them "hyped-up media events" which turn into "packed, must-see mega-shows". This situation re results in conditions that can turn into unpleasant experiences for the visitor.

Background: *The Return of the Living Dinosaurs*

This study concerns the audience for the exhibition -- *The Return of the Living Dinosaurs* -- in four separate locations: the Natural History Museum (NHM), in London, UK; the *Palais de la Découverte* (PD), in Paris, France; the *Museo Nacional de Ciencias Naturales* (MNCN), in Madrid, Spain; and the *Museu Nacional de História Natural* (MNHN), in Lisbon, Portugal. The exhibition was repeated in the four venues with wide coverage by the media, especially television at peak hours. This marketing process stimulated public expectations and built mass attendance. The exhibition package consisted of about twenty robotic dinosaurs with labels and one model showing the internal mechanism that could be controlled by the visitor. These elements allowed each museum to create its own approach, adapting the basic exhibition to the location and contextualizing the models with other paleontological material (as the case of Paris and Madrid) or presenting the basic exhibition with few changes (as in London and Lisbon). Despite the variations, the four exhibitions were similar in the central attracting role played by the animatronic models.

Comparative evaluation studies have been performed in North America but they were either approached at the planning phase and/or linked by a researcher or a common program (Perry, 1992, Rubenstein et

al., 1993). This comparative proposal considers different approaches by different teams in different languages, although each study is conducted using a survey method and standard questionnaires for a common exhibition. I acknowledge and appreciate the cooperation of the researchers who have provided the opportunity to compare these cases. The limitations of such a venture must be considered because of the differing conditions, however, it does give insights to the methods followed and provide some interesting findings.

The Four Case Studies

Dinosaurs are a leading subject for the London Natural History Museum. With the new exhibition scheme of 1977, this Museum has presented the most up-to-date, conceptual, natural history exhibitions in Europe (Miles & Tout, 1978). Two important events in the last decade were (a) the merger with the Geological Museum creating a mega-museum, and (b) the introduction of entrance charges in 1988, which reduced attendance figures to about half of what they were in previous years (NHM, 1991). Hosting the *Dinosaurs Live* (Dinamation) and the *Return of the Living Dinosaurs* (Kokoro) was a continuation of the Museum's exhibitions policy. The NHM has developed a leading school of evaluation, accumulating in the last two decades a wide knowledge evaluative experiences (Seagrief, 1993). The study of Dinosaurs Live (NHM, 1989) was developed by the Department of Public Services with a goal of gauging the effectiveness of publicity and advertising on the success of the exhibition among visitors. Other surveys in the Museum may contribute additional information to this case study (NHM, 1989a, 1990, 1991; McManus, 1993).

The *Palais de la Découverte* in Paris was the precursor of modern science centers, opening in 1937 on the occasion of the International Exhibition of Arts and Technology (PD, 1974). The 1948 museum policy of using new methods to keep a lively museum in constant transformation (Léveillé, 1948) continues today. The *Dinosaurs* exhibition in the Palais was a new venture, as subjects of paleontology were typically presented at the *Museum National d'Histoire Naturelle*. Eidelman & Jacobi (1991) consider that in museum terms this exhibition gives primacy to entertainment when compared to the educational goals of the *Palais*, and uses models that are more familiar to theme parks. For the Palais it was a small event, although it attracted a lot of publicity. The study of non-

school publics through sociological surveys was established in the *Palais* by a research team in the 1970s looking to the different audiences and factors that contribute to a visitor's decision to visit (Champion, 1977, Champion et al., 1982; Eidelman, 1990, 1994, among other works). This particular study was developed in line with previous research allowing frequent comparisons to evaluate the impact of blockbusters and generate relevant information for future renovations.

The Natural History Museum of Madrid (MNCN) is a national museum that originated in 1771 to showcase the glories of expeditions to America. After the Spanish Civil War in 1936-39, the Museum went through several decades of abandonment and deterioration until 1985, when it was closed to the public to undergo a major renovation (Alberch, 1992). In the 1990s, the Museum had permanent exhibitions and a Department of Statistics and Evaluation. This department developed evaluation programs for exhibitions. The case of *Dinosaurs* was an opportunity to carry out a standard visitor survey directed to a new audience which would also see the extensive renovation.

The Lisbon Museum of Natural History (MNHN) is a European university museum with eighteenth-century origins, with a thriving period in the last decades of the nineteenth century. The old systemic exhibitions continued until destruction of the zoology and geology collections by a fire in 1978. Recovery was slow and the Museum was only reopened in 1987—still unrefurbished and with few offerings—for a weekday public of school groups. The *Dinosaurs* blockbuster presented an opportunity to develop new audiences. The visitor survey conducted during the exhibition was targeted to weekend, voluntary visitors. It was the first of it's kind to be carried out in the Museum, and was part of a personal research project with no commitment from the Museum. This study included an analysis of perception of science in the media (Casaleiro, 1996).

Methods—A Comparative Analysis

Table 1 presents the characteristics and context of the four studies to be analyzed. The methods used were similar in the Paris, Madrid, and Lisbon museums—administration of a questionnaire to a random sample at the exit of the exhibition. Only in London was the questionnaire administered in face-to-face interviews at the entrance of the Museum. All surveys covered weekends and weekdays at different times of day,

except the Lisbon Museum which focused on weekend visitation. Sample sizes and period collection were also different in the four cases: in London the total sample was 316 surveys of visitors 15 years and older collected in two, week-long waves—the first after the opening and the second two months later, to allow analysis of the effect of publicity in comparing the two groups; the Paris survey included surveys of 241 visitors aged 18 and older and 132 of their accompanying children who answered a simplified questionnaire; the Madrid survey was based on a sample of 348 adults and children 12 years and older collected during one week; and the Lisbon survey involved 207 adults and children (also 12 years and older) collected during two weekends.

The length of time the exhibition was on display varied from one year in Madrid; six months in London; four months in Paris; and less than three months in Lisbon. This variation resulted in different levels of attendance that readers should relate to the population served (see Table 1). Comparing Lisbon, Madrid, and Paris — the exhibition with the highest rate of visitation, the shortest period on show, and the smallest population served was Lisbon. It was visited by about 11 percent of the population served (75 percent from the greater city area in all three cases). The next was Madrid with an attendance of 8percent of the population served, but the exhibition was on show for one year. Finally, in Paris, where the exhibition was visited by 3 percent of the population served during a very short period, the exhibition attracted in four months the number of visitors the museum usually receives in one year (Eidelman & Jacobi, 1993). These results must also be considered on the basis of the available leisure offerings in each city and the number and sophistication of existing scientific museums. These indicators relate to the population size differences between Paris, Madrid , and Lisbon. In London, it is not possible to isolate the specific number of visitors to the exhibition. Although the general annual variation of visitors to the Museum from 1988 to 1991 does not present any particular increase, there is a slight decrease due to adverse publicity with the introduction of entrance charges in 1988[1]. The change in visitor numbers over the years is associated with the new exhibitions the Museum offered to the public, the level of advertising, and the appeal they had (Clarke, personal communication). In London, the temporary exhibition was one among many others competing with the highly attractive permanent exhibitions.

Table 2 summarizes the questionnaire topics used in the four surveys divided into five groups: demographics, context of visit; other visits;

opinion, and other. The main differences are found between the London survey and the others—in terms of objective and timing of the survey, the limited demographics and enlarged aspects of leisure and planning of the visit, and the use of topics related to publicity and advertising. The analysis considered cross-tabulation of the variables with sampling times. The Paris survey is no doubt the more rigorous — studying in depth the cognitive aspects of the information presented. The frequent cross-tabulation of variables and the constant comparisons with past studies developed by the same team provided a solid knowledge of visitors.

Some Results and Discussion

One of the main issues concerning blockbusters in museums is to weigh the amount of entertainment and commercial success against the exhibition's ability to attract new audiences or increase the visiting segments of the community. The objective is to attract new visitors who will return to the museum if they feel the experience was positive, relevant and enhancing. Table 3 presents some of the comparable results found in the four surveys that will be used to make a brief characterization of visitors and the context of their visit.

The ages of visitors was similar in the three cases where this variable is available (Paris, Madrid, and Lisbon)—children age ten and younger and parents or accompanying adults ranging from late 20s to early 40s. The results from a London general visitors' survey in 1991 (NHM, 1991) point to the same tendency. These age groups and the results of the social group variable confirm that the dominant groups were families in the four cases. The findings vary from the lowest level in Madrid (67%) to the highest in London (78%). Most visitors in the four cases came from the greater city areas—about 75percent in the cases of Paris, Madrid, and Lisbon, and 50 percent in London. This difference in London is attributable to increased numbers of foreign tourists who visit the museum.

Social class is a determinant variable for museum visiting. The London social class results refer to the full sample; other samples consider only the adult working population. The pattern of social class is consistent in the predominance of class AB (upper and upper-middle class), followed by C1 (middle class) and then C2DE (middle-low to low class). However, there are a few variations—in Lisbon and Madrid C2DEs are the lowest; ABs are higher in London and Madrid; and Lisbon presents the highest rate of C1. It seems that the best response to blockbusters is from the

upper classes. Using results from other surveys, in London there is an increase of ABC1s in the dinosaur exhibition sample (NHM, 1991); in Paris ABs kept the same level and there was a slight increase of C1s with the consequent decrease of C2DEs. However, Eidelman and Jacobi (1991) compare the new visitors to the repeat visitors in Paris and found that the new visitors were equally distributed among the three groups. They feel that the dinosaur exhibition opened the museum to all the social classes, although with different strategies of cultural adaptation—an increase of females corresponding to the higher social classes who already visit other museums, an increase in middle class males who are highly educated and who have a higher interest in technology, and for lower classes, the exhibition provided a way of accessing the museum's collections in a leisure group opportunity.

Seventy-five percent of the visitors of London and Paris are accustomed to visiting other museums, and half of the visitors in Madrid and Lisbon are frequent museum-visitors. This suggests that the habit of museum-going is more developed in France and Britain, although it may be possible that the museums in these countries are more visitor-friendly and, so, are able to attract more visitors. The reason for visiting (Table 3) were, in all three cases, to see dinosaurs. In Lisbon, this was the reason all visitors said they came to the exhibition, since this audience was relatively unaware of alternative leisure activities in the site. The Paris audience also had a high percentage of visitors respond in this way (89%). These two cases had the shortest run for the exhibition which contributed to a higher concentration of visitors. London had the lowest rate because of the long period on show, and because the exhibition was one among many in a huge museum. Considering the spread of the message, the exhibition was best publicized by the media in three cases (Table 3). In London, television was used, in Paris the media publicity was effectively supported by word-of-mouth (that being the most important factor among new visitors). The survey revealed that word-of-mouth was effectively spread by influential groups, such as teachers (Eidelman & Jacobi, 1991).

An opinion of the exhibition in a scale of values is not only a measure of how spectacular the objects are or how innovative the exhibition layout is. It is also influenced by many factors such as visit organization, queuing time, crowd control, and public expectations. The results allow the comparison between Paris and Lisbon — (enthusiastic-satisfactory-indifferent-deceiving). "Satisfactory" was the more common option followed by "enthusiastic" with a higher result for Paris. "Indifferent"

and "deceiving" together were very low for Paris (6%) and higher for Lisbon (21%). For Madrid, the average in a scale of ten was 7.6. The highest positive response (65%) concerned the gallery with the moving models, a trend that agrees with the other venues. The last and foremost variable refers to the rate of new visitors attracted to the museum by this exhibition. The results were fairly high (around 35%) and identical in Paris and Madrid, followed by London with a result of ten percentage points lower. The Paris findings suggest that the spectacular side of the exhibition did not divert regular visitors—on the contrary, their opinion was even more enthusiastic than that of new visitors. The high rate of new visitors in Lisbon is an exceptional case that reflects the past situation of closure of the Museum and the tradition of a purely scientific research institution (not developing public programs directed to the community). Return visitors were mainly children who had visited the museum in school groups.

Concerning cognitive impact, only fully explored by Eidelman & Jacobi (1991) in the Paris exhibition, the conditions were not the best due to the long queuing times and crowds around the exhibition. Many adults refused to answer the survey. However, for those who did answer, results indicated that the models enhanced recognition of the dinosaur types. Responses to information recall questions suggested that information about morphological characteristics was easier to recall than geological time and feeding habit information. It was documented that most children appeared to be very interested in the subject. The increased interest in the spectacular did not displace the cognitive and cultural aspects of the study. The study demonstrated that the visit to the exhibition in the Palais allowed a gradual exploration of the rest of the Museum by newcomers, many with a low level of scientific culture.

Implications

Despite the controversy over the *Dinosaurs* blockbuster, the exhibition effectively entertained and attracted new audiences, with most visitors satisfied with the experience in each of the four locations. The same exhibition had a very different impact in the museum world of each country. In summary, it varied from two extremes—in one (the case of Lisbon) it was considered a national initiative with the highest cultural success, especially for creating an internal dynamism or reawakening interest in a museum; in the other (London), it was a rather small event

for the institution, essentially spectacular with doubts about its cultural and cognitive impact. Touring exhibitions of this kind could be accompanied by evaluation guidelines, proposed to allow future comparison of results among different venues. These guidelines could provide a basic group of research variables that institutions interested in carrying out such studies could integrate into their own approaches.

References

Alberch, P. (1992). Palabras de Bienvenida. *International Symposium and First World Congress on the Preservation and Conservation of Natural History Collections, 3*, 1-3.

Bunch, S., Jacobs, P., Luksetich, W., & Lange, M. (1988). Do Traveling Exhibits Influence Museum Attendance? *Curator, 31(2)*, 131-136.

Cannon-Brookes, P. (1993). Museum Life After Jurassic Park. *Museum Management and Curatorship, 12(3)*, 235-244.

Casaleiro, P.J.E. (1996). Museum Visitors and Media Science in Portugal. In Bitgood, S.C. (Ed.). *Visitor Studies: Theory, Research, and Practice. Vol. 7(1). Selected Papers from the 1994 Visitor Studies Conference*, Raleigh, North Carolina. (Pp. 62-73). Jacksonville, AL: Visitor Studies Association.

Champion, F. (1977). *La Vulgarisation Scientifique et son Public à Partir d'une Étude Sociologique sur le Palais de la Découverte.* Thesis IIIeme cycle. Paris: Université Paris V.

Champion, F., Eidelman, J., Habib, M.C., & Miles, R. (1982). *Étude Socio-Pédagogique de l'Exposition Einstein.* Unpublished report. Paris: Université Paris V, Palais de la Découverte.

Eidelman, J. (1990). *Evaluation d'Audience du Palais de la Découverte.* URA 887. Unpublished report. Paris: Palais de la Découverte.

Eidelman, J. (1994). *Sondage Annuel Palais de la Découverte 1993.* URA 887. Unpublished report. Paris: Palais de la Découverte.

Eidelman, J., & Jacobi, D. (1992). *Le Retour de Dinosaurs: Evaluation Sommative.* URA 887. INIPSA. Unpublished report. Paris: Palais de la Découverte.

Gould, S.J. (1994). *Eight Little Piggies, Reflections in Natural History.* London: Penguin Books.

Kelly, J. (1996). Status Queue. *Museums Journal, 96(5)*, 21-23.

Léveillé, A. (1948). Avant-Propos. In *Sir Humphry Davy, Michael Faraday.* Exhibition Catalogue. Paris: Palais de la Découverte.

Lowe, H. (1992). Riding on the Back of a Dinosaur. *Museum Development, Nov*, 22-24.

Miles, R.S., & Tout, A.F. (1978). Human Biology and the New Exhibition Scheme in the British Museum (Natural History). *Curator, 21(1)*, 36-50.

McManus, P. (1993). *Visitors' Views of the Megabugs Exhibition.* Unpublished report. London: The Natural History Museum.

NHM (1989). *Dinosaurs Live Visitor Survey.* Unpublished report. London: The Natural History Museum.

NHM (1989a). *Rock Festival Questionnaire Results.* Unpublished report. London: The Natural History Museum.

NHM (1990). *Visitor Survey August 1990.* Unpublished report. London: The Natural History Museum.

NHM (1991). *Visitor Survey 1991.* Creative Research. Unpublished report. London: The Natural History Museum.

Palais de la Découverte (1974). *Le Palais de la Découverte.* 3rd Ed. Museum brochure. Paris: Author.

Pérez, E. (1990). *Informe de Evaluacion de la Exposición de Dinosaurios.* Unpublished report. Madrid: Museo Nacional de Ciências Naturales.

Perry, D. (1992). The Museum Impact and Evaluation Study: How Visitors Relate to Science and Technology Museums. In Thompson, D., Benefield, A., Bitgood, S.C., Shettel, H. & Williams, R. (Eds.). *Visitor Studies: Theory, Research, and Practice. Vol.5. Proceedings of the 1992 Visitor Studies Conference*, St. Louis, Missouri. (pp. 254-259). Jacksonville, AL: Visitor Studies Association.

Rubenstein, R., Paradis, A., & Munro, L. (1993). A Comparative Study of a Traveling Exhibition at Four Public Settings in Canada. *Environment and Behavior, 6,* 801-820.

Seagrief, R. (1993). *An Evaluator's Guide to The Natural History Museum.* Department of Public Services. London: The Natural History Museum.

Sobol, M. (1980). Do the 'Blockbusters' Change the Audience?. *Museums Journal, 80(1),* 25-27.

Footnotes

[1] The London NHM had 1,671 thousand visitors in 1988; 1,550 in 1989; 1,459 in 1990; and 1,500 in 1991 (PSI, 1991:74). *Cultural Trends*. 12. London: Policy Studies Institute.

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Table 1
Characteristics of the Four Studies

	London, NHM (NHM, 1989)	**Paris, PD** (Eidelman & Jacobi, 1991)	**Madrid, MNCN** (Pérez, 1990)	**Lisbon, MNHN**
Institution	Museum of NH	Science Center	Museum of NH	Museum of NH
Context	Developed by the Museum Department of Public Services	Part of framework of evaluation by a research team headed by a sociologist	Developed by the Museum Dept. of Evaluation and Statistics, headed by a psychologist	First visitors study in the Museum, developed as a research project by a biologist
Objective	Assess the success of exhibition in terms of awareness of publicity and advertising	Contextualise the event in the knowledge of audiences, and gather information to use in renovation plans	Standard study of public to exhibitions in the Museum	Gather the first information about voluntary visitors during weekends, and study of perception of science in the media
Method	Interview face-to-face at beginning of visit, to random sample	Questionnaire administered to random sample at exit of exhibition	Questionnaire administered to random sample at exit of exhibition	Questionnaire administered to random sample at exit of exhibition
Sample	316 visitors 15+ in two waves during weekdays and weekends (one week in 4/89, and one week in 6/89)	241 adults 18+ and 132 accompanying children, weekdays and weekends (one week in 3/91)	348 adults and children 12+, weekdays and weekend (one week in 6/90)	207 adults and children 12+, in two weekends of 2/92
Period	4/89-9/89	11/90-4/91	5/90-4/91	12/91-3/92
Weeks	24	18	52	11
Visitors	NA	497,991	561,000 approx[a]	350,000
Week aver.	NA	27,666	10,706	31,818
[b]Population	8,200,000	10,700,000	5,000,000	2,100,000

Notes:
[a] Value calculated based on the average attendance during the first 7 months.
[b] Approximate population served, refers to the population of the cities and the surrounding areas.

Table 2
Summary of the Questionnaire Topics in the Four Studies

	London, NHM (NHM, 1989)	**Paris, PD** (Eidelman & Jacobi, 1991)	**Madrid, MNCN** (Pérez, 1990)	**Lisbon, MNHN**
Demographics	residence, occupation of head of household	residence, occupation, age, sex, education	residence, occupation, age, sex, education, nationality	residence, occupation age, sex, education, choice of science
Context of visit	social group, number, planning the visit /when and who, reason of visiting, will see other Museum exhibitions, information/publicity	social group, number, planning the visit, will see other Museum exhibitions, information/publicity, general and specific motivations	social group, number, information/publicity, time of visit	social group, number, reason of visit
Other visits	the Museum, other museums in the past year, how often visit museums, what else planning for the day	the Museum, other scientific museums	the Museum, other museums in the past year	the Museum, knowledge of other scientific museums in the country, and abroad
Opinion	expectations, opinion of visitors who saw the exhibition	involvement, satisfaction	problems to follow exhibition, satisfaction (scale 1-10), expectations, best/worst/surprising points of sections	satisfaction
Other	**Publicity:** saw advertising of Dinosaurs, and of other London museums; comments on Tube poster, describe the message	**Dinosaurs information:** how are dinosaurs viewed and known; recall of exhibition information; how confident are visitors in the exhibition and their level of interest on the subject		**Dinosaurs information:** origin compared to humans and vertebrate groups (reptiles, mammals and birds) **Media study:** Recall of science news from television and printed media

Table 3
Some Questionnaire Results in the Four Studies

	London, NHM (NHM, 1989)	Paris, PD (Eidelman & Jacobi, 1991)	Madrid, MNCN (Pérez, 1990)	Lisbon, MNHN
Main age	NA	25-44 and 10	average 33	31-40 and 10-15
Families	78%	86%[a]	67%	70%
Greater city	48%	73%	74%	68%
Sex ratio m/f	NA	1/1.5	1/1.1	1/1.5
Social class AB/C1/C2DE	55/27/18 %[b]	45/36/19 %[c]	65/30/5 %[c]	48/43/10 %[c]
Other Museums[d]	75%	76%	50%	45%
Reason	66%	89%[e]	NA	96%
Information[f] med/wom/oth	85/11/4 %	67/41/0 %	64/20/16 %	NA
Opinion Good → Bad	NA	4 scale 43/51/1/5 %	10 scale average 7.6	4 scale 24/41/12/9 %
New visitors	26%	34%	36%	78%

Notes:
[a] Refers to group visits, including friends and other visits, it does not isolate families.
[b] Calculated based in the head of household of all visitors.
[c] Calculated based in the occupation of the active population.
[d] Have visited other museums: London- Visit museums regularly or occasionally; Paris- Have visited at least another scientific museum; Madrid- Visited at least another museum in the previous year; Lisbon- Mentioned other scientific museums in Portugal.
[e] 47% to see dinosaurs + 42% to see dinosaurs and something else.
[f] Information from the media (med); word-of-mouth (wom); and other (oth).